Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SPECIFICATION FOR:

VINTAGE COOPERATIVE of IOWA CITY

53 UNITS

IOWA CITY, IOWA

PROJECT NUMBER: 16-28

SET NUMBER:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 01 01 - TITLE AND CERTIFICATION SHEET

PROJECT MANUAL AND SPECIFICATION FOR:
General Construction Work, Mechanical
Construction and Electrical Construction

PROJECT:
Vintage Cooperative of Iowa City
53 Units
Iowa City, Iowa

ARCHITECT:
JSSH Architects, Inc.
14525 Highway 7, Suite 375
Minnetonka, MN 55345
PH: (952) 935-6337
FAX: (952) 935-0878

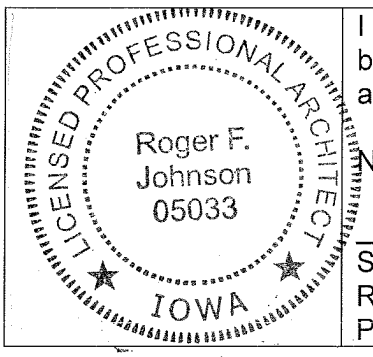
DEVELOPER:
Ewing Land Development and Services
909 W. 16th St.
Pella, IA 50219
PH: (641) 628-0073

STRUCTURAL ENGINEER:
Blanchard Engineering
6936 Washburn Ave. S.
Richfield, MN 55423
PH: (612) 861-6361

MECHANICAL ELECTRICAL ENGINEER:
Steen Engineering, Inc.
5430 Douglas Drive No.
Crystal, MN 55429
PH: (763) 585-6742

GENERAL CONTRACTOR
Knutson Construction Services
2351 Scott Blvd. SE
Iowa City, IA 52240
PH: (319) 351-2040

CIVIL ENGINEER:
HBK Engineering, LLC
509 S. Gilbert St.
Iowa City, IA 52240
PH: (319) 338-7557



I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and that I am a duly licensed architect under the laws of the State of Iowa.

Name: Roger F. Johnson

Signature Date: 9/27/2017

Registration expires: 6/30/18 Date issued: 4/19/1999

Pages or sheets covered by this seal: Divisions 0-32

16-28

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 01 10 - INDEX TO SPECIFICATIONS

DIVISION 00 00 00 - CONTRACT REQUIREMENTS

Section	00 01 01	Title and Certification Sheet
	00 01 10	Index to Specifications
	00 11 13	Advertisement for Bids
	00 21 13	Notice and Instructions to Bidders
		Instructions to Bidders (A701)
		Application and Certificate for Payment (AIA G702)
		Continuation Sheet (AIA G703)
	00 22 13	Supplementary Instructions to Bidders
	00 24 16	Proposal Form, General Construction
		AIA General Conditions (A201)
	00 73 00	Supplementary General Conditions
	00 73 16	Special Conditions

DIVISION 01 00 00 - GENERAL REQUIREMENTS

Section	01 10 00	Summary of Work
	01 23 00	Alternates and Unit Prices
	01 31 00	Project Meetings
	01 33 00	Submittals
	01 43 00	Testing, Inspections and Soil Borings
	01 50 00	Temporary Facilities and Controls
	01 52 00	Construction Equipment and Project Safety Procedures
	01 60 00	Materials and Equipment
	01 70 00	Contract Closeout

DIVISION 02 00 00 - EXISTING CONDITIONS

Section	02 01 00	Site Clearing
	02 20 00	Earthwork
	02 71 00	Foundation Drainage System

DIVISION 03 00 00 - CONCRETE

Section	03 30 00	Cast-in-Place Concrete
	03 40 00	Precast Concrete
	03 54 00	Gypsum Underlayment

DIVISION 04 00 00 - MASONRY

Section	04 20 00	Unit Masonry
	04 73 00	Manufactured and Natural Stone

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 01 10 - INDEX TO SPECIFICATIONS

DIVISION 05 00 00 - METALS

Section	05 10 00	Structural Steel
	05 40 00	Cold Formed Metal Framing
	05 50 00	Metal Fabrications
	05 73 00	Prefinished Railings

DIVISION 06 00 00 - WOOD, PLASTIC AND COMPOSITES

Section	06 10 00	Rough Carpentry
	06 11 00	Wood Trusses
	06 20 00	Finish Carpentry
	06 60 00	Plastic Fabrications

ASI #001

DIVISION 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section	07 10 00	Membrane Waterproofing
	07 20 00	Building Insulation
	07 27 00	Air Infiltration and Vapor Barriers
	07 31 00	Asphalt Shingles
	07 40 00	Preformed Roofing
	07 46 00	Siding, Soffits and Fascias
	07 62 00	Sheet Metal Flashing
	07 71 00	Prefabricated Roof Specialties
	07 72 00	Roof Hatches
	07 84 00	Penetration Firestopping
	07 90 00	Joint Sealers

DIVISION 08 00 00 - OPENINGS

Section	08 10 00	Steel Doors and Frames
	08 14 00	Prefinished Wood Doors, Frames and Trim
	08 33 00	Residential Overhead Doors
	08 53 00	Vinyl Windows and Patio Doors
	08 71 00	Door Hardware
	08 81 00	Glass and Glazing

ASI #001

DIVISION 09 00 00 – FINISHES

Section	09 20 00	Gypsum Board
	09 30 00	Tile
	09 51 00	Acoustical Ceilings
	09 65 00	Resilient Flooring
	09 68 00	Carpet
	09 91 00	Painting

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 01 10 - INDEX TO SPECIFICATIONS

DIVISION 10 00 00 - SPECIALTIES

Section	10 01 00	Miscellaneous Specialties
	10 14 00	Plastic Signs
	10 30 00	Prefabricated Fireplaces
	10 44 00	Fire Extinguishers, Cabinets and Accessories
	10 50 00	Lockers
	10 80 00	Toilet Accessories

DIVISION 11 00 00 - EQUIPMENT

Section	11 30 00	Residential Kitchen Equipment
	11 40 00	Kitchen Cabinets
	11 82 00	Waste Chutes

DIVISION 12 00 00 - FURNISHINGS

Section	12 20 00	Vertical and Horizontal Blinds

DIVISION 14 00 00 - CONVEYING EQUIPMENT

Section	14 20 00	Elevators

DIVISION 21 00 00 - FIRE SUPPRESSION

Refer to Section 21 00 00 - Specification Index

DIVISION 22 00 00 - PLUMBING

Refer to Section 22 00 00 - Specification Index

DIVISION 23 00 00 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

Refer to Section 23 00 00 - Specification Index

DIVISION 26 00 00 - ELECTRICAL

Refer to Section 26 00 00 - Specification Index

DIVISION 32 00 00 – SITE IMPROVEMENTS

Section	32 80 00	Irrigation
	32 92 00	Landscaping

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 11 13 – ADVERTISEMENT FOR BIDS

The General Contractor is requesting sub-bids for various portions of the Vintage Cooperative of Iowa City project located in Iowa City, Iowa. The sub-bids will be received by the General Contractor.

Knutson Construction Services
2351 Scott Blvd. S.E.
Iowa City, IA 52240
PH: (319) 351-2040

Copies of the Plans, Specifications and other Contract Documents are on file in the following offices, and are available for public viewing:

1. JSSH Architects, Inc., 14525 Hwy. 7, Suite 375, Minnetonka, MN 55435;
2. Developer, Ewing Land Development and Services;
3. General Contractor, Knutson Construction Services;
4. Steen Engineering, Inc., 5430 Douglas Dr. No., Crystal, MN 55429;
5. CMD Construction eWire (constructionwire@cmdgroup.com);
6. Master Builders of Iowa, 221 Park Street, Des Moines, IA 50309;
7. Master Builders of Cedar Rapids, 645 32nd Street SW, Suite C, Cedar Rapids, IA 52404.
8. Omaha Builders Exchange, 4255 South 94th St, Omaha, NE 68127
9. McGraw Hill Construction Dodge, 2507 Ingersoll Ave, Des Moines, IA 50312
10. Construction Update Plan Room, 612 Mulberry St, Waterloo, IA 50703

General Contractor and Sub-contractors shall guarantee their bids for ninety (90) days. Sub-contractors desiring Drawings, Specifications and related Documents for the purpose of submitting a bid may secure them from the General Contractor.

The Developer reserves the right to reject any or all Bids and to waive any irregularities in Bids.

Developer: Ewing Land Development and Services
909 W. 16th St.
Pella, IA 50219
PH: (641) 628-0073

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 21 13 - NOTICE AND INSTRUCTION TO BIDDERS

GENERAL INFORMATION - it is advised that each Contractor and/or Subcontractor visit the site for visual inspection of the project conditions to familiarize himself with the particulars of the project. Each Contractor/Subcontractor will be responsible for and shall take into account specific site conditions that may have an impact on their work

1. Bids will be received by the Owner, for performing the Work as set forth in the Plans and Specifications attached hereto.

2. All Bids must be made on the blank form of proposal attached hereto.

3. Contractors are to furnish evidence to the Owner ability to secure Performance and Payment Bonds. Contractors shall provide in their bids cost breakdown on AIA Document G703-1992.

4. A Performance and Payment Bond (at the Bidder's expense) in the amount of one hundred percent (100%) of the Contract price with a corporate surety, the Owner and the Architect will be required for the faithful performance of the Contract, and Bidder shall state in the proposal the name and address of the Surety or Sureties who will sign this bond in case the Contract is awarded to him.

5. The party to whom the Contract is awarded will be required forthwith to execute the Contract and a Performance and Payment Bond within ten (10) calendar days from the date when the written Notice of Award of Contract is mailed to the Bidder at the address given by him.

6. The Owner reserves the right to reject any and all Bids or to accept any Bid. Contractor's proposals shall hold firm for ninety (90) days to allow the Owner to review the bids. Mutually agreed upon extensions of time may be made, if necessary.

7. Before the award of the Contract, any Bidder may be required to furnish evidence satisfactory to the Owner and to the Architect of the necessary facilities, ability and pecuniary resources to fulfill the conditions of said Contract.

8. Bidders must satisfy themselves by personal examination of the location of the proposed work, by examination of the Plans and Specifications and requirements of the Work and the accuracy of the estimate of the quantities of the Work to be done, and shall not at any time after the submission of a Bid dispute or complain of such estimate nor assert that there was any misunderstanding in regard to the nature or amount of work to be done.

9. The construction Contract and the detailed Specifications contain the provisions required for the construction of the Project. No information obtained from any officer, agent, or employee of the Owner on any such matters shall in any way affect the risk or obligation assumed by the Contractor, or relieves Contractor from fulfilling any of the conditions of the Contract.

10. Proposals which are incomplete, unbalanced, conditional, or obscure or which contain additions not called for, erasures, or irregularities of any kind, or which do not comply with the Notice and Instructions to Bidders may be rejected at the option of the Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 21 13 - NOTICE AND INSTRUCTION TO BIDDERS

11. A Bidder may withdraw any proposal he has submitted at any time prior to the hour set for the closing of the Bids provided the request for withdrawal is signed in a manner identical with the proposal being withdrawn. No withdrawal or modification will be permitted after the hour designated for the closing of the Bids.

12. The Owner will be responsible for payment in accordance with the terms of the Contract. The word “Owner” refers to the cooperative’s agent, Ewing Land Development and Services. The word "Contractor" means the person, firm or corporation to whom the award is made. Subcontractors, as such, will not be recognized. The word "Architect" refers to JSSH Architects, Inc., designated by the Owner as its Architectural representative during the course of construction to make appropriate inspections and computations of payments.

13. Time of Completion - Work may be commenced upon receipt of Notice to Proceed and completed within 425 calendar days.

14. The Cooperative units are pre-sold and may have options to upgrade flooring materials, cabinets, countertops, appliances, and other interior finishes.

Developer: Ewing Land Development and Services
909 W. 16th Street
Pella, IA 50219
PH: (641) 628-0073

Owner: Vintage Cooperative of Iowa City

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

AIA® Document A701™ – 1997

Instructions to Bidders

for the following PROJECT:
(Name and location or address)
Vintage Cooperative of Iowa City
Iowa City, Iowa

THE OWNER:
(Name, legal status and address)
Vintage Cooperative of Iowa City
Iowa City, Iowa

THE ARCHITECT:
(Name, legal status and address)
JSSH Architects, Inc.
14525 Hwy. 7, Suite 375
Minnetonka, MN 55345

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TABLE OF ARTICLES

1 DEFINITIONS

2 BIDDER'S REPRESENTATIONS

3 BIDDING DOCUMENTS

4 BIDDING PROCEDURES

5 CONSIDERATION OF BIDS

6 POST-BID INFORMATION

7 PERFORMANCE BOND AND PAYMENT BOND

8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

§ 3.3 SUBSTITUTIONS

§ 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

§ 3.3.4 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 ADDENDA

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 PREPARATION OF BIDS

§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

§ 4.2 BID SECURITY

§ 4.2.1 Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Instructions to Bidders. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Section 6.2.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

§ 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

§ 4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER'S FINANCIAL CAPABILITY

The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

.1 a designation of the Work to be performed with the Bidder's own forces;

.2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; and

.3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 BOND REQUIREMENTS

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

§ 7.2 TIME OF DELIVERY AND FORM OF BONDS

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Additions and Deletions Report for

AIA® Document A701™ – 1997

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 10:30:48 on 08/23/2017.

PAGE 1

Vintage Cooperative of Iowa City
Iowa City, Iowa

...

Vintage Cooperative of Iowa City
Iowa City, Iowa

...

JSSH Architects, Inc.
14525 Hwy. 7, Suite 375
Minnetonka, MN 55345

Additions and Deletions Report for AIA Document A701™ – 1997. Copyright © 1970, 1974, 1978, 1987 and 1997 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 10:30:48 on 08/23/2017 under Order No. 5366321224 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701™ - 1997, Instructions to Bidders, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

AIA Document D401™ – 2003. Copyright © 1992 and 2003 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:30:48 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA2B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:	**PROJECT:** Vintage Cooperative of Iowa City Iowa City, Iowa	**APPLICATION NO:** 001 **PERIOD TO:**	**Distribution to:** OWNER: ☐
		CONTRACT FOR: General Construction	ARCHITECT: ☐
FROM **CONTRACTOR:**	**VIA** **ARCHITECT:**	**CONTRACT DATE:** **PROJECT NOS:** 16-28 / /	CONTRACTOR: ☐ FIELD: ☐ OTHER : ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM		$0.00
2. NET CHANGE BY CHANGE ORDERS		$0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)		$0.00
5. RETAINAGE:		
a. 0 % of Completed Work (Column D + E on G703)	$0.00	
b. 0 % of Stored Material (Column F on G703)	$0.00	
Total Retainage (Lines 5a + 5b or Total in Column I of G703)		$0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)		$0.00
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$0.00
8. CURRENT PAYMENT DUE		$0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	$0.00	

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$0.00	$0.00
Total approved this Month	$0.00	$0.00
TOTALS	$0.00	$0.00
NET CHANGES by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:

County of:

Subscribed and sworn to before me this day of

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $0.00

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AIA Document G702™ – 1992. Copyright © 1953, 1963, 1965, 1971, 1978, 1983 and 1992 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:41:10 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA24)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

AIA® Document G703™ – 1992

Continuation Sheet

AIA Document, G702™–1992, Application and Certification for Payment, or G736™–2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:	001
APPLICATION DATE:	
PERIOD TO:	
ARCHITECT'S PROJECT NO:	

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
	GRAND TOTAL	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%	$0.00	$0.00

AIA Document G703™ – 1992. Copyright © 1963, 1965, 1966, 1967,1970, 1978, 1983 and 1992 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:46:36 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA32)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 22 13 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

This Section of the Specifications modifies or adds to certain Articles of the INSTRUCTIONS TO BIDDERS, A.I.A. Document A701, 1997 Edition.

ARTICLE 1. DEFINITIONS (no change)

ARTICLE 2. BIDDER'S REPRESENTATION (no change)

ARTICLE 3. BIDDING DOCUMENTS

3.3.1 Owner and Architect reserve the right to accept or reject any and all substitutions.

ARTICLE 4. BIDDING PROCEDURES (no change)

4.2 BID SECURITY

ARTICLE 5. CONSIDERATION OF BIDS

5.1 Bids will be privately opened by the Developer.

ARTICLE 6. POST BID INFORMATION

6.2 Delete Section 6.2

6.3 SUBMITTALS

6.3.1 The lowest responsive bidder shall, within 48 hours, submit the following information to the Architect.

.1 same as A.I.A. Document A701
.2 same as A.I.A. Document A701
.3 same as A.I.A. Document A701

ARTICLE 7. PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND (no change)

ARTICLE 8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTORS (basis of payment is a cost-plus contract with a guaranteed maximum price.

ARTICLE 9. SUPPLEMENTARY INSTRUCTIONS

9.1 EXECUTION OF BONDS

Add 9.1.1 The bonds stipulated in Article 7 shall be provided and paid for by the Contractors. They shall be issued for the full value of the Contract including all Alternates accepted by the Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 22 13 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

ARTICLE 9. SUPPLEMENTARY INSTRUCTIONS (continued)

9.2 SAFETY AND HEALTH

9.2.1 "Williams Steiger Occupational Safety and Health Act of 1970, Public Law 91-596; Part 1910 of Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations for Construction, Chapter XII of Title 29, Code of Federal Regulations" and all revised amendments.

9.3 COMMENCEMENT AND COMPLETION OF THE WORK

In the Proposal Form, each Bidder is required to fill in his/her date of commencement and date of Substantial Completion of all Work under his/her Contract. It is understood that all such dates are contingent upon the progress of the Work of the other Contractors having Contract with the Owner.

The Contractors are to commence work immediately upon receipt of completed and approved Contracts and Insurance and Bond Forms. A "Notice to Proceed" issued from the Architect will accompany these documents. The Owner desires to have the building substantially complete within 425 days thereafter.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 24 16 - PROPOSAL FORM, GENERAL CONSTRUCTION

Date:

Gentlemen:

The undersigned as Bidder hereby proposes, and if this Proposal is accepted, agrees to enter into a Contract with Vintage Cooperative of Iowa City in Iowa City, Iowa, represented by Ewing Land Development and Services, 909 W. 16th St., Pella, IA 50219 to furnish all labor, materials, and equipment for the General Construction of Vintage Cooperative of Iowa City in Iowa city, Iowa, in accordance with the Specifications, Divisions 01 00 00 through 32 00 00 dated _____, 2017, the Drawings mentioned therein and all subsequent Addenda thereto, all as prepared by JSSH Architects, Inc.,14525 Hwy. 7, Suite 375, Minnetonka, MN 55345, for the consideration of the following not-to-exceed amount:

BASE BID/GENERAL CONSTRUCTION INCLUDING ALL PLUMBING, HEATING AND ELECTRICAL WORK

For the lump sum of _____DOLLARS ($_____).

Unit Price No. 1 - for each 16" x 12" x 8" concrete block

the sum of $_____

Unit Price No. 2 - for compacted fill

the sum of $_____/cubic yard of Class V quality material (in place).

Alternate No. 1 – Radon Testing by a Radon Professional Consultant

Add the sum of _____DOLLARS ($_____).

Alternate No. 2 – Mitigation of Radon by a Radon Professional Contractor

Add the sum of _____DOLLARS ($_____).

If the Base Bid is accepted, the Bidder agrees to commence Work upon receipt of Notice to Proceed issued by the Architect and completed within four hundred twenty-five (425) calendar days thereafter.

Along with this Proposal Form, the General Contractors must submit a fully filled out Schedule of Values, AIA Document G703-1992, attached herein.

The Bidder agrees that if he is the apparent low Bidder, he will submit a complete list of his proposed subcontractors and suppliers within forty-eight (48) hours of the Bid Opening to the Architect and to the Owner for their approvals. It is the General Contractor's understanding that no Contracts will be awarded until this list is fully approved.

This Proposal is submitted after careful study of the Plans and Specifications and from a personal knowledge of the conditions at the building site, which knowledge was obtained from the undersigned's own sources of information and not from an official or employee of the Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 24 16 - PROPOSAL FORM, GENERAL CONSTRUCTION

The undersigned does declare that this Proposal is made without improper connection with any other person or persons making a Proposal on this same Contract, and is in all respects fair and without collusion or fraud; and the undersigned does further declare that no person or persons acting in any official capacity for the General Contractor is directly or indirectly interested therein, or in the supplies of works to which it relates, or any portion of the profits thereof.

It is understood and agreed that this Proposal cannot be withdrawn within ninety (90) calendar days without the consent of Owner, and that said Owner has the right to accept or reject any and or all Proposals and to waive irregularities thereof.

ADDENDUM RECEIPT: The receipt of the following Addenda to the Plans and Specifications is hereby acknowledged:

Addendum No. __ Dated: _____
Addendum No. __ Dated: _____
Addendum No. __ Dated: _____

_____
(Legal Name of Firm, Person or Contractor)

By: _____

Title: _____

Address: _____

_____

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Vintage Cooperative of Iowa City
Iowa City, Iowa

THE OWNER:
(Name, legal status and address)

Vintage Cooperative of Iowa City
Iowa City, Iowa

THE ARCHITECT:
(Name, legal status and address)

JSSH Architects, Inc.
14525 Hwy. 7, Suite 375
Minnetonka, MN 55345

TABLE OF ARTICLES

1 GENERAL PROVISIONS

2 OWNER

3 CONTRACTOR

4 ARCHITECT

5 SUBCONTRACTORS

6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

7 CHANGES IN THE WORK

8 TIME

9 PAYMENTS AND COMPLETION

10 PROTECTION OF PERSONS AND PROPERTY

11 INSURANCE AND BONDS

12 UNCOVERING AND CORRECTION OF WORK

13 MISCELLANEOUS PROVISIONS

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

Init.
/

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

INDEX

(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work
9.6.6, 9.9.3, 12.3
Acceptance of Work
9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3
Access to Work
3.16, 6.2.1, 12.1
Accident Prevention
10
Acts and Omissions
3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2
Addenda
1.1.1
Additional Costs, Claims for
3.7.4, 3.7.5, 10.3.2, 15.1.5
Additional Inspections and Testing
9.4.2, 9.8.3, 12.2.1, 13.4
Additional Time, Claims for
3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, 15.1.6
Administration of the Contract
3.1.3, 4.2, 9.4, 9.5
Advertisement or Invitation to Bid
1.1.1
Aesthetic Effect
4.2.13
Allowances
3.8
Applications for Payment
4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10
Approvals
2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1
Arbitration
8.3.1, 15.3.2, 15.4
ARCHITECT
4
Architect, Definition of
4.1.1
Architect, Extent of Authority
2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1
Architect, Limitations of Authority and Responsibility
2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2
Architect's Additional Services and Expenses
2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4
Architect's Administration of the Contract
3.1.3, 3.7.4, 15.2, 9.4.1, 9.5
Architect's Approvals
2.5, 3.1.3, 3.5, 3.10.2, 4.2.7
Architect's Authority to Reject Work
3.5, 4.2.6, 12.1.2, 12.2.1
Architect's Copyright
1.1.7, 1.5
Architect's Decisions
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2
Architect's Inspections
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4
Architect's Instructions
3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2
Architect's Interpretations
4.2.11, 4.2.12
Architect's Project Representative
4.2.10
Architect's Relationship with Contractor
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2
Architect's Relationship with Subcontractors
1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3
Architect's Representations
9.4.2, 9.5.1, 9.10.1
Architect's Site Visits
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Asbestos
10.3.1
Attorneys' Fees
3.18.1, 9.6.8, 9.10.2, 10.3.3
Award of Separate Contracts
6.1.1, 6.1.2
Award of Subcontracts and Other Contracts for Portions of the Work
5.2
Basic Definitions
1.1
Bidding Requirements
1.1.1
Binding Dispute Resolution
8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1
Bonds, Lien
7.3.4.4, 9.6.8, 9.10.2, 9.10.3
Bonds, Performance, and Payment
7.3.4.4, 9.6.7, 9.10.3, 11.1.2, 11.1.3, 11.5
Building Information Models Use and Reliance
1.8
Building Permit
3.7.1
Capitalization
1.3
Certificate of Substantial Completion
9.8.3, 9.8.4, 9.8.5

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Certificates for Payment
4.2.1, 4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4
Certificates of Inspection, Testing or Approval
13.4.4
Certificates of Insurance
9.10.2
Change Orders
1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, 7.2, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, 15, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, 15.1.5
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, 15.1.6
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, 15.1.5
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, 4.2.4
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2
Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
1.1.4, 6
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, 7.3, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, 14
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, 9.1, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, 15.1.5, 15.2.5
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, 6.1.2
Contractor's Construction and Submittal Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2
Contractor's Employees

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4
Contractor's Relationship with Subcontractors
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4
Contractor's Relationship with the Architect
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
Contractor's Review of Contract Documents
3.2
Contractor's Right to Stop the Work
2.2.2, 9.7
Contractor's Right to Terminate the Contract
14.1
Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
Contractor's Superintendent
3.9, 10.2.6
Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11
Copyrights
1.5, 3.17
Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
Costs
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2
Decisions to Withhold Certification
9.4.1, 9.5, 9.7, 14.1.1.3
Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1
Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1
Delays and Extensions of Time
3.2, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Digital Data Use and Transmission
1.7
Disputes
6.3, 7.3.9, 15.1, 15.2
Documents and Samples at the Site
3.11
Drawings, Definition of
1.1.5
Drawings and Specifications, Use and Ownership of
3.11
Effective Date of Insurance
8.2.2
Emergencies
10.4, 14.1.1.2, 15.1.5
Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1
Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4
Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, 15.2.5

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Failure of Payment
9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Faulty Work
(See Defective or Nonconforming Work)
Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, 9.10, 12.3, 14.2.4, 14.4.3
Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4
GENERAL PROVISIONS
1
Governing Law
13.1
Guarantees (See Warranty)
Hazardous Materials and Substances
10.2.4, 10.3
Identification of Subcontractors and Suppliers
5.2.1
Indemnification
3.17, 3.18, 9.6.8, 9.10.2, 10.3.3, 11.3
Information and Services Required of the Owner
2.1.2, 2.2, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,
9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,
14.1.1.4, 14.1.4, 15.1.4
Initial Decision
15.2
Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Decisions
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Initial Decision Maker, Extent of Authority
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Injury or Damage to Person or Property
10.2.8, 10.4
Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,
9.9.2, 9.10.1, 12.2.1, 13.4
Instructions to Bidders
1.1.1
Instructions to the Contractor
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2
Instruments of Service, Definition of
1.1.7
Insurance
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5,
11
Insurance, Notice of Cancellation or Expiration
11.1.4, 11.2.3
Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 14.4.2
Insurance, Owner's Liability
11.2
Insurance, Property
10.2.5, 11.2, 11.4, 11.5
Insurance, Stored Materials
9.3.2
INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1
Insured loss, Adjustment and Settlement of
11.5
Intent of the Contract Documents
1.2.1, 4.2.7, 4.2.12, 4.2.13
Interest
13.5
Interpretation
1.1.8, 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1
Interpretations, Written
4.2.11, 4.2.12
Judgment on Final Award
15.4.2
Labor and Materials, Equipment
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,
5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,
10.2.4, 14.2.1.1, 14.2.1.2
Labor Disputes
8.3.1
Laws and Regulations
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,
9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,
15.4
Liens
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Limitations, Statutes of
12.2.5, 15.1.2, 15.4.1.1
Limitations of Liability
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,
4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,
11.3, 12.2.5, 13.3.1
Limitations of Time
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,
5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,
15.1.2, 15.1.3, 15.1.5
Materials, Hazardous
10.2.4, 10.3
Materials, Labor, Equipment and
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,
5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,
10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2
Means, Methods, Techniques, Sequences and
Procedures of Construction
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2
Mechanic's Lien
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Mediation
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, 15.3, 15.4.1,
15.4.1.1
Minor Changes in the Work
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, 7.4
MISCELLANEOUS PROVISIONS
13

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Modifications, Definition of
1.1.1
Modifications to the Contract
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2
Mutual Responsibility
6.2
Nonconforming Work, Acceptance of
9.6.6, 9.9.3, 12.3
Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2
Notice
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3
Notice of Claims
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, 15.1.3, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1
Notice of Testing and Inspections
13.4.1, 13.4.2
Observations, Contractor's
3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1
OWNER
2
Owner, Definition of
2.1.1
Owner, Evidence of Financial Arrangements
2.2, 13.2.2, 14.1.1.4
Owner, Information and Services Required of the
2.1.2, 2.2, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Owner's Authority
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7
Owner's Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.5, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction and to Award Separate Contracts
6.1
Owner's Right to Stop the Work
2.4
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2, 14.4
Ownership and Use of Drawings, Specifications and Other Instruments of Service
1.1.1, 1.1.6, 1.1.7, 1.5, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3
Partial Occupancy or Use
9.6.6, 9.9
Patching, Cutting and
3.14, 6.2.5
Patents
3.17
Payment, Applications for
4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3
Payment, Certificates for
4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4
Payment, Failure of
9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Payment, Final
4.2.1, 4.2.9, 9.10, 12.3, 14.2.4, 14.4.3
Payment Bond, Performance Bond and
7.3.4.4, 9.6.7, 9.10.3, 11.1.2
Payments, Progress
9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4
PAYMENTS AND COMPLETION
9
Payments to Subcontractors
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
7.3.4.4, 9.6.7, 9.10.3, 11.1.2
Permits, Fees, Notices and Compliance with Laws
2.3.1, 3.7, 3.13, 7.3.4.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, 3.12, 4.2.7
Progress and Completion
4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.4
Progress Payments
9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4
Project, Definition of
1.1.4
Project Representatives

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

4.2.10
Property Insurance
10.2.5, 11.2
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor
3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, 13.3, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, 10.1, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, 3.12, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, 3.12, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, 1.1.6, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, 11.3
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2
Subsurface Conditions
3.7.4
Successors and Assigns

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4
Suspension by the Owner for Convenience
14.3
Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.4.4
Termination by the Contractor
14.1, 15.1.7
Termination by the Owner for Cause
5.4.1.1, 14.2, 15.1.7
Termination by the Owner for Convenience
14.4
Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT
14
Tests and Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, 13.4
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Time Limits
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4
Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3
Title to Work
9.3.2, 9.3.3
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3
Unit Prices
7.3.3.2, 9.1.2
Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.3.2
Waiver of Claims by the Contractor
9.10.5, 13.3.2, 15.1.7
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, 15.1.7
Waiver of Consequential Damages
14.2.4, 15.1.7
Waiver of Liens
9.3, 9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, 11.3
Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2
Weather Delays
8.3, 15.1.6.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2
Written Interpretations
4.2.11, 4.2.12
Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a Separate Contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:
(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** **WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.** This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes:

(3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or Suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance,

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

AIA Document A201™ – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017 by The American Institute of Architects. **All rights reserved.** WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AIA software at 10:59:24 on 08/23/2017 under Order No. 5366321224 which expires on 07/20/2018, and is not for resale.
User Notes: (3B9ADA1B)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

PART 1 - GENERAL

1.01 Supplementary General Conditions

A. The Supplementary General Conditions contain additions and changes to the American Institute of Architects' Document A201, "General Conditions of the Contract for Construction", a copy of which is bound in this Project Manual.

B. Where any part of the following provisions conflict with AIA A201, these supplementary provisions shall take precedence.

C. Where any part of AIA A201 is voided or modified by these supplementary provisions, the unaltered provisions shall remain in effect.

1.02 Changes, Deletions and Additions

Article 1 - Contract Documents

Add: 1.1.1.1 Wherever the term "Owner" is used, all papers, notices and other correspondence shall be addressed to:

Vintage Cooperative of Iowa City, Iowa City, Iowa, represented by:
Ewing Land Development and Services
909 W. 16th Street
Pella, IA 50219

Add: 1.1.1.2 The term "Architect" refers to:

JSSH Architects, Inc.
14525 Hwy 7, Suite 375
Minnetonka, MN 55345

1.2 Execution, Correction and Intent

Add: 1.2.5 Order to precedence governing the Documents shall be:

1. Figured dimensions in preference to scale.
2. Detailed Drawings in preference to small scale drawings.
3. Written information in preference to drawn lines.
4. Specifications in preference to written information given on Drawings.

Article 2 - Owner

Delete: 2.2.5

Add: 2.2.5 Refer to the SPECIAL CONDITIONS for the number of copies of Drawings and Specifications that will be furnished to the Contractor. Article 3 - Contractor

3.2 Review of the Contract Documents

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

Add: 3.2.4 The Contractor shall visit the site of the Work to acquaint the firm with all the local conditions affecting the Contract, including the structure of the ground, the obstacles which may be encountered, and all other conditions relative to the Work to be performed; and shall not be allowed any extra compensation by reason of any difficulties or obstacles which the Bidder could have discovered or reasonably anticipated prior to the Bidding.

Add: 3.2.5 On all project Drawings, figures take precedence over measurement by scale, and any scaling is done at the Contractor's own risk. The Architect shall decide on questions that may arise regarding the meaning and intent of the Project Drawings and Project Specifications. Should any details or figures have been omitted which are necessary to a clear understanding of the Work or should any error appear in either, or should discrepancies be found between the Project Drawings and the Project Specifications, it shall be the duty of the Contractor to notify the Architect of such omissions, errors, or discrepancies, and in no case proceed in uncertainty. Mistakes resulting from the Contractor's neglect to notify the Architect in such matters shall be corrected at the expense of the Contractor.

Add: 3.2.6 Before ordering any materials or performing any Work, the Contractor shall verify all measurements at the Project Site for the particular Work and be responsible for the correctness of same. No extra charge or compensation will be allowed to the Contractor on account of differences between actual dimensions and the measurement shown on the Project Drawings. Any noticeable discrepancy in this request shall be reported to the Architect immediately for his consideration and decision. All the component parts of the Work shall be carefully checked and laid out in order the structure as a whole shall conform to the intent of the Project Drawings and Project Specifications.

3.3 Supervision and Construction Procedures

Add: 3.3.5 The Contractors shall layout and correctly establish all lines, levels, grades, positions, walls, partitions, equipment and location of all Work on the Project and be responsible for their accuracy and proper correlation with control lines, monuments and date furnished. Such monuments and data shall be carefully preserved and, if displaced, reset at the expense of the persons displacing them.

Add: 3.3.6 Active Services

When active services are encountered in the Work, protect, brace and support existing active sewers, gas, electric or other services, where required for proper execution of the Work. If existing active services are encountered that require relocation, make request in writing for determination. Do not proceed with Work until written directions are received. Do not prevent or disturb operation of active services that are to remain.

3.4 Labor and Materials

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

Article 3 - Contractor (continued)

Add: 3.4.3 Substitutions

Where several materials or systems are specified by name for use, the choice shall be the Contractor's. Where one material or system is specified by name for one use, no substitution will be allowed except with the Architect's written approval or by Alternates. All requests for approval of substitutions must be submitted in writing to the Architect, at least seven (7) days before opening of bids and must be accompanied by data substantiating that the substitute is equal to that specified. Supplier/manufacturer requesting prior approval from the Architect shall submit self-addressed, stamped envelope with request for approval.

3.5.1 Warranty

All materials and Labor are to be warranted for a minimum of one year from the Date of Final Completion of the entire project.

3.7 Permits, Fees and Notices

Owner will purchase the initial City Building Permit. The General Contractor will be responsible for any other permits or fees required for construction.

3.7.1.1 The General Contractor shall be responsible to secure and pay for any other permit including the valuation attributable to plumbing work, heating, ventilating and air conditioning work, electrical work and other miscellaneous separate contracts directly a part of the General Construction Work, which the local building officials use as a basis in determining the amount of the fee required to issue a building permit for this project. Other prime contractors will be required to pay such fees required to secure an applicable permit.

3.7.1.2 The requirements of 3.7.1.1 are concerned only any other Permit. Such requirements do not relieve other prime contractors from securing and paying for other permits and fees applicable to their particular Division of the Work.

Add: 3.9.2 Overtime Work

The Contractor's Superintendent shall be on the site at all times when the Work is being performed. Any work necessary to be performed after the regular working hours shall be supervised and shall be done at no additional cost to the Owner.

Article 4 - Administration of the Contract (no change)

Article 5 – Subcontractors

5.2 Award of Subcontractors and Other Contracts For Portions of the Work

Modify 5.2.1 Omit the first words "as soon as practicable" and substitute, "within 48 hours".

Article 5 – Subcontractors (continued)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

Add: 5.4.1 Payment to Subcontractors

The subcontractors shall notify the Architect in writing when any payment due under the stipulation of 5.4 is overdue.

Article 6 - Construction by Owner or by Separate Contractors (no change)

Article 7 - Change in the Work (no change)

Article 8 - Time

Add: 8.2.1 Refer to the Instructions to Bidders ad Alternates for any special completion requirements and summary of work.

8.3 Delays and Extensions of Time

Amend 8.3.2 Notwithstanding anything to the contrary contained in Article 8.3, inclement weather shall be considered to be a cause for delays or for extension of time to complete the Work.

Omit: Article 8.3.3 and substitute the following: If the Contractor is delayed at any time in the progress of the Work for any cause whatsoever, or by changes ordered in the Work, Contractor hereby agrees to accept an adjustment and extension of the Contract Time in lieu of any monetary damages or claim for an increase in the Contract Sum and to waive any recovery for damages caused by the delay.

Any extension of the Contract Time which may be granted to the Contractor shall not exceed the loss of time resulting from the aforementioned delays or changes in the Work. Any extension of the Contract Time as the Architect may determine shall be accepted as full and complete payment for any damages caused to the Contractor by any delay whatsoever.

If Contractor request any additional days to be added to construction timeline, these days must be requested in writing from both Owner and Architect within seven (7) days of actual lost day of work.

Article 9 - Payments and Completions

Add: 9.2.1.1 Schedule of Values

The Schedule of Values shall be on a form similar to AIA Form G703. Contractor's standard forms including electronic media print-outs are acceptable.

Delete: 9.3.1

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

Article 9 - Payments and Completions (continued)

Substitute: 9.3.1 Modified

Before the first day of each month or the date designated by the Architect, the Contractor shall submit to the Architect on Forms HUD 92448 or FHA 2448, an itemized Certificate for Payment of Work performed the previous month, supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require. Materials delivered to the site and preparatory Work done the last day of the month covered by the Certificate for Payment may be taken into consideration.

Add: 9.4.1.1 The Owner will retain ten (10%) of the amount of each estimate through Final Payment which may be reduced to 5% when all work is complete and compliant. The Owner will make a partial payment to the Contractor within thirty days after their regularly scheduled meeting each month, based on the approved request for payment. The Contractor will be notified of these dates. All material and Work covered by partial payments shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from sole responsibility for the care and protection of these materials and Work, or the restoration of any damaged Work or as a waiver of the right of the Owner to require the complete fulfillment of the terms of the Contract.

Add: 9.8.1.1 Substantial Completion

Substantial Completion is defined as that time when the Work is ready for occupancy and use by the Owner in the manner intended without undue inconvenience or discomfort. Minor corrective items awaiting replacement parts or materials, or minor finishing of Work that cannot be completed due to weather conditions, installation of minor items, minor sitework (including seed or sod), minor interior or exterior painting, corrective work, replacement of defective work or minor adjustment of control apparatus will not delay determination of Substantial Completion.

Add: 9.9.1.1 Final Inspection

The Architect will make <u>one</u> re-inspection after the Final Inspection when requested in writing by the Contractor, and if complete, the Architect will so certify to the Owner. When additional reinspections are required and requested in writing by the Contractor, the Architect will make the inspection. The Contractor shall reimburse the Architect for all time and expenses incurred in the additional reinspections.

Final payment will not be approved until all incomplete and corrective Work is properly complete. Where the word "complete" is used, it shall mean that all areas are finished, all materials and equipment are in place, sitework finished, all corrections of Work and adjustments have been made, the tests made, brochures and reports filed and all similar information as required by these Specifications has been provided.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

Article 10 - Protection of Persons and Property

10.2 Safety of Persons and Property

Add: 10.2.1.4 Contractor shall at all times protect the excavation trenches, and/or the building from damage from rainwater, spring water, ground water backing up of drains and sewers, and all other sources of water. He shall provide all pumps and other equipment and bail out all water and all enclosures to provide this protection. General Contractor shall construct and maintain all necessary temporary drainage and do all pumping necessary to keep the excavation and basement free of water. Pumping of other than the building excavations shall be the responsibility of the Contractor doing the work.

Contractor shall remove all snow and ice as may be required for the proper protection and/or prosecution of his Work and he shall be required to plow and remove snow as required to maintain access to the building site.

Contractor shall provide all shoring, bracing, and sheeting as required for safety and for the proper execution of the Work, and have same removed when Work is completed.

Contractor shall at all times provide protection against weather, rain, wind, storms, frost, cold or heat so as to maintain all Work, materials, apparatus, and fixtures free from injury or damage to permit the continuous prosecution of his Work.

During cold weather, Contractor shall protect his Work from damage. If low temperatures make it impossible to continue operations safely in spite of the cold weather precautions, the Contractor shall cease Work and shall so notify the Architect in writing.

Any Work damaged by failure to provide protection shall be removed and replaced with new Work at the expense of the Contractor.

Article 11 - Insurance and Bonds

11.1 Contractor's Liability Insurance

Add: 11.1.2.1 Limits of Liability are specified in SPECIAL CONDITIONS.

11.1.3.1 Certificate of Insurance shall be submitted on A.I.A. Document G705.

11.4.1 Builders Risk Insurance shall be purchased by the Contractor in the amount of the Contract.

Amend: 11.5.1 Performance Bond and Labor and Material Bond

Contractors shall provide and pay for the Performance Bond and Labor and Material Bond as indicated in the Supplementary Instructions to Bidders. Bond shall be for the full amount of the Contract Sum and issued by a Surety Company authorized to do business in the state of Iowa. The Bond shall be on the Form FHA-2452 and HUD-92452A. The bond shall allow for any additions or deductions to the Contract.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

Amend: 11.4.1 Performance Bond and Labor and Material Bond (continued)

The Performance Bond shall continue in effect for one year after substantial Completion of each Contract to protect the Owner's interest in connection with the one-year guarantee of workmanship and materials and to assure settlement of claims, etc.

Article 12 - Uncovering and Correction of the Work (no change)

Article 13 - Miscellaneous Provisions

Add: 13.8 Equal Opportunity

The Contractor agrees that during the life of the Contract he will not discriminate against any employee or applicant for employment because of race, color, creed, national origin or ancestry, and will include a similar provision in all subcontracts entered into for the performance of the Work thereof. The Contract may be cancelled or terminated by The Owner and all money due or to become due under the Contract may be forfeited for a second or subsequent violation of the terms or conditions of this paragraph.

Article 14 - Termination or Suspension of the Contract (no change)

PART 2 - PRODUCTS

Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 16 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 This Section of the Specifications covers Special Conditions that apply to this project and shall have precedence over the GENERAL CONDITIONS or SUPPLEMENTARY GENERAL CONDITIONS if inconsistent therewith.

1.02 Copies of Documents Furnished

Refer to Article 2.2.5 of the General Conditions - The General Contractor will be furnished free of charge a maximum of twelve (12) sets of Drawings and Specifications for the Work under this Contract He may purchase additional Drawings and Specifications for the cost of reproduction.

1.03 Contractor's Liability Insurance

Paragraph 11.1 of the GENERAL CONDITIONS, "Contractor's Liability Insurance" shall be amplified by adding the following:

During the term of the Contract, the Contractor and Subcontractors shall, at their own expense, purchase and maintain the following insurance in companies satisfactory to the Owner.

Workmen's Compensation and Employer's Liability Insurance
Workmen's Compensation: Statutory Limits
Employer's Liability: $500,000 each accident

General Liability
Coverages: Commercial General Liability - Occurrence
Limits of Liability:
General Aggregate: $2,000,000
Personal & Advertising Injury: $1,000,000
Products and Completed Operations Aggregate: $1,000,000
Medical Expense (any one person): $5,000
Each occurrence: $500,000

Automobile or Garage Liability (No Fault is provided if required by Statute)
Vehicles covered: All autos, hired autos, non-owned autos
Limits of Liability:
Bodily Injury and Property Damage Combined: $500,000 each accident

Umbrella Liability
Limits of Liability:
Bodily Injury and Property Damage Combined: $1,000,000 Each Occurrence, $5,000,000 Aggregate

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 00 73 16 - SPECIAL CONDITIONS

1.04 Builders Risk Insurance

A. The Contractor shall provide the Builders Risk Insurance naming the Owner and subcontractors as additional insured. The extent of coverage shall be not less than 100% of the Contract priced totaled in the bid.

1.05 Sales Tax

A. Refer to Article 3.6 of the AIA General Conditions. Sales tax required by law must be paid by this Contractor.

1.06 Temporary Project Sign

A. Provide and install 4’ x 8’ x 3/4” smooth sign as per Owner’s requirement.

1.07 Requirements

A. All construction is to meet the specific requirements contained in the Minimum Property Standards 4910.1, 1994, the Material Bulletins, the revised Handbook 4460.1, HB 4500.01 REV 1 CHG 1, fire and safety codes and city, state and local codes.

B. Payments, retainage, Change Orders and close-out procedures shall be per HUD regulations. Percentage for overhead and profit for debt and credit, on Change orders shall not exceed percentage that was used for processing.

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 10 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 Project Location: Iowa City, Iowa

1.02 Description of the Work

A. This project includes the complete construction work within the Contract limit line including general construction, plumbing, heating and ventilating, electrical work, rough and finish grading, all site work including clearing of the site, utilities and lawns and planting.

B. Work shall be complete, including appurtenances all as shown on the Project Drawings and specified in the Project Manual. Labor, materials, articles, equipment, transportation, services and the like shall be provided in such quantities as necessary to complete the Project. Singular specifications shall be considered plural where they apply.

C. Work embraced by the Contract Documents shall be construed under a single General Contract except as otherwise noted.

1. General Construction Contract: Complete as shown on the Project Drawings and described in the Project Manual.

1.03 Work by Others

A. The following items and items indicated "N.I.C." on the Project Drawings will be furnished and installed by others not a party to any Prime Contract under the Contract Documents, except Contractor shall provide surface preparation to receive such items, as specified herein: N/A

B. In order for the project to be completed in a timely and coordinated manner and the Owner to schedule a public opening, all Owner furnished products and those items listed under Work by Others must be scheduled into the project.

C. Prior to the installation of Owner Furnished Products and those items listed under Work by Others, the General Contractor must have certain portions of the work completed. Proper surface preparation must take place in accordance with the Specifications of Owner Furnished Products. It is the sole responsibility of the General Contractor to establish proper surface preparation, rough-in of utilities, and correct supply and return systems.

1.04 Owner Furnished Products

A. The following items are to be furnished by the Owner for final connection, assembly, and/or installation by General Contractor, described in Specifications and indicated by Drawings. N/A

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.04 Owner Furnished Products (continued)

B. Schedule delivery date in accordance with schedule for completion supplied to Owner. Arrange for products to be delivered and (unless otherwise noted) unloaded at project site. Obtain installation drawings and instructions and transmit same to Contractor. Submit claim for transportation damages. Arrange for guarantees and warranties. Protect products from exposure to elements. Repair or replace items damaged as a result of Contractor's operations. Connect, assemble or install finished products.

1.05 Coordination and Scheduling

A. The General Contractor shall be responsible for the coordination of all employees and sub-contractors, temporary facilities, construction schedules, cost controls, inspection and testing, administering of submittals, maintaining reports and records, and cleanup of premises.

B. The Drawings establish legal limits, physical characteristics, utility locations, permanent benchmark, and all controlling lines and grades for this project. The General Contractor will verify, establish and maintain the above on-site as well as be responsible for maintaining well-established batter boards and structural wall lines.

C. The General Contractor shall provide the following: The initial building layout and setting of grade levels shall be performed by or verified by a registered surveyor. After the garage walls are laid and the precast concrete cap is in place, an intermediate survey shall be performed by the registered surveyor to verify that the building conforms to layout and grade level, and to verify that there are no encroachments into building setback requirements or easements that exist on the site. Finally, an “as built” ALTA survey shall be done when project is totally complete.

D. General Contractor shall preserve all established bench marks, reference points, stakes located in or near the Work, and grades, lines and level. All expenses related to replacement, if any, of the preceding which have been disturbed or destroyed by Contractor should be the ultimate responsibility of the General Contractor.

E. Prior to the commencement of construction, the General Contractor shall prepare and deliver to the Owner and Architect a Critical Path Construction Schedule indicating Substantial and Final Completion as specified in Article 7, Paragraph 2 of this Section and Article 1.03 Paragraphs 1-4 of Section 01 33 00. It shall be and will remain the responsibility of the related contractors and suppliers to provide the General Contractor with any and all information resulting in changes to the schedule. It shall be and will remain the responsibility of the General Contractor to maintain and update the Schedule.

1.06 Working Day

A. All work on the Project shall be done during normal working hours.

B. If at any time during construction it becomes necessary to accelerate the Work in order to meet completion dates for portions or all of the Work all Contractors shall work overtime at no additional cost to the Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 10 00 - SUMMARY OF WORK

1.07 Time for Completion

A. Definitions:

1. "Substantial Completion": Refer to Article 8.1, General Conditions.

2. "Final Completion": The completion of all work in accordance with the Contract Documents, approved by the Architect and accepted by the Owner.

3. "Date of Commencement of the Work": As stated in Article 8 of the General and Supplementary Conditions. The starting day shall be the first day of the stated number of calendar days for completion of the Project.

B. Completion:

1. The Date of Substantial Completion shall be 425 calendar days from the established Date of Commencement of the Work, and Final Completion within 30 days thereafter.

2. The only exceptions to the above completion dates are delay or termination because of a national emergency and/or extension for time of completion claimed and allowed in accordance with General Conditions and/or Supplementary Conditions.

C. The Contractor agrees to the use and occupancy of a portion or unit of the Project by the Owner prior to Substantial Completion, provided:

1. Occupancy will not interfere with completion of the Contractor's work as determined by the Architect.

2. Owner secures endorsement of insurance carrier and consent of surety permitting occupancy of the building or use of the Project during the remaining period of construction.

3. Owner and Architect together with the Contractor visit the portion or unit to be occupied to observe and record the condition of the portion or unit prior to occupancy.

D. Occupancy by the Owner in no way implies final acceptance of any portion of the Contractor's Work.

1.08 Cutting and Patching (Refer, also, to AIA General Conditions, Article 3.14).

A. The General Contractor shall be in complete charge of all cutting and patching work and shall be responsible for and repair all structural damage to the Project whether such structural cutting was done by his own workmen or those of another sub-contractor.

B. Wherever a surface or material included in the General Contractor's work requires patching due to the Work of another Contractor, the General Contractor shall patch said Work at the expense of the Contractor who did the cutting unless specifically indicated otherwise in the Contract Documents.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.08 Cutting and Patching (continued)

C. Each Contractor shall do all cutting, fitting and patching of his own Work as required to make the several parts of the Project come together properly and to fit his Work to receive, or be received by, the Work of other Contractors.

D. Cutting and patching of all Work in place shall be the responsibility of the Contractor requiring same subject to conditions stated herein.

E. Do not endanger any Work of other Contractors or of the Owner by cutting, excavating or otherwise altering the said Work or adjacent Work and do not cut or alter the Work of any other Contractor or the Owner without the prior written approval of the Architect.

F. Excavating and fill Work shall be done by each trade requiring same, as a part of his Work, in conformance with the requirements of Section 02 20 00.

G. Employ workers skilled in cutting the type of material or product to be cut. The General Contractor shall supervise such Work to ascertain that appropriate patchwork will result.

1.09 Applicable Standards and Specifications

A. References are made in the Specifications to published Standards and Specifications of Manufacturers, Societies, Associations and other Standards.

B. Where conflict occurs between referenced Documents, the Document containing most stringent requirements governs.

C. Where referenced Documents are not specified by date the current Document published as of the date set for receipt of Bids applies.

D. Materials, application, tests specified by references to published standards of a Society, Association or other Published Standard are included in the Specification as if written in their entirety.

1.10 Manufacturer's Specifications

A. Where manufacturer's products and processes are included in the Specifications by reference, include in the Specifications as if written in their entirety.

B. Products and processes included in the Specifications shall conform to the manufacturer's latest published specifications.

C. In the event of failure of products and/or processes installed in accordance with manufacturer's recommendations and/or instructions, the Contractor shall assume full responsibility and bear all costs necessary to provide acceptable installation.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 10 00 - SUMMARY OF WORK

1.11 Cleaning Up (Refer also to General Conditions)

A. Each Contractor: Keep premises free of accumulation of surplus materials and rubbish resulting from operations.

1. Remove all rubbish from premises.
2. No burning of rubbish on premises allowed.

B. Accomplish rubbish removal weekly and additionally as required by the Architect. Keep interior of building free as required by the Architect. Keep interior of building free at all times of unattended combustible rubbish.

C. Remove all tools, equipment, scaffolding and temporary facilities immediately when no longer required for execution of the Work.

D. General Contractor: "Broom-clean" all floors as construction progresses necessary to eliminate dirt and trash accumulation and maintain proper project cleanliness.

E. Additionally, immediately prior to Substantial Completion, the General Contractor shall:

1. Clean all surfaces to condition acceptable for immediate occupancy by the Owner.
2. Remove all marks, stains, fingerprints, paint droppings and other foreign matter from all finished items.
3. Clean and polish all hardware.
4. Wash and polish all glass, including mirrors, replacing any cracked, scratched or otherwise damaged items, leaving all glass in clean perfect condition.
5. Vacuum all carpeting.
6. Clean all altered areas same as required for new construction.
7. Wash and clean the exterior of all windows and window glass.

F. Each Contractor: Leave premises clean in all respects, ready for use and occupancy by the Owner without additional work.

G. As used herein, the term "premises" shall include all areas within and outside the construction limits, which have become soiled, littered or disturbed in any manner by the Work of the Contractors.

1.12 Contract Limits and Protection of Existing Conditions

A. All work shall be confined within the Contract limits indicated on the Project Drawings. Do not infringe upon other areas without the permission of the Architect.

B. Existing property, buildings, walks, curbs, trees, shrubs, lawns damaged or disturbed outside the Contract Limits shall be restored to original condition or better. Replace damaged trees and shrubs; restore disturbed lawns with sod outside Contract limits by Contractor responsible for cause of damage.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 10 00 - SUMMARY OF WORK

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 23 00 - ALTERNATES AND UNIT PRICES

PART 1 - GENERAL

1.01 Description of Requirements

A. Alternates are defined as alternate products, materials, equipment, systems, methods, units of work or other major elements of the construction which describes basic changes to be incorporated into the Work only when that Alternate is made part of the Work identified in the Owner/Contractor Agreement.

1.02 General Alternate Requirements

A. The description herein for each Alternate is recognized to be incomplete and abbreviated by implies that each change must be complete for the scope of work affected. Refer to the applicable specification section of Divisions 2-32 and to applicable Drawings for the specific requirement of the Work. Coordinate related work and modify surrounding work as required to properly integrate with the Work of each Alternate.

Alternate No. 1 ~ Radon Testing by a Radon Professional Consultant

Alternate No. 2 ~ Radon Gas Mitigation System
This Contractor shall provide and install, on a design/build basis, a complete mitigation system below a 33,809 sq. ft. parking garage. Note that the garage has 4” diameter drain tile at the interior perimeter walls, as well as drain tiles down the center of the garage, which could possibly be used as part of the mitigation system. This is to be determined.

1.03 Unit Price

A. Unit Price No. 1
Add or deduct on a Unit Price basis for each 16" x 12" x 8" concrete block required to lower or raise the footing elevation. The Unit Price shall include all required excavation, footings, steps and backfill needed.

B. Unit Price No. 2
Add the cost on a per cubic yard basis to haul and compact in place as per Section 02 20 00 for granular fill required under floor slab.

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 31 00 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 Description of Work

A. The Contractor shall schedule and administer a pre-construction meeting, periodic progress meetings, and specially called meetings throughout the progress of the Work.

1. Prepare agenda for meetings.
2. Distribute written notice of each meeting at least four days in advance of meeting dates.
3. Make physical arrangements for meetings.
4. Preside at meetings.
5. Record the minutes; include all significant proceedings and decisions.
6. Reproduce and distribute copies of minutes within three days after each meeting:
   a. To all participants in the meeting.
   b. To all parties affected by decisions made at the meeting.

B. Representatives of General Contractor attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

C. Architect/Engineer and Owner (Owner's Representative) shall attend meetings to ascertain that Work is expedited consistent with Contract Documents and the Construction Schedule.

1.02 Progress Meetings

A. Schedule regular meetings, which shall be monthly Pay Request.

B. Hold called meetings as required by progress of the Work,

C. Location of the meetings: The project field office of the Contractor.

D. Attendance:

1. Architect/Engineer, and his professional consultants as needed.
2. General Contractor's project representative.
3. General Contractor's job superintendent.
4. Owner's representative.

E. Suggested Agenda:

1. Review, approval of minutes of previous meeting.
2. Review of Work progress since previous meeting.
3. Field observations, problems and conflicts.
4. Problems, which impede construction schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to construction schedule.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.03 Progress Meetings (continued)

8. Plan progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality and work standards.
12. Review proposed changes for:
    a. Effect on construction schedule and completion date.
    b. Effect on other contracts of the project.
13. Coordination with activities that are taking place within the building, interruptions, etc.

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 33 00 - SUBMITALS

PART 1 - GENERAL

1.01 Requirements Include:

A. This Section amplifies basic requirements for submittals stated in the General Conditions.

B. Items for which Shop Drawings and/or Samples are required are specified in each Section of the Project Specifications as applicable.

C. Shop Drawings shall mean any Drawings for shop use, erection drawings, schedules diagrams, charts, product data, setting drawings, brochures or other descriptive literature prepared by, or for, the Contractor which illustrate some portion of the Work.

D. Samples shall mean physical examples which illustrate products of the Work and shall establish standards by which the Work will be judged and provide the basis for color selections.

1.02 Review

A. The Contractor's approval and submission of Shop Drawings and/or Samples represents that he has determined and verified field dimensions and project requirements for each item approved and submitted. Each item shall bear his stamp of approval.

B. The Architect/Engineer's review of Shop Drawings and/or Samples is only for conformance with the design concept of the Project and with requirements of the Contract Documents and shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and has approved the specific deviation in writing.

C. The Architect/Engineer's review of Shop Drawings and/or Samples shall not relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples, nor shall review of a separate item indicate approval of an assembly in which the item functions.

D. All Shop Drawings shall be reviewed by Architect and Owner before order is placed.

1.03 Progress Schedule

A. General Contractor: Submit a construction progress schedule to the Architect within 10 days after award of Contract.

B. Prepare in reproducible form and include:

1. Breakdown of work activities into categories segmented as necessary to allow close monitoring of the progress of the Work during construction.
2. Order of work necessary to meet Time for Completion.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.03 Progress Schedule (continued)

3. Breakdown of the work of all Subcontractors scheduled together with the General Contractor's work.
4. List of Subcontractors.
5. Space for the additional display of actual performance on the schedule.

C. After necessary revisions, provide one print of construction progress schedule to each Subcontractor and two copies to the Architect.

D. Update the schedule to reflect changes required by actual conditions and indicate actual work completed. Provide the Architect with same number of copies as required for original submission.

1.04 Subcontractors and Suppliers List

A. Submit a list of Subcontractors and Suppliers complete with Product names and Manufacturers to be provided by them to the Architect within two days after the award of the Contract. List classification of work and name and address of each principal Subcontractor and Supplier. List only one person or entity for a given classification of work. Refer, also, to Instructions to Bidders.

B. The Architect will promptly review list and indicate disapproval of any Subcontractors and/or materials. Resubmit revised list, upon disapproval of any item.

C. Use of unspecified or unapproved materials and equipment will not be permitted.

1.05 Cost Breakdown

A. Within 10 days after award of Contract or within 10 days after receipt of written request from the Architect whichever is earlier, submit a cost breakdown of the Contract Sum in acceptable form.

B. Include profit and overhead costs (line item).

C. Certificate of payment may be withheld by the Architect until receipt of cost breakdown in acceptable form has been submitted.

D. Cost breakdown shall be the basis for approval of payment requests.

1.06 Shop Drawings

A. After review and approval by General Contractor, General Contractor shall submit all Shop Drawings directly to the Architect and Owner for review. Accompany each submittal with a letter of transmittal which lists and dates the submitted items in sets.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Shop Drawings (continued)

B. Submit the Shop Drawings prepared specifically for this Project in the form of either email or print of each Drawing until final review is obtained. Copies returned and marked "Re-submit" shall have the drawing corrected by the Contractor and a new and print resubmitted. Copies returned "Reviewed" or "Reviewed as Noted" shall be printed directly by the Contractor with all stamps visible and with all verified field dimensions indicated. Unless otherwise indicated, this final printing from reviewed copies shall be to all parties.

C. Shop Drawings consisting of pre-printed descriptive literature can be emailed. This type of Shop Drawings shall be for stock manufactured items which show clearly the details, sizes, performance characteristics, capacities, wiring diagrams an/or other pertinent information.

D. All types of Shop Drawings shall be properly referenced to this Project and the intended purpose of all items shall be clearly indicated. Include names of Project, Architect/Engineer, Contractor, Fabricator, specification section number, Architect's project number and detail numbers to which Shop Drawings pertain.

E. Shop Drawings shall contain the Project Title and Shop Drawing number, date of drawings and revisions, Contractor's approval stamp or certificate, an area for the Architect/Engineer's approval stamp, details of fabrication, assembly, erection and connection with adjacent work, materials used, all required dimensions, information on equipment, who furnished adjacent related work (do not use the phrase "by others"), complete schedules, protective coatings and/or factory finishes.

F. General Contractor shall provide final reviewed Shop Drawings to the following via email or print:

Architect
Engineer
Subcontractor
General Contractor's Office
General Contractor's Field Superintendent
Product Supplier
Owner File

G. The Contractor shall not furnish, proceed with fabrication, or install any work until Shop Drawings receive final review by Architect and Owner.

H. Shop Drawings prepared specifically for this Project must be original. No reproductions of Architect's Project Drawings will be accepted.

I. All structural erection Shop Drawing Plans shall be oriented to match framing plans on Project Drawings.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Shop Drawings (continued)

J. At completion of all Work prior to final payment, furnish Owner with one unused copy of all reviewed Shop Drawings, manufacturers' brochures, diagrams or similar material used in execution of the Work. Refer to Section 01 70 00.

1.07 Samples and Master Color Schedule

A. After review and approval by General Contractor, General Contractor shall deliver all samples of materials, equipment, assemblies and components as required to the Architect or other designated location, with delivery costs prepared. Remove samples after approval when and as directed by the Architect.

B. No material or product for which samples are required shall be delivered to the Project Site for use in the Project until representative samples have been approved in writing by the Architect.

C. Submit samples in duplicate and four copies of manufacturer's literature and material lists, except where more or less indicated. Samples shall be submitted by the Contractor only, unless he has authorized his Subcontractor to submit them and has notified the Architect in writing to this effect.

D. Samples will receive consideration only when covered by a letter signed by the Contractor. This letter shall contain a list of samples, the name of the Project, Architect/Engineer, Contractor, Manufacturer, brand and quarry, if any, the job number, the paragraphs in the Project Specifications to which the samples relate, reference standards, such as ASTM as applicable, and such additional information as may be required by the Project Specifications. Any deviation from the Contract requirements shall be indicated in the letter of transmittal.

E. Rejected samples shall be replaced and resubmitted as soon as possible and shall be identified as "Resubmitted Sample" in addition to the other information required on the label.

F. The right is reserved to require submission of samples of any product and/or related material lists, whether or not particular mention is made in the Project Specifications.

G. Provide samples of sufficient size to permit an accurate appraisal of color, texture, finish, workmanship and other characteristics.

H. Submit samples with Shop Drawings when both are required.

I. Maintain at Project Site one approved sample, properly identified, of each product or material for which samples are required.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.07 Samples and Master Color Schedule (continued)

J. Master Color Schedule:

1. Within 30 days after submission of the List of Subcontractors and Suppliers, secure and supply to the Architect color cards, finish samples and other information for all items requiring a color or finish selection.

2. Based on the above, the Developer will supply the Contractor with a master color schedule for the Project.

3. Advise the Architect in writing of any deadlines for color or finish selections that may be necessary to insure delivery of materials on schedule.

1.08 As-Built Drawings

A. The General Contractor shall provide and maintain in proper order, in good, clean condition, in field office at the Project Site one complete set of prints of all Project Drawings.

B. On this set, with red pencil or ink, neatly inscribe all changes in the Work including relocation and type of partitions, walls, doors, electrical, plumbing, heating, ventilation, air conditioning services and equipment and similar work.

C. At time of final acceptance and prior to final payment, present these corrected prints to the Owner through the Architect.

1.09 Miscellaneous Submittals

A. Test Reports and Data: Submit test reports and data to the Architect as required by Section 01 43 00 and other Sections of the Project Specifications.

B. Guarantees, Warranties, Certificates, Operating Instructions and Maintenance Instructions: Submit all such items to the Owner through the Architect as required by Sections 01 60 00, 01 70 00 and other Sections of the Project Specifications.

C. Consent of Surety Form: Contractor requests for final payment shall be accompanied by a properly executed copy of "Consent of Surety Company to Final Payment".

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 43 00 - TESTING AND INSPECTION

PART 1 - GENERAL

1.01 Requirements Include:

A. The Contractor shall retain an independent testing and inspection agency and laboratory to perform required tests for the following items: asphalt/concrete paving, cast-in-place concrete, structural steel connections, spray-applied fireproofing.

B. Testing and inspections not listed in the Project Specifications or General Conditions but required by Code shall be the responsibility of the General Contractor in accordance with the General Conditions. This includes all pre-qualification testing.

C. If additional tests, other than those specified, are required of the General Contractor by the Architect and/or the Owner, all costs for the performance of these tests shall be borne by the Owner except as stipulated in Paragraph D following.

D. When any testing and inspections indicate unsatisfactory Work, all costs for retesting and re-inspecting shall be borne by the Contractor responsible for the Work. The cost shall be paid by deducting the amount from the Contract by Change Order.

1.02 Testing and Inspections by Independent Testing Agency and Laboratory

A. Laboratory testing and inspection services for specified shall be performed by an independent testing and inspections agency selected by the Contractor and approved by the Architect and Owner.

B. General Contractor shall:

1. Make all materials to be tested available for testing and inspections at no cost and in a timely manner.
2. Provide labor necessary to supply samples and assist in making tests and inspections. Cost for packaging and shipment to testing laboratory shall be born by testing agency.
3. Advise laboratory of the identity of material sources and instruct suppliers to allow inspections by the laboratory.
4. Contractor shall provide the Architect and the Owner a minimum of three days notice prior to required tests or inspections.
5. Make any repairs required due to testing or inspecting procedures.
6. Provide safe access to testing/inspection areas and security and protection of samples and test equipment on site.

C. Laboratory shall identify all materials not in full conformance with Project Specifications and provide written reports, in triplicate, covering each inspection and test promptly to Architect and Owner. No rejected material shall be incorporated into the work, and all rejected material is to be marked and removed from the site at no expense to the Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.02 Testing and Inspections (continued)

D. Testing and inspection methods: Conduct tests and inspections in accordance with the requirements of the Specifications designated or, where not specified, the latest standards of American Society for Testing Materials.

E. Required laboratory testing and inspection services applicable to this Project are specified in individual sections of the Project Specifications.

F. The employment of a testing laboratory and inspection service does not relieve the Contractor of responsibility to conform to the Contract Documents.

1.03 Reports

A. Copies of all test reports shall be submitted to the following:

1. Owner
2. Architect
3. Structural Engineer
4. Contractor

1.04 Summary of Required Testing and Inspections

Refer to Technical Specification Sections for a detailed description of testing and inspection methods and standards.

Division	Test or Inspection	Contracted for by
0	None required	
1	None required	
2	Site Work	
	Excavation observation by Soils Engineer	General Contractor
	Compacted fill tests	General Contractor
	Asphalt aggregate base tests	General Contractor
	Bituminous testing	General Contractor
3	Concrete	
	Concrete slump testing	General Contractor
	Concrete compression testing	General Contractor
4	Masonry	
	Performance test for brick	General Contractor
	Performance test for concrete block	General Contractor
	Mortar aggregate gradation	General Contractor
	Grout compression testing	General Contractor

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 43 00 - TESTING AND INSPECTION

1.04 Summary of Required Testing and Inspection (continued)

5	Metals High strength bolting (friction and bearing connections) 100% visual and/or torque	General Contractor
6	Wood and Plastics None required	
7	Thermal and Moisture Protection None required	
8	Doors and Windows Field Test	Window Manufacturer
9	Finishes None required	
10	Specialties None required	
11	Equipment Pre-qualification testing as required by Code	F.S.E.C.
12	Furnishings None required	
13	Special Construction None required	
14	Conveying Systems None required	
15	Mechanical Pre-qualification testing as required by Code	Mechanical Contractor
16	Electrical Pre-qualification testing as required by Code	Electrical Contractor

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 43 00 - TESTING AND INSPECTION

1.05 Required Special Inspections and Testing (I.B.C.)

A. The General Contractor shall retain an independent special inspector as outlined in the following paragraphs (C and D). The special inspector shall submit copies of each special inspection report to the following:

1. Owner
2. Architect
3. Structural Engineer
4. General Contractor
5. Building Official

B. Duties and Responsibilities of the Special Inspector

1. Observe the work assigned for conformance with the approved Drawings and Specifications.
2. Furnish copies of reports to the following parties:

   a. Building Official
   b. Owner
   c. Architect
   d. Structural Engineer
   e. General Contractor

3. The Special Inspector shall submit a final signed report stating whether the work requiring special inspection was, to the best of his knowledge, in conformance with the approved Plans and Specifications and the applicable workmanship provisions of the International Building Code.

C. Summary of Required Special Inspections and Testing - Refer to the Technical Specification Sections for a detailed description of special inspection standards and required frequency.

Division	Test or Inspection	Contracted for by
0	None required	
1	None required	
2	None required	
3	Concrete	
	Placement of concrete	General Contractor
	Reinforcing steel	General Contractor
	Precast concrete	Fabricator
4	None required	
5	None required	
6	Wood and Plastics	
	Pre-engineered roof trusses	Fabricator

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 43 00 - TESTING AND INSPECTION

1.05 Required Special Inspections and Testing (I.B.C.) (continued)

Division	Test or Inspection	Contracted for by
7	None required	
8	None required	
9	None required	
10	None required	
11	None required	
12	None required	
13	None required	
14	None required	
15	None required	
16	None required	

1.06 Soil Investigation Report

A. Soil investigation tests have been made for the Owner by an independent testing laboratory at the Project Site and the locations of test borings have been included on the Project Drawings.

B. A copy of the soil investigation report is available for information only and is attached behind this Section.

C. Examination of the soil investigation report shall not serve to relieve General Contractors from their responsibility for examining the Project Site, comparing conditions with the record of investigation and deciding for themselves the character of material to be encountered.

1.07 Blower Door Testing

A. Blower door testing shall be performed as required by IECC Section 402.4.1.2.

1. Block off Magic-Pak outside air intake duct during blower door testing.

1.08 Radon Testing

A. All testing and mitigation must be performed under the supervision of a Radon Professional.

B. Radon Certification/License of the Radon Professional is required as follows:

1. Certification from either the American Association of Radon Scientists and Technologists (AARST) National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB), and
2. Certification/License from the state in which the testing or mitigation work is being conducted if the state has this requirement.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SPECIAL INSPECTIONS AND TESTING SCHEDULE

(To be used in accordance with the "Guidelines for Special Inspection and Testing")

PROJECT NAME: Vintage Cooperative of Iowa City

PROJECT NO: 16-28

LOCATION: Iowa City, IA

PERMIT NO:

SPECIAL INSPECTION SCHEDULE

SECTION	ARTICLE	DESCRIPTION	TYPE OF SPECIAL INSPECTOR	REPORT FREQUENCY	ASSIGNED FIRM (4)
03 30 00	3.16	Concrete	Ser	Bi-monthly	(min. 2)
03 40 00		Precast Concrete	F	Cert. Of Compliance	
06 11 00		Wood Trusses	F	Cert. Of Compliance	

TESTING SCHEDULE

NOTES: This schedule to be filled out and included in the project specification. Information unavailable at that time is to be filled out when applying for a building permit.
(1) Permit No. To be provided by the Building Official.
(2) Use descriptions per U.B.C. Section 306.
(3) Special Inspector, Testing Agent of Fabricator, qualified in accordance with requirements of the State Building Code.
(4) Firm contracted to perform services.

ACKNOWLEDGEMENTS

Owner:	Firm:
Date:	
Contractor:	Firm:
Date:	
Architect:	Firm:
Date:	
SER:	Firm:
Date:	
*SI:	Firm:
Date:	
*SI:	Firm:
Date:	
TA:	Firm:
Date:	
TA:	Firm:
Date:	
F:	Firm:
Date:	

*The individual names of all prospective special inspectors and the wok they intend to observe must be identified on the reverse side to this form. Legend: SER = Structural Engineer SI = Special Inspector
TA = Testing Agent F = Fabricator

Accepted for the Building Department by_____ Date:_____

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 Work Included

A. Furnish, install and maintain all temporary utilities required for construction, and remove them on completion of the Work.

1.02 Related Requirements

A. Section 01 10 00: Summary of Work

1.03 Requirements of Regulatory Agencies

A. Comply with all applicable Federal, State, and Local Codes and Regulations and with all utility company requirements.

1.04 Weather Protection

A. Provide protection against weather necessary to maintain all materials, apparatus, fixtures and other work free from damage whether in shipment, storage or in place.

B. Do not perform wet work when temperature is below 40 degrees F or likely to go below 40 degrees F within the ensuing 48 hours, except when properly protected and sufficient heat provided.

C. At end of day's work, cover or otherwise protect all work likely to be damaged.

D. When heat is required for proper weather protection, provide temporary enclosures of work and acceptable means to provide sufficient heat to maintain a temperature of not less than 50 degrees F. Provide higher temperatures when required by Project Specifications.

E. Use only heating apparatus and fuels of apparatus and fuels of approved safe types. Keep equipment and surroundings in a clean and safe condition. Use flame resistant tarpaulins and other materials for temporary enclosure of space. Use vented, indirect heaters only.

1.05 Temporary Heating

A. Cost of fuel for temporary heating shall be at the expense of the Contractors. Cost of furnishing temporary heating equipment and the installation of same shall be borne by the Contractors in accordance with the following.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Temporary Heating (continued)

B. Prior to enclosure of the building, each Contractor shall provide and pay for all heat, fuel and services necessary to protect his Work and materials against injury from dampness and cold until the building has been enclosed, including but not limited to heating devices, electrical power, adequate and proper fuel, fires, enclosures, protective covers and the like for the work of his trades and shall have watchmen constantly in attendance when fires are burning. Heating devices shall be regulated, shall have safety controls protecting against excessive temperatures or malfunction and shall not emit noxious fumes, soot, or other products of combustion that would leave a film or deposit on building surfaces or that would adversely affect the installation of materials, including but not limited to excessive moisture. Salamanders in enclosed spaces will not be permitted.

C. Enclosure of the building shall be accomplished by the General Contractor as soon as possible; such enclosure shall include, as minimum, all permanent exterior walls, permanent insulated roof and temporary covering and sealing of window and other openings as necessary to provide reasonable heat retention and afford adequate protection for the Work.

D. Within five days after enclosure of building, the Electrical Contractor shall provide the necessary power hook-ups for the temporary heating equipment. The General Contractor shall provide a temporary heating plant, temporary heating equipment and apparatus connected by the Heating Contractor. The General Contractor shall provide and maintain service, parts, material and attendance as necessary for the proper operation and care of the temporary heating installation until the date of Substantial Completion. During this period, the General Contractor shall pay for fuel.

E. On the date of Substantial Completion, the Owner assumes all heating costs and actual attendance. The Contractors responsible for heating work shall place the entire permanent heating system in operation and in the new condition called for in the Project Specifications. General Contractor shall have removed the temporary heating installation.

F. Temperature in enclosed spaces shall be maintained at a minimum of 50 degrees F except as follows:

1. Minimum 60 degrees F during placing, setting and curing of ceramic tile, quarry tile and similar water bearing materials.

2. Minimum 70 degrees F for a period of at least 10 days prior to the placing of interior millwork within building, finish, painting, application of vinyl wall covering, etc. and maintained until Substantial Completion or partial occupancy by the Owner.

G. Do not use any permanent equipment to supply temporary heating.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Water

A. Plumbing Contractor shall provide, protect and maintain an adequate water supply for the use of all Contractors on the Project for construction purposes, either by means of the permanent water supply line or by installing a temporary water line. Make water supply available within fifteen days after written request by any Contractor requiring it.

B. Locate temporary water line at a point within 10 feet of permanent water service entrance and install a meter. From this point, each Contractor shall install, valve, maintain and protect such water supply lines as he may require.

C. After temporary lines are no longer required, they shall be removed by the Plumbing Contractor. Restore to original condition any part of grounds or buildings damaged by removal.

D. General Contractor shall pay the cost of all water used on the Project until Substantial Completion of the project or beneficial occupancy by the Owner, whichever is earlier.

1.07 Electricity

A. Electrical Contractor shall provide temporary service to the project at a location acceptable to the General Contractor and within 50 feet of the final transformer or main service entrance location. Service shall be as shown in Electrical Specifications.

B. Electrical Contractor shall extend service into building and provide:

1. One 150 watt light for each 1,000 sq. ft. of floor area for general illumination.
2. 120 volt grounded outlets located to provide power to all points with 50 foot extension cord.
3. Adequate lighting of corridors, stairs, and exitways.
4. All additional temporary lighting and power required to conform to OSHA regulations.

C. Temporary electrical service required in excess of that specified shall be installed and paid for by the Contractor requiring same. (Note: Specified temporary electric service may not be used for welding. Contractors requiring electricity for welding shall provide, at their own cost, mobile power generating equipment.)

D. The General Contractor shall pay the cost of all connection charges and electrical energy used on the Project through the specified temporary electrical service until Substantial Completion or beneficial occupancy by the Owner, whichever is sooner. If partial occupancy by the Owner occurs prior to completion, he will pay proportional share of electrical energy used.

E. General Contractor shall provide light bulbs required for all temporary construction lighting and replace when necessary.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.07 Electricity (continued)

F. Use no temporary service material in permanent system without written approval of the Architect. When temporary electrical lines are no longer required, Electrical Contractor shall remove them and restore any parts of the buildings or grounds damaged by such removal to original condition.

G. Each Contractor shall provide and maintain temporary lighting at his own barricades as required for safety.

1.08 Toilets

A. General Contractor shall provide and maintain suitable, weathertight, painted, sanitary toilet facilities for all workmen during construction period.

B. Temporary toilet facilities shall be maintained until Substantial Completion. All construction personnel are not permitted to use permanent toilet facilities.

C. General Contractor shall provide necessary enclosure, temporary door and hardware for temporary toilet.

D. General Contractor shall keep all toilet facilities clean and supplied with toilet tissue at all times. Maintain facilities in accordance with requirements of applicable local and state health authorities.

E. When temporary toilets are no longer required, completely remove and restore all building surfaces to new condition, disinfect and clean or treat the area as necessary.

1.09 Materials Handling at Project Site (Refer also to Section 01 60 00)

A. Each Contractor shall provide suitable storage facilities for his materials on the Project Site within the limits of construction. He shall be responsible for all hoisting of his materials and shall provide and maintain proper staging, scaffolding and the like, tools and equipment for the erection and completion of his work and removal of all upon completion.

B. Each Contractor shall protect and preserve all his materials of all types stored at Project Site. Materials such as wood, steel, masonry materials, shall not be piled directly on the ground. Coverings shall be watertight and substantial to prevent blowing away. Confine storage of materials, sheds and other apparatus to areas designated for such purposes.

C. Trash/debris - Contractor to provide and pay for all trash/debris removal from the project site.

1.10 Field Offices

A. The General Contractor shall provide and maintain a watertight, well lighted and safely heated temporary office, elevated off- ground, as required for his use.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

1.11 Telephone

A. General Contractor shall install a telephone in his field office for the use of all persons working at the Project Site. Pay all charges for telephone service, except long distance calls shall be paid for by person making call.

1.12 First Aid

A. General Contractor shall provide and maintain a basic first aid kit as approved by OSHA for use of workmen.

B. Provide first aid supply commensurate with size of project with items necessary for first aid treatment of all injuries. Advise all workmen of the location of first aid supplies.

1.13 Security/Protection Provisions

A. Refer to General Conditions and Supplementary Conditions.

B. Each Contractor:

1. Take precautions against fire and comply fully with requirements of Insurance Authorities and regulations of the local Fire Department. Contractor shall complete all torch cutting sufficiently prior to the close of the work day such that he can verify that no overheated materials or smoldering fires are present before leaving the site.

2. Remove combustible refuse and dispose in an approved manner off the Project site. Bonfires or burning refuse anywhere on the Project site will not be permitted. Do not store combustible materials or supplies in areas where concrete forms are still in place. Limit materials storage to completely fireproof areas and when storing outside keep at least 10 feet away from building.

3. During entire construction period, provide fire extinguishers of the types, sizes, numbers and locations as would be effective in extinguishing fires by personnel at Project site. Provide Type A extinguishers at locations of low- potential for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick instructions at each extinguisher location and instruct all personnel of each entity authorized to be at Project site, at time of their first arrival, on proper use of extinguishers and other available facilities at project site. Post local Fire Department call number on each telephone instrument at Project site.

4. Post "No Smoking" signs in areas of unusual hazard. Do not relax fire protection precautions during work interruptions such as strikes or other reasons.

5. Provide in accessible location at least one nonfreezing type fire extinguisher in each workshop and each shed used for storage of material on the premises.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.13 Security/Protection Provisions (continued)

C. Each Contractor shall provide and maintain barricades with appropriate lighting to properly identify excavations or stored materials placed on any public street, highway or other public ground. Install in accordance with the requirements of the local governing authority.

D. All Contractors shall comply with all applicable OSHA regulations.

E. For the building proper, the General Contractor shall provide suitable protection at holes through roof and floors, at openings through walls where a hazard exists and shall provide visual barriers at installed glass.

F. Visual barriers at installed glass shall not be markings or tape applied directly to glass. Barriers of this type cause breakage of certain types of glass under certain conditions and have, at times, permanently defaced the surface of the glass.

G. Where floors are subject to construction traffic, protect all such floors with 1/8" hardboard or plywood over 6 mil plastic film.

H. General Contractor shall protect all finished surfaces including jambs and soffits of all openings used as passageways for handling materials.

I. General Contractor shall make provisions for the effective containment of dust to within the construction limits.

J. General Contractor shall be responsible for the removal of all temporary enclosures at the close of the construction project.

1.14 Moisture Control

A. General Contractor shall carry on construction in a manner that will direct surface water away from new construction and off the site, away from adjoining property.

B. General Contractor shall be responsible for any plumbing of building excavations required and shall not be allowed any extra compensation for pumping.

C. Pumping of other than building excavations shall be the responsibility of the Contractor doing the work.

1.15 Temporary Project Sign

A. Provide and install a 4' x 8' x 3/4” temporary project sign of exterior grade plywood and wood frame construction. Painted with exhibit lettering by professional sign painter as per Drawing.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 52 00 - CONSTRUCTION EQUIPMENT & PROJECT SAFETY PROCEDURES

PART 1 - GENERAL

1.01 Description of Work

A. Furnish, Install, and maintain required construction equipment and remove on completion of Work.

B. Maintain the construction site and building premises in a clean and orderly manner, in conformity with all governmental regulations, OSHA Standards and recommendations. Establish and enforce site safety practices, cooperate with Union Safety Committees, follow "best practice" recommendations of industry trade and professional groups.

PART 2 - PRODUCTS

2.01 Materials

A. Materials may be new or used, suitable for their intended purpose, but must not violate requirements of applicable laws, codes, and regulations.

2.02 Construction Equipment

A. Provide construction equipment required by personnel and to facilitate execution of the Work; provide scaffolding, ladders, staging, ramps, runways, platforms, railings, hoists, cranes, chutes, trash dumpsters, and other such equipment.

B. Maintain the facilities and equipment in a first-class condition.

2.03 Temporary Enclosures

A. Provide temporary, weather-tight enclosures of exterior walls and roofs to:

1. Provide acceptable working conditions.
2. Provide weather protection of materials.
3. Allow for effective temporary heating.
4. Prevent entry of unauthorized persons.
5. Protect finished work.
6. Provide temporary approved egress for building occupants if needed.

B. Provide temporary exterior doors with self-closing hardware and padlocks for service and delivery entrances.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

PART 3 - EXECUTION

3.01 Preparation

A. Consult with Owner, Architect, and Governing Authorities; review site conditions and factors, including adjacent properties and public facilities which may be affected by execution of the Work.

3.02 General

A. Comply with applicable sections of the Specification.

B. Relocate construction equipment as required by the progress of the Work, and to accommodate the legitimate needs of the Owner or other Contractors and Subcontractors employed at the site.

3.03 Removal

A. Remove temporary materials, equipment, and services when needs can be met by use of permanent construction, or at completion of the project.

B. Clean and repair damage caused by the installation or by the use of temporary facilities. Clean and fine grade areas of the site affected by temporary facilities.

C. Restore existing facilities (if any) used for temporary purposes to specified, or original, condition, including all concrete, bituminous, and sod areas.

D. Restore new facilities used for temporary purposes to specified standards for new construction.

3.04 Project Safety Procedures

A. The Contractor is solely responsible for establishing and enforcing safe and reasonable construction practices. Subject to the limitations placed on the Architect by the General Conditions of the Contract for Construction; AIA Document A201, a copy of which is bound in this Project Manual, the Architect strongly urges the Contractor to observe the following practices:

1. Maintain the construction site and building premises in a clean and orderly manner, in conformity with all governmental regulations, OSHA Standards and recommendations.
2. Establish and enforce site safety practices.
3. Cooperate with Union Safety Committees, and follow "best practice" recommendations of industry trade and professional groups.
4. Read and carefully follow the recommendations in Article 10 of the General Conditions of the Contract for Construction; AIA Document A201.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Project Safety Procedures (continued)

5. Take special care in the movement of vehicles, shoring and bracing of incomplete construction, the size to height ratio of all excavations, the construction of barriers where height differentials between working surfaces occur, the adequate grounding of temporary electrical lines, panels, etc.
6. Provide and install temporary construction fencing for additions where the general public is not to have any access to the construction site, or as shown. Provide security lights and supports as required.
7. Establish the entire site as a "Hard Hat Area" and enforce this provision. Erect a prominent sign designating the site as a Hard Hat Area and directing that all visitors must report to the field office. Maintain a few extra hard hats in the field office for the use of authorized site visitors.

B. Submit, in writing, to the Architect, any objections to the above- mentioned recommendations or limitations thereto. Without such objections together with statements of legal precedence, the above-mentioned policies shall be considered as enforceable under the terms of the Contract.

C. The above-mentioned safety recommendations are not to be construed as complete or exhaustive - but simply recommendations relevant to some of the hazards peculiar to this site and to construction sites in general, as well as to the current state of judicial practice. None of the Contractor's responsibilities pursuant to Protection of Persons and Property as defined and explained in Article 10 of the General Conditions of the Contract for Construction; AIA Document A201, nor his rightful exercise of his best judgment concerning his interpretation thereof are waived by this Section.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 60 00 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 Work Included

A. Material and equipment incorporated in the Work shall:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified, or as specifically approved in writing by the Architect.

1.02 Related Requirements

A. Conditions of the Contract

B. Section 01 10 00 Summary of Work

C. Section 01 33 00 Shop Drawings, Product Data and Samples

1.03 Definitions

A. The following definitions shall not be construed to negate the meaning of other terms used in the Contract Documents, such as "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self explanatory and have recognized meanings in the construction industry.

1. Products - items of material and/or equipment purchased by the Contractor for incorporation into the Work, regardless of whether specifically purchased for Project or taken from Contractor's stock of previously purchased products.

2. Materials - products which must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units of Work for this Project.

3. Equipment - products with operational parts, regardless of whether motorized or manually operated and particularly including products with wired or piped service connections.

B. Source Limitations

1. Provide products, materials and equipment of a singular generic kind and from a single source. Refer also to Section 00 73 00 Supplementary Conditions, Paragraph 3.4.3.

2. All materials, equipment and other items incorporated in the Work of this Project must be new and both materials and workmanship of best grade of their respective kinds. All interior materials shall be composed of low volatile organic compounds (VOC) and test data shall be submitted to Architect for review and approval

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.03 Definitions (continued)

3. To assure ready availability of materials, parts, or components for repair, replacement or future expansion purposes, all materials, equipment and related components must be obtained from sources which maintain a regular, domestic stock.

C. Compatibility of Options: Where more than one choice is available or specified as options for contractor's selection of a product or material, select an option which is compatible with other products and materials already selected. Total compatibility among options is not assured by limitations within Contract Documents, but must be provided by Contractor. Compatibility is a basic general requirement of product selections.

1.04 Product Delivery, Storage and Handling

A. Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration and loss including theft.

B. Control delivery schedules to minimize long-term storage of products at Project Site and overcrowding of construction spaces.

C. Provide coordination of delivery and installation to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.

D. Refer to Section 01 50 00 for requirements for storage sheds. Store all materials that might be damaged within the confines of storage sheds.

E. Arrange storage areas so they are easily accessible for inspection.

F. Replace or repair all items damaged because of failure of the Contractor to provide proper protection during transportation, handling and storage, whether on or off the Project Site.

1.05 Warranties and Guarantees

A. Categories of Warranties and Guarantees: Warranties and guarantees on the Work are in several categories, including those of General Conditions and including, but not limited to the following specific categories related to individual units of work specified in Sections of Division 02 00 00 through 32 00 00 of these Specifications:

1. Special Project Guarantee: A guarantee specifically written and signed by Contractor for a defined portion of the Work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by Contractor.

2. Specified Product Warranty: A warranty which is required by the Contract Documents, to be provided for a manufactured product incorporated into the Work; regardless of whether manufacturer has a published warranty without regard for specific incorporation of product into the Work, or has written and executed a warranty as a direct result of Contract Document requirements.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Warranties and Guarantees (continued)

3. Coincidental Product Warranty: A warranty which is not specifically required by Contract Documents; but which is available on a product incorporated into the Work, by virtue of the fact that manufacturer of product has a published warranty in connection with purchase and use of product without regard for specific applications except as otherwise limited by terms of the warranty. The Owner reserves the right, at time of Substantial Completion or thereafter, to reject coincidental product warranties submitted by Contractor, which in the opinion of the Owner tend to detract from or confuse interpretation of requirements of the Contract Documents.

B. General Limitations: It is recognized that specific warranties and guarantees are intended primarily to protect the Owner against failure of the Work to perform as required and against deficient, defective and faulty materials and workmanship, regardless of sources. Except as otherwise indicated, specific warranties and guarantees do not cover failure in the Work which result from:

1. Unusual and abnormal phenomena of the elements.
2. Owner's misuse, maltreatment or improper maintenance of the Work.

C. Related Damages and Losses: In connection with Contractor's correction of warranted work and guaranteed work which has failed, Contractor shall remove and replace other Work of Project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted and guaranteed Work, except that "coincidental products warranties", as defined above are not extended to cover damage to building contents which occurs as a result of failure of warranted work, unless stated otherwise in the warranty.

D. Contractor's Procurement Obligations: Do not purchase, contract for, or allow others to purchase or sub-con-tract for materials or units of Work for the Project where a special Project guarantee, specified product warranty, certification or similar commitment is required, until it has been determined the entities required to countersign such commitments are willing to do so.

E. Specific Warranty and Guarantee Forms: Where a special project guarantee or specified product warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution by required parties. Submit draft to Owner through Architect for approval prior to final execution.

F. Period of specific warranties and guarantees shall extend the entire length of the period specified for each, commencing upon one of the following dates, whichever is the longest:

1. Date of Substantial Completion established for the Project or portion thereof, unless otherwise indicated in the Certificate of Substantial Completion issued by the Architect and accepted by the Owner.
2. Date of replacement of Work found defective during period of warranty or guarantee.
3. Date of repair or replacement of inoperative items or adjustments to proper working condition of items not operating properly at time of inspection to establish Date of Substantial Completion.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Warranties and Guarantees (continued)

4. Date of completion of Work not completed at Date of Substantial Completion described in 1, above.

G. Warranty period of a coincidental product warranty for a given product which exceeds the limits of the specific warranty or guarantee shall continue for the full term of that warranty period.

1.06 Product Selection

A. Contractor's options for selecting products are limited by Contract Documents, requirements and governing regulations and are not controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include, but are not necessarily limited to, the following for various indicated methods of specifying within the Project Specifications:

1. Single Product/Manufacturer Name: Provide product indicated except advise Architect before proceeding, where known that named product is not a feasible or acceptable selection for the completion of the Work of this Project.

2. Two or More Product/Manufacturer Names: Provide one of the named products, at Contractor's option. Do not provide or offer to provide an unnamed product unless so requested by the Architect.

3. Standard, Codes and Regulations: Where compliance with an imposed standard, code or regulation is required, selection from among products which comply with requirements including those standards, codes and regulations, is Contractor's option, except where specific product or products are named.

4. Performance Requirements: Provide products which comply with specific performances indicated and which are recommended by manufacturer in published product literature or by individual certification for application indicated. Overall performance of a product is implied where product is named for specific performances.

5. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components and complying with specified requirements for mixing, fabricating, curing, finishing, testing and similar operations in manufacturing process.

6. Visual Matching: Where matching of an established sample is required, the Architect will make final judgment whether a product proposed by Contractor matches the sample satisfactorily.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Product Selection (continued)

B. Products:

1. Provide products which comply with Project requirements and which are undamaged and unused at time of installation and which are complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for intended use and effect.

2. Nameplates: Do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on exterior of the Work, except where required by approval authorities, or, where necessary operating data must be permanently displayed.

   a. Labels: Locate required labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface which is not conspicuous.

   b. Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, ratings and similar essential operating data. Locate nameplates on an accessible surface which is not conspicuous.

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 01 70 00 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 Requirements Included

A. Comply with requirements stated in the Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.02 Related Requirements

A. Conditions of the Contract

B. Section 01 10 00 - Summary of Work

C. Section 01 60 00 - Materials and Equipment

1.03 Definitions

A. Closeout is defined to include general requirements near end of Contract Time in preparation for final completion, final payment, normal termination of Contract, occupancy by Owner and similar actions evidencing completion of the Work. Specific requirements for individual units of Work are specified in Sections of Divisions 02 00 00 through 32 00 00.

1.04 Substantial Completion

A. The Contractor shall provide a letter stating that they have inspected the Work and that they are ready for a Substantial Completion Inspection. Prior to requesting inspection for Certification of Substantial Completion, for either entire Work of portions thereof, in addition to the written request to the Architect for inspection the Contractor shall provide the following:

1. A list of items to be completed or corrected after Substantial Completion, the value of each incomplete item and reasons for incompletion of each.

2. A list to verify that no lapse in insurance coverage occurs.

3. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

4. Obtain and submit final agency releases enabling Owner's full and unrestricted use of the Work and access to services and utilities, including, where required, occupancy permits, operating certificates and similar releases.

5. Deliver tools, spare parts, extra stock of materials and similar physical items to Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.04 Substantial Completion (continued)

6. Make final change-over of locks and transmit keys to Owner and advise Owner's personnel of change over in security provisions.

7. Complete start-up testing of systems and instructions of Owner's operating/maintenance personnel. Discontinue and remove from Project Site temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.

8. Complete final cleaning up requirements, including touch-up and otherwise repair and restore marred exposed surfaces.

B. Inspection Procedures: Upon receipt of Contractor's request, Architect or the Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect will either prepare Certificate of Substantial Completion, or advise Contractor of Work which must be performed prior to issuance of Certificate and repeat inspection when assured that Work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance.

1.05 Final Completion

A. Prior to requesting final inspection for Certificate of Final Completion and Final Payment, as required by the General Conditions, complete the following and list known exceptions in request:

1. Prior to disbursement of Final Payment, General Contractor shall submit, and he shall require each of his subcontractors to submit if requested by the Owner, an Affidavit for obtaining Final Settlement of Contract with the State and its Political or Governmental Subdivisions certified by the Commissioner of Taxation and stating that the Contractor or Subcontractor has withheld and paid to the State all income taxes required to be withheld and paid to the State.

2. Submit Final Payment Request with final releases and supporting documentation not previously submitted and accepted. Include Certificates of Insurance for products and completed operations where required.

3. Submit updated final statement, accounting for additional (final) changes to Contract Sum.

4. Submit copy of Architect/Engineer's final punchlist of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.

5. Submit final meter readings for utilities, measured record of stored fuel and similar data as of time of Substantial Completion or when Owner took possession of and responsibility for corresponding elements of the Work.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Final Completion (continued)

6. Submit three copies of all operating and maintenance instructions for all equipment and systems that required adjustment, servicing and attention for its proper operation. Include all information necessary to make proper and efficient use of all equipment and maintain in proper operating condition. Use simple, non-technical language where possible. Provide all necessary wiring diagrams, schematics and the like required by repairmen. Any hazards likely to occur in operation of equipment shall be pointed out to avoid improper operation of any equipment that might result in damage or danger to equipment, building or personnel. Copies of all maintenance and operating information shall be submitted in bound form as a "Manual of Operating Instruction" with items grouped by Section of work. Append each manual with name, address, telephone number of Contractor, Subcontractor and companies or individuals providing service for equipment used.

7. Submit as-built drawings and similar final record information.

8. Submit consent of surety to final payment.

9. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: Upon receipt of Contractor's notice that Work has been completed, including punch list items resulting from earlier inspection and excepting incomplete items delayed because of acceptance circumstances, Architect will re-inspect Work. Upon completion of re-inspection, he will either prepare Certificate of Final Acceptance or advise Contractor of Work not completed or obligations not fulfilled as required for final acceptance.

1.06 Before Occupancy Checklist

1. Substantial Completion Form dated and signed by the Architect.
2. Inspecting Architect's Certification.
3. Final electrical inspection with no major work remaining.
4. Written certification on testing the fire alarm system.
5. Dependable heat and domestic water system.
6. All life safety equipment in place: smoke alarms, door closers, fire extinguishers, handrails, emergency exit lights, walks, ramps, hard surface parking, emergency call system, etc.
7. Certification on attic insulation.
8. Occupancy certificate from municipal building official.
9. Formaldehyde test results if required in the Contract.
10. Proper insurance coverage by the Owner.
11. Read meters of adjust any expenses for temporary facilities assessed to the Contractor.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Before Occupancy Checklist (continued)

12. No work remaining that would constitute a hazard to the tenants. Scaffolding above walks or exit s would not be allowed.
13. Determine liquidated damages if applicable.
14. Set dates for expiration of warranties.
15. Contractor to deliver all operation and maintenance manuals. Instruct caretaker where required. Deliver all equipment and appliance warranties.
16. Owner to notify contractor in writing of his intent to occupy if required under General Requirements of the contract.
17. Check with contractor for full payment and final lien waivers.
18. Determine retainage if reduced below 10% of work in place.
19. Adjust cost allowance items and unit prices.

PART 2 - PRODUCTS

(Not used)

PART 3 - EXECUTION

(Not used)

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 01 00 - SITE CLEARING

PART 1 - GENERAL

1.01 Work Includes

A. Remove surface debris.

B. Remove paving, curbs and sidewalks.

C. Clear site of plant life and grass as required for buildings and parking lot.

D. Remove trees, shrubs and root systems.

E. Topsoil excavation.

1.02 Related Sections

A. Section 02 20 00 - Earthwork: Filling, backfilling and fill compaction.

1.03 Regulatory Requirements

A. Conform to applicable code for disposal of debris and use of herbicides.

PART 2 - PRODUCTS

2.01 Materials

A. Herbicide.

B. Barricade and fence material - utility grade lumber or may consist of sound salvage materials free of nails and sharp points at Contractor's option.

C. Capping and sealing materials shall be by Code requirements.

PART 3 - EXECUTION

3.01 Preparation

A. Verify that existing plant life designated to remain is tagged or identified.

3.02 Protection

A. Locate, identify and protect utilities that remain from damage.

3.02 Protection

B. Protect trees, plant growth, and features designated to remain as final landscaping.

C. Protect bench marks and existing structures from damage or displacement.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 01 00 - SITE CLEARING

3.03 Clearing

A. Clear areas required for access to site and execution of Work.

B. Preserve in operating condition active utilities traversing the project site; protect property, including but not limited to mains, manholes, catch basins, valve boxes, poles, guys, and other subordinate parts.

C. Verify location of existing on-site utilities to remain and mark location in a manner that will allow quick reference to exact location throughout construction period.

D. Remove from the site all items indicated; paving, curbs, sidewalks, trees and shrubs, stumps and root systems.

E. Wet down material during demolition as required; prevent spread of dust; provide water and necessary connections.

F. Do no blasting or burning of materials on the project site except after written permission from the appropriate authorities and in the manner prescribed by local regulations. Burn no materials or debris under or near trees to remain.

G. Provide substantial barricades around all openings, as soon as such openings are un-covered, adequate to block access, and to afford protection to workmen and the public.

3.04 Removal

A. Remove from the site rubbish and debris found thereon and/or resulting from the Work of site clearing or demolition and all trees, shrubbery, etc. unless indicated to remain. At completion, leave the site in a safe and clean condition free from materials or equipment.

B. Repair damage to any active utility, due to Work under this Contract, to the satisfaction of the utility company.

3.05 Topsoil Excavation

A. Excavate topsoil from areas to be further excavated or re-graded.

B. Stockpile in area designated on site to depth not exceeding 8 ft. Protect from erosion. Remove excess topsoil not being reused from site.

C. Do not excavate wet topsoil.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 20 00 - EARTHWORK

PART 1 - GENERAL

1.01 Work Includes:

A. Provide all materials, labor, services and incidentals necessary for the completion of this Section of the Work.

B. The extent of excavation filling and grading as shown on the Drawings and as specified in this Section including engineered fill and/or sand under building slabs on grade, walks, asphalt drives, etc.

C. Arrange and pay for the services of a qualified soils technician from an approved testing laboratory to observe footing trenches, filling and compaction process for compacted fill and make all required compaction tests. Provide all laboratory tests required in this Section.

D. At concrete drive areas, grade to 10” below finish grades shown.

E. At concrete walk areas, grade to 8" below finish grades shown.

F. Provide and install aggregate base under concrete slabs-on-grade.

G. Provide and install sand under site concrete work.

H. Provide and spread topsoil.

I. At areas indicated to be lawn, grass, or sod, grade to finish grades shown, except allow for sod thickness.

J. All other areas, grade to elevations shown.

1.02 Related Work

A. Section 03 30 00: Concrete.

B. Divisions 22 00 00 and 26 00 00. Excavation, filling, compacting required in connection with Mechanical and Electrical work.

C. Section 01 43 00: Independent testing laboratory service requirements.

1.03 Protection

A. Carefully maintain all bench marks, monuments and other reference points. If any are disturbed or destroyed, replace them as directed.

B. The Contractor shall promptly notify Architect in writing if any functioning underground utilities are uncovered during the course of the Work and wait for instruction before proceeding.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.03 Protection (continued)

C. The Contractor shall be responsible for any damage to functioning underground or overhead utility lines and shall promptly repair and restore services at no additional cost to the Owner.

D. Properly cap abandoned utilities encountered at depth of 12" or more below finish grade.

E. Barricade open excavation and post with warning lights for safety of persons. Operate warning lights during hours from dusk to dawn each day.

F. Protect structures, utilities, sidewalks, pavements and other facilities immediately adjacent to excavations, from damage caused by settlement, lateral movement, undermining, washout and other hazards.

G. Take precautions and provide necessary bracing and shoring to guard against movement or settlement of existing improvements or new construction. Contractor is entirely responsible for strength and adequacy of bracing and shoring and for safety and support of construction from damage or injury caused by the lack thereof or by movement or settlement.

H. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

1.04 Tests

A. The excavations shall be observed by a soils engineer prior to placing any fill or foundations and again to perform compaction tests.

B. Submit reports of all testing and inspection services required herein in accordance with the requirements of Section 01 43 00.

1.05 Project Conditions

A. Contractor shall visit Project Site, familiarize himself with actual conditions and verify existing conditions in the field in comparison with those shown on the Project Drawings and Soils Report.

B. No extra compensation will be allowed due to unusual conditions encountered which could have reasonably been determined or anticipated by examination of the Project Site and the Project Drawings.

PART 2 - PRODUCTS

2.01 Fill and Backfill Materials

A. Approved inorganic soil material free from roots, debris, organic matter and other deleterious particles.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Fill and Backfill Materials (continued)

B. No solid material larger than 2" in its largest dimension allowed.

C. Use for fill and backfill except where underslab fill or compacted fill is required.

2.02 Under Slab Fill

A. Aggregate base or limestone screenings.

B. Use for providing necessary fill required to bring sub-grade to proper elevation under all slabs on grade, within and outside of building and structures perimeter.

2.03 Compacted Fill

A. Clean sands or gravel having less than 12% particles passing the #200 sieve, as selected by the Contractor's soils technician and laboratory tested for suitability for use as compacted fill for this Project.

B. Testing laboratory shall establish optimum moisture density relationship for the selected material in accordance with ASTM D698-78 and shall recommend percentage of compaction to be achieved under conditions encountered and for fill proposed to achieve designated loadings without detrimental settlement.

PART 3 - EXECUTION

3.01 Plan Grades

A. Grades indicated on the Project Drawings are the finished grade elevations, unless otherwise noted. Grades not specifically indicated shall be determined by interpolation of uniform slope between given elevations or contours, or between such points and existing grades. Unless otherwise indicated, grades shall be constructed to provide positive drainage away from building.

B. In case of discrepancy between finish elevation figures with proposed contours, figures shall govern.

3.02 Clearing

A. Remove all vegetation within the limits of the building and all trees indicated by the General Contractor that may hinder new construction work. The removal of trees outside building lanes shall be approved by Architect. Remove all trees including stumps and root systems as shown on Contract Documents.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Clearing (continued)

B. Rough grading of all areas within the construction limits, including excavated and filled sections and adjacent transition areas shall be reasonably smooth, compacted and free from irregular surface changes. The degree of finish shall be that ordinarily obtained from either blade-grade or scraper operations, unless otherwise specified. The finished subgrade surface generally shall be not more than 0.5 feet above or below the established subgrade with due allowance for topsoil, sod and pavement depths; the tolerance for areas to be paved shall not exceed 0.15 ft. above or below the established subgrade. All ditches, swales, and gutters shall be finished to drain readily. Unless otherwise indicated, the subgrade shall be evenly sloped to provide drainage away from the building walls in all directions at a slope not less than 1/4" per foot. Provide roundings at top and bottom of banks and at other breaks in grade.

3.03 Stripping Topsoil

A. Remove topsoil to its entire depth from areas which are to be disturbed by new construction Work except at existing lawn areas which are to remain in place. This includes but is not limited to building site, roadways, parking lots, etc. Examine conditions carefully and watch for low areas where topsoil may be found to greater depths.

B. At new lawn areas, remove good topsoil to a depth of 4".

C. Good topsoil shall be that which is free from clay, large stones, and debris and is suitable for use in developing new lawn areas. Store good topsoil stripped from site in stockpiles as directed by the Architect.

D. Stockpiled topsoil shall be used exclusively for finish grading in new lawn areas. Excess topsoil shall be trucked off if surplus material.

E. Protect all existing lawn areas scheduled to remain in place. Replace any damaged areas upon completion of the Work.

3.04 Preparation of Subgrade

A. Do all additional cutting, filling, compacting of fill and rough grading necessary to bring the sub-grade to proper elevations as follows:

1. Lawn areas: 6" below finish grade.
2. Interior building slabs-on-grade: 6" below bottom of slabs.
3. Exterior slabs, walks on grade: 10" below finish grades.
4. Planting areas: 6" below finish grade plus planting pits.
5. Bituminous paving areas: 11" below finish grade at car parking area.

B. Protect newly graded areas from the actions of the elements. Any settlement or washing that occurs prior to acceptance of the Work shall be repaired and grades re-established.

C. Remove excess materials from the Project Site immediately.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 20 00 - EARTHWORK

3.05 Excavation

A. Excavate to dimensions shown or as required for all footings, foundation and retaining walls, slabs, pits, trenches, pavements, sidewalks, planted areas and other structure.

B. Level off and grade bottoms of excavation to receive floors, slabs and similar work, with proper allowance for base materials.

C. Notify Architect as soon as excavation for footings or foundations are made in order that inspections can be made prior to pouring concrete.

D. Slope or shore and brace all excavations to prevent cave-ins or slides. Remove when no longer required. Take all necessary precautions to prevent damage to life and property.

E. Fill excess cuts under footings with concrete. Fill excess cuts under slabs on grade with compacted fill.

F. All excavations shall be clean, dry and free of loose earth or other materials at time of placing concrete.

G. Remove excess excavated materials from Project Site.

3.06 Dewatering

A. Provide for surface drainage during construction in a manner to avoid creating a nuisance to adjacent areas.

B. Keep all excavations free of water by pumping or trenching during entire progress of the Work, regardless of the cause, source, or nature of the water.

C. Provide necessary cofferdams or piling required to protect excavations.

D. Slope excavation to drain and provide necessary pumps, hoses and other equipment required to keep excavation free of water.

E. Conduct water away from excavations and off site without encroaching on other properties as required for surface drainage.

F. Remove all temporary construction and equipment used for dewatering from the site when no longer required.

3.07 Unforeseen Obstacles

A. Notify Architect immediately if any unforeseen major obstacles are encountered in excavation, such as abandoned wells, abandoned or functioning utilities, subsurface streams or rock, which would cause the Contractor undue expense to overcome.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.07 Unforeseen Obstacles (continued)

B. The above shall not serve to relieve the Contractor of the responsibility for completing all Work required where conditions encountered are reasonably ascertainable from sub-surface soil investigation report and examination of the Project Site and Contract Documents.

3.08 Filling and Grading

A. Fill all excavations, backfill against all walls and do all filling and grading necessary to bring surfaces to required levels.

B. Exercise care in use of equipment when rolling over areas where excavations have been made and backfilled.

C. Do no backfilling until after foundation walls have attained full design strength and are suitably braced, debris removed from areas to receive backfill and/or underslab fill.

D. Backfill walls in horizontal layers not exceeding 12" in depth; compact as required to make solid. Walls requiring fill on both sides shall be backfilled on both sides simultaneously. Brace walls which do not have supported slabs in place, above. Excavations made in clay soil around perimeter of foundation walls shall be cut back to an angle of at least 30 degrees measured from the vertical prior to placement of backfill.

E. Place compacted fill to specified subgrade in the following locations:

1. All backfill within 10 ft. outside perimeter of building foundation and basement walls.
2. Under concrete slabs on grade within the building.
3. Under exterior concrete walks and other exterior concrete paving.
4. Under bituminous paving.

F. Deposit compacted fill material in uniform layers approximately 12" in thickness and approximately parallel to finish grade. Compact each layer with rollers, vibratory equipment or other approved equipment and methods. The fill material, while being compacted, shall contain the moisture content necessary for the required compaction as designated by testing laboratory. The moisture shall be uniform throughout each layer. If the material is too dry, add water with approved equipment and methods which will not wash out the fine materials in the fill. If the material is too wet, dry by harrowing, disking, blading or other approved methods recommended by the soils technician.

G. The degree of compaction shall be tested in accordance with the requirements for compaction tests specified below.

H. Place no fill material when either the fill material or the material on which it is to be placed is frozen. Any soft or yielding spots appearing in the fill resulting from frost, rain, or any other reason whatsoever shall be scarified, removed, re-compacted and/or otherwise rectified to the satisfaction of the Architect before any new fill is placed.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.08 Filling and Grading (continued)

I. The compacted fill shall be brought up to the elevation limits indicated, 3.04 Preparation for Subgrade.

J. When proper subgrade is established to the required elevations under all interior and exterior concrete flatwork on grade fill with underslab fill material to the elevation of the bottom of the concrete thickness.

K. Provide all fill material necessary to complete the Work whether obtained on or off the Project Site.

3.09 Compaction Tests

A. Contractor's soils technician and approved testing laboratory shall perform in-place density and moisture tests at random for each lift of all compacted fill in sufficient quantity to determine the method of compaction is achieving specified compaction. Make a minimum of one test for each 2,500 sq. ft. of area for each 12" thick layer of compacted fill material placed. Retest soil which has not been compacted to required density after further compaction prior to proceeding with next lift. Certify compliance of completed work with requirements of the Specifications.

B. Optimum moisture-density relationship will be determined by testing laboratory in accordance with ASTM D698-78 and maximum density determination made by Method D of ASTM D698-78.

C. Compacted fill shall meet the following required percentages of maximum density determination:

1. Under lawns and plant areas beyond 10 ft. outside the building perimeter: 90%.
2. Below pavement (upper 3'): 100%.
3. Under interior floor slabs and pavement (below 3'), and within 10 ft. outside the building perimeter: 95%.
4. Under footings: 95%.

3.10 Maintenance of Graded Areas

A. Protect newly graded areas from traffic and erosion, keep free of trash and debris.

B. Repair and re-establish grades in settled, eroded and rutted areas.

C. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 20 00 - EARTHWORK

3.11 Disposal of Excess Waste Materials

A. Remove excess excavated material, trash, debris and waste materials, from the Owner's property and legally dispose of it immediately.

3.12 Spreading Topsoil and Finish Grading

A. Scarify subgrade to depth of 3" after it has attained permanent set. Spread topsoil evenly over complete subgrade as follows:

1. Lawn areas: Where subgrade is sand, spread 6" layer of clay followed by a 4" layer of topsoil.
2. Lawn areas: Where subgrade is clay or loam, spread 4" lightly compacted layer of topsoil, or mix sufficient peaty loam with clay subgrade to produce an 8" layer of mixed soil acceptable to the Architect.
3. Lawn areas: Where subgrade is rock, spread a minimum of 4" of topsoil.
4. Planting areas: Spread 12" layer of topsoil.

B. Finish grade accurately and carefully, true to grade and cross section within 0.1 foot of finish grade shown on the Project Drawings, less the thickness of sod where it is to be installed. Slope all grades away from the building to provide positive drainage, minimum 6" in 10-0 feet.

C. Prepare topsoil suitable to receive seed and/or sod. Grade to eliminate water pockets, irregularities, using a blade grader and heavy steel "H" beam. Areas compacted by vehicles or storage of materials shall be plowed, disced, and harrowed to match texture of other finish graded areas. Roll finish grade as necessary to make solid, for sodding and/or seeding.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 71 00 - FOUNDATION DRAINAGE SYSTEMS

PART 1 - GENERAL

1.01 Section Includes

A. Building perimeter drainage system.

B. Filter aggregate and fabric bedding.

1.02 Products installed but not furnished under this Section:

A. Division 22: Supply of sewer pipe connection couplings for placement by this Section.

1.03 Related Sections

A. Section 02 20 00 Earthwork: Excavating for subdrainage system piping and surrounding filter aggregate.

1.04 Field Measurements

A. Verify that field measurements and elevations are as instructed by the manufacturer.

1.05 Coordination

A. Coordinate the Work with connection to municipal sewer utility service and trenching.

PART 2 - PRODUCTS

2.01 Manufacturers - Pipe Materials

A. Advanced Drainage Systems, Inc.

2.02 Pipe Materials

A. Corrugated Plastic Tubing: Flexible type, 4" diameter with required fittings.

B. Use perforated pipe at subdrainage system; unperforated through sleeved walls.

2.03 Filter Aggregate and Bedding

A. Filter Aggregate and Bedding Materials: 1/4" washed pea rock.

2.04 Accessories

A. Joints: Sleeve type plastic coupling fitting at intersection of rolls of drain tile.

B. Sleeve: Nylon mesh sleeve to prevent sand from entering perforations.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 02 71 00 - FOUNDATION DRAINAGE SYSTEMS

PART 3 - EXECUTION

3.01 Examination

A. Verify that trench cut is ready to receive work and excavations, dimensions and elevations are as indicated on Drawings.

3.02 Preparation

A. Hand trim excavations to required elevations. Correct over excavation with aggregate.

B. Remove large stones or other hard matter which could damage drainage piping or impede consistent backfilling or compaction.

3.03 Installation

A. Install and join pipe and pipe fittings in accordance with pipe manufacturer's instructions.

B. Place drainage tile on clean cut subsoil.

C. Lay pipe at bottom of footing and slope as noted on Drawings with maximum variation from true slope of 1/8" in 10'.

D. Install pipe couplings.

E. Install aggregate minimum of 12" on each side and 12" above pipe.

F. Place aggregate in maximum 6" lifts, consolidating each lift.

G. Refer to Section 02 20 00 for compaction requirements. Do not displace or damage pipe when compacting.

H. Connect to storm sewer system with unperforated pipe. Verify with Project Drawings.

3.04 Protection

A. Protect pipe and aggregate cover from damage or displacement until backfilling operations begin.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 03 30 00 - CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.01 Work Included

A. Provide all materials, labor, services and incidentals necessary for the completion of this Section of the Work.

B. Include formwork, fabrication and placement of reinforcement for cast-in-place concrete, including bars, welded wire fabric, ties, supports and accessories required.

C. Install anchor bolts, inserts and similar items furnished by other trades.

D. Provide leveling cement as necessary to overcome depressions.

1.02 Standards: Comply with provisions of following latest standards, except as supplemented and modified herein.

A. ACI 301 "Specifications for Structural Concrete for Buildings.

B. ACI 318 "Building Code Requirements for Reinforced Concrete".

C. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".

D. ACI305R Hot Weather Concreting.

E. ACI306R Cold Weather Concreting.

1.03 Submittals

A. Submit laboratory testing reports for the concrete materials, mix design and compressive strength tests for each concrete type, a minimum of 30 days prior to placement of any concrete to Architect and inspection consultant for approval by the Architect. Submit batch plant certification (ASTM:C94) for approval a minimum of 30 days prior to placement of concrete.

PART 2 - PRODUCTS

2.01 Materials

A. Portland Cement: ASTM C150, Type I. Request approval for use of Type III.

B. Aggregates: ASTM C33.

1. Fine Aggregate: Clean hard, sharp grained natural sand with fineness modulus not less than 2.5 nor more than 3.0 and free from loam, clay and silt.

2. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam or foreign matter, as follows:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

a. Crushed stone, processed from natural rock or stone.
b. Washed gravel, either natural or crushed. Use of pit run gravel not permitted.
c. Maximum aggregate size: Not larger than 1/5 of narrowest dimension between sides of forms, 1/3 of depth of slabs, nor 3/4's of minimum clear spacing between individual reinforcing bars or bundles of bars.

C. Water: Clean, potable and free from injurious substances.

D. Admixtures: Provide admixtures produced by established reputable manufacturers and use in compliance with manufacturer's printed directions. Do not use admixtures which have not been authorized in writing by Architect. Admixtures shall be free of calcium chloride.

1. Air-Entraining Admixture: ASTM C 260. Master Builders "MB-VR"; W.R. Grace Co. "Darex".
2. Water-Reducing Admixture: ASTM C 494-79, Type A. Use is optional as determined by testing laboratory in mix design, except, do not use in footings, slabs-on-grade and in exterior concrete not part of the structure. Euclid Chemical Co. "Eucon WR-75"; Master Builder's "Pozzolith 200 N".

E. Patching Concrete: Same materials and proportions as the concrete used except:

1. Omit coarse aggregate (except aggregate finish).
2. Use no more than one part cement to 2-1/2 parts sand by damp loose volume.
3. Prepare trial patch-mix for Architect's approval prior to patching. Use White Portland Cement if necessary to produce color necessary to match surrounding concrete.
4. Use bonding agent as necessary, or as directed by Architect.

F. Forms: Standard wood and/or metal forms.

G. Reinforcement:

1. Reinforcing Bars: Deformed billet-steel bars for concrete reinforcement conforming to ASTM A615-79, Grade 60.
2. Provide bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.
3. Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI "Manual of Standard Practice".

H. Fibrous secondary/temperature reinforcement: Fibermesh 300 or approved equal.

.

1. Ploypropylene fibrous reinforcement
2. Use minimum 1.5 lbs. per cubic yard of concrete.
3. Minimum fibrous length ¾”.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

I. Curing Materials:

1. Curing Compound: Resin base liquid concrete curing compound, ASTM C 309-74, Type 1, with fugitive dye to provide uniformity of application and 95% or more retention of mixing water for 7 days or more. Compound must be compatible with all applied finishes designated for use. Material shall provide water retention not exceeding loss of 0.39 Kg/M-2 when used at a coverage of 400 sq. ft. per gallon and tested in accordance with ASTM C 156.

2. Non-staining waterproof paper covering: ASTM C 171-69.

3. Polyethylene film: Permeance not to exceed 0.20 perms when tested according to ASTM E-96, procedure B. Do not use on hard troweled surfaces.

J. Expansion Joint Filler: For slabs-on-grade:

1. Pre-molded bituminous fiber filler conforming to ASTM D1751 at exterior slabs.
2. Use poly or bond breaker at interior slabs.
3. Size: Depth of slab by 1/2" unless otherwise detailed.

K. Floor Underlayment: Ardex-Ardex K15 or L & M Levelex or Sonneborn Sonoflow or Self-Leveling Underlayment by A.C. Horn or Conflow and Primeflow by Conspec. Use for leveling existing floor and uneven concrete floor slabs which are to receive applied floor coverings.

L. Vapor Barrier: 6 mil polyethylene film - install under all interior slabs-on-grade where a finish floor is to be installed. Tape all joints at least 6".

PART 3 - EXECUTION

3.01 Formwork

A. Design of removable forms, shores and bracing is the responsibility of the Contractor. Include all factors pertaining to safety of formwork structure such as live load, dead load, weight of equipment on formwork, concrete mix, height of concrete drop, vibration reactions and similar factors.

B. Remove forms only after concrete has attained adequate strength to assure complete safety of the structure and in manner that will not damage concrete or adversely affect appearance of exposed concrete members.

3.02 Reinforcement Installation

A. Accurately place and support reinforcing, using accessories as required to assure that reinforcement will remain in position during concrete placement. Place reinforcement to obtain minimum coverages of 1-1/2".

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Reinforcement Installation (continued)

B. Suspend footing reinforcement in place with wires to assure proper placement.

C. Provide two #3 bars 3" apart four sides of floor drains in slabs.

D. Install welded wire fabric in longest practicable length and cut to fit all penetrations. Place mesh flat, without roll or curling.

E. When detailed to include welded wire fabric in slabs-on-grade or structural topping concrete, place mesh at mid-point of slab and topping thickness.

3.03 Proportioning and Design of Mixes by ACI 301-89

A. Design mixes to provide normal weight concrete with the following properties:

1. All exterior concrete: 4,000 psi 28-day compressive strength.
2. All other concrete: 3,000 psi 28-day compressive strength.

B. Use air-entraining admixture in exterior concrete and other concrete exposed to moisture and freezing during construction, unless otherwise indicated. 3% air mix inside.

C. Use amount of other admixtures as indicated in mix design and as recommended for climatic conditions prevailing at time of placing. Adjust quantities and types of admixtures as required to maintain quality control.

D. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps and Sloping Surfaces: Not more than 3".
2. Reinforced Foundation Systems: Not less than 2" and not more than 4".
3. Other Concrete: Not less than 1" and not more than 4".

3.04 Mixing

A. Mix concrete until there is uniform distribution of materials. Mix at least two minutes after all materials are in mixer. Discharge concrete completely before mixer is recharged.

B. Adhere strictly to ASTM C 94 for ready-mixed concrete.

C. Job mixing of concrete allowed only if written approval is given by the Architect and adequate control of measuring can be provided.

3.05 Placing Concrete

A. Convey concrete from mixing to form as rapidly as practicable and by methods which will prevent segregation or loss of ingredients. Deposit as nearly as practicable in its final position.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.05 Placing Concrete (continued)

B. Place concrete before initial set has occurred, and in no event after it has contained its water content for more than one hour. Place all concrete on clean, damp surfaces, free from water, or upon properly consolidated fills, but never soft mud, dry porous earth, or frozen ground.

C. Deposit concrete continuously and as rapidly as practicable until the unit of operation is completed.

D. In joining fresh concrete to concrete that has already been set, remove all loose and foreign materials from set concrete. Scrub with wire brooms and thoroughly clean. Moisten when the new concrete is placed.

E. Vibrate all concrete according to ACI301-89. Maximum concrete free fall is five feet.

3.06 Weather Conditions

A. Protection:

1. Provide adequate protection against rain, sleet and snow before and during placement and finishing of concrete.
2. Provide adequate protective measures to maintain the temperature of the concrete as specified.
3. Do not allow carbon dioxide gases to contact freshly placed concrete. Repair or replace carbonized surfaces as directed by the Architect.

B. Cold Weather Concreting:

1. Do not place concrete when the atmospheric temperature is below 40 degrees F., or when the concrete is likely to be subjected to freezing temperatures within 24 hours after it has been deposited unless adequate temporary heating is provided.
2. Maintain concrete temperature not less than 50 degrees F., nor more than 90 degrees F. for the first three days after placing. Protect from freezing for the next five days.
3. Use no frozen materials or materials containing ice in concrete.
4. Do not use salt or other chemicals to prevent freezing.
5. Perform all cold weather concreting in accord with ACI 306 - "Recommended Practice for Cold Weather Concreting".

C. Hot Weather Protection:

1. Do not place concrete when the atmospheric temperature is above 100 degrees F.
2. Maintain concrete temperature not less than 50 degrees F. nor more than 90 degrees F. for the first three days after placing. Protect from temperatures over 90 degrees F. for the next five days.
3. Thoroughly wet dry porous surfaces before concreting.
4. Water reducing admixture with retarding properties required for all concrete placed when temperature exceeds 80 degrees F.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.06 Weather Conditions (continued)

5. Perform all hot weather concreting in accord with ACI-305 "Recommended Practice for Hot Weather Concreting".

3.07 Joints in Concrete

A. Expansion Joints: Refer to Project Drawings for location.

B. Control Joints: Refer to Project Drawings. Form panels as shown. Use inserts 1/4" wide x 1/5 to 1/4 of the slab depth, unless otherwise shown. Form joint by inserting a pre-molded plastic, hardboard or fiberboard strip into the fresh concrete until the top surface of the strip is flush with the slab surface. After the concrete has cured for at least seven days, remove inserts and clean groove of loose debris. In lieu of a 3/8” saw cut joint may be used

3.08 Concrete Construction Tolerances

A. In accord with the tolerances stipulated for reinforced concrete buildings, Section 2.4, ACI 347 "Recommended Practice for Concrete Formwork". Maximum variations of anchor bolt center lines: 1/8".

3.09 Repairing and Patching

A. Remove and replace at no additional cost any concrete not formed as shown on Plans, concrete out of alignment, surfaces beyond required tolerances or defective surfaces which cannot be properly repaired or patched, including any concrete failing to meet the strength requirements as determined by the testing laboratory.

B. Clean, dampen and fill all bolt and tie holes and other similar defects with patching concrete immediately after removing forms.

C. Remove to sound concrete all bulges, projections, honeycomb and all other defects in exposed concrete and patch. Thickness of patch: 1" minimum. Cut the perimeter edges of all areas to receive patching mix perpendicular to the surface or undercut. Feather edge patches will not be allowed. Do all patching before concrete is thoroughly dry.

D. Brush a bond coat of stiff neat Portland Cement and water into the pre-dampened patching area and allow to partially set. Fill area with specified patching mix in 1/2" layers, compact and surface-scratch to receive successive layers. Strike patching mix off leaving a slight bulge to allow for shrinkage. Hold large patches in place with forms matching original forms. Leave patched area undisturbed for one hour before final finishing. Keep damp for seven days. Do not use metal tools in finishing patches on exposed surfaces.

3.10 Curing

A. Protect concrete from premature drying. Provide temporary housing, covering, or other protective used in curing and keep in place and intact a minimum of 24 hours after artificial heating or cooling has been discontinued. Follow finishing operations with curing measures within two hours.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.10 Curing (continued)

B. Keep concrete continuously moist for seven days. Prevent rapid drying at the end of the curing period.

C. If high early strength cement is used, curing period may be reduced to three days.

3.11 Finishing

A. Spreading dry cement for finishing not permitted.

B. Trowelled Finish: All slabs which are to receive resilient flooring, carpet, adhesive applied or monolithic finish shall have a smooth hard steel trowelled surface.

C. Provide trowelled finish on garage parking and drive slabs.

D. Smooth Finish: Leave exposed concrete not designated to receive any finish smooth with as little repair work as possible after removal of forms. Grind off joint marks and fins and leave surfaces smooth, dense, free of honeycombing. Patch with patching concrete where required; trowel to smooth finish to match adjoining work.

3.12 Curing, Hardening and Sealing

A. All interior concrete slabs, with carpet, resilient tile or left exposed, shall be cured/sealed with L & M Dress and Seal #30 or "Super RezSeal" by the Euclid Chemical Co. or "Masterkure" by Master Builders or Kure-N-Seal 30 by Sonneborn. The compound shall conform to ASTM C309 and Federal Spec. TT-C-800A, 30% solids content minimum.

B. Where concrete curing hardener compound is noted in the Room Finish Schedule for concrete slabs, topping and stairs, apply Brock White Crete Seal, or approved equal, immediately following final troweling. Spray apply the compound uniformly at the rate of 400 sq. ft. of surface per gallon in accordance with manufacturer's instructions. Attention is called to the fact that discoloration or spotting of the surface could result from uneven application. Hardener shall be applied to all exterior slabs, curbs and sidewalks.

3.13 Exterior Slabs, Walks and Drives

A. Before sidewalk is laid, level off and compact coarse gravel fill as specified under Section 02 20 00. Reinforce all sidewalks and ramps and pads with 6x6 W1.4/W1.4 wire mesh. Place 4" thick concrete slab.

B. Finish: Broomed finish unless otherwise indicated. After floating, troweling and when water sheen has disappeared, brush lightly with approved steel or fiber broom, not less than 18" wide, at right angles to center line to a uniform roughened surface. Edge all joints, panels with metal tool to leave smooth border around each panel.

C. Expansion joints: 1/2" pre-molded bituminous filler in locations detailed and at intervals not exceeding 30 ft. in any direction. Provide where walks meet curbs, transverse walks, drives, slabs, structures. Provide where drives meet slabs, structures. Hold down 1/2" to receive sealant where shown on Drawings.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.13 Exterior Slabs, Walks and Drives (continued)

D. Control joints: Weak plane joints at 6' centers. Rub edges of joints with a jointing tool.

E. Comply with local ordinances relating to construction of walks, drives on public property. Modify construction requirements accordingly.

3.14 Curbs and Gutters

A. Design: Refer to Project Drawings.

B. Finish: After concrete has set sufficiently to retain molded shape, remove face form and construction joint plates. Hand float and fill all cavities; brush lightly with white wash at right angles to line of curb. Round edges of joints with 1/4" radius.

C. Expansion joints: 1/2" preformed bituminous filler in locations detailed and at intervals not exceeding 30 ft., cut true to shape of curb and gutter.

D. Control joints: Formed by insertion in forms removable metal plates, approximately 1/8" thick at intervals not to exceed 10 ft.

E. Comply with local ordinances relating to construction of curbs, gutters on public property. Modify construction requirements accordingly.

3.15 Field Quality Control

A. Provide the following tests during concrete placement:

1. Slump test: One slump test at point of discharge from every truck delivered to the site. ASTM:C143.

2. Air and Unit Weight: Air content and unit weight tests at start of each day's placement and every 50 cubic yards thereafter. Every truck with air entrained structural concrete also tested. ASTM:C173, ASTM:C231 and ASTM:C138.

3. Compressive Test Specimens: One set of three standard cylinders for each compressive strength test.

4. Compressive Strength Tests: One set for each day's placement plus additional sets for each 50 cubic yards over and above 25 cubic yards. One specimen tested at 7 days and two at 28 days.

A. The Structural Engineer shall inspect the placement of concrete two times per month, or a minimum total of two inspections. The Engineer shall inspect the work for conformance with the requirements of the Contract Documents and standards of workmanship contained therein.

B. The Structural Engineer shall furnish a final report at the conclusion of the concrete work assessing the overall conformance to the Contract Documents.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.15 Field Quality Control (continued)

C. A copy of each special inspection report shall be furnished to the following:

1. Architect
2. Owner
3. General Contractor
4. Building Official

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 03 40 00 - PRECAST CONCRETE

PART 1 - GENERAL

1.01 Work Included

A. Pre-stressed concrete planking.

B. Precast concrete columns and beams.

C. All necessary steel hangers and supports.

D. Reinforcement as required.

E. Bearing pads.

F. Steel inserts.

G. Grouting of joints.

1.02 Related Sections

A. Section 03 30 00 - Cast-in-Place Concrete

B. Section 03 54 00 - Gypsum Underlayment

C. Section 04 20 00 - Unit Masonry

1.03 Quality Assurance

A. Planks, columns, walls and beams shall be designed and fabricated by Hanson Span-crete Midwest, Inc., Molin Concrete Products Co., Inc., MNDak Concrete Inc., County Materials Corp., Andrews Prestressed Concrete, IPC Precast, Inc., Mid-States Concrete.

B. Planks, columns, walls and beams shall conform to the recommendations of ACI 318 - Building Code Requirements for Reinforced Concrete, and PCI Manual 116.

C. Planks, columns and beams shall be designed for a three hour rating in accordance with PCI MNL-124 latest edition, PCI Design for Fire Resistance of Precast Pre-stressed Concrete. Accepted by ICBO NER #326. Evidence of such certification is required.

D. All precast planks, columns, walls and beams shall be designed by a licensed structural engineer. All exterior walls shall be insulated.

E. All vertical wall panel joints to be treated with a water tight backer rod and joint sealant treatment.

F. All design, construction and installation shall meet requirements of State and Local build-ing codes.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 03 40 00 - PRECAST CONCRETE

1.04 Submittals

A. Submit in accordance with Section 01 33 00.

B. Shop Drawings shall include:

1. Complete wall and plank layout dimensioned and with openings indicated.
2. Joint and chase details, reinforcement, location of anchor plates as required.
3. Hanger and other details as required.
4. Plank schedule. Wall schedule.
5. Structural analysis with final stresses and camber calculations.
6. Weldment locations and Weld Bead.

1.05 Product Delivery Storage and Handling

A. Transport and handle precast members with proper equipment to protect units from dirt and damage.

B. Store precast members to protect units from contact with soil or ground, from warping, cracking, staining, chipping or spalling of concrete.

PART 2 - PRODUCTS

2.01 Concrete

A. Design shall be in accordance with the latest edition of ACI 318.

B. Compressive strength minimum of 5000 psi at 28 days.

C. Portland cement - ASTM C150.

D. Concrete aggregates - ASTM C33.

2.02 Pre-stressing Steel

A. ASTM A-416.

B. Ultimate tensile strength grade 250K or 270K of sufficient strength commensurate with member design.

2.03 Accessories

A. Steel hangers and support and other accessories as required.

B. Bearing pads shall be non-staining tempered wood (Korolath or equal).

C. Weld inserts anchor plates as required or shown on Drawings.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.03 Accessories (continued)

D. Reinforcing steel. ASTM A615, deformed steel bars.

2.04 Grout

A. Cement: Portland cement, ASTM C150 Type 1.

B. Sand: Clean, natural sand ASTM C404.

C. Water: Clean, potable.

PART 3 - EXECUTION

3.01 Installation

A. All pre-stressed units shall be hauled and erected by or under the direct supervision of the manufacturer. Handling inserts shall be removed or cut flush after placing.

B. Install all walls, beams and columns including all necessary shimming, connections, welding, grouting and built-in items.

C. All slabs shall be leveled, keeping the units tight and at right angles to the bearing walls or beams.

D. Floor plank manufacturer shall bond in #3 bars in grouted shear key.

E. Where weld inserts are shown, precast contractor shall weld inserts in slabs to bearing surfaces.

F. Cooperate with other trades to permit inserting of anchors, etc. Hangers shall be placed before units are grouted.

G. Provide a minimum of camber on all units. Tolerances on camber shall be held to 1/4".

H. All openings 8" or larger in any dimension shall be formed or cut on the site by the erector. All openings smaller than 8" shall be cut by the Contractor requiring the opening except no openings will be allowed in vertical legs of the structural members.

I. Openings in plank shall be cut from the bottom or by core type drills from the top. The Mechanical/Electrical Contractor will be responsible for the location of all holes to be formed or cut into the unit.

3.02 Grouting - Precast Concrete Planks

A. Plank keyways shall be grouted by a 1:3 cement, sand grout mix with minimum water required for placement and hydration.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Grouting - Precast Concrete Planks (continued)

B. All grouting shall be performed in strict accordance with written recommendations of the planking manufacturer.

C. After pre-stressed concrete planking units have been placed and secured, grout open spaces at connection and joints.

D. Provide forms or other acceptable method to retain grout in place until sufficiently hard to support itself. Pack spaces with stiff grout material, tamping until voids are completely filled. Place grout to finish smooth, plumb, and level with adjacent concrete surface. Keep grouted joints damp for not less than 24 hrs. after initial set. Promptly remove grout material from exposed surfaces before it hardens.

3.03 Defective Work

A. Any defective work discovered after the forms have been removed and/or after the erection of the planks, columns or beams shall be repaired immediately. If the surface of the concrete is bulged, cracked, chipped, uneven, or shows excessive honeycombing or form marks, which defects cannot be repaired satisfactorily, the entire section shall be removed and replaced. No extra compensation will be allowed for the extra work or materials involved in repairing or replacing defective work.

3.04 Special Inspections (I.B.C.)

A. The precast fabricator shall furnish evidence of an on-going quality control program from all facilities producing products for this project. The format shall be a Certificate of Compliance from a reputable testing agency or trade association.

B. A copy of the Certificate shall be furnished to the following:

1. Architect
2. Owner
3. General Contractor
4. Building Official

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 03 54 00 - GYPSUM UNDERLAYMENT

PART 1 - GENERAL

1.01 Requirements Include

A. Self-leveling gypsum underlayment shall be used for first, second, and third floors.

1.02 Related Work

A. Section 03 40 00 - Precast Concrete.

B. Section 06 10 00 - Rough Carpentry

1.03 Quality Assurance

A. Installation shall be by an approved installer using approved mixing/pumping equipment.

1.04 Delivery and Storage of Materials

A. All materials shall be delivered in their original unopened packages and protected from exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.05 Environmental Conditions

A. Before, during and after installation of Gyp-Crete, building interior shall be enclosed and maintained at a temperature above 50 degrees F. until structure and sub-floor temperatures are stabilized. Provide continuous heat and adequate ventilation to rapidly remove moisture from the area until underpayment is dry. Good air circulation is imperative for good job results. Some buildings will require mechanical ventilation. Under the above conditions 5-7 days is usually adequate drying time. Gyp-Crete is considered dry if no condensation occurs in 48-72 hours under a 24" x 24" section of plastic taped to the Gyp-Crete.

PART 2 - PRODUCTS

2.01 Materials

A. Gypsum Cement – Maxxon Corporation

1. Gyp-Crete 2000/3.2 K floor underlayment compound used on sub-floor and precast concrete surfaces with range from 2000-3200 PSI.
2. Gyp-Crete Duracap 3000 floor underlayment compound used at all common areas including stairwells, corridors, public toilets and elevator lobbies, with 3500 PSI minimum.
3. Provide ¼” Acousti-mat II sound control mat with 1” Duracap 3000 floor underlayment at all sheet vinyl areas with 3500 PSI minimum.
4. Approved equals include: U.S. Gypsum Levelrock Products, Accucrete Products, Hacker Industries, Inc.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

B. Acousti-Mat perimeter isolation strips 1/8” x 2 ½”.

C. Primer – over plywood or oriented strand board (OSB) use Gyp-Crete floor primer

D. Sand - 1/16" or less washed mason, mortar, or plaster sand

E. Water - Potable; free from impurities

2.02 Mixing Proportions

A. 8 gallons water and 180 lb. sand per 80 lb. bag of GypCrete. Do not over water; water amount will change with condition of sand.

PART 3 - EXECUTION

3.01 Condition of Surface

A. Minimum construction shall be 3/4" T & G exterior glue 4020 plywood, trusses 24" o.c. Plywood must bear an American Plywood Association (APA) grade-trademark and be fastened in accordance with APA recommendations.

B. Subfloor shall be structurally sound, broom clean, and free of mud, oil, grease, or other contaminants.

C. Prior to installation of Gyp-Crete, General Contractor shall inspect the area to be poured for proper nailing of the plywood and replace any areas of plywood or stud walls that have weakened or delaminated during construction. All stud wall base plates in door and other openings shall be removed.

D. To prevent leakage, fill all cracks and voids with a quick setting taping compound.

3.02 Priming

A. Plywood - Spray one coat of Gyp-Crete floor primer with a concrete or garden sprayer over entire plywood deck using one gallon per 400 sq. ft.

B. Wood Renovations - Mop or squeegee SS-1 asphalt emulsion over the entire surface completely sealing old boards, not less than two hours or more than 24 hours prior to the installation of Gyp- Crete. Coverage of SS-1 asphalt emulsion shall be one gallon per 100 sq. ft.

C. Concrete - Gyp-Crete floor primer is not always required over concrete substrates. Contact local applicator for specific recommendations.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 03 54 00 - GYPSUM UNDERLAYMENT

3.03 Underlayment Application

A. To minimize damage to installed underpayment and to complete sound seals, pouring should be scheduled after the installation of drywall.

B. Install Acousti-Mat Perimeter Isolation Strip at the perimeter of the entire subfloor (including doorframes) and around any protrusions through the installation. This procedure isolates the sound mat floor system from the walls in order to create an acoustical break that will minimize the transmission of sound laterally from the ‘floating floor” to the walls.

C. Install Gyp-Crete to 1¼" thickness as shown on Drawings and 3/4" over precast, spreading and screeding to a smooth continuous surface. Place as continuously as possible until installation is complete so that no Gyp-Crete slurry is placed against Gyp-Crete that has obtained its initial set, except at authorized joints.

D. Promptly clean splatter from exposed walls and supporting structures before it sets.

E. Seal all Gyp-Crete with an appropriate sealer under all sheet vinyl floors.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 04 20 00 – UNIT MASONRY

PART 1 - GENERAL

1.01 Description of Work

A. Extent of each type of masonry work is indicated on Drawings.

B. Types of masonry work required include:

1. Concrete block masonry units
2. Mortar and grout
3. Face brick

1.02 Quality Assurance

A. Single Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer.

B. Single Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.

1.03 Submittals

A. Product Data: Submit manufacturer's product data for each type of masonry unit, accessory and other manufactured products, including certifications that each type complies with specified requirements.

1.04 Delivery, Storage and Handling

A. Deliver masonry materials to project in undamaged condition.

B. Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes.

C. Store cementitious materials off the ground, under cover and in dry location.

D. Store aggregates where grading and other required characteristics can be maintained.

E. Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.05 Project Conditions

A. Protection of Work: During erection, cover top of walls with waterproof sheeting at end of each day's work. Cover partially completed structures when Work is not in progress.

B. Extend cover a minimum of 24" down both sides and hold cover securely in place.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Project Conditions (continued)

C. Staining: Prevent grout or mortar from staining the face of masonry to be left exposed. Remove immediately grout or mortar in contact with such masonry. Protect base of walls from rain- splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.

D. Protect sills, ledges and projections from droppings of mortar.

E. Follow provisions of ACI530.1/ASCE 6/TMS 602 for cold and hot weather construction.

1.06 Cold Weather Protection

A. Do not lay masonry units, which are wet or frozen.

B. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.

C. Remove all masonry determined to be damaged by freezing conditions.

D. For clay masonry units with initial rates of absorption (suction) which require them to be wetted before laying, comply with the following requirements:

1. For units with surface temperatures above 32 degrees F, wet with water heated to above 70 degrees F.

2. For units with surface temperatures below 32 degrees F, wet with water heated to above 130 degrees F.

E. Perform the following construction procedures while masonry work is progressing. Temperature ranges indicated below apply to air temperatures existing at time of installation:

1. 40 degrees F to 32 degrees F

   a. Mortar: Heat mixing water to produce mortar temperature between 40 degrees F and 120 degrees F.

2. 32 degrees F to 25 degrees F

   a. Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F and 120 degrees F; maintain temperature of mortar on boards above freezing.

3. 25 degrees F to 20 degrees F

   a. Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F and 120 degrees F; maintain temperature of mortar on boards above freezing.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Cold Weather Protection (continued)

b. Use windbreaks or enclosures when wind is in excess of 15 mph.

4. 20 degrees F and below

a. Mortar: Heat mixing water and sand to produce mortar temperatures between 40 degrees F and 120 degrees F.

b. Masonry Units: Heat masonry units so that they are above 20 degrees F at time of laying.

c. Provide enclosure and auxiliary heat to maintain an air temperature of at least 40 degrees F for 24 hours after laying units.

5. Do not heat water for mortar to above 160 degrees F.

F. Protect completed masonry and masonry not being worked on in the following manner. Temperature ranges indicated apply to mean daily air temperatures.

1. 40 degrees F to 32 degrees F

a. Protect masonry from rain or snow for at least 24 hrs. by covering with weather-resistive membrane.

2. 32 degrees F to 20 degrees F

a. Complete cover masonry with weather-resistive insulating blankets or similar protection for at least 24 hrs. to 48 hrs. for grouted masonry.

3. 20 degrees F and below

a. Except as otherwise indicated, maintain masonry temperature above 32 degrees F for 24 hrs. using enclosures and supplementary heat, electric heating blankets, infrared lamps or other methods proven to be satisfactory. For grouted masonry maintain heated enclosure to 40 degrees F for 48 hours.

PART 2 - PRODUCTS

2.01 Concrete Masonry Units - Sand and Gravel Modular Size

A. Hollow load bearing block units: ASTM C90 Grade N, Type 1 moisture controlled units, standard weight.

B. Provide fire rated block where noted.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 04 20 00 – UNIT MASONRY

2.01 Concrete Masonry Units - Sand and Gravel Modular Size (continued)

C. Compressive strength of unit in exterior and in bearing walls shall be 2,500 PSI or as required to produce a prism strength of 1,500 PSI.

2.02 Face Brick: ASTM C216; Grade SW, Type FBS. Brick must comply with ASTM C67 for ASTM C216.

A. 12” Utility Narrow Bed
B. Sioux City Brick “Napa Valley Colonial”

2.03 Precast Concrete Caps

A. Custom made - see Drawings for size and shape.

2.04 Mortar and Grout Materials

A. Portland Cement: ASTM C150, Type I. Provide natural color or white cement as required to produce required mortar color.

B. Hydrated Lime: ASTM C207, Type S, no air content.

C. Aggregate for Mortar: ASTM C144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.

D. Aggregate for Grout: ASTM C404.

E. Water: Clean and potable.

2.05 Joint Reinforcement, Ties and Anchoring Devices

A. Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement, tie and anchor for size and other characteristics.

1. Hot-Dip Galvanized Steel Wire: ASTM A82 for uncoated wire and with ASTM A153, Class B-2 (1.5 oz. per sq. ft. of wire surface) for zinc coating applied after prefabrication into units.

2. Hot-Dip Galvanized Carbon Steel Sheet: ASTM A366, Class 2 or ASTM A635; hot-dip galvanized after fabrication to comply with ASTM A153, Class B-2.

B. Continuous Horizontal Wire Reinforcing: Concrete block walls - AA Wire Products Block Lok No.9GA standard ladder type.

1. Concrete block walls: AA Wire Products - Block Lok No.9GA standard ladder type.
2. Brick and block cavity walls: Econo-Cavitt-Lok standard.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.05 Joint Reinforcement, Ties and Anchoring Devices (continued)

C. Adjustable veneer anchor-stud frame walls, Hohmann & Barnard, Inc., dW-10. Install at 16” o.c. each way with non-corrosive screws.

D. Corrugated formed sheet metal wall ties, 7/8” wide x 7” long x 22 ga. galvanized finish. 16” o.c. each way.

2.06 Concealed Flashing Materials

A. Thru-wall Flashing: Carlisle CCW-705 TWF or Polyguard 650 membrane 40 mil water barrier. Apply with 6” laps with adhesive.

2.07 Perimeter Insulation

A. Furnished and installed by Masonry Contractor, See Section 07212.

2.08 Miscellaneous Masonry Accessories

A. Weeps: Provide non-organic cotton rope type wicks 3/8" x length, minimum 12’ long.

B. Building paper #15 asphalt saturated felt.

C. Control joints with joint backing and sealant through face brick at 30' maximum spacing or as shown on Drawings.

2.09 Masonry Cleaners

A. Job-Mixed Detergent Solution: Solution of tri-sodium phosphate (1/2 cup dry measure) and laundry detergent (1/2 cup dry measure) dissolved in one gallon of water.

B. Acidic Cleaner: Manufacturer's standard strength general purpose cleaner designed for new masonry surfaces of type indicated, composed of blended organic and inorganic acids combined with special wetting systems and inhibitors, expressly approved for intended use by manufacturer of masonry units being cleaned.

2.10 Mortar and Grout Mixes

A. General: Do not add admixtures including coloring pigments, air entraining agents, accelerators, retarders, water repellent agents, anti-freeze compounds or other admixtures, unless otherwise indicated. Do not use calcium chloride in mortar or grout.

B. Mixing: Combine and thoroughly mix cementitious, water and aggregates in a mechanical batch mixer; comply with referenced ASTM standards for mixing time and water content.

C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification, for types of mortar required, unless otherwise indicated.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 04 20 00 – UNIT MASONRY

2.11 Mortar and Grout Mixes

1. Limit cementitious materials in mortar to Portland cement lime.

2. Use Type M mortar for masonry below grade and in contact with earth. 2,500 PSI compressive strength.

3. Use Type S mortar for exterior, above-grade load bearing walls and for other applications. 1,800 PSI compressive strength.

PART 3 - EXECUTION

3.01 Installation

A. Cut masonry units with mortar-driven saw designed to cut masonry with clean, sharp, unchipped edges. Cut units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible. Use dry cutting saws to cut concrete masonry units.

B. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

3.02 Construction Tolerances

A. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/8” in 8'. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed ¼” in any story. For vertical alignment of head joints do not exceed plus or minus ¼” in 10', ½” maximum.

B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed ¼” in any bay or 20' maximum, nor ½” in 40' or more. For top surface of bearing walls, do not exceed 1/8” between adjacent floor elements in 10' or 1/16" within width of a single unit.

C. Variation of Linear Building Line: For position shown in Plan and related portion of columns, walls and partition, do not exceed ½” in any bay or 20' maximum, nor 3/4" in 40' or more.

D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus ¼” nor plus ½”.

E. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8”.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 04 20 00 – UNIT MASONRY

3.03 Laying Masonry Walls

A. Layout walls in advance for accurate spacing of surface bond patterns, with uniform joint widths and to properly locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half size units at corners, jambs and wherever possible at other locations.

B. Lay-up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other work.

C. Provide temporary supports and braces as required for concrete block walls.

D. Pattern Bond: Lay exposed masonry running bond vertical joint in each course centered on units in courses above and below. Do not use units with less than nominal 4" horizontal face dimensions at corners or jambs.

E. Stopping and Resuming Work: Rack back 1/2-masonry unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if specified to be wetted), and remove loose masonry units and mortar prior to laying fresh masonry.

F. Built-in Work: As the Work progresses, build-in items specified under this and other Sections of these Specifications. Fill in solidly with masonry around built-in items. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.

3.04 Mortar Bedding and Jointing

A. Lay solid masonry units with completely filled bed, head and collar joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.

B. Joints: Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not otherwise indicated, lay walls with 3/8” joints. Tool joints for masonry walls which are to be concealed or to be covered by other materials. Tool exposed joints slightly concave using a jointer larger than joint thickness, unless otherwise indicated.

C. Remove masonry units disturbed after laying; clean and relay in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar, and reset in fresh mortar.

3.05 Cavity Walls

A. Keep cavity clean of mortar droppings and other materials during construction. Strike joints facing cavity, flush. Build in flashing.

B. Tie exterior wythe to back-up frame walls with individual metal ties spaced not more than 16" o.c. vertically and 16" o.c. horizontally. Stagger in alternate courses.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.05 Cavity Walls (continued)

C. Tie exterior wythe to back-up masonry with continuous horizontal joint reinforcing embedded in mortar joints at not more than 16" o.c. vertically.

D. Provide weep holes in exterior wythe of cavity, composite and veneer walls located immediately above ledges and flashing, spaced 2'-0" o.c., unless otherwise indicated.

3.06 Horizontal Joint Reinforcement

A. General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" on exterior side of walls, ½" elsewhere. Lap reinforcing a minimum of 6".

B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

3.07 Control and Expansion Joints

A. Construct control joints for concrete block walls not over 30 feet o.c. unless otherwise indicated on the drawings.

B. Construct expansion joints for brick masonry walls using soft joint, sealant filled. Space expansion joints as indicated above and elsewhere in accordance with BIA 18 A.

3.08 Bond Beams

A. Masonry bond beams shall be formed of units with their cells filled solidly with 3,000 psi concrete and provided with reinforcing bars scheduled.

1. Reinforcing shall overlap a minimum of 48 bar diameters at splices.
2. Bond beams and reinforcing shall be continuous at control joints.

3.09 Flashing of Masonry Work

A. General: Provide concealed flashings in masonry work at, or above, all shelf angles, lintels, ledges and other obstructions to the downward flow of water in the wall so as to divert such water to the exterior. Prepare masonry surfaces smooth and free from projections which could puncture flashing. Place through-wall flashing on bed of mortar and cover with mortar. Seal penetrations in flashing with mastic before covering with mortar.

1. Extend flashing the full length of lintels and shelf angles and minimum of 8" into masonry each end. Extend flashing from a line ½" in from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of two block courses of masonry back up wall and through the inner wythe to within ½" of the interior face of the wall in exposed work. Where interior surface of inner wythe is concealed by furring, carry flashing completely through the inner wythe and turn up approximately 2". At heads and sills turn up ends not less than 2" to form a pan.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.09 Flashing of Masonry Work (continued)

2. Provide weepholes in the head joints of the same course of masonry bedded in the flashing mortar.
3. Interlock end joints of deformed metal flashings by overlapping deformations not less than 1½" and seal lap with elastic sealant.

3.10 Repair, Pointing and Cleaning

A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge any voids of holes, except weep holes, and completely fill with mortar. Point- up all joints at corners, openings and adjacent work to provide a neat, uniform appearance, properly prepared or application of caulking or sealants.

C. Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.

2. Protect adjacent non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.

3. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clean water.

4. Use bucket and brush hand cleaning method described in BIA "Technical Note No. 20 Revised" to clean brick masonry made from clay or shale, except use masonry cleaner indicated below.
   a. Detergent.
   b. Acidic cleaner; apply in compliance with directions of cleaner manufacturer

D. Protection: Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures unit masonry work being without damage and deterioration at time of Substantial Completion.

3.11 Field Quality Control

A. During the first week of masonry construction, test one set of block for ASTM:C90, Grade N, Type I. Also during the first week, take one test of mortar aggregate for gradation. For every 5,000 sq. ft. of wall or floor level whichever is less, test: six cubes or three 3" x 6" cylinders of mortar (ASTM:C780), three test prisms of three block each (ASTM:D447) and three cylinders of grout (ASTM:C1019). Minimum grout compressive strength 3,000 psi.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 04 73 00 – MANUFACTURED AND NATURAL STONE

PART 1 – GENERAL

1.01 Section Includes

A. Manufacture stone veneers.

B. Mortar

C. Metal (nails, staples or screws for fastening lath and accessories).

1.02 Related Sections

A. Section 06100 – Rough Carpentry: Wall Framing and Sheathing.

B. Section 07900 – Joint Sealers: Perimeter Sealing at Openings.

C. Section 09200 – Lath and Plaster: Finish Plaster.

1.03 References

A. ASTM C91: Specification for Masonry Cement.

B. ASTM C150: Specification for Portland Cement.

C. ASTM C270: Specification for Mortar for Unit Masonry.

D. UL 723: Test for Surface Burning Characteristics of Building Materials.

E. UBC Standard No. 26-10 Parts I and IV: Test Method for Compressive Strength of Cylindrical Concrete Specimens.

1.04 Submittals

A. Submit product data under provision of Section 01 33 00.

B. Submit samples for selection under provisions of Section 01 33 00.

1.05 Quality Assurance

A. Applicator: Company experienced installation of manufactured stone and brick veneers of the type specified, with three years experience.

1.06 Mock-up

A. Erect 3’ x 4’ sample panel at job site at location as directed.

B. Illustrate field pattern of stone, brick, field cutting of units where required, and color and tooling of joints.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 04 73 00 – MANUFACTURED AND NATURAL STONE

1.07 Delivery, Storage and Handling

A. Deliver products to site under provisions of Section 01 60 00.

B. Store and protect products under provisions of Section 01 60 00.

C. Store mortar and other moisture-sensitive materials in protected enclosures; handle by methods, which avoid exposure to moisture.

1.08 Project Conditions

A. Maintain materials and surrounding air temperature to minimum 40° prior to, during and for 48 hours after completion of work.

B. Protect materials from rain, moisture and freezing temperatures prior to, during and for 48 hours after completion of work.

C. Allow no construction activity on opposite side of wall during installation and for 48 hours after completion of work.

1.09 Warranty

A. Provide manufacturer's warranty under provisions of Section 01 70 00.

PART 2 – PRODUCTS

2.01 Manufacturers

A. Cultured Stone by Boral

B. Boulder Creek Stone and Brick Company

C. Trilite

D. Centurion Stone

E. Dutch Quality Stone

F. Eldorado Stone

2.02 Materials:

A. Style as in: Weather Ledge

B. Stone veneers:

1. 2" Stone Veneer Weather Ledge by Dutch Quality Stone "Quail Grey".

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Materials (continued)

C. Architectural stone trim

1. Sloped sills, lintels and sloped caps.

D. Mortar:

1. Portland Cement, ASTM C150, Type 1 or masonry cement (Type N), ASTM C91.
2. Masonry sand.
3. Lime: ASTM C207.
4. Iron oxide pigments.

E. Masonry Sealer: If specifying use: breather type (non-film forming) sealer.

F. Metal Lath: Galvanized 3.4-lb. flat rib.

PART 3 – EXECUTION

3.01 Preparation

A. Sheathed Surfaces: Install two layers of weather-resistant barrier with lap joints 4" shingle fashion. Apply code approved metal lath; attach with galvanized nails or staples, which penetrate a minimum of 1". Apply 6" o.c. vertically and 16" o.c. horizontally. Wrap weather-resistant barrier and metal lath a minimum of 16" around all outside and inside corners.

3.02 Mortar Mixing

A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C 270, Type N.

B. Do not use anti-freeze compounds to lower the freezing point of mortar.

3.03 Application

A. Apply in accordance with manufacturer's installation instructions.

B. Place units with uniform mortar joints. Stone joints should not be over ½" in width. Install outside corner return units with short and long lengths alternated.

C. Plan work to minimize job site cutting. Perform necessary cutting with proper tools to provide uniform edges; take care to prevent breaking unit corners or edges.

D. Remove excess mortar; do not allow mortar to set up on face of units. Point and tool joints before mortar has set. Clean and finish joints in accordance with manufacturer's instructions.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 05 10 00 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 Description of Work

A. Extent of structural steel work is shown on Drawings, including schedules, notes and details to show size and location of members, typical connections, and type of steel required.

B. Structural steel is that Work defined in AISC "Code of Standard Practice" and as otherwise shown on Drawings.

1.02 Related Sections

A. Section 05 50 00 - Miscellaneous Metal Fabrications.

B. Section 09 91 00 - Painting: Finish Painting.

1.03 Quality Assurance

A. Codes and Standards: Comply with provisions of following, except as otherwise indicated:

1. AISC "Code of Standard Practice for Steel Buildings and Bridges"

2. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including the "Commentary" and Supplements thereto as issued.

3. AISC "Specifications for Structural Joints using ASTM A325 or A 490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

4. AWS D1.1 "Structural Welding Code".

5. ASTM A6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use".

B. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".

C. Provide certification that welders to be employed in Work have satisfactorily passed AWS qualification tests. If re-certification of welders is required, retesting will be Contractor's responsibility.

1.04 Submittals

A. Product Data: Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with Specifications (including specified standards).

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.04 Submittals (continued)

1. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
2. High-strength bolts (each type), including nuts and washers.
3. Structural steel primer paint.
4. Shrinkage-resistant grout.

1.05 Shop Drawings

A. Submit Shop Drawings prepared to include complete details and schedules for fabrication and assembly of structural steel member's procedures and diagrams.

B. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.

1. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.

C. Test Reports: Submit copies of reports of tests conducted in accordance with the provisions of Section 01 43 00 on shop and field bolted and welded connections. Include data on type(s) of tests conducted and test results.

1.06 Delivery, Storage and Handling

A. Deliver materials to site at such intervals to insure uninterrupted progress of Work.

B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not to delay Work.

C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.

D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.01 Materials

A. Metal Surfaces, General: For fabrication of Work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes.

B. Structural Steel Shapes, Plates and Bars: ASTM A-36.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

C. Rectangular Cold-Formed Steel Tubing: ASTM A-500, Grade B.

D. Round Steel Pipe: ASTM A-53, grade B type E, FY=35KSI.

E. Anchor Bolts: ASTM A-307, non-headed type unless otherwise indicated.

F. High-Strength Threaded Fasteners: Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A-325.

G. Electrodes for Welding: Comply with AWS Code. For high-strength low-alloy steel, provide electrodes, welding rods and filler metals equal in strength and compatible in appearance with parent metal joined.

H. Structural Steel Primer Paint: Fabricator's standard rust-inhibiting primer.

I. Non-metallic Shrinkage-Resistant Grout: Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-C621.

1. Available products: Subject to compliance with requirements, products which may be incorporated in the Work include the following:

Euco N.S.; Euclid Chemical Co.
Crystex; L & M Construction Chemicals
Masterflow 713; Master Builders
Five Star Grout; U.S. Grout Corp.
Upcon; Upco Chemical Div., USM Corp.
Propak; Protex Industries, Inc.

2.02 Fabrication

A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the final Shop Drawings. Provide camber in structural members where indicated.

1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.

2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs and other defects.

B. Connections: Weld or bolt shop connections, as indicated. Bolt field connections, except where welded connections or other connections are indicated. Provide high-strength threaded fasteners for principal bolted connections.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Fabrication (continued)

C. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A-325 or A-490 Bolts" (RCRBSJ).

D. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.

E. Steel Wall Framing: Select members which are true and straight for fabrication of steel wall framing. Straighten as required to provide uniform, square and true members in completed wall framing.

1. Build up welded door frames attached to structural steel framing. Weld exposed joints continuously and grind smooth. Plug weld steel bar stops to frames, except where shown removable.

2. Secure removable stops to frames with countersunk, cross- recessed head machine screws, uniformly spaced not more than 10" o.c., unless otherwise indicated.

F. Holes for Other Work: Provide holes required for securing other Work to structural steel framing, and for passage of other Work through steel framing members, as shown on final Shop Drawings.

1. Provide threaded nuts welded to framing, and other specialty items as indicated to receive other Work.
2. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.03 Shop Painting

A. General: Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only.

1. Do not paint surfaces which are to be welded or high-strength bolted with friction-type connections.
2. Apply two coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

B. Surface Preparation: After inspection and before shipping, clean steel work to be painted. Remove loose rust, loose mill scale, and spatter, slag or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:

C. Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide a uniform dry film thickness of not less than 1.5 mils. Use painting methods, which result in full coverage of joints, corners, edges and exposed surfaces.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 05 10 00 - STRUCTURAL STEEL

PART 3 - EXECUTION

3.01 Erection

A. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

B. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete Work.

C. Anchor Bolts: Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations. Refer to Division 3 of these Specifications for anchor bolt installation requirements in concrete, and Division 4 for masonry installation.

D. Setting Bases and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.

E. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.

F. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure. For proprietary grout materials, comply with manufacturer's instructions.

G. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming a part of a complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment. Level and plumb individual members of structure within specified AISC tolerances. Splice members only where indicated and accepted on Shop Drawings.

H. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.

I. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Erection (continued)

J. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted. Apply by brush or spray to provide a minimum dry film thickness of 1.5 mils.

K. Touch-up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on structural steel is included in Division 9 under painting work.

3.02 Quality Control

A. Contractor shall engage an independent testing and inspection agency to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports.

B. Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.

C. Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.

D. Testing agency may inspect structural steel at plant before shipment; however, Architect reserves the right, at any time before final acceptance, to reject material not complying with specified requirements.

E. Correct deficiencies in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any noncompliance of original work, and as many be necessary to show compliance of corrected work.

F. Required Testing and Inspections

1. Bolts (submit two bolts of each type for testing)

   a. 100% visual inspection of bearing connections by test firm.
   b. Friction connections 100% torqued.

2. Fillet welds.

   a. 100% visual inspection by test lab.
   b. Full penetration welds - 100% ultrasonic

G. Special Inspections:

1. Bolts (submit two bolts of each type for testing).

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Quality Control (continued)

a. 100% visual inspection of bearing connections by test firm.

2. Fillet welds.

a. 100% visual inspection by test lab.

3.03 Special Inspections (IBC)

A. The Owner shall retain an independent testing agency to perform the following inspections. The testing agency shall inspect the work for conformance with the requirements of the Contract Documents and standards of workmanship contained therein.

Inspection	Report Frequency
Fillet welds	Each weld
Full penetration welds	Each weld 100% ultrasonic
High strength bolting	One (1) per 2,500 sq. ft. of floor area (friction and bearing connections)

B. The testing agency shall furnish a final report for welding and a final report for high strength bolting at the conclusion of the welding and bolting assessing the overall conformance to the Contract Documents.

C. A copy of each special inspection report shall be furnished to the following:

1. Architect
2. Owner
3. General Contractor
4. Building Official

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 05 40 00 - COLD FORMED METAL FRAMING

PART 1 - GENERAL

1.01 Work Included

A. Extent of cold formed framing is shown on Contract Drawings.

B. Types of cold formed metal framing units.

1.02 Related Sections

A. Section 09 20 00 Gypsum Board: For 20 gauge and lighter non load bearing steel studs.

1.03 Quality Assurance

A. Component Design: Compute structural properties of studs and joists in accordance with AISC "Specification for Design of Cold- Formed Steel Structural Members".

B. Fire-Rated Assemblies: Where framing units are components of assemblies indicated for a fire-resistance rating, including those required for compliance with governing regulations, provide units which have been approved by governing authorities having jurisdiction.

1.04 Submittals

A. Product Data: Submit manufacturer's product information and installation instructions for each item of light gauge framing and accessories. Include placing drawings for framing members showing size and gauge designations, number, type, location and spacing. Indicate supplemental strapping, bracing, splices, bridging, accessories, and details required for proper installation.

1.05 Delivery and Storage

A. Protect metal framing units from rusting and damage. Deliver to project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off ground in a dry ventilated space or protect with suitable waterproof coverings.

PART 2 - PRODUCTS

2.01 Metal Framing

A. System Components: With each type of metal framing required, provide manufacturer's system. Standard steel runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners, and accessories as recommended by manufacturer for applications indicated, as needed to provide a complete metal framing

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Metal Framing (continued)

B. Materials and Finishes:

1. For 16 gauge and heavier units, fabricate metal framing components of structural quality steel sheet with a minimum yield point of 50,000 psi; ASTM A-446, A-570 or A-611.

2. For 18 gauge and lighter units, fabricate metal framing components of commercial quality steel sheet with a minimum yield point of 33,000 psi; ASTM A-446; A-570, or A-611.

3. Provide galvanized finish to metal framing components complying with ASTM A-525 for minimum G-60 coating.

2.02 Fabrication

A. General: Framing components may be prefabricated into panels prior to erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded. Perform lifting of prefabricated panels in a manner to prevent damage or distortion.

B. Fastenings: Attach similar components by welding. Attach dissimilar components by welding, bolting, or screw fasteners, as standard with manufacturer.

C. Wire tying of framing components is not permitted.

PART 3 - EXECUTION

3.01 Installation

A. General Instructions: Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations, and as specified herein.

B. Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as recommended by stud manufacturer for type of construction involved, except do not exceed 24" o.c. spacing for nail or power-driven fasteners, or 16" o.c. for other types of attachment. Provide fasteners at corners and ends of tracks.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

D. Where stud system abuts structural columns or walls, including masonry walls, anchor ends of stiffeners to supporting structure.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Installation (continued)

E. Install supplementary framing, blocking and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.

F. Installation of Wall Stud System: Secure studs to top and bottom runner tracks by either welding or screw fastening at both inside and outside flanges.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 05 50 00 - METAL FABRICATION

PART 1 - GENERAL

1.01 Description of Work

A. Definition: Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.

B. Extent of metal fabrications is indicated on Drawings and Schedules.

C. Types of work in this Section include metal fabrications for:

1. Rough hardware.
2. Steel stairs, ladders.
3. Loose bearing and leveling plates.
4. Loose steel lintels.
5. Miscellaneous framing and supports.
6. Steel guard posts.
7. Steel pipe railings and balusters.
8. Hand rails and brackets.

1.02 Related Sections

A. Section 05 10 00 - Structural Steel

B. Section 09 91 00 - Painting

1.03 Quality Assurance

A. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1.04 Submittals

A. Product Data: submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.

B. Shop Drawings: Submit Shop Drawings for fabrication and erection of miscellaneous metal fabrications. Include Plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

1. Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information needed for structural analysis.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.04 Submittals (continued)

C. Samples: Submit two sets of representative samples of materials and finished products as may be requested by Architect.

PART 2 - PRODUCTS

2.01 Materials

A. Ferrous Metals:

1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2. Steel Plates, Shapes and Bars: ASTM A-36.

3. Structural Steel Sheet: Hot-rolled, ASTM A-570; or cold- rolled ASTM A-611, Class 1; of grade required for design loading.

4. Galvanized Structural Steel Sheet: ASTM A-446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.

5. Steel Pipe: ASTM A-53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.

6. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

7. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A-47, or cast steel, ASTM A-27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A-153.

B. Grout

1. Metallic Non-Shrink Grout: Pre-mixed, factory-packaged, ferrous aggregate grout complying with CE CRD-C621.

2. Non-Shrink Non-Metallic Grout: Pre-mixed, factory packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this Section.

C. Fasteners

1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
2. Bolts and Nuts: Regular hexagon head type, ASTM A-307, Grade A.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

3. Lag Bolts: Square head type, FAS FF-B-561.
4. Machine Screws: Cadmium plated steel, FS FF-S-92.
5. Plain Washers: Round, carbon steel, FS FF-W-92.
6. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
7. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
8. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

D. Paint

1. Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing, lead-free, "universal" primer; selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated and for capability to provide a sound foundation for field applied topcoats despite prolonged exposure; complying with performance requirements of F TT-P645.

2. Galvanizing Repair Paint: High zinc dust content paint for re-galvanizing welds in galvanized steel, complying with the Military Specifications MIL-P21035 (ships) or SSPC-Paint-20.

E. Concrete Fill

1. Concrete Materials and Properties: Comply with requirements of Division 3 Section "Concrete Work" for normal weight, ready-mix concrete with minimum 28-day compressive strength of 3,000 psi.

2.02 Fabrication, General

A. Workmanship: Use materials of size and thickness indicated or, if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on Shop Drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of Work.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent- metal corners to smallest radius possible without causing grain separation or otherwise impairing Work.

C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated, or if not shown, Phillips flat-head (countersunk) screws or bolts.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Fabrication, General (continued)

E. Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

F. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

G. Galvanizing: Provide a zinc coating for those items shown or specified to be galvanized, as follows:

1. ASTM A-153 for galvanizing iron and steel hardware.
2. ASTM A-123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strip 1/8" thick and heavier.
3. ASTM A-386 for galvanizing assembled steel products.

H. Fabricate joints, which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

I. Shop Painting:

1. Apply shop primer to surfaces of metal fabrications except those which are galvanized or as indicated to be embedded in concrete or masonry, unless otherwise indicated, and in compliance with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.

2. Stripe paint all edges, corners, crevices, bolts, welds and sharp edges.

J. Surface Preparation: Prepare ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning".
2. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning".

2.03 Rough Hardware

A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 sections.

B. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts, which bear on wood structural connections; elsewhere, furnish steel washers.

C. Provide cast iron handrail brackets with factory applied paint finish. Quality Hardware No. 950.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.04 Loose Bearing and Leveling Plates

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and four grouting as required. Galvanize after fabrication.

2.05 Loose Steel Lintels

A. Provide loose structural steel lintels for openings and recesses in masonry walls and partitions as indicated. Weld adjoining members together to form a single unit where indicated. Provide not less than 8" bearing at each side of openings, unless otherwise indicated.

2.06 Miscellaneous Framing and Supports

A. Provide miscellaneous steel framing and supports, which are not a part of structural steel framework, as required to complete Work.

B. Fabricate miscellaneous units to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other Work to be retained by framing. Except as otherwise indicated, fabricate from structural steel shapes and plates and steel bars of welded construction using mitered joints for field connections. Cut, drill and tap units to receive hardware and similar items.

C. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts of units must be installed after concrete is placed.

2.07 Miscellaneous Steel Trim

A. Provide shapes and sizes for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes and plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other Work.

PART 3- EXECUTION

3.01 Preparation

A. Field Measurements: Take field measurements prior to preparation of Shop Drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay Work.

B. Coordinate and furnish anchorages, setting drawings, diagrams, templates instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Installation

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items, which are to be built into concrete, masonry or similar construction.

C. Fit exposed connections accurately together to form tight hairline joints. Weld connections, which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and tough-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units, which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

D. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

E. Setting Loose Plates: Clean concrete and masonry bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

1. Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use non-metallic non-shrink grout in exposed locations, unless otherwise indicated.

2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

F. Dissimilar Metals: If dissimilar members are shown to be in contact with each other, the Contractor shall first install a suitable neutral bituminous coating to both surfaces in question.

G. Steel Pipe Railings and Handrails: Adjust railings prior to anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated, or if not indicated, as required by design loadings. Plumb posts in each direction. Secure posts and railing ends to building construction as follows:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Preparation (continued)

1. Anchor posts in concrete by means of pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non-shrink, non-metallic grout, mixed and placed to comply with grout manufacturer's directions.

2. Leave anchorage joint exposed; wipe off excess grout and leave 1/8" build-up, sloped away from post. For installation exposed on exterior or to flow of water, seal grout to comply with grout manufacturer's directions.

3. Anchor posts to steel with steel oval flanges, angle type or floor type as required by conditions, welded to posts and bolted to steel supporting members.

H. Secure handrails to wall with wall brackets and end fittings. Provide bracket with not less than 1-1/2" clearance from inside face of handrail and finished wall surface. Locate brackets as indicated or, if not indicated, at spacing required for design loading. Secure wall brackets and wall return fittings to building construction as follows:

1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.

I. For stud partitions, use lag bolts set into wood backing between studs. Coordinate with stud installations for accurate location of backing members.

3.03 Adjust and Clean

A. Touch-up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 9.

B. For galvanized surfaces: Clean field welds, bolted connections and abraded areas and apply two coats of galvanizing repair paint to comply with ASTM A-780.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 05 73 00 – PREFINISHED RAILINGS

PART 1 - GENERAL

1.01 Work Included

A. Provide engineered aluminum ornamental component railing system of the following type:

1. Component picket rail system by Superior Aluminum Products, 900 Series, S.T.A.R. classic aluminum railing, Williams Architectural Products, Carfaro Railing, Inc., 42" high, from standard colors, or approved equal.

1.02 Reference Standards:

A. International Building Code 2012 – Section 1607.8.

1.03 Submittals

A. Provide Shop Drawings and product data under provisions of Section 01 33 00.

B. Indicate scope of project, component details, materials, finish, fasteners and anchorage methods, and the relationship to adjoining work.

C. Shop Drawings shall be signed and sealed by the professional engineer responsible for the design.

1.04 Quality Assurance

A. Railing systems are based upon the Superior Aluminum Products or Advantage Aluminum Products component railing and fencing system as the standard of quality. Railing and fencing systems of other manufacturers may be acceptable if in the judgment of the Architect they meet the intent of the Specification in terms of design, function, materials, and quality of workmanship.

B. Design criteria: Railing assemblies (including top rail, bottom rail, pickets, post, and connections) shall be designed to conform with all applicable building codes and loading requirements.

1.05 Warranty

A. 25 year warranty covering powder coating and structural defects (see manufacturer's warranty statement for specific details).

1.06 Delivery, Storage, and Handling

A. Deliver materials to the jobsite in good condition and store in clean, dry location, properly protected against damage to finished surfaces.

B. Store away from uncured concrete, masonry, or stucco.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 05 73 00 – PREFINISHED RAILINGS

PART 2 - PRODUCTS

2.01 Materials

A. Extrusion Alloy: 6060-T51 or 6063-T5.

B. Screws, anchors and inserts: Corrosion resistant Cadmium Plated Steel or Stainless Steel.

2.02 Finishes

A. TGIC polyester power coating, electrostatically applied to 2-3 mil thickness. Color to be selected by the Architect from manufacturer's standard colors.

2.03 Railing Components

A. Top Rails: Square, size 1-5/8" high x 2½" wide.

B. Posts: Size 2½" x 2½".

C. Pickets: Square tubes, size 5/8" x 5/8".

D. Bottom Rail: Size minimum 1-5/8".

E. Accessories:

1. Support bracing as recommended by manufacturer.
2. Base plates, wall mounts, sleeves, and end clips, flat bar aluminum.

2.04 Fabrication

A. Fabricate railing assembly to design dimensions, details, and specified requirements for structural performance. Fabricate members and fittings to provide flush, smooth, rigid hairline joints.

B. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly.

C. Disassemble only as required for shipping. Clearly identify each unit for installation.

D. Fasteners and welds to be concealed as much as design will allow.

E. Connect non-welded members using manufacturer's standard concealed fasteners and fittings unless noted otherwise.

F. Close exposed ends of railing members with manufacturer's standard end fittings.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.04 Fabrication (continued)

G. Picket and post spacing to be set in accordance with applicable building codes.

H. Provide manufacturer's standard brackets, fittings, flanges, and anchors for connection to other work unless otherwise noted.

I. Provide inserts and anchors for connecting guardrail system to support structure in accordance with all applicable codes.

J. General Contractor to verify dimensions on site prior to fabrication.

PART 3 - EXECUTION

3.01 Installation

A. Install work in accordance with final Shop Drawings and manufacturer's instructions.

B. Erect work plumb, square and level, free from distortion or defects detrimental to appearance or performance.

C. Anchor posts to substrate with approved corrosion resistant fasteners.

D. Fasten top rail sleeves and top rail to posts.

E. Insert pickets (balusters) or glass panels into bottom and top rail in accordance with the Drawings.

3.02 Cleaning

A. As installation is completed, wash railing using clean water and soap, rinse with water.

B. Do not use acid solution, steel wool, or other harsh abrasives.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 Description of Work

A. Definition: Rough carpentry includes carpentry work not specified as part of other Sections and which is generally not exposed, except as otherwise indicated. Types of Work in this Section include rough carpentry for:

1. Wood framing
2. Wood blocking, roof curbs, nailing strips, grounds, anchors, furring
3. Sheathing.
4. Sub-flooring.
5. Miscellaneous exterior trim.
6. Deck structure.

1.02 Products Installed but not Furnished Under This Section

A. Section 06 11 00 - Plate Connected Wood Trusses

1.03 Related Work

A. Section 06 20 00 - Finish Carpentry

1.04 Submittals

A. Material Certificates: Where dimensional lumber is provided to comply with minimum allowable unit stresses, submit listing of species and grade selected for each use, and submit evidence of compliance with specified requirements. Compliance may be in form of a signed copy of applicable portion of lumber producer's grading rules showing design values for selected species and grade. Design values shall be as approved by the Board of Review of American Lumber Standards Committee.

B. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storing, installation and finishing of treated material.

C. Preservative Treatment: For each type specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.

D. For water-borne treatment, include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site.

1.05 Product Delivery, Storage and Handling

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar material.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Product Delivery, Storage and Handling (continued)

1. For lumber and plywood pressure treated with water borne chemicals, sticker between each course to provide air circulation.

1.06 Project Conditions

A. Coordination: Fit carpentry work to other work, scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper attachment of other Work.

PART 2 - PRODUCTS

2.01 Lumber, General

A. Lumber Standards: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

B. Grade Stamps: Factory-mark each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber apply grade stamps to ends or back of each piece, or omit grade stamps entirely and issue certificate of grade compliance from inspection agency in lieu of grade stamp.

C. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 10, for moisture content specified for each use. Provide dressed lumber, S4S, unless otherwise indicated.

D. Provide seasoned lumber with 19% maximum moisture content at time of dressing and shipment for sizes 2" or less in nominal thickness, unless otherwise indicated.

E. Provide lumber with 15% maximum moisture content at time of dressing and shipment.

2.02 Lumber and Framing

A. 2" x 2" through 4" x 4" framing:
SPF stud grade or better
Plates, caps ledgers: SPF No. 2 or better

B. 2" x 6" through 4" x 16" framing: SPF
SPF stud grade or better
Plates, caps ledgers: SPF No. 2 or better

C. Laminated veneer lumber: of quality and allowable stresses equal to or better than "Microlam", "Parlams" or "Gluelams".

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 10 00 - ROUGH CARPENTRY

2.02 Lumber and Framing (continued)

D. Exterior deck columns to be structural glued laminated treated columns, manufactured by Sentinel Structures, Inc., Timeer Technologies, LLC, or approved equal. All structural deck members shall be treated.

2.03 Preservative Treatment:

A. Treated lumber shall be used next to masonry, concrete, steel and other materials where exposed to moist conditions, for roof blocking and nailers not in direct contact with roofing, nailers for flashings, floor plates, for partitions set on concrete slabs on grade and other locations.

B. Preservative treatment shall be non-staining, non-bleeding, non-corrosive, to metals and shall be paintable. Provide a sufficient quantity of a concentrated solution of preservative at the project site for use in coating all field cuts in the treated lumber.

1. AWPA LP-2 above ground application
2. AWPA LP-22 ground contact application

2.04 Plywood Panels

A. Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood panels and, for products not manufactured under PS 1 provisions, with American Plywood Association (APA) "Performance Standard and Policies for Structural-Use Panels", Form No. E445.

B. Trademark: Factory-mark each construction panel with APA trademark evidencing compliance with grade requirements.

C. Subflooring: APA rated sheathing - plywood or OSB.

1. Exposure Durability Classification: Exterior.
2. Span Rating: ¾” APA Stud-floor tongue and groove Exposure 1 or better with exterior glue.

E. Roof Sheathing: APA rated sheathing - plywood or OSB.

.

1. Exposure Durability Classification: Exposure 1 with exterior glue.
2. Span Rating: 5/8" 40/20.

F. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA C-D plugged in with exterior glue, in thickness indicated, or, if not otherwise indicated, not less than ½”.

2.05 Wall Sheathing

A. Install 15/32” OSB sheathing on exterior of the building.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.05 Wall Sheathing (continued)

B. Store all sheathing on pallets off the ground and wrap continuous with polyethylene while in storage.

2.06 Decking Materials

A. Trex Select 1” square edge board. Owner to select color from standard colors.

B. Provide treated lumber for all deck material and all lumber exposed to the exterior.

2.07 Temporary Enclosures

A. Provide enclosures for all openings while temporary heating is on. Glass may be installed in permanent window frames if protected from damage.

2.08 Miscellaneous Materials

A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide galvanized metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.

1. Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A-153).

B. Air infiltration barrier: Refer to Section 07 27 00 - Vapor and Air Infiltration Barriers.

C. Sill Sealer: Glass fiber wool blanket, ½" thick by width, of stud plates or other plates.

D. Plywood Sheathing Clips: Simpson PSC.

E. Permanent Project Sign: See Drawings.

PART 3 - EXECUTION

3.01 Installation, General

A. Discard units of material with defects, which might impair quality of Work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

B. Set carpentry work to required levels and lines, with members plumb and true to line and cut and fitted.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Installation, General (continued)

C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes.

D. Use common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

3.02 Wood Grounds, Nailers, Blocking and Sleepers

A. Provide wherever shown and where required for screeding or attachment of other Work. Form to shapes as shown and cut as required for true line and level of Work to be attached. Coordinate location with other Work involved.

B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

C. Provide permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1½" wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

D. Provide 2 x 8 wood blocking behind all wall-mounted fixtures such as door bumpers, grab bars, drapery track, hand rails, brackets, signs, and other accessories.

3.03 Wood Framing, General

A. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with recommendations of "Manual for Wood Frame Construction" of National Forest Products Association (N.F.P.A.). Do not splice structural members between supports.

B. Anchor and nail as shown, and to comply with "Recommended Nailing Schedule" of "Manual for Wood Frame Construction" and "National Design Specifications for Wood Construction" published by N.F.P.A.

C. Firestop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling line of the top story. Where firestops are not automatically provided by the framing system used, use closely fitted wood blocks of nominal 2" thick lumber of the same width as framing members.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.03 Wood Framing, General (continued)

D. Stud Framing:

1. Unless otherwise shown, use 2x4 or 2x6 wood studs spaced 16" o.c. with wide face perpendicular to direction of wall or partition. Provide single bottom plate and double-top plates 2" thick by width of studs. Nail or anchor plates to supporting construction. All bottom plates at masonry shall be preservative treated.

2. Studs shall be doubled (one stud and one trimmer at all door and window openings) to provide 1½" lintel bearing at each end for full width of lintel, unless noted otherwise.

3. Construct corners and intersections with not less than three studs. Provide miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items and trim.

E. Install sill sealer under sills and where exterior wood framing abuts masonry or concrete.

3.04 Floor Joists Framing

A. General: Provide framing of sizes and spacings shown. Install with crown edge up and support ends of each member with not less than 1½" of bearing on wood or metal, or 3" on masonry. Attach to wood bearing members by toe nailing or metal connectors; frame to wood supporting members with wood ledgers as shown, or if not shown, with metal connectors. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 4'.

B. Lap member framing from opposite sides of beams, girders or partitions not less than 4" or securely tie opposing members together. Provide solid blocking (2" thick by depth of joist) over supports.

C. Under jamb studs at openings, provide solid blocking between joists.

D. LVL structural units.

3.05 Plywood or OSB Installation

A. General: Comply with applicable recommendations contained in Form No. 5300, "APA Plywood Construction Guide", for types of plywood products and applications indicated. Allow 1/16" spacing at panel ends and 1/8" at panel edges, unless noted otherwise by manufacturer.

B. Nails: Cement coated box nails, unless noted otherwise noted. Stapling of plywood not permitted.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.05 Plywood or OSB Installation (continued)

C. Wall Sheathing:

1. Place vertically with joints over studs, plates or 2" blocking.
2. Protect panels against damage until roofing is installed.
3. Stager end joints and allow 1/8” space. End joints shall occur on supports. Space panel edges 1/8" .
4. Nail 6" o.c. along panel edges and 12" o.c. at intermediate supports.
5. Use 8d coated box nails.

D. Floor Sheathing:

1. Install with face grain perpendicular to the direction of the framing members and with cross-joints staggered. Panel end joints shall occur over framing.
2. Panel edges shall be tongue and groove.
3. Allow 1/8” spacing at panel ends and edges.
4. Nail 6" o.c. along panel edges and 12" at intermediate supports.
5. Use 10” coated nails.
6. Maximum edge distance for all nailings in plywood shall be 3/8”.
7. Glue sheathing to trusses or joists. Follow recommendations in APA Form No. E030.

3.06 Air Barrier

A. Provide air barrier behind all exterior wall finish materials.

B. Apply barrier paper shingle fashion with not less than 4" horizontal laps and 6" vertical laps. Lap over strips applied to openings.

C. Install strips of sheathing paper, at least 6" wide, behind all exterior trim and around.

D. Use sufficient staples or roofing nails to hold paper in place until finish material is applied.

3.07 Coordination

A. Coordinate location of all framing, furring, blocking grounds and similar items with all trades.

B. Verify all dimensions, Shop Drawing requirements prior to proceeding with Work.

C. Avoid delay of Work of other trades dependent on or affected by carpentry work.

3.08 Protection

A. Protect all carpentry work from damage by the Work of other trades during construction.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 11 00 – WOOD TRUSSES

PART 1 - GENERAL

1.01 Work Included

A. Furnish and install:

1. Prefabricated wood trusses for roof and floor framing.
2. Bridging, Accessories, Bracing and Anchorage.

1.02 Related Work

A. Section 05 10 00 - Structural Steel

B. Section 06 10 00 - Rough Carpentry, Wood Framing and Sheathing

C. Section 06 10 00 - LVL Structural Units

1.03 Quality Assurance

A. Design Criteria: Size and detail trusses to fit the dimensions and support the loads indicated on the Drawings.

1.04 Submittals

A. Shop Drawings - Truss Supplier shall submit Shop Drawings to the Architect for approval prior to fabrication.

B. These Drawings to show all steps for framing layout, sizes, bracing, design, calculation, stress analysis and methods of connections., species and grade of lumber.

C. All truss engineered Drawings shall be certified by a registered engineer licensed in the State of Iowa.

1.05 Delivery, Storage and Handling

A. Handle and store pre-fabricated wood trusses and components to protect from any damage.

B. Stockpile with sufficient bearing points and/or bracing to prevent lateral bending or tipping, and as recommended by the truss manufacturer.

PART 2 - PRODUCTS

2.01 Roof Trusses

A. Roof trusses shall be prefabricated by an approved wood truss fabricator complete with all items necessary to construct and install wood trusses of the configurations shown and in quantities as required.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 11 00 – WOOD TRUSSES

2.01 Roof Trusses (continued)

B. Trusses shall be designed for roof live load of 30 PSF, plus a minimum dead load of 20 PSF (horizontal projection). Minimum size of truss members shall be 2x4 for top and bottom chords, 2x3 for web members. Maximum truss spacing shall be 2'-0" o.c. Design truss members and connections to support their portion of roof loads.

C. All trusses shall be secured to wood bearing with galvanized hurricane ties.

2.02 Floor Trusses

A. Trusses shall be designed for a live load of 40 psf at units, 100 psf in corridors and public areas plus a minimum dead load of 20 psf.

B. All truss plate connectors shall be structural quality hot dipped, galvanized steel meeting ASTM Specification A446, Grade A and ASTM Specification A525, coating designation G60.

2.03 Accessories

A. Provide truss hangers, framing anchors, accessories attachment, hardware, temporary and permanent bracing.

PART 3 - EXECUTION

3.01 Erection and Installation

A. Place trusses in the positions shown on the Shop Drawings and support in the manner indicated. Keep trusses in an upright position at all times. Hold chords in a straight line from time of setting until sheathing is applied.

B. Erect trusses with proper handling, safety precautions and temporary bracing to prevent toppling or dominoing of the trusses during erection.

C. During entire construction period, provide for adequate distribution of concentrated loads to prevent exceeding the carrying capacity of any one truss.

D. Install proper erection bracing to hold trusses true and plumb and in safe condition until permanent trusses, bracing and bridging is properly installed. Install permanent bracing as noted on truss design.

E. Do not install roof sheathing or superimpose any loads until trusses are permanently installed and braced.

F. Connect each truss to wood support with specified steel framing anchors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 11 00 – WOOD TRUSSES

3.02 Special Inspections (I.B.C.)

A. The truss fabricator shall furnish evidence of an on-going quality control program from all facilities producing products for this project. The format shall be a Certificate of Compliance from a reputable testing agency or trade association.

B. A copy of the certificate shall be furnished to the following:

1. Owner
2. Architect
3. General Contractor
4. Building Contractor

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 - GENERAL

1.01 Description of Work

A. Definition: Finish carpentry includes carpentry work which is exposed to view, is non-structural, and which is not specified as part of other sections. Types of work in this section include finish carpentry for:

1. Millwork base and trim
2. Closet and storage shelving
3. Wood caps and miscellaneous trim
4. Railings
5. Wood wainscot paneling.

1.02 Products Installed but not Furnished under this Section:

A. Section 07 90 00 - Joint Sealers: Sealing related to interior carpentry work.

B. Section 08 10 00 - Steel Doors and Frames

C. Section 08 14 00 – Pre-finished Wood Door Items

D. Section 08 71 00 - Finish Hardware

E. Section 10 01 00 - Miscellaneous Specialties

F. Section 10 14 00 - Plastic Signs

G. Section 10 44 00 - Fire Extinguishers and Cabinets

H. Section 10 80 00 - Toilet Accessories

1. Section 11 40 00 - Kitchen Cabinets

1.03 Related Sections

A. Section 06 10 00 - Rough Carpentry

B. Section 09 91 00 - Painting: Painting and finishing of finish carpentry items.

1.04 Submittals

A. Shop Drawings: Submit Shop Drawings showing location of each item, dimensioned Plans and Elevations, large scale details, attachment devices and other components.

B. Samples: Submit and following samples:

1. For each type, color, pattern and surface finish.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 20 00 - FINISH CARPENTRY

PART 2 - PRODUCTS

2.01 Closet Shelving

1. Ventilated steel rod shelving as manufactured by Schulte Corp., Rubbermaid, Lee/Rowan, Closet Maid or approved equal.
2. Shelving shall be steel rod shelving finished with bright white epoxy plastic coating.
3. Shelf and rod: 12" deep super slide design
4. Linen shelves: 612L, 16" deep unless otherwise shown. Provide all supports, anchors, fastenings and other incidentals or accessories as required for complete and secure installation.

2.02 Millwork Base and Trim (unit interiors) and windows at public areas.

A. Specified under Section 08 14 00 - Prefinished Wood Doors, Frames, and Trim.

2.03 Interior Millwork

A. All interior exposed millwork and trim in public areas shown on Drawings shall be plain birch 4¼" base trim and handrails (stain and varnish). Princeton trim at all public areas for casing. As detailed.

B. Unit interior trim to be stained red oak, Princeton trim.

2.04 Handrails

A. Handrails shall be 1-1/2" round red oak with end returns.

B. Handrail brackets shall be Stanley CD 30-4100 or Ives No. 59 dull aluminum finish. Provide brackets in sufficient quantity to support handrails a maximum of 4'-0" o.c.

2.05 Fasteners and Anchors

A. Fine finishing nails and screws: Select material, type, size and finish required for each use. Comply with FS FF-N-105 for applicable requirements.

B. Anchors: Select material, type, size and finish required by each substrate for secure anchorage. Provide non-ferrous metal or hot-dip galvanized anchors and insets for exterior installation and elsewhere as required for corrosion-resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish insets and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

B. Edge Treatment: As indicated.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 20 00 - FINISH CARPENTRY

PART 3 - EXECUTION

3.01 Preparation

A. Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.

3.02 Installation

A. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturer with respect to surfaces, sizes or patterns.

B. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.

C. Scribe and cut work to fit adjoining Work, and refinish cut surfaces or repair damaged finish at cuts.

D. Base trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints.

E. Anchor finish carpentry work to anchorage devices or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nail for exposed nailings, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.

F. Closet and Storage Shelving: Complete the assembly of units and install in the areas indicated, including hardware and accessories as indicated. Support brackets to be mounted into studs or blocking.

3.03 Adjustment, Cleaning, Finishing and Protection

A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform appearance.

C. Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.03 Adjustment, Cleaning, Finishing and Protection (continued)

C. Refer to Division 9 Sections for final finishing of installed finish carpentry work.

D. Protection: Installer of finish carpentry work shall advise Contractor of final protection and maintained conditions necessary to ensure that Work will be without damage or deterioration at time of acceptance.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 60 00 - PLASTIC FABRICATIONS

PART 1 - GENERAL

1.01 Work Included

A. Work consists of all unit cultured marble bathroom vanity tops.

B. No cracked, chipped, broken, stained or defective work will be accepted.

1.02 Submittals

A. Submit Shop Drawings showing top dimensions and size and location of integral bowl.

B. Submit sample for approval. Sample shall be of approximate size and shape of actual nit and shall represent color, pattern and edge treatment proposed for use.

1.03 Product Handling

A. Deliver to job site in sequence to be used. Store units within building where directed and protect against damage.

PART 2 - PRODUCTS

2.01 Manufacturers

A. Imperial Marble Corp., Artistic Marble or approved equal.

2.02 Materials

A. Vanity tops shall be ¾" thick, with integral bowl.

B. Materials shall be homogeneous; not coated or laminated construction. Physical properties shall conform to manufacturer's standard specification.

C. Vanity tops shall be in color and pattern selected by the Architect and Owner from standard colors.

D. All vanity top bowls shall have an integral overflow.

2.03 Fabrication

A. Field measure for exact dimensions of top and position of cutout.

B. Integral bowl shall be oval.

C. Faucet holes shall be 4" o.c.

D. Splashes to be 2-7/8" in height and top edge eased. Provide backsplash and side splashes.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 06 60 00 - PLASTIC FABRICATIONS

PART 3 - EXECUTION

3.01 Installation

A. Installation shall be in a workmanlike manner in accordance with manufacturer's instructions.

B. Joint sealant shall be G.E. Silicone.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 10 00 - MEMBRANE WATERPROOFING

PART 1 - GENERAL

1.01 Section Includes

A. Rubberized asphalt membrane waterproofing system.

B. Protection board.

1.02 Related Sections

A. Section 03 30 00 - Cast-in-Place Concrete

B. Section 03 40 00 - Precast Concrete

1.03 Submittals

A. Submit the following in accordance with Section 01 33 00.

1. Manufacturer's literature: Materials description and installation instructions.

2. Certification:

a. List of at least three similar completed installations using the membrane waterproofing system specified for this project if requested by the Architect.
b. At completion of Work, submit waterproofing membrane manufacturer's certification that waterproofing system was installed in accordance with manufacturer's requirements.

1.04 Quality Assurance

A. The Work of this Section shall be done by a waterproofing contractor specializing in this Work, with a minimum of 5 years experience in the type of work shown and specified and approved by the manufacturer to install specified materials.

B. The installation of the system shall be under the supervision of the manufacturer's authorized representative.

C. Pre-Waterproofing Conference: Prior to installation of waterproofing and associated work, meet at the project site with installer, waterproofing manufacturer's authorized representative, and others concerned with waterproofing performance, including Architect and Owner. Record discussions and agreements and furnish copy to each participant. Provide at least 72 hours advance notice to participants prior to convening pre-waterproofing conference.

D. Inspection: Upon completion of the installation but prior to covering membrane waterproofing, an inspection shall be made by the manufacturer's authorized representative to determine that the waterproofing has been installed in accordance with published specifications and details and the Contract Documents.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 10 00 - MEMBRANE WATERPROOFING

1.05 Delivery, Storage and Handling

A. Materials shall be delivered in the manufacturer's original sealed containers. Each container shall be identified with material name, date of manufacturer and lot number. Store materials to prevent damage to containers. Damaged or otherwise unsuitable materials when so determined shall be immediately removed from the project site.

1.06 Project Conditions

A. Proceed with Work only when weather conditions will permit unrestricted use of materials and quality control of the Work being installed, complying with the requirements and recommendations of the materials manufacturer.

1. Sheet membrane waterproofing shall not be applied in wet weather, or when the temperature is below 35 degrees F., unless special procedures are used as recommended by the manufacturer.

1.07 Warranty

A. The General Contractor shall warrant for two years against any and all leaks. The sheet membrane warranty shall be extended by the manufacturer's 5-year warranty against defects in material. The warranty shall be in writing and shall be signed by the General Contractor, installer and waterproofing manufacturer.

PART 2 - PRODUCTS

2.01 Materials

A. Self-adhesive rubberized asphalt waterproofing system "Bithuthene 3000, Construction Products Division of W.R. Grace & Co. or Carlisle CCW-860/861 sheet membrane. Polyguard 650 sheet waterproofing by Polyguard Products approved equal.

B. Bentonite Clay Waterproofing, Carlisle CCW Miraclay TDS for elevator pit waterproofing.

C. Membrane manufacturer's recommended primers, mastics and adhesives as required for a complete installation.

D. Drainage Board: By manufacturer. Similar to Carlisle CCW Miradrain 6000XL or Mar-Flex GeoMat.

PART 3 - EXECUTION

3.01 Examination

A. Examine the areas and conditions under which waterproofing work is to be installed and notify the General Contractor in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Examination (continued)

B. Surfaces prepared for waterproofing shall be examined by the manufacturer's authorized representative. Drawings and Specifications affecting the Work of this Section shall be examined by manufacturer's authorize representative. Do not proceed with the installation until certification from the manufacturer's authorized representative that surfaces to be waterproofed, and Drawings and Specifications are consistent with the manufacturer's recommendations.

3.02 Preparation

A. This part of the Work shall not proceed until piping, conduit, vents, ducts and other projections through the substrate have been installed.

B. Concrete and mortar shall be cured. Surfaces shall be broom clean, free of voids, loose aggregate, sharp protrusions, curing agents and other contaminants.

3.03 Installation

A. Install membrane-waterproofing system in strict accordance with manufacturer's printed instructions and recommendations.

B. Prime concrete and masonry surfaces as recommended by the manufacturer. Allow primer to dry for one hour or until tack-free. Re-prime surfaces when installation of sheet membrane is delayed beyond 24 hours. Metal surfaces shall not be primed but shall be clean, dry and free of grease, oil, dust and other contaminants. Permanent wood shall be primed.

C. Apply membrane sheet to primed surfaces, which are dry and free of dirt. Lay sheets vertically, overlap each strip a minimum of 2½" and roll down firmly and completely. Extend waterproofing across footing to edge of face and seal raw edges. For walls, which exceed in height the length of the membrane sheet, apply second and successive sheets in shingle fashion beginning at the bottom of the wall and seal lap edges. For horizontal applications, lay membrane sheets from low points in shingle fashion.

D. Extend membrane up masonry walls, behind brick masonry and under flashing material to extent shown on Drawings.

E. Double cover inside and outside corners with membrane sheets by applying an initial strip 12" wide (minimum) centered along the axis of the corner. Use a fillet of liquid membrane on inside corners, round outside corners.

F. Apply a bead of mastic to raw vertical and horizontal edges of installed membrane.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 10 00 - MEMBRANE WATERPROOFING

3.04 Adjusting and Cleaning

A. Immediately before covering the membrane, make a careful inspection. Holes, tears, misaligned and wrinkled seams, and other discontinuities shall be patched with membrane sheet or mastic per manufacturer's recommendations.

3.05 Protection

A. Membrane shall be covered with protection board and prefabricated drainage composite board. Apply trowelled beads of mastic at perimeter of boards, on down side and press boards firmly into place. Form a continuous overall protective layer. Butt edges of boards, stagger end joints and cut to fit intersecting construction.

B. General Contractor shall be responsible for protection of entire application of membrane waterproofing and protection board after acceptance of the Work under this Section and until ensuring work commences.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 20 00 - BUILDING INSULATION

PART 1 - GENERAL

1.01 Description of Work

A. Extent of insulation Work is shown on Drawings and indicated by provisions of this Section.

B. Applications of insulation specified in this Section include the following:

1. Batt insulation and vapor barrier in exterior wall construction.
2. Blown attic insulation.
3. Foundation wall insulation (supporting backfill).
4. Sound batt insulation in interior partitions.

1.02 Related Sections

A. Roof insulation is specified in this Division.

1.03 Quality Assurance

A. Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by R-values, they represent the rate of heat flow through a homogenous material exactly 1" thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

B. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a par, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

1. Surface Burning Characteristics: ASTM E-84.
2. Fire Resistance Ratings: ASTM E-119.
3. Combustion Characteristics: ASTM E-136.

1.04 Submittals:

A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and vapor retarder material required.

1.05 Delivery, Storage and Handling

A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 20 00 - BUILDING INSULATION

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Extruded Polystyrene Board Insulation:

1. Amoco Foam Products Co. - Amofoam
2. Dow Chemical U.S.A. - Styrofoam SM
3. Minnesota Diversified Products, Inc. - Certifoam
4. UC Industries - Foamular

B. Glass Fiber Insulation:

1. Certainteed Corp.
2. Owens-Corning Fiberglas Corp.

2.02 Insulating Materials

A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.

1. Preformed units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths and lengths.

B. Extruded Polystyrene Board Insulation: Rigid, cellular thermal insulation with closed-cells and integral high density skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C-578 for Type indicated; with five year aged R-values of 5.4 and 5 at 40 and 75 degrees F, respectively and as follows:

1. Type IV, 250 below grade.
2. Type X, 150 above grade.
3. Surface Burning Characteristics: Maximum flame spread and smoke developed value of 5.
4. Approved equal: Architectural Grade Expanded Polystyrene.

C. Unfaced glass fiber batts ASTM C665, Type 1 fiberglass blanket without membrane. Flamespread 25, smoke developed 50, 3½" R-11 or 6" R-20. Fiber fill blown insulation. ASTM C764 FS-HH-1-1030 or ANSI-ASTM C739 cellulose fiber type.

D. Fiber fill blown insulation. ASTM C764 FS-HH-1-1030 or ANSI - ASTM C739 Cellulose fiber type.

E. Sound Insulation - noise barrier batts as manufactured by Owens Corning Fiberglas Co.

F. Thermco Foam - manufactured by Thermal Corp. of America, Mt. Pleasant, IA.

G. Spray applied polyurethane foam insulation. Bayseal CC manufactured by Beyer Materials Science, LLC, or approved equal.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Insulating Materials (continued)

H. Intumescent thermal barrier – Flame Seal TB by Flame Seal Products or DC315 by International Fireproof Technology, or approved equal. Apply over polyurethane foam insulation.

2.03 Auxiliary Insulating Materials

A. Polyethylene vapor barrier - 4 mil film.

B. Adhesive for Bonding Insulation: Type recommended insulation manufacturer, and complying with requirements for fire performance characteristics.

C. Mechanical Anchors: Type and size indicated or, if not indicated and recommended by insulation manufacturer for type of application and condition of substrate.

D. Ventilation baffles: Cardboard type to be installed at each truss at exterior walls to act as a screed for insulation.

PART 3 - EXECUTION

3.01 Inspection and Preparation

A. Require installer to examine substrates and conditions under which insulation work is to be performed. A satisfactory substrate is one that complies with requirements of the section in which Substrate and related Work is specified. Obtain Installer's written report listing conditions detrimental to performance of Work in this Section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

B. Clean Substrates of substances harmful to insulations or vapor retarders, including removal or projections which might puncture vapor retarders.

3.02 Installation, General:

A. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with Work.

B. Extended insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 20 00 - BUILDING INSULATION

3.03 Installation of Perimeter Insulation

A. On vertical surfaces, set units in adhesive applied in accordance with manufacturer's instruction, use type of adhesive recommended by manufacturer of insulation.

B. Cover insulation with 5/8” Type X gypsum board.

3.04 Installation of General Building Insulation

A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Set vapor barrier to warm side of construction. Lap and seal barrier joints over member face. Do not obstruct ventilation space, except for firestopping. Repair tears and punctures in vapor barriers immediately before concealment by other work.

C. Pneumatically place attic insulation in truss spaces to achieve an R value of 49. Completely fill intended spaces. Leave no gaps or voids.

3.05 Protection

A. General: Protect installed insulation and vapor barrier from harmful weather exposure and possible physical abuses, where possible by non-delayed installation of concealing work or, where that is not possible, by temporary covering or enclosure.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 27 00 – AIR INFILTRATION AND VAPOR BARRIERS

PART 1 - GENERAL

1.01 Section Includes

A. Sheet as sealant materials to provide a continuous vapor and air barrier throughout the building envelope and seal wall vapor and air barrier to window and door frame openings.

1.02 Related Sections

A. Section 07 20 00 Insulation

B. Section 07 84 00 Penetration Firestopping

C. Section 07 90 00 Joint Sealers: Sealants

1.03 References

A. ASTM A361 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process for Roofing and Siding.

B. ANSI/ASTM D91 - Asphalt Mastic Used on Waterproofing.

C. ASTM C804 - Recommended Practice for Use of Solvent-Release Type Sealant.

D. FS TT-S-001657 - Sealing Compounds, Single Component, Butyl Rubber Based, Solvent Release Type.

E. FS TT-S-00230 - Sealing Compounds, Synthetic-Rubber Base, Single Component, Chemically Curing.

F. Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

1.04 Performance Requirements

A. Materials of this Section shall provide continuity of building enclosure vapor and air barrier:

1. In conjunction with materials described in Section 07 20 00, 07 84 00, and 07 90 00.
2. To seal gaps between building enclosure components and wall and roof opening frames.

1.05 Submittals

A. Submit under provisions of Section 01 33 00.

B. Product Data: Provide data indicating material characteristics, performance criteria and limitations.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Submittals (continued)

C. Manufacturer's Installation Instructions: Indicate preparation and installation requirements and techniques.

1.06 Quality Assurance

A. Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.

1.07 Environmental Requirements

A. Do not install solvent curing sealants in enclosed building spaces without ventilation.

B. Maintain temperature and humidity recommended by the materials manufacturers before, during, and after installation.

1.08 Sequencing

A. Sequence Work under the provisions of Section 01 10 00.

B. Sequence Work to permit installation of materials in conjunction with other retardant materials and seals.

1.09 Coordination

A. Coordinate the Work of this Section with all Sections referencing this Section.

PART 2 - PRODUCTS

2.01 Sheet Materials

A. Sheet Vapor Barrier: Polyethylene film for above grade application, 4 mil thick.

B. Sheet Vapor Barrier: Polyethylene film for under concrete slab application, 6 mil.

C. Sheet Infiltration Barrier: Tyvec Drainwrap manufactured by DuPont, or approved equal.

PART 3 - EXECUTION

3.01 Examination

A. Verify condition of substrate and adjacent materials.

B. Verify that surfaces and conditions are ready to accept the Work.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 27 00 – AIR INFILTRATION AND VAPOR BARRIERS

3.02 Installation

A. Install sheet materials in accordance with manufacturer's instructions.

B. Set vapor barrier in warm side of construction. Lap barrier joints over member face. Do not obstruct ventilation space, except for firestopping.

C. Set infiltration barrier to exterior side of wall sheathing. For window and door openings, make an 'X' cut from corner to corner and fold the flaps in and around the frame opening. Secure on the inside of the frame with staples approximately every 6" and trim off excess flap.

D. Secure sheet barrier to wall with staples spaced at 12" o.c. and lap sheets approximately 12".

3.03 Protection of Finished Work

A. Protect finished work under provisions of Section 01 50 00.

B. Do not permit adjacent Work to damage Work of this Section.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 31 00 - ASPHALT SHINGLES

PART 1 - GENERAL

1.01 Work Includes

A. Asphalt shingle roofing.

B. Pre-finished metal roof edge.

C. Underlayment, eave, valley and ridge protection.

1.02 Related Sections

A. Section 06 10 00 - Rough Carpentry

B. Section 07 62 00 - Flashing and Sheet Metal

C. Section 07 71 00 - Prefabricated Roof Specialties

D. Division 23 00 00 - Heating, Ventilation and Air Conditioning (HVAC) work projecting through roof.

1.03 References

A. ANSI/ASTM D224 - Smooth-Surfaced Asphalt Roll Roofing (Organic Felt).

B. ANSI/ASTM D3018, Class A - Asphalt Shingles (Fiberglass) Surfaced with Mineral Granules.

C. ANSI/ASTM D2822 - Asphalt Roof Cement.

D. ASTM D226 and ASTM D4869 synthetic roofing underlayment.

E. UL 580 - Tests for Wind Uplift Resistance of Roof Assemblies.

F. UL 790 - Tests for Fire Resistance of Roof Covering Materials.

1.04 Submittals

A. Furnish samples for color selection.

1.05 Project Conditions

A. Proceed with shingle work only after substrate construction and penetrations of roof have been completed.

1.06 Environmental Requirements

A. Do not install eave edge protection and shingles when temperatures are below 40° F.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 31 00 - ASPHALT SHINGLES

PART 2 - PRODUCTS

2.01 Manufacturers - Asphalt Shingles

A. GAF-ELK Timberline HD 30 fiberglass Class A asphalt shingles with a 30 yr. limited warranty.

B. Owens Corning Duration Architectural 30 fiberglass, Class A, with a 30 yr. limited warranty.

C. Certainteed Landmark Class A fiberglass 30 year limited warranty.

2.02 Asphalt Shingles

A. Asphalt Shingles: ANSI/ASTM D3018, ASTM D3462, Type I uniform UL Rating of A and Wind Resistance Label, fiberglass mat base, mineral granule surfaced type, 240 lb. square, self sealing type, square tab; color selected by Architect.

2.03 Sheet Materials

A. Eave and valley (Ice Dam) Protection: Sheet barrier of rubberized asphalt bonded to sheet polyethylene 40 mil total thickness strippable treated release paper.

1. Ice and Watershield manufactured by W.R. Grace.
2. Weatherwatch by GAF.
3. Moisture Guard by Tamko.
4. Mirafi Miradri WIP.
5. IKO Armourguard Ice & Water Protector.
6. Carlisle CCW-707.

B. Underlayment:

1. ANSI/ASTM D226, Owens Corning “Deck Defense” roof underlayment.
2. Certainteed Diamond Deck High Performance Synthetic roofing underlayment.

C. Roof edge: Prefinished metal roof edge, color as selected.

2.04 Accessories

A. Nails: Standard round wire shingle type, hot dipped zinc coated steel minimum 3/8" head diameter and 11 gauge barbed shank diameter, of sufficient length to penetrate through roof sheathing or 16 gauge zinc coated staples with 1" crown, staple crown must parallel tab edge and bear tightly against shingle but not cut shingle surface.

B. Plastic Cement: ANSI/ASTM D2822, asphalt type with mineral fiber components, free of toxic solvents, capable of setting within 24 hours at temperatures of 75 degrees F of setting within 24 hours at temperatures of 75 degrees F and 50% RH.

C. Lap Cement: Fibrated cutback asphalt type, recommended for use in application of underlayment, free of toxic solvents.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 31 00 - ASPHALT SHINGLES

2.05 Flashing Materials

A. All sheet metal work shall be prefinished 24 gauge thick steel with minimum 1.25 oz. sq. ft. galvanized coating.

B. 5" x 7" shingle tabs galvanized.

2.06 Flashing Fabrication

A. Form flashings to profiles indicated on Drawings and to protect roofing materials from physical damage and shed water.

B. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

PART 3 - EXECUTION

3.01 Examination

A. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.

B. Verify roof openings are correctly framed prior to installing Work of this Section.

C. Verify deck surfaces are dry, free of ridges, warps or voids.

3.02 Preparation

A. Fill knot holes and surface cracks with latex filler at areas of bonded eave protection.

B. Broom clean deck surfaces under eave protection and underlayment.

3.03 Installation - Eave Ice Dam Protection

A. Place eave edge and gable edge metal flashings tight with facia boards. Weather lap joints 2" and seal with plastic cement. Secure flange with nails spaced 16".

3.03 Installation - Eave Ice Dam Protection

B. Apply Ice and Watershield eave protection in accordance with manufacturer's instructions.

C. Extend eave protection membrane minimum 2' upslope beyond interior face of exterior wall. Apply minimum of two 36” rows at all eaves. At valleys, step the membrane 2’ up each slope, lapping the lower membrane a minimum of 6”.

3.04 Installation - Protective Underlayment

A. Place one ply of underlayment over area not protected by eave protection, with ends and edges weather lapped minimum 6". Stagger endlaps of each consecutive layer. Nail in place.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Installation - Protective Underlayment (continued)

B. Install protective underlayment perpendicular to slope of roof and weather lap minimum 4" over eave protection.

C. Weather lap and seal watertight with plastic cement, items projecting through or mounted on roof.

3.05 Installation - Valley Protection

A. Install protective watershield parallel to valley, 18” on each side.

B. Provide a California cut woven valley with exposed edges sealed.

3.06 Installation - Metal Flashing

A. Weather lap joints minimum 2" and seal weather tight with plastic cement.

B. Secure in place with nails at 16" o.c. Conceal fastenings.

C. Flash and seal work projecting through or mounted on roofing with plastic cement, weather tight.

3.07 Installation - Asphalt Shingles

A. Install shingles in accordance with manufacturer's instructions.

B. Place shingles in straight coursing pattern with 5" weather exposure to produce double thickness over full roof area.

C. Project first course of shingles ¾” beyond fascia boards.

D. Extend shingles ½” beyond face of gable edge fascia boards.

E. Cap hips and ridges with individual shingles, maintaining 5" weather exposure. Place to avoid exposed nails.

3.08 Protection of Finished Work

A. Do not permit traffic over finished roof surface.

3.09 Guarantee

A. The roofing contractor shall guarantee that this roof and installation of all flashing, counter-flashing, felts and shingles to be leakproof for a minimum of two years from Date of Substantial Completion. Any damage caused by rainwater, snow, etc., to the interior portions of this building shall be fixed or renewed to the Owner's satisfaction by the Roofing Contractor.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 40 00 - PREFORMED ROOFING

PART 1 - GENERAL

1.01 Description of Work

A. Extent of each type of preformed roofing and siding is indicated on the Drawings and by provisions of this Section. Preformed roofing/siding is hereby defined to include panels, which are structurally capable of spanning between supports spaced as indicated.

B. Types of panels required include the following:

1. Formed sheet panels, intended for lapped-seam installation for use as roofing and fascia.

1.02 Quality Assurance

A. Performance Test Standards: Provide preformed panel systems which have been pre-tested and certified by manufacturer to provide specified resistance to air and water infiltration and structural deflection and failure when installed as indicated and when tested in accordance with AAMA 501, "Methods of Test for Metal Curtain Walls".

B. Field Measurements: Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units where final dimensions cannot be established prior to fabrication.

1.03 Submittals

A. Product Data: Submit manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to materials and finishes for each component and for total system of preformed panels.

B. Samples: Submit two samples 12" square, of each exposed finish material.

C. Shop Drawings: Submit small-scale layouts of panels on walls and roofs, and large-scale details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures and special details. Distinguish between factory and field assembly work.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Preformed Roofing

1. Atlas International, Inc.
2. Centria Products
3. Smith Built
4. Berridge Products
5. The Garland Company, Inc.
6. Classic Metal Roofing Systems

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Sheet Materials

A. Steel for Painting/Coating: Hot-dip zinc coated steel sheet, ASTM A-446, Grade A except where higher strength required for performance, G90 zinc coating, surface treated for maximum coating performance. Manufacturer must design the roofing for the structural system noted on the Drawings.

2.03 Metal Finishes

A. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating promptly after application and cure, by application of strippable film or removable adhesive cover, and retain until installation has been completed. Provide colors or color matches as indicated.

B. Fluropolymer Coating: Full-strength 70% "Kynar 500" coating baked-on for 15 minutes at 450 degrees F in a dry film thickness of 1.0 mils, 30% reflective gloss (ASTM D523), over 0.2 mil baked-on epoxy primer.

1. Durability: Provide coating which has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish and without chalking in excess of 8 (ASTM D 659) and without fading in excess of 5 NBS units.

C. Factory Prime Coating: Where painting after installation is indicated (not work of this Section), provide pretreatment and factory-applied baked-on epoxy prime coat, 0.2 mils dry film thickness.

D. Internal Panel Framing: Manufacturer's Standard.

E. Fasteners: Manufacturer's standard non-corrosive types with exterior heads gasketed.

F. Accessories: Except as indicated as Work of another specification section provide components required for a complete roofing/siding system including trim, copings, fascias, gravel stops, mullions, sills, corner units, hip and ridge closures, clips, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, fillers, neoprene closure strips, end closures, drip trim, 'c' and 'z' closures, starter flashings and similar items. Match materials/finishes of preformed panels.

G. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15-mil dry film thickness per coat.

2.04 Panel Fabrication Performances

A. General: Fabricate and finish panels and accessories at the factory to greatest extent possible by manufacturer's standard procedure and processes as required to fulfill indicated performance requirements which have been demonstrated by factory testing. Comply with indicated profiles and with dimensional structural requirements.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.04 Panel Fabrication Performances (continued)

1. Metal Gauges: Thickness required for structural performances but not less than manufacturer's recommended minimums for profiles and applications indicated, and not less than 22 gauge (0.0299") for exterior panels and 28 gauge (0.0149") for interior liner panels, unless shown otherwise.

B. Required Performances: Fabricate panels and other components of roof/wall system for the following installed-as-indicated performances:

1. Roof Loading: 40 lbs. per sq. ft. inward; 15 lbs. per sq. ft. outward.
2. Water Penetration: No significant, uncontrolled leakage at 4 lbs. per sq. ft. pressure with spray test.
3. Air Infiltration: 0.02 cfm per sq. ft. for gross roof/wall areas, with 4 lbs. per sq. ft. differential pressure.

C. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials which are non-compatible or could result in corrosion or deterioration of either material or finishes.

D. Fabricate panel joints with captive gaskets or separator strips, which provide a tight seal and prevent metal-to-metal contact in a manner which will minimize noise from movements within panel system.

E. Condensation: Fabricate panels for control of condensation, including proper inclusion of seals and provisions for breathing, venting, weeping and draining.

PART 3 - EXECUTION

3.01 Installation

A. General: Comply with panel fabricator's and material manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the Work securely in place, with provisions for thermal/structural movement.

1. Install panels with exposed exterior and interior fasteners, prefinished to match panel finishes.

B. Installation tolerances: Shim and align panel units within installed tolerance of ¼” in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8” offset of adjoining faces and of alignment of matching profiles.

C. Joint Sealers: Install gaskets, joint fillers and sealants where indicated and where required for weatherproof performance of panel systems. Provide types of gaskets and sealants/fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Installation (continued)

1. Refer to other Sections of these Specifications for product and installation requirements applicable to indicated joint sealers.

3.02 Cleaning and Protection

A. Damaged Units: Replace panels and other components of the Work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

B. Cleaning: Remove temporary protective coverings and strippable films (if any) as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 46 00 - SIDING, SOFFITS AND FASCIAS

PART 1 - GENERAL

1.01 Scope

A. Provide all labor and materials, equipment, and services and perform all operations required for complete installation of all siding and related work as shown on the drawings or specified herein.

B. Caulk around all windows and doors.

PART 2 - PRODUCTS

2.01 Manufacturer: James Hardie Company, Nichiha fiber cement, or approved equal.

A. Siding ~ Hardie Plank lap siding with 5” exposure.

B. Shingle ~ Hardi straight edge notched panel with 7” exposure.

2.02 Pre-finished Aluminum Fascia and Soffit

A. Aluminum vented soffit - factory, PVC coated Aluma-Kore by Edco, Revere Quad 4 or approved equal.

B. Architect and Owner will select from manufacturers complete color palette.

2.03 Gutter and Downspouts

A. 5” aluminum, .032” gutters and 3-3/4” x 5”, .019” downspouts.

B. Enamel finish.

C. Flex Downspout Tile Adapter

1. Provide and install 4x5x6 offset adaptor at each downspout.
2. Manufactured by Gutter Supply.com or approved equal.

2.04 Fiber Cement Trim.

A. Products by James Hardie Company, Nichiha fiber cement, or approved equal.

B. Trim to be of 1” thick material.

2.05 Plastic Fabrications (brackets)

A. Fypon, BKT 19 x 24 x 4 as shown on the Drawings.

B. Boral Tru-Exterior trim.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 46 00 - SIDING, SOFFITS AND FASCIAS

2.06 Accessories

A. All trims, moldings, and other accessories as indicated on the drawings or as required for complete proper installation of siding and soffit materials. Accessories shall be manufacturer's standard products from same source as siding material.

B. Provide siding blocks for all light fixtures, outlets, vents and other openings in siding.

PART 3 - EXECUTION

3.01 Installation

A. Install as per manufacturer's recommendations.

3.02 Warranty

A. Manufacturers standard product warranty.

B. Two-year warranty from installer against installation defects (labor and material).

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 62 00 - SHEET METAL FLASHING

PART 1 - GENERAL

1.01 Description of Work

A. Extent of each type of flashing and sheet metal work is indicated on the Drawings and by provisions of this Section.

B. Types of work specified in this Section include the following:

1. Metal fascias and gravel stops.
2. Metal counter flashing and base flashing.
3. Metal coping and cap flashings.
4. Metal wall flashing and expansion joints.
5. Miscellaneous sheet metal accessories.
6. Roof Valleys

1.02 Related Sections

A. Roofing accessories which are installed integral with roofing membrane are specified in roofing system sections as roofing work.

B. Section 07 71 00 - Prefabricated Roof Specialties.

1.03 Submittals

A. Product Data; Flashing, Sheet Metal, Accessories: Submit manufacturer's product data specifications, installation instructions and general recommendations for each specified sheet material and fabricated product.

1.04 Job Conditions

A. Coordinate work of this section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance and durability of the Work and protection of materials and finishes.

PART 2 - PRODUCTS

2.01 Flashing and Sheet Metal Materials

A. Sheet Metal Flashing/Trim:

1. Zinc-coated Steel: Commercial quality ASTM A525 except ASTM A 527 for lock-forming, G90 hot-dip galvanized, mill phosphatized where indicated for painting; 24 gauge except as otherwise indicated.

B. Miscellaneous Materials and Accessories:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Flashing and Sheet Metal Materials (continued)

1. Solder: For use with steel or copper, provide 50-50 tin/lead solder (ASTM B32) with rosin flux.

2. Bituminous Coating: FS TT-C-494 or SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

3. Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, nondrying, non-migrating sealant.

4. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed; comply with FS TT-S-0027, TT-S-00230, or TT-S-001543.

5. Epoxy Seam Sealer: Two part non-corrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior nonmoving joints including riveted joints.

6. Roofing Cement: ASTM D 2822, asphaltic.

2.02 Fabricated Units:

A. General Metal Fabrication - Shop fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the Work. Form Work to fit substrates. Comply with material manufacturer instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

B. Seams - Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.

C. Expansion Provisions - Where lapped or bayonet-type expansion provisions in Work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joints).

D. Sealant Joints - Where movable, non-expansion type joints are indicated or required for proper performance of Work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.

E. Separations - Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 62 00 - SHEET METAL FLASHING

PART 3 - EXECUTION

3.01 Installation Requirements

A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints and seams which will be permanently watertight and weatherproof. Screws at coping caps, roof edges and similar locations, provide neoprene washers under head to ensure watertight hole.

B. Bed flanges of Work in a thick coat of bituminous roofing cement where required for waterproof performance.

3.02 Cleaning and Protection

A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal Work during construction, to ensure that Work will be without damage or deterioration, other than natural weathering, at time of Substantial Completion.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 71 00 - PREFABRICATED ROOF SPECIALTIES

PART 1 - GENERAL

1.01 Work Includes

A. Provide all labor and materials necessary for the completion of this Section of the Work.

1.02 Related Sections

A. Section 07 31 00 - Asphalt Shingles

B. Section 07 62 00 - Sheet Metal Flashings

PART 2 - PRODUCTS

2.01 Materials

A. Roof vents: Lomanco 865 with insect screen, color to match shingles.

B. Continuous Ridge Vent: Lomanco VUR-10, color to match shingles.

C. Miller Model RA40 doubled permanent roof anchors, stainless steel, zinc plated.

PART 3 - EXECUTION

A. Installation:

1. Install all items in accordance with the Project Drawings, manufacturer's instructions and this Project Manual.

2. Coordinate Work with Section 06 20 00.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 72 00 - ROOF HATCHES

PART 1 - GENERAL

1.01 Description of Work

A. Extent and locations of roof accessories is indicated on the Drawings and by provisions of this Section.

B. Types of units specified in this Section include the following: Roof hatches.

C. Refer to roofing system sections of these Specifications for roofing accessories (not work of this Section).

1.02 Submittals

A. Product Data; Roof Accessories: Submit manufacturer's technical product data, rough-in diagrams, details, installation instructions and general product recommendations.

PART 2 - PRODUCTS

2.01 General Product Requirements

A. Provide manufacturer's standard units modified as necessary to comply with requirements. Shop fabricate each unit to greatest extent possible.

2.02 Materials, General

A. Zinc-Coated Steel: Commercial quality with 0.20% copper, ASTM A- 525, G90 hot-dip galvanized, mill phosphatized.

B. Aluminum Sheet: ASTM B-209, alloy 3003, temper as required for forming and performance; AA-C22A41 clear anodized finish, except mill finish prepared for painting where indicated for field painting.

C. Extruded Aluminum: Manufacturer's standard extrusions of sizes and general profiles indicated, alloy 6063-T52; 0.078" minimum thicknesses for primary framing and curb member legs, 0.062" for secondary legs; AA-C22A41 clear anodized finish on exposed members, except as otherwise indicated.

D. Insulation: Manufacturer's standard rigid or semi-rigid board of glass fiber of thicknesses indicated.

E. Wood Nailers: Softwood lumber, pressure treated with water-borne preservatives.

F. Fasteners: Same metal as metals being fastened, or non-magnetic stainless steel or other non-corrosive metal as recommended by manufacturer. Match finish of exposed fasteners with finish of material being fastened.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 General Materials (continued)

1. Where removal of exterior exposed fasteners affords access to building, provide non-removable fastener heads.

G. Gaskets: Tubular or fingered design of neoprene or polyvinyl chloride, or block design of sponge neoprene.

H. Bituminous Coating: FS TT-C-494 or SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coating.

I. Elastomeric Sealant: Generic type recommended by unit manufacturer, which is compatible with joint surfaces; comply with FS TT- S-0027, TT-S-00230, or TT-S-001543.

J. Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.

K. Roofing Cement: ASTM D2822, asphaltic.

2.03 Unit Materials, Fabrication

A. General: Fabricate units of sizes shown, single-leaf type unless otherwise indicated, for 40 lbs. per sq. ft. external loading and 20 lbs. per sq. ft. internal loading pressure. Frame with 9" high integral-curb double-wall construction with 1-1/2" insulation, cant strips and cap flashing (roofing counter-flashing), with welded or sealed mechanical corner joints. Provide double-wall cover (lid) construction with 1" insulation core. Equip units with complete hardware set including hold-open devices, interior padlock hasps, and both interior and exterior latch handles. Provide gasketing. Fabricate units of the following:

1. Materials: Aluminum or zinc-coated steel, or in combination, at Contractor's option. Bilco 2’-6” x 4’-6”, Nystrom, Inc. RHA series; Babcock-Davis Hatchways, Inc.; Milcor, JL Industries or approved equal.

PART 3 - EXECUTION

3.01 Installation

A. General: Comply with manufacturer's instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, and with vapor barriers, roof insulation, roofing and flashing; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.

1. Except as otherwise indicated, install roof accessory items in accordance with construction details of "NRCA Roofing and Waterproofing Manual".

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Installation (continued)

B. Isolation: Where metal surfaces of units are to be installed in contact with non-compatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.

C. Cap Flashing: Where cap flashing is required as component of accessory, install to provide adequate waterproof overlap with roofing or roof flashing (as counter flashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.

D. Flange Seals: Except as otherwise indicated, set flanges of accessory units in a thick bed of roofing cement, to form a seal.

E. Operational Units: Test operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

3.02 Cleaning and Protection

A. Clean exposed metal and plastic surfaces in accordance with manufacturer's instructions. Touch up damaged metal coatings.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 84 00 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.01 Section Includes

A. Field constructed assemblage of firestopping products and materials.

1.02 Related Sections

A. Section 07 90 00 - Joint Sealers

B. Section 22 00 00 - Plumbing

C. Section 23 00 00 – Heating, Ventilating and Air Conditioning

D. Section 26 05 00 – Basic Electrical Materials and Methods

1.03 References

A. American Society for Testing and Materials (ASTM) Publications:

1. E 84: Standard Test Methods for Surface Burning Characteristics of Building Materials.
2. E 119: Methods of Fire Tests of Building Construction and Materials.
3. E 814: Standard Method of Fire Tests of Through-Penetration Fire Stops
4. C 719: Adhesion and Cohesion of Elastomeric Joint Sealants under Cyclic Movements.
5. C 920: Standard Specifications of Elastomeric Joint Sealants.

B. Underwriters Laboratories, Inc. (UL) Publications:

1. UL 263: Fire Tests of Building Construction and Materials.
2. UL 723: Surface Burning Characteristics of Building Materials.
3. UL 1479: Fire Tests of Through-Penetration Firestops.
4. UL 2079: Standard for Fire Tests of Joint Systems.
5. Underwriters Laboratories “Fire Resistance Directory” (Current Year).

C. Miscellaneous Publications

1. Factory Mutual Approval Guide (Current Year)
2. Underwriters Laboratories of Canada
3. Warnock Hersey Certification Listings
4. Underwriters Laboratories Products Certified for Canada

1.04 Definitions

A. Fire Rated Assembly: Includes all fire rated walls, floors, floor/ceiling and roof system assemblies. Ratings shall be per ASTM E 119 or UL 263 (see Article 1.03.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 84 00 - PENETRATION FIRESTOPPING

1.04 Definitions (continued)

B. Firestop System: Firestop systems prevent the spread of smoke, fire and toxic gases through openings in fire rated assemblies or through joints between wall and floor or roof assemblies or other expansion or seismic joints (also known as firesafing), for a specified period of time. Incorporating the use of specific products installed in a specific manner.

C. Flame Spread/Smoke Developed Ratings: Numerical value of a material when tested in accordance with ASTM E 84 (see 1.03).

D. F-Rating: The time period that a through-penetration firestop limits the spread of flame and hot gasses through fire resistive construction, including the penetrating items, when tested in accordance with the time-temperature curve defined in ASTM E 119.

E. T-Rating: The time period that a through-penetration firestop limits temperature rise through the fire resistive construction, including the penetrating items, as defined in ASTM E 119.

1.05 Submittals

A. Submit drawings of through-penetrations or construction joints which indicates the firestop system to be utilized for each different firestopping application. Drawing shall indicate construction of the wall or floor assembly, size, number and material of penetrating items; firestop systems designation; required F-rating, T-rating a remarks.

B. Submit complete lists of all firestop systems and materials to be utilized, including documentation of UL or FM Classifications or approved third party testing. Include all of the individual materials required for each complete system. Indicate manufacturer's product name and number for each material.

C. Submit copies of manufacturer's product data, specifications, recommendation, standard details and installation instructions for all firestop assemblies.

D. For installations or configurations not covered by a UL or FM design number, a recommendation shall be obtained from the Manufacturer, in writing, for the specific application, signed by a registered professional engineer.

1.06 Environmental Requirements

A. All materials shall be asbestos free and non-carcinogenic. Materials should meet the requirements for use in a "Green Building" as defined by the U.S. Green Building Council and the ASTM Green Building Sub-committee E 50.06.

B. Firestop materials shall contain no flammable or toxic solvents and shall not produce toxic or flammable out gassing during the drying or curing process.

C. Firestop materials used shall not require solvent-based chemicals for clean-up purposes.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.06 Environmental Requirements (continued)

D. Water based, non-toxic firestop materials shall be used in lieu of silicone or solvent based materials.

E. Products allowing silicones/silica's to become airborne before or during a fire shall not be used when electronic switching devices or painting operations are located within the same building.

1.07 Quality Assurance

A. No work shall commence until submittals referenced in Article 1.05 have been approved.

B. Prepare job site mock-ups of typical firestop systems proposed for use in the project, as directed by the Architect or Specifier. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.

C. Installation shall be performed by an experienced firestopping contractor who is certified, licensed or otherwise qualified by the firestopping manufacturer to install the manufacturer's products as per specified requirements.

1.08 Delivery, Storage and Handling

A. Deliver materials to project site in manufacturer's original packaging clearly identified.

B. Store and handle firestop materials in a location and manner providing protection from damage and exposure to the elements, in accordance with manufacturer's instructions.

C. Store materials in a manner, which allows clear visibility of material expiration dates or date codes. Material inventory should be rotated as received.

D. Conspicuously mark "REJECTED" on materials which have been damage and remove from the job site

E. Material Safety Data Sheets (MSDS) will be available on the job site for all materials. Follow manufacturer's guidelines for use, handling and disposal.

1.09 Warranty

A. All firestop and firesafing materials shall be warranted, in writing, by the manufacturer against defects in manufacturing and materials.

B. Completed installation shall be warranted, in writing, by the installer against defects in workmanship.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 84 00 - PENETRATION FIRESTOPPING

PART 2 - PRODUCTS

2.01 Manufacturer

A. Hilti Sales and Service, P.O. Box 21148, Tulsa, OK 74121, (800) 879-8000.

B. 3-M Company

C. Bio Fireshield, Inc.

D. Tremco Construction Products

E. Rectorseal MetaCaulk

F. Nelson Firestop Product

2.02 Physical Requirements

A. Through-penetration firestop systems and firestop devices shall be tested in accordance with ASTM E 814 using the F and T-ratings, shall be classified for use with the particular type of penetrating material used, and shall maintain the same integrity as the fire barrier being sealed.

B. All products used shall be water-resistant after drying or curing and shall be unaffected by high humidity, condensation or transient water exposure.

C. Penetrations containing loose electrical, data or communications cabling shall be protected using fire stopping systems that allow unrestricted cable changes without damage to the seal.

D. Maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E 84 (except intumescent moldable putty).

E. All materials shall have a minimum one-year shelf life.

F. Materials and system designs shall not require amapacity derating in power cable installations.

G. Materials supplied under this specification shall be compatible with all materials used in the building construction.

2.03 Materials

A. Water-based thixotropic firestop sealant available in caulkable, trowelable or pourable formulations.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.03 Materials (continued)

B. Water-based, elatomeric, intumescent firestop sealant.

C. Intumescent, moldable firestop putty.

D. Collar Device System: Pre-engineered, plant fabricated, self-sealing firestop collar device manufactured from galvanized steel lined with heat-activated intumescent moldable putty. Device to be installed on the job site with no additional component fabrication required.

E. Sealbags: Reusable heat expanding bags used as a permanent firestop system.

F. Mortar: Cementitious, firestop compound, job site mixed either by had or using mortar or plastering machine with worm gear type pump. Designed for large penetrations.

G. Sealant: Used as safing sealant in curtain wall joints and other construction joints to stop smoke, gas and fire migration.

PART 3 - EXECUTION

3.01 Examination

A. Examine adjoining construction and the condition under which the work is to be completed. Do not proceed with work until any unsatisfactory conditions detrimental to the proper and timely completion of the work have been corrected.

B. Verify adjacent materials are clean, dry and ready to receive installation.

C. Verify that openings and items (penetrations) passing through them are ready to receive the work of this section.

D. Verify that field dimensions are as shown on the drawings and as recommended by the manufacturer.

3.02 Preparation

A. Remove any incompatible materials, which may effect proper installation.

B. Beginning of installation means acceptance of existing conditions.

3.03 Installation

A. Coordinate with fire protection and other trades to assure that all pipe, conduit, cable and other items which penetrate fire rated construction have been permanently installed prior to installation of firestops and smoke seals. Schedule and sequence work to assure that partitions and other construction, which would conceal penetrations, are not erected prior to the installation of firestop, firesafing and smoke seals.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.03 Installation (continued)

B. Apply firestops and smoke seals at all locations as required by national, municipal and local governing laws and codes, per approved submittals referenced in Article 1.05.

C. Apply firestopping materials only when the temperature of the surfaces to be filled and surrounding air temperature comply with the manufacturer's printed instructions.

D. Personal safety gear shall be utilized in accordance with manufacturer's instructions, material and environmental considerations.

3.04 Field Quality Control

A. Verify that system(s) are installed in all specified and/or indicated locations in rated assemblies.

B. Verify that proper, specified firestopping materials are used in the firestop system and that system is installed in strict accordance with the latest independent testing agency or manufacturer's latest published requirements.

C. Where system design permits, remove damming or support materials only after it has been determined that firestop materials have fully cured or dried.

D. Install any covering materials or finish as per design requirements and manufacturer's instructions.

E. After installation, properly identify all firestop systems. Identification shall occur at location where system has been installed and shall include:

1. Identify the firestopping system that has been installed as being a "Rated Through-Penetration Firestop System-Do Not Disturb."
2. Use label, minimum 3" by 5", yellow and black OSHA colors with manufacturers; and building owner representative and/or contractor clearly identified.

F. Do not proceed to enclose firestopping with other construction until local building inspectors have inspected the work and given approval to close the work.

G. Where necessary, repairs shall be made and repaired installations shall be reinspected.

3.05 Clean-Up

A. Remove excess firestopping materials from surfaces not required to be firestopped.

B. Clean application equipment in water immediately after use.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 84 00 - PENETRATION FIRESTOPPING

3.06 Applications

A. Gypsum Walls Assembly

1. Metallic Pipe (1 and 2-hour):
2. Metallic Vent Pipe (Steel):
3. PVC Plastic Pipe (1 or 2-hour):

B. Floor-Ceiling Assembly:

1. Steel, Copper Pipe or Vent Pipe:
2. PVC Pipe:

C. Pre-cast hollow core concrete floor, precise concrete walls or block wall (2 and 3-hour):

1. Metallic Pipe (Steel, Iron and Copper):

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not allow compliance with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

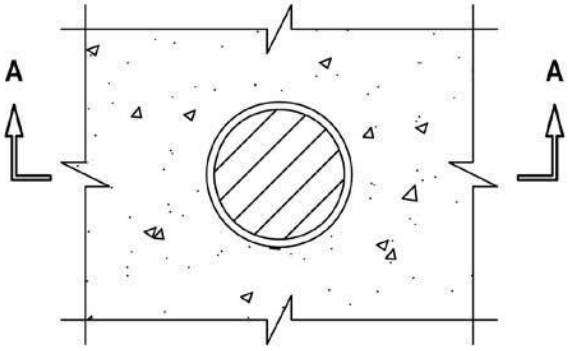
UL/cUL SYSTEM NO. C-AJ-0055

BLANK OPENING IN CONCRETE FLOOR/WALL OR BLOCK WALL ASSEMBLY

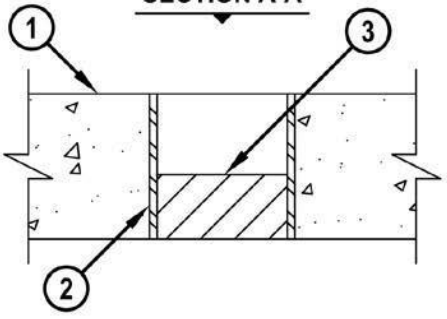
F-RATING = 3-HR.
T-RATING = 0-HR.

CAJ0055e.010412

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR. FIRE-RATING) :
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
   B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE SLEEVE (SCHEDULE 40 OR HEAVIER) MAY EXTEND MAXIMUM 3" ABOVE THE TOP SURFACE OF FLOOR.
3. HILTI CFS-BL FIRESTOP BLOCK OR HILTI FS 657 FIRE BLOCK (2" DEEP, REFERENCE: SECTION A-A).

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 4".
2. HILTI CFS-BL FIRESTOP BLOCKS OR HILTI FS 657 FIRE BLOCK SHOULD BE CUT 1/2" LARGER THAN INSIDE DIAMETER OF OPENING.
3. HILTI CFS-BL FIRESTOP BLOCKS OR HILTI FS 657 FIRE BLOCKS ARE REQUIRED ON BOTH SIDES OF A WALL.

Hilti. Outperform. Outlast.
Hilti, Inc. (U.S.) | 1-800-879-8000 | en español 1-800-879-5000 | www.us.hilti.com

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
codes and laws.
DATE: 06/28/18
BLD #: BLD17-00688

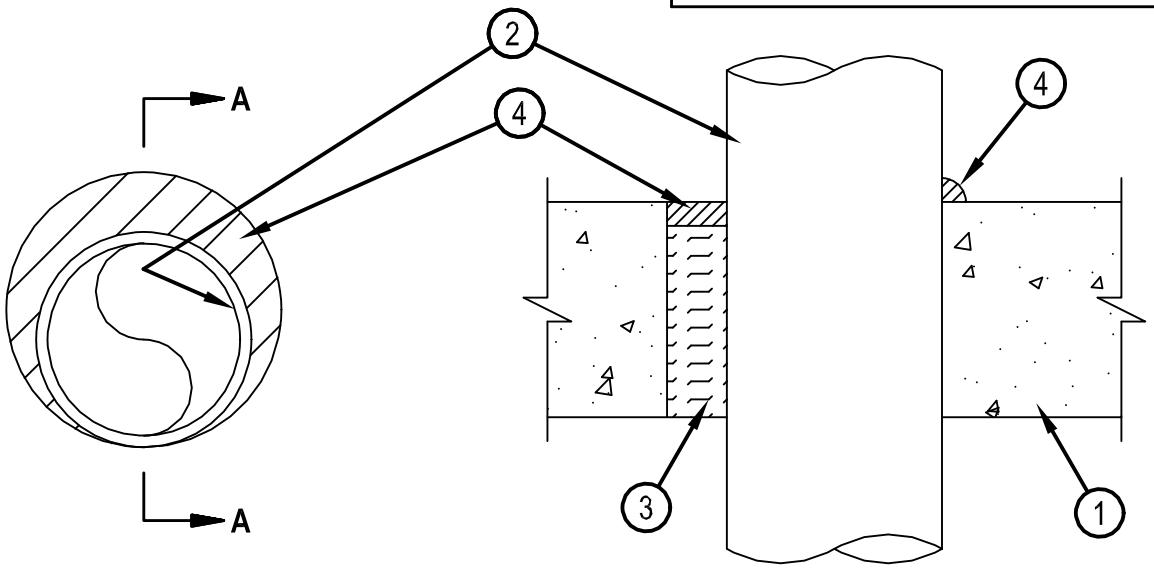
CAJ 1149

System No. C-AJ-1149

CLASSIFIED C UL US

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating —2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 0 Hr
W Rating — Class 1 (See Item 4)	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft



SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks *. Max diam of opening is 12 in.

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through Penetrants — One metallic pipe, conduit or tubing to be installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in. (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 10 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. Copper Tubing — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
3. Packing Material — Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (and smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
4. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. W Rating applies only when CFS-S SIL GG, CFS-S SIL SL (floors only), CP601S or CP604 sealant is used.

   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CP604, CFS-S SIL GG, CFS-S SIL SL (floors only), CP606 or FS-ONE Sealant

*Bearing the UL Classification Mark

HILTI
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
December 19, 2013

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not relieve any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

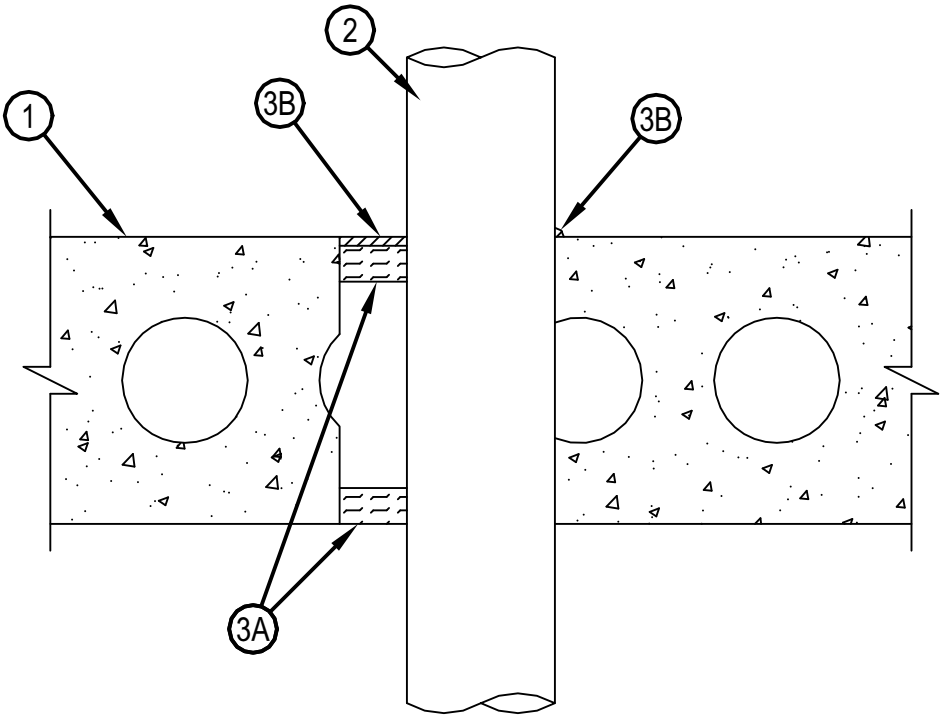
CLASSIFIED C UL US

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

CBJ 1046

System No. C-BJ-1046

F Rating -- 2 Hr
T Rating -- 1/4 Hr



1. Floor Assembly -- Min 8 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Floor assembly may also be constructed of any 8 in. thick UL Classified hollow-core Precast Concrete Units*. Max diameter of opening is 6 in.
   See Precast Concrete Units CFTV) category in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrants -- One metallic pipe, conduit or tubing to be installed concentrically or eccentrically within the firestop system. Annular space between pipe, conduit or tubing and edge of opening to be min 0 in. (point contact) to max 1-7/8 in. Pipe to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe -- Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe -- Nom 4in, diam (or smaller) cast or ductile iron pipe.
   C. Conduit -- Nom 4 in. diam (or smaller) rigid steel conduit.
   D. Conduit -- Nom 4 in. diam (or smaller) steel electrical metallic conduit.
   E. Copper Tubing -- Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
   F. Copper Pipe -- Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
3. Firestop System -- The firestop system shall consist of the following:
   A. Packing Material -- Min 1 in. thickness of 4 pcf mineral wool insulation tightly packed into the opening as a permanent form. Packing material to be installed flush with the bottom surface of floor assembly and recessed from the top surface of the assembly to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Materials*-Sealant -- Min 1/4 in. thickness of fill material applied within the annulus, flush with top surface of floor. An additional 1/4 in. bead shall be installed at penetrant/concrete interface on top surface of floor.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-ONE Sealant

*Bearing the UL Classification Mark

HILTI
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
July 24, 2002

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not allow/waive any obligation to comply with all applicable
codes/regulations.

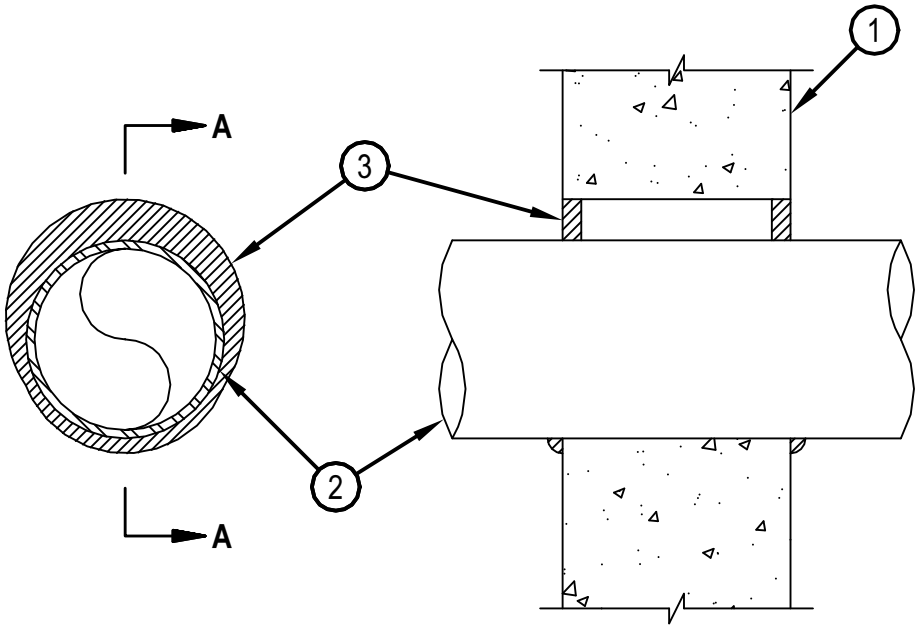
DATE: 06/28/18

BLD #: BLD17-00688

System No. W-J-1067

F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/Sq Ft
L Rating At 400 F — 4 CFM/Sq Ft

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115



SECTION A-A

1. Wall Assembly — Min 3-3/4 in. and 5 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete for 1 and 2 h rated assemblies, respectively. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32-1/4 in.
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through—Penetrants — One metallic pipe, conduit or tubing to be centered within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. Pipe may be installed with continuous point contact. Pipe, conduit or tube may be installed at an an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing or 6 in. diam (or smaller) steel conduit.
   D. Copper Tubing — Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe-wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant

*Bearing the UL Classification Mark

Hilti Firestop Systems

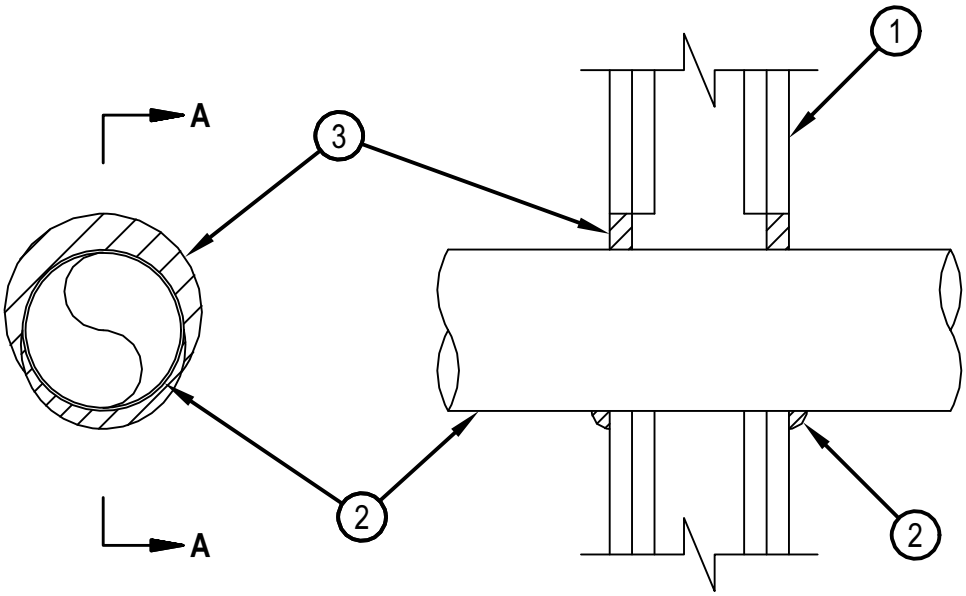
Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
December 04, 2002

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not relieve any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-1175

F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft
L Rating at 400 F - Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features.

A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
B. Gypsum Board* — Nom 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the Fire Resistance Directory. Max diam of opening is 5-1/2 in.
The hourly F and T Ratings of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant — One metallic tubing or conduit installed concentrically or eccentrically within the firestop system. Tube or conduit to be rigidly supported on both sides of wall assembly. The annular space between the tube or conduit and periphery of the steel sleeve shall be min 0 in. (point contact) to max 1 in. The following types and sizes of metallic tube or conduit may be used:

A. Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.

3. Fill Void or Cavity Material* — Putty — Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At point contact location between penetrant and wall, a 1/4 in. crown of fill material shall be applied at the conduit/wall interface on both sides of the assembly, lapping 1/4 in. on the conduit and 1/4 in. beyond the periphery of the opening.
HILTI INC — CP618 Putty Stick

*Bearing the UL Classification Mark

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
February 08, 2006

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not allow/waive any obligation to comply with all applicable
code provisions.

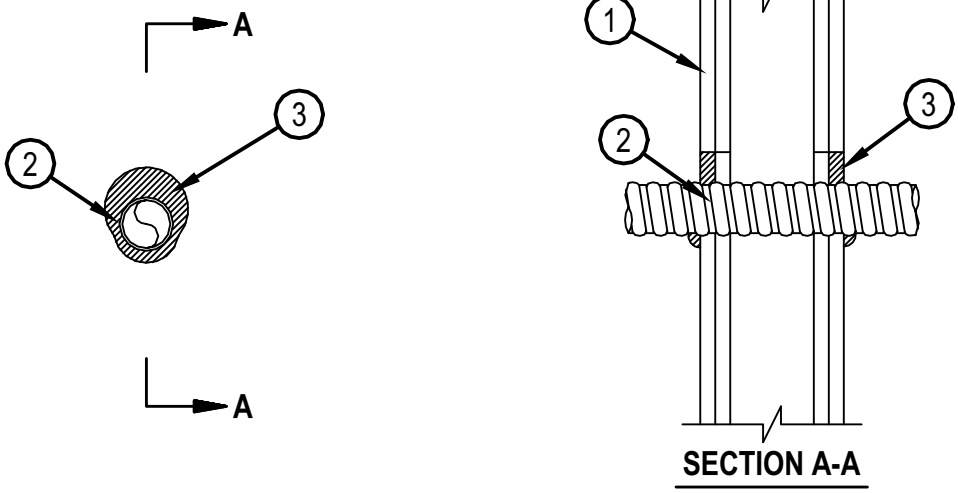
DATE: 06/28/18

BLD #: BLD17-00688

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-1243

F Rating — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr
L Rating at Ambient — 5 CFM/sq ft
L Rating at 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 Hr. fire-rate gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or channel shaped steel studs. Wood studs to consist of 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide, fabricated from min 25 MSG galvanized steel, spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft. (1.2 m) wide with square or tapered edges. The gypsum board type, number of layers and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 3-1/2 in. (89 mm).

   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through-Penetrant — Max one flexible metal pipe or conduit installed concentrically or eccentrically within opening. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of penetrants may be used:
   A. Flexible Metal Conduit+ — Nom 2 in. (51 mm) diam (or smaller) aluminum or steel flexible conduit installed either concentrically or eccentrically within the firestop system. The annular space between conduit and periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Conduit to be rigidly supported on both sides of wall assembly.
      See Flexible Metal Conduit (DXUZ) category in the Electrical Construction Materials Directory for names of manufacturers.
   B. Through Penetrating Product* — Flexible Metal Piping — The following types of steel flexible metal gas piping may be used:
      1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping.
         OMEGA FLEX INC
      2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping.
         GASTITE, DIV OF TITEFLEX
3. Min 5/8 in. (16 mm) thickness of fill material applied with annulus, flush with both surfaces of the wall. At point contact location between penetrant and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the penetrant /gypsum board interface on both sides of wall.
   WARD MFG L L C
3. Fill, Void or Cavity Material*- Sealant — Min 5/8 in. thickness of fill material applied with annulus, flush with both surfaces of the wall. At point contact location between penetrant and gypsum board, a min 1/2 in. bead of fill material shall be applied at the penetrant /gypsum board interface on both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC FS-ONE Sealant

+Bearing the UL Listing Mark
*Bearing the UL Classification Mark

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
January 24, 2011

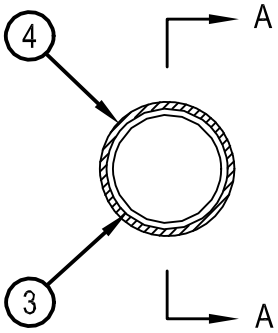
Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
codes and laws.
DATE: 06/28/18
BLD #: BLD17-00688

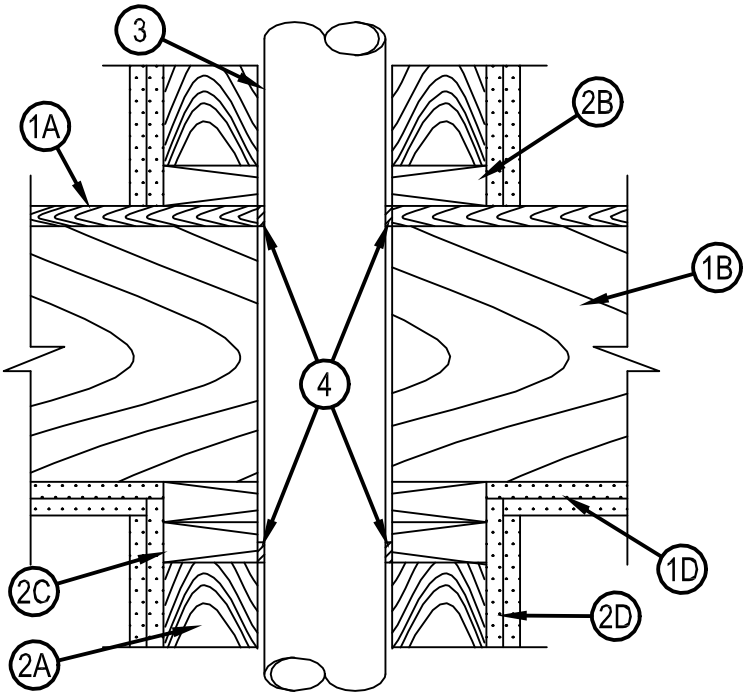
System No. F-C-1009

FC 1009

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Item 1)	F Rating — 1 and 2 Hr (See Item 1)
T Rating — 1/4 Hr	FT Rating — 1/4 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 1 and 2 Hr (See Item 1)
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 1/4 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft





SECTION A-A

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The F Rating of the firestop system is equal to the rating of the floor-ceiling assembly. The general construction features of the floor-ceiling assembly are summarized below:
   A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe.
   B. Wood Joists* — Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
   C. Furring Channels — (Not Shown) —(As required) Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the Fire Resistance Directory.
   D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. larger than diam of pipe.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

System No. F-C-1009

2. Chase Wall — (Optional) - The through penetrant (Item 3) may be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall having a fire rating consistent with that of the floor-ceiling assembly. Depth of chase wall to be min 1 in. greater than the diameter of the through penetrant. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Nom 2 by 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs. Nom 2 by 4 in. studs are allowed for through-penetrants (Item 3) not exceeding nom 2 in. diam.
   B. Sole Plate — Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity to be 1 in. greater than diam of through penetrant.
   C. Top Plate — The double top plate shall consist of two nom 2 by 4 in., 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity to be 1 in. greater than diam of through penetrant.
   D. Steel Plate — When lumber plates are discontinuous, nom 1-1/2 in. wide No. 20 gauge (or heavier) galv steel plates shall be installed to connect each discontinuous lumber plate and to provide a form for the fill material. Steel plates sized to lap 2 in. onto each discontinuous lumber plate and secured to lumber plates with steel screws or nails.
   E. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
3. Through Penetrants — One metallic pipe, conduit or tubing to be installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The annular space within the firestop system shall be min 0 in. (point contact) to max 1 in.. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe — Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 4 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. Copper Tubing — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
4. Fill, Void or Cavity Material* — Sealant — Min 3/4 in. thickness of fill material applied within the annulus, flush with the top surface of the floor or the sole plate. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of ceiling or lower top plate.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CFS-S SIL GG, CP606 or FS-One Sealant. (Note: L Ratings apply only when FS-ONE Sealant is used.)

*Bearing the UL Classification Mark

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
December 27, 2013

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not relieve any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

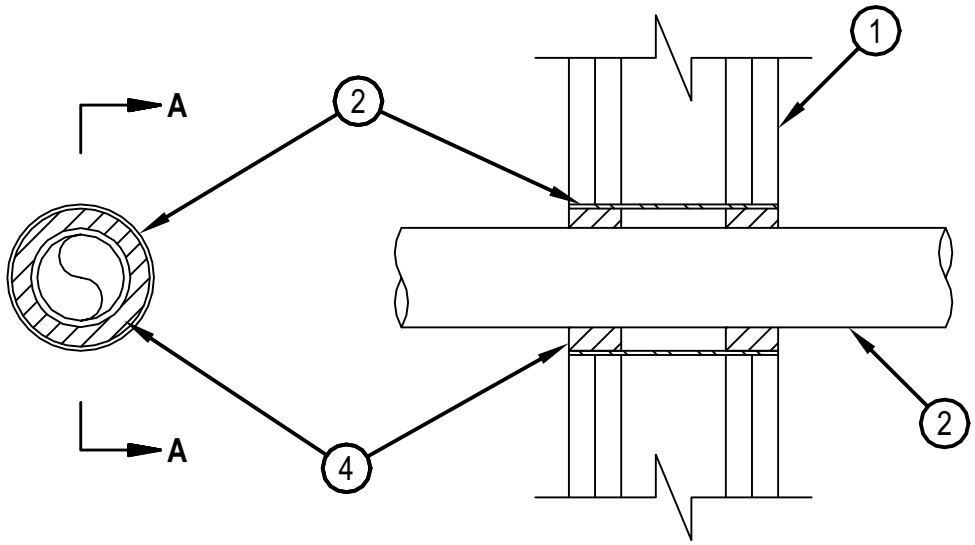
BLD #: BLD17-00688

Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. W-L-2128

F Rating — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr

WL 2128



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
B. Gypsum Board* — 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 3-1/2 in.

2. Metallic Sleeve Optional — Nom 3-1/2 in. (or smaller) cylindrical sleeve fabricated from min 0.016 in. thick (28 gauge) galv sheet steel and having a min 1-1/4 in. lap salong longitudinal seam. Length of sleeve to be installed flush with wall surfaces.

3. Through Penetrants — One nonmetallic pipe installed within the firestop system.. Pipe may be installed at an angle not greater than 45 degrees from perpendicular. Pipe to be rigidly supported on both sides of wall assembly. The space between pipe and periphery of opening shall be min 1/4 in. to max 11/16 in. The following types and sizes of nonmetallic pipes may be used:

A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. diam (or smaller) Schedule 40 PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

4. Fill, Void or Cavity Materials* — Sealant — For 1 hr F Rating, min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. For 2 hr F Rating, min 1-1/4 in. thickness of fill material applied within annulus, flush with both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC — FS-ONE Sealant

*Bearing the UL Classification Mark

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
March 14, 2006

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
codes and laws.

DATE: 06/28/18

BLD #: BL017-00688

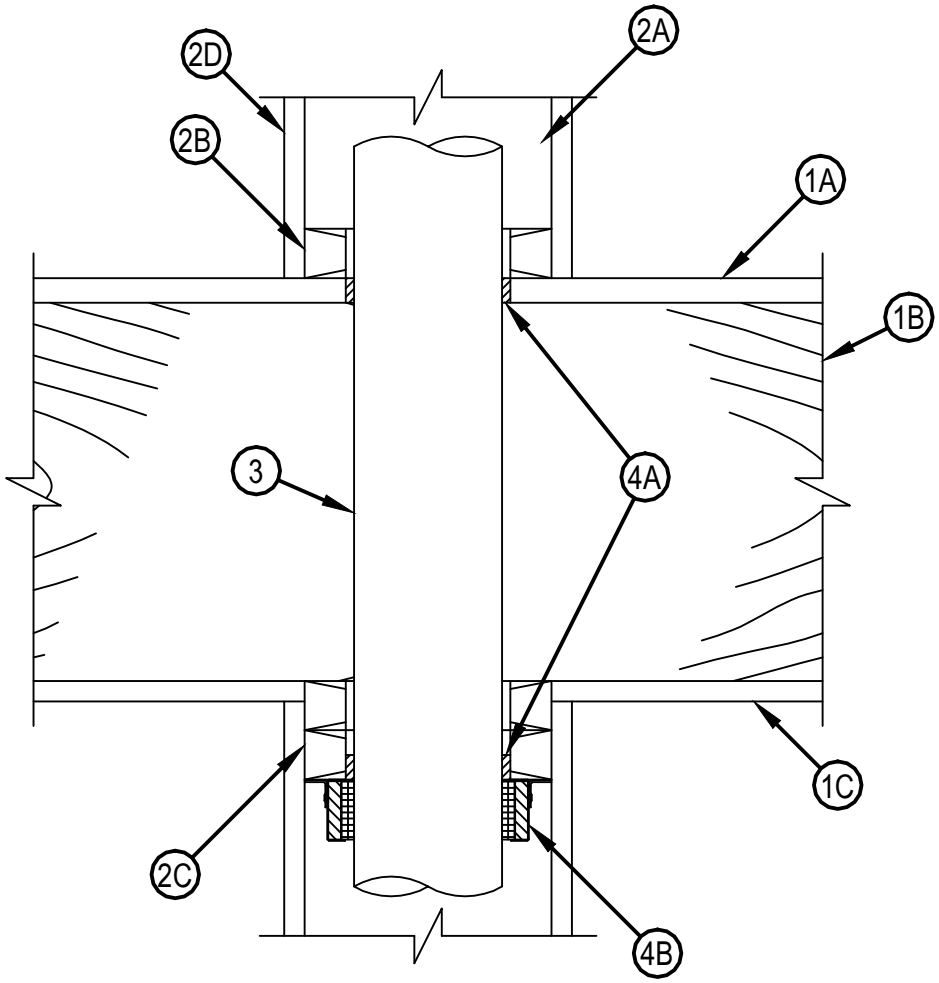
CLASSIFIED

Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. F-C-2030

F Ratings — 1 and 2 Hr (See tem 1)
T Ratings — 0, 3/4, 1, 1-1/2 and 2 Hr (See Item 3)

FC 2030



1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The F Rating of the firestop system is equal to the rating of the floor-ceiling and wall assemblies. The general construction features of the floor-ceiling assembly are summarized below:
   A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (Item 3).
   B. Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with end firestopped.
   C. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (Item 3).
   D. Furring Channels — (Not Shown) (As required) - Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the Fire Resistance Directory.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BL017-00688

Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. F-C-2030

F Ratings — 1 and 2 Hr (See tem 1)
T Ratings — 0, 3/4, 1, 1-1/2 and 2 Hr (See Item 3)

2. Chase Wall — (Optional) - The through penetrant (Item 3) may be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall having a fire rating consistent with that of the floor-ceiling assembly. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Nom 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.
   B. Sole Plate — Nom 2 by 6 in. (51 by 152 mm) (or larger) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (Item 3).
   C. Top Plate — The double top plate shall consist of two nom 2 by 6 in. (51 by 152 mm) (or larger) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (Item 3).
   D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
3. Through-Penetrants — One nom 1-1/2 in. (38 mm), 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm) diam nonmetallic pipe to be installed within the firestop system. Diam of opening through flooring system and through sole and top plates of chase wall to be max 2-1/8 in. (54 mm), 2-5/8 in. (67 mm), 4 in. (102 mm) or 5 in. (127 mm) for nom 1-1/2 in. (38 mm), 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm) diam nonmetallic pipe sizes, respectively. Pipe to be rigidly supported on both sides of the floor-ceiling assembly. The T Rating is dependent on the size of the through-penetrant. For 2 hr rated assemblies, the T Rating is 2 hr for 1-1/2 in. (38 mm) diam (and smaller) pipes and 1-1/2 hr for pipes greater than 1-1/2 in. (38 mm) diam. For 1 hr rated assemblies, the T rating is 1 hr for 1-1/2 in. (38 mm) diam (and smaller) pipes, 3/4 hr for 2 in. (51 mm) diam pipes and 0 hr for pipes greater than 2 in. (51 mm) diam. The following types of nonmetallic pipes may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Schedule 40 solid-core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. Acrylonitrile Butadiene Styrene (ABS) pipe — Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   D. Flame Retardant Polypropylene(FRPP) Pipe — Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
4. Firestop System — The details of the firestop system shall be as follows:
   A. Fill, Void or Cavity Material* — Sealant — Min 3/4 in. (19 mm) thickness of fill material to be installed within the annular space between the pipe and the flooring (Item 1A) or sole plate. Min 5/8 in. (16 mm) thickness applied within the annular space, flush with the bottom surface of ceiling or lower top plate.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC — FS-ONE Sealant
   B. Firestop Device* — Firestop Collar — Firestop collar shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to underside of ceiling or chase wall top plate (Item 2C) using the anchor hooks provided with the collar. (Minimum 2 anchor hooks for 1-1/2 (38 mm) and 2 in. (51 mm) diam pipes and 3 anchor hooks for 3 in. (76 mm) diam pipes). The anchor hooks are to be secured to the ceiling with min 3/16 in. (5 mm) diam steel toggler bolts or to the chase wall top plate with min No. 12 by min 1 in. (25 mm) long steel wood screws in conjunction with steel washers.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC — CP 643 50/1.5"N, CP643 63/2"N, CP 643 90/3"N or CP643 110/4"N Firestop Collar

*Bearing the UL Classification Mark

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
May 23, 2008

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

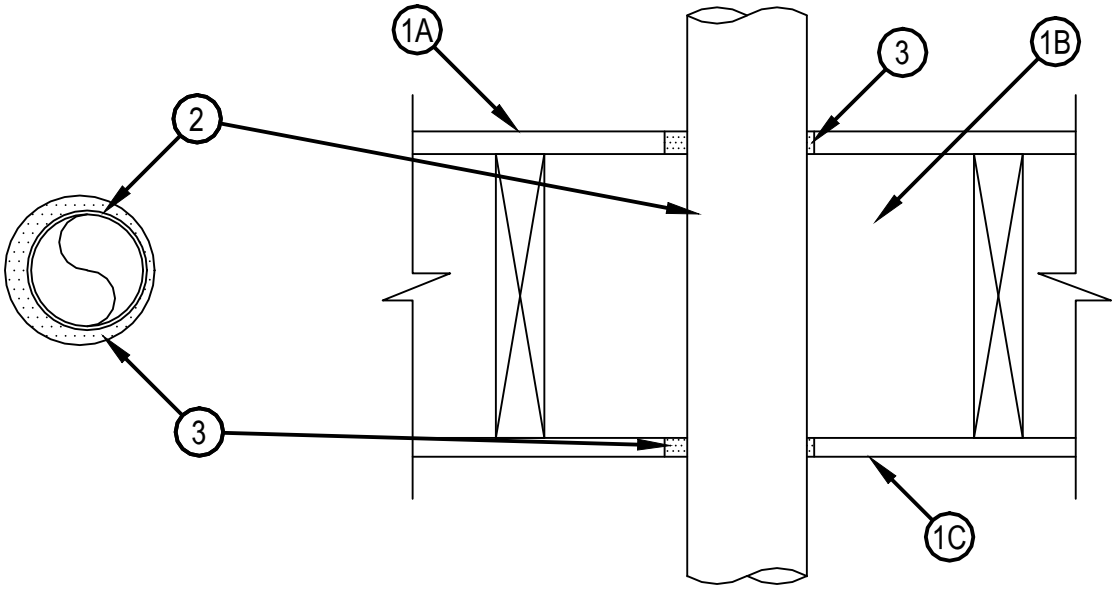
DATE: 06/28/18

BLD #: BL017-00688

System No. F-C-7013

F Rating — 1 Hr
T Rating — 0 Hr

Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115



SECTION A-A

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:
   A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5-1/4 in. (133 mm).
   B. Wood Joist* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
   C. Gypsum Board* — Nom 4 ft (1.2 m) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5-1/4 in. (133 mm).

1.1 Chase Wall — (Not shown, Optional) The through penetrants (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall having a fire rating consistent with that of the floor-ceiling assembly. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Nom 2 by 6 in. (51 by 152 mm) lumber or double nom 2 by 4 in. (51 by 102 mm) lumber studs.
   B. Sole Plate — Nom 2 by 6 in. (51 by 152 mm) lumber or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Max diam of opening shall be 5-1/4 in.
   C. Top Plate — The double top plate shall consist of two nom 2 by 6 in. (51 by 152 mm) lumber plates or two sets of nom 2 by 4 in. (51 by 102 mm) lumber plates tightly butted. Max diam of opening is 5-1/4 in. (133 mm).
   D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

2. Steel Duct — Nom 4 in. (102 mm) diam (or smaller) No. 28 gauge (or heavier) steel duct to be installed either concentrically or eccentrically within the firestop system. The annular space between duct and periphery of opening shall be min of 1/4 in. to max 3/4 in. Steel duct to be rigidly supported on both sides of floor-ceiling assembly.

3. Fill, Void or Cavity Materials*-Sealant — Min 3/4 in. (19 mm) thickness of sealant applied within the annular space, flush with top surface of floor or sole plate. Min 5/8 in. (16 mm) thickness of sealant applied within annular space, flush with bottom surface of gypsum board or lower top plate. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant

*Bearing the UL Classification Mark

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of
Underwriters Laboratories, Inc.
May 23, 2008

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 90 00 - JOINT SEALERS

PART 1 - GENERAL

1.01 Work Included

A. Work of this Section includes furnishing and installing all sealants and caulking wherever indicated on the Drawings, specified herein, or required to make building airtight and weathertight.

1.02 Related Sections

A. Section 07 84 00 - Penetration Firestopping.

1.03 Submittals

A. Submit the following for approval in accordance with Section 01 33 00 - Submittals:

1. Product Data: Manufacturer's standard literature on sealants, caulking and backup materials, including descriptive specifications, physical characteristics, test data, and installation instructions.

2. Samples: Include color samples of cured sealant materials for color selection.

3. Certifications: Submit manufacturer's certificate of compliance with specification requirements prior to use.

1.04 Product Delivery, Storage and Handling

A. Deliver materials to job site in manufacturer's original sealed factory labeled containers bearing manufacturer's name and product description. Do not use packages of materials showing evidence of water or other damage.

1.05 Environmental Conditions

A. Apply sealants when ambient temperature is between 40 degrees F and 100 degrees F. Do not work when conditions or surfaces are such as will produce injurious effects in the finished work.

1.06 Guarantee

A. Prior to acceptance of Work, submit a written two year guarantee covering repair or replacement of sealants and caulking which fail to perform as airtight or watertight joints, or fail in any other manner not clearly specified by submitted manufacturer's data as in inherent quality of the material for the exposure indicated. Promptly repair or replace any defects due to faulty materials and/or workmanship which occur within the guarantee period at no additional cost to the Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 07 90 00 - JOINT SEALERS

PART 2 - PRODUCTS

2.01 Materials

A. Exterior Joint Sealant:

1. Type: One-part polyurethane sealant:
   a. Pecora Corporation Synthacalk GC-9
   b. Tremco Dymonic
2. Conformance: Fed. Spec. TT-S-00230C, Type II, Class A, Sonneborn NP-1.
3. Consistency: Gun Grade.
4. Colors: As selected by the Architect for the particular use.

B. Interior Sanitary Sealant:

1. Type: One-part mildew/stain resistant silicone sealant.
   a. General Electric Mildew Resistant silicone Sealant Series 1700.
   b. Dow Corning Silicone Rubber Bathtub Caulk
   c. Tremco Tremsil 200
2. Conformance: Fed. Spec. TT-S-001543, Class A.
3. Consistency: Gun Grade, to be unaffected by service temperatures below -20 degrees F.

C. Interior Joint Sealant:

1. Type: One part silicone construction sealant:
   a. Dow Corning 790 Building Sealant
   b. General Electric Silicone Construction 1200 Sealant
   c. Tremco Spectrem 1
2. Conformance: Fed. Spec. TT-S-001543, Class A
3. Consistency: Gun grade
4. Colors: As selected by the Architect for the particular use.

D. Interior Caulking

1. Type: Acrylic Latex capable of being painted with latex or oil base paints.
   a. Pecora AC-20 Acrylic Latex Caulk
   b. Tremco Tremflex 834
2. Conformance: ASTM C834-76
3. Consistency: Gun grade
4. Colors: As selected by the Architect for the particular use.

E. Self Leveling Interior/Exterior Joint Sealant

1. Type: Two Part Urethane
   a. Pecora NR-200
   b. Tremco THC-900
2. Conformance: Fed. Spec. TT-S-00227E
3. Consistency: Pourable-self leveling

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

F. Backup Material: Non-oily, non-gassing backer rod or other resilient material recommended by approved sealant manufacturer. Material to be non-absorbent, non-staining, and compatible with sealant.

G. Bond Preventive Material: Polyethylene tape with pressure sensitive adhesive one side.

H. Primer: Non-staining primer recommended by approved sealant manufacturer.

PART 3 - EXECUTION

3.01 Installation

A. Sealants and caulking shall be applied by skilled mechanics under competent supervision and in strict accordance with manufacturer's printed instructions.

B. Clean all joints free of dust, dirt, moisture, loose aggregate, paint, protective coatings, or other contaminants. Immediately after cleaning mask joint and thoroughly prime all porous joint surfaces by brush if recommended by the sealant manufacturer.

C. Make joint width ¼" minimum to ¾" maximum. Make depth of joint equal to width, except do not exceed ½" depth. Use backup material or bond preventative material to control depth of joint and to assure that sealant will bond on two sides only, not on back of joint.

D. Use guns with proper nozzle size for indicated joint width. Apply sealant under sufficient pressure to expel air and fill joint solidly to indicated depth. Work from bottom to top or from inside to outside to avoid entrapping air. Immediately tool joints slightly concave to compress sealant into joint and assure complete contact for good bond.

E. On exterior door and window frames, seal inside perimeter first, then seal exterior top, sides and sills.

3.02 Adjusting and Cleaning

A. Remove masking and clean surfaces adjacent to joints of all smears or other soiling resulting from caulking operations.

3.03 Schedule of Use Locations

A. Exterior Joint Sealant

1. Around perimeter of all exterior door and window frames.
2. At all control joints.
3. Glazing in wood frames.
4. Provide full bed at all thresholds.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.03 Schedule of Use Locations (continued)

5. Around perimeter of all pipes, conduit and other mechanical or electrical devices built into or penetrating the exterior wall.
6. Elsewhere as indicated on the Drawings and as required to make building airtight and watertight.

B. Interior Sanitary Sealant

1. Around plumbing fixtures in kitchen, toilet rooms, janitor, and other "wet areas".
2. Intersection of all ceramic tile and gypsum board walls.
3. At intersections of all countertop backsplashes and gypsum board walls.
4. Around base of all water closets.

C. Interior Joint Sealant

1. Where vinyl fabric abuts interior trim.
2. Where dissimilar materials abut one another.

D. Interior Caulking

1. At all interior joints in materials requiring a painted or stained finish.
2. Elsewhere as noted on Drawings or as directed by Architect.

E. Self Leveling Interior/Exterior Joint Sealant

1. At control or expansion joints in quarry tile flooring.
2. At expansion joints in exterior concrete sidewalks and concrete paving.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 10 00 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 Description of Work

A. Extent of standard steel doors and frames is indicated and scheduled on Drawings.

1.02 Related Sections

A. Section 08 71 00 - Finish Hardware

B. Section 04 20 00 - Masonry; building in of anchors and grouting of frames

C. Section 09 91 00 - Field Painting

1.03 Quality Assurance

A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.

B. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E-152 "Standard Methods of Fire Tests of Door Assemblies" by a national recognized independent testing and inspection agency acceptable to authorities having jurisdiction.

1.04 Submittals

A. Product Data: Submit manufacturer's technical product data substantiating that products comply with requirements.

B. Shop Drawings: Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of doors design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

1. Provide schedule of doors and frames using same reference numbers for details and openings as those on Contract Drawings.

2. Indicate coordinate of glazing frames and stops with glass and glazing requirements.

1.05 Delivery, Storage and Handling

A. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Delivery, Storage and Handling (continued)

B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4" high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4" spaces between stacked doors to promote air circulation.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering steel doors and frames which may be incorporated in the Work include the following:
Allied Steel Products, Inc.
Amweld/Div. American Welding & Mfg. Co.
Ceco Corp.
Curries Mfg., Inc.
Fenestra Corp.
Kewanee Corp.
Mesker Industries, Inc.
Pioneer Bldrs. Products Corp./Div. CORE Industries, Inc.
Steelcraft/Div. American Standard Co.
Timely
Republic Bldrs. Prod. Corp./Subs. Republic Steel
Rediframe
Taylor Regal steel doors

2.02 Materials

A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A-569 and ASTM A- 568.

B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A-366 and ASTM A-568.

C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A-526, with ASTM A-525, G60 zinc coating, mill phosphatized.

D. Supports and Anchors: Fabricate of not less than 18 gauge galvanized sheet steel.

E. Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A-153, Class C or D as applicable.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Materials (continued)

F. Shop Applied Paint:

1. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

2.03 Fabrication, General

A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify Work that cannot be permanently factory assembled before shipment, to assure proper assembly at project site. Comply with SDI-100 requirements as follows:

1. Interior Doors: SDI-100, Grade II, heavy-duty, Model 1, minimum 18 gauge faces.
2. Exterior Doors: SDI-100, Grade III, extra heavy duty, Model 2, minimum 16 gauge faces.

B. Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from only cold rolled steel.

C. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold rolled or hot-rolled steel (at fabricator's option).

D. Fabricate exterior doors, panels, and frames from galvanized sheet steel. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16 gauge inverted steel channels.

E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.

F. Finish Hardware Preparation: Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A-115 series specifications for door and frame preparation for hardware.

G. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.

1. Locate finish hardware as shown on final Shop Drawings or, if not shown, in accordance with "Recommended Locations for Builder's Hardware", published by Door and Hardware Institute.

H. Shop Painting:

1. Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.03 Fabrication, General (continued)

2. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
3. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

2.04 Standard Steel Frames

A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on Drawings and Schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 16 gauge cold-rolled furniture steel. Frame heads to be 2" if at all possible.

1. Fabricate frames with mitered corners, welded construction for exterior applications and knocked down for field assembly at interior applications.
2. Form exterior frames of hot dip galvanized steel.

B. Door silencers: Except on weatherstripped frames, drill stops to receive three silencers on strike jambs of single-swing frames and two silencers on heads of double-swing frames.

C. Plaster Guards: Provide 26 gauge steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.

2.05 Pre-finished Frames

A. Frames shall be Timely TA-30 colonial steel casing pre-finished steel door frames. Supplier to verify all frame widths. See Details where wood casings will be provided in lieu of steel casings.

B. Frame shall be 18 ga. for 1¾" doors cold rolled steel and pre-finished in electrostatically applied baked enamel. Color shall be selected from standard colors.

C. Pre-fit and pre-machine frames for field applied hardware.

D. Frame supplier to furnish adjustable strike plates at latch bolts and lockbolts and offset strike plates at deadbolts.

E. Furnish touch-up paint to match all colors of frames.

2.06 Insulated Steel Door Pre-hung Units

A. Exterior doors at deck shall be Peachtree A00 embossed steel door with wood frame, bored for lockset, weatherstrip and threshold. Therma-Tru TS210 premium steel embossed or approved equal. Doors and frames are primed and are to be field painted. See Section 09 91 00.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

PART 3 - EXECUTION

3.01 Installation

A. General: Install standard steel doors, frames, and accessories in accordance with final Shop Drawings, manufacturer's data and as herein specified.

B. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.

1. Except for frames located at in-place concrete or masonry and at drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

2. In masonry construction, locate three wall anchors per jamb at hinge and strike levels.

3. At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.

4. Install fire-rated frames in accordance with NFPA Std. No. 80.

F. Door Installation:

1. Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.
2. Place fire-rated doors with clearances as specified in NFPA Standard No. 80.
3. In stud partitions, install at least three wall anchors per jamb at hinge and strike levels.

3.02 Adjust and Clean

A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

B. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 14 00 - PREFINISHED WOOD DOORS, FRAMES AND TRIM

PART 1 - GENERAL

1.01 Work Included

A. Extent and location of each type of wood door shown on Drawings and Schedules.

B. Prefinished wood doors, frames and trim.

1.02 Related Work

A. Section 06 20 00 - Finish Carpentry, Erection of Doors

B. Section 08 71 00 - Finish Hardware

C. Section 08 81 00 - Glazing and Glazing

1.03 Submittals

A. Submit Shop Drawings of wood doors to the Architect and Owner for approval. Indicate location and size of each door, elevation, details of construction, fire ratings, and other pertinent data.

B. Submit for approval prefinished trim.

PART 2 - PRODUCTS

2.01 Wood Doors

A. All wood doors shall be in accordance with the Standard Door One-Year Guarantee of the National Woodwork Mfg. Assoc. Interior swinging doors, prefinished, of sizes as shown on the Drawings (pre-hung door pak units are approved).

1. Wood doors - 1-3/8" thick hollow core smooth primed three panel door pak with pre-finished frames, Jeldwen Craftsman III.
2. Unit entrance – Solid core 20 and 60 minute three panel, Jeldwen Craftsman III.
3. Non-unit wood doors – 1¾" solid core smooth primed, flush. Note the following: 60 minute 'B' label, 90 minute 'B' label.
4. Bifold doors shall be 1-3/8" hollow core smooth primed texture two panel door pak and have metal knobs (Section 08 71 00 – Finish Hardware).
5. Provide kick plates on Mechanical Room doors.

2.02 Jambs, Casing and Base Trim - Interior

A. Princeton prefinished wood trim and baseboard.

1. Species in Units – Oak (S & V)
2. Species in Common Areas – Birch (S & V)
3. Unit Entry Doors – Birch (S&V) on corridor side, match unit on unit side

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Jambs, Casing and Base Trim – Interior (continued)

B. Provide pre-finished stops and casing on one side at all bi-fold door openings.

2.03 Rough Hardware

A. The General Contractor shall furnish all rough hardware such as prefinished nails, bolts, and miscellaneous items.

PART 3 - EXECUTION

3.01 Installation

A. Install doors in accordance with manufacturer's instructions.

B. For fire rated doors, provide clearances complying with NFPA No. 80.

C. Machine cut relief for hinges and coring for handsets and cylinders.

D. Prepare doors to receive finish hardware in accordance with NWMA requirements.

3.02 Adjusting and Cleaning

A. Adjust for smooth and balanced door movement. Rehang or replace doors, which do not swing or operate freely.

B. Remove protective wrapping.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 33 00 - RESIDENTIAL OVERHEAD DOORS

PART 1 - GENERAL

1.01 Work Included

A. Provide all labor, materials, equipment and services and perform all operations required for complete installation of all Overhead Doors and related work as shown on the Drawings or specified herein.

B. Refer to Section 01 33 00 - Submittals for required Shop Drawings.

1.02 Related Work

A. Section 04 20 00: Prepared wall opening in masonry.

B. Section 06 10 00 - Rough Carpentry: Wood framing for door opening.

C. Division 26 00 00 - Electrical: Empty conduit from control station to door operator.

D. Division 26 00 00 - Electrical: Electrical service to disconnect located near door operator.

PART 2 - PRODUCTS

2.01 Manufacturers

A. Overhead Door

1. Raynor Manufacturing Co.
2. Midland Garage Door Manufacturing
3. Wayne-Dalton Corp.
4. Overhead Door Corp.
5. Clopay Corp.

B. Operator: Chamberlain Lift Master HCTDCU Elite Series with battery backup operation.

C. Liftmaster LC-36A Light Curtain 22VAC-24VAC/DC.

D. Isolation and vibration mounting dampers. See Details on Construction Drawings.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 33 00 - RESIDENTIAL OVERHEAD DOORS

2.02 Materials

A. Door Materials:
Style - Midland "Thermo-Steel" embossed raised steel panel thermal door. Overhead Door Co. and North Central Door Co. approved equal.
Exterior skin - 26 ga. roll formed steel factory painted (color to be selected).
Interior skin - 26 ga. roll formed steel factory painted white.
Insulation - R factor of 9.04, fill stiles with insulation.
Construction - tongue and groove, 16 ga. hot dip galvanized steel stiles, weatherstrip at top and sides, and weatherproof floor seal.

B. Track - 12 ga. galvanized steel, 2" track, inclined wedge Type 1 track nylon rollers to be ball bearing type. Fasten track to wall

C. Counterbalance - oil tempered helical torsion springs, with grooved cable drums mounted on steel shafts, long life springs, 100,000 cycle.

D. Corner lift brackets and all miscellaneous hardware required.

E. Overhead Door Bracing - provide bracing of door tracks to meet manufacturer's requirements. Design door to wind load of 20 lb./sq. ft.

F. Electric Door Openers - furnish and install electric operated overhead door operator phase, 1/2 HP motor. Verify voltage with Electrical Contractor. Opener to have up-down adjustments and emergency reverse action.

G. Photoelectric eye at each door for safety and activation of closing timer.

H. Emergency stopping device at bottom of doors.

I. Provide one (1) transmitter for each stall plus six (6) spare transmitters.

J. Push button switch installed inside the garage at all doors.

K. Door to be painted custom color.

PART 3 - EXECUTION

3.01 Inspection

A. Examine the substrates and conditions under which the sectional overhead doors are to be installed. Do not proceed with the work until conditions detrimental to the proper and timely completion of the Work have been corrected.

3.02 Installation

A. Door shall be installed by the authorized agent of the manufacturer.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Installation (continued)

B. Work shall be performed in conformance with good trade practice, recommendations of manufacturer and these specifications.

C. Verify exact opening size requirements with door manufacturer prior to starting rough framing.

D. Install door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hanger and equipment supports in accordance with approved shop drawings and manufacturer's instructions.

E. Fasten vertical track assembly to framing. Fasten track to ceiling with rubber isolation straps to reduce sound transmission. Provide sway bracing, diagonal bracing, and reinforcing as required for a rigid installation of the track and door operating equipment.

F. Upon completion of installation, clean tracks, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for the entire perimeter. Check operation of door operators as required. Provide two sets of written instruction and manual for the installation.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 53 00 - VINYL WINDOWS AND PATIO DOORS

PART 1 - GENERAL

1.01 Work Includes

A. Vinyl operable windows

B. Vinyl patio doors

1.02 Related Work

A. Section 06 10 00 - Rough Carpentry

B. Section 01 10 00 - Final Cleaning

C. Section 07 20 00 - Building Insulation

D. Section 07 90 0 0 - Joint Sealers

1.03 Quality Assurance

A. Each window unit shall be labeled or otherwise suitably identified at the time of delivery as to the name of the manufacturer and compliance with applicable standards.

B. Windows and doors shall comply with ANSI/AAMA 302.9.

C. Manufacturer: Provide units produced by a single firm, capable of showing prior successful production of units similar to those required.

1.04 Submittals

A. Shop Drawings: Submit in accordance with Section 01 33 00. Shop Drawings shall be complete with jamb, head and sill details, rough-in dimensions, finish, etc.

B. Guarantee: Submit two copies of written guarantee signed by the manufacturer, agreeing to furnish replacement units to the installer, for any units which fail in materials or workmanship within one year from the date of acceptance. Failure of materials or workmanship shall include excessive leakage of air, excessive deflections, faulty operation of sash, deterioration of finish or metal in excess of normal weathering and defects in hardware, weatherstripping, and other components of the work.

C. Submit full size sample 6-0 x 4-0 windows for field test prior to final selection.

D. Manufacturer shall field test at least one of each window/patio door. Size in place and verify performance for both MPS and their own performance specifications.

E. Window representative shall monitor and report on the on-site installation of their windows and copies of window testing to be submitted to the Architect.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 53 00 - VINYL WINDOWS AND PATIO DOORS

PART 2 - PRODUCTS

2.01 Materials

A. Fasteners: Vinyl, stainless steel or other metallic or non-metallic materials guaranteed by the manufacturer to be non-corrosive and compatible with the vinyl members, trim hardware, anchors and other components of the units. Provide exposed fasteners, which match the finish of the member or hardware being fastened. Sealants: As specified in Section 07 90 00.

B. Vinyl windows: Thermo-Tech, Vector Envision, Windsor Signature, Jeld-Wen Builders, Pella 250 Series, Weathershield Visions 3500 Series or approved equal

1. Windows: Thermo-Tech 7600 series double hung.
2. Finish: Integral color to be white.
3. Glazing: 7/8" insulated glass, low 'E' and argon gas.
4. Jamb extensions: None.
5. Screens: Fiberglass mesh screen.
6. Window grids: See Plan.

C. Vinyl Sliding Patio Doors: Thermo-Tech, Vector Advantage, Windsor Signature, Jeld-Wen Builders, Pella 350 Series, or approved equal

1. Doors: Thermo-Tech Slim Line.
2. Finish: Integral white to match window finish.
3. Glazing: 7/8" sealed, insulated tempered safety glass, low 'E' and argon gas.
4. Jamb Extension: None.
5. Nailing fins at all patio doors.
6. Screens: Fiberglass mesh screen.

2.02 Fabrication and Accessories

A. Provide manufacturer's standard fabrication and accessories except to the extent more specific or more stringent requirements are indicated. Include complete system for assembly of components and anchorage of units, including glazing of all sash.

B. Sizes and Profiles: The required sizes for units and the profile requirements are shown on the Drawings.

C. Provide insect screen unit for each operable exterior sash. Locate screen units as per manufacturer's instructions.

PART 3 - EXECUTION

3.01 Installation

A. Comply with manufacturer's specifications and recommendations for the installation of units, hardware and other components of the work.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Installation (continued)

B. Set units plumb, level and true to line, without warp or rack of frames or sash. Anchor securely in place.

C. Adjust operating sash and hardware to provide a tight fit at contact points and at weatherstripping, for smooth operation and weathertight closure.

D. Lubricate hardware and other moving parts.

E. Advise Contractor of protective treatment and other precautions required through the remainder of the construction period to insure that units will be without damage or deterioration, other than normal weathering, at the time of acceptance.

3.02 Field Testing

A. A minimum of two tests for each type of window or sliding glass door shall be conducted by a certified testing laboratory. Units to be tested shall be identified by Owner.

B. Windows and sliding glass doors shall meet the following performance requirements as outlined in the ASNI/AAMA 101V and ASTM D4099 and E547 Specifications for Vinyl Windows and Sliding Glass Doors, except for special requirements specified herein:

1. Air infiltration tested at 1.56 psf.
   a. Laboratory test data not to exceed 0.06 cfm/in. ft.
   b. Actual field test not to exceed 0.25 cfm/in. ft.
2. Water resistance tested at 4.5 psf = no leakage (20 min. static test, with cycling).
3. Uniform load structural test = 45 psf positive and negative.
4. AAMA 101-93 designation: R-30.
5. STC = 28.

C. Windows and sliding glass doors shall meet Minimum Property Standards, HUD Handbook 4910.1, Appendix D and the Materials Bulletin #111.

D. Fixed window units shall meet or exceed double hung window units.

3.03 Cleaning

A. Clean window frames and glass.

B. Remove labels and visible markings.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.01 Related Documents

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 00 00 00 Specification Sections, apply to this Section.

1.02 Summary

A. This section includes the following:

1. Furnish door hardware (for hollow metal and wood doors) specified herein, listed in the hardware schedule, and/or required by the drawings.

2. Where items of hardware are not definitely or correctly specified and is required for the intended service, such omission, error or other discrepancy should be directed to the Architect prior to the bid date for clarification by addendum. Otherwise furnish such items in the type and quantity established by this specification for the appropriate service intended.

B. Related Sections include the following:

1. Finish Carpentry: Section 06 20 00
2. Steel Doors and Frames: Section 08 10 00
3. Prefinished Wood Doors: Section 08 14 00
4. Note: Power door operators at two (2) main entrance and vestibule doors

1.03 References

A. BMHA - Recommended Locations for Builders' Hardware.

A. NFPA 80 - Standards for Fire Doors and Windows.

B. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.

C. UL - Building Material Directory.

D. International Building Code (IBC) 2012 Edition

1.04 Submittals – All Door Hardware to be approved by Owner

A. Submit 5 copies of a detailed hardware schedule under the provisions of Division 01 00 00 Section “Submittal Procedures”.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 71 00 - DOOR HARDWARE

1.04 Submittals – All Door Hardware To Be Approved By Owner (continued)

1. The schedule will be prepared under the direct supervision of a registered Architectural Hardware Consultant (AHC) employed by the hardware distributor. The hardware schedule is to be signed and embossed with the DHI certification seal of the supervising AHC. The supervising AHC shall attend any meeting related to the project when requested by the architect.

2. Utilize the vertical format of scheduling and the practices outlined by the Door and Hardware Institute (DHI).

3. Include catalog cuts clearly marked showing the manufacturers products used on this project.

4. Include documentation for UL 10C or other approved testing agency stating hardware has passed UL10C.

5. Include a door index, in numerical sequence, indicating the hardware set/group number for each door.

B. Submit a keying schedule for review based on a approved hardware schedule and a conference with the owner's representative.

C. Submit samples when requested by the Architect for approval in the specified finish.

D. Templates and approved hardware schedule to be furnished to each door and frame fabricator as required.

1.05 Quality Assurance

A. Furnish products of only one manufacturer for each type of hardware unless specified otherwise.

B. Provide hardware tested and listed by Underwriters Laboratories.

C. Provide hardware for fire-rated openings conforming to UL10C.

1.06 Delivery, Storage and Handling

A. Deliver, store and handle in accordance with Division 1 Section “Product Requirements”. Mark original containers to correspond with the approved hardware schedule for the installation location.

B. Receive, inventory and store hardware in a secured and dry environment, protect against loss and damage.

C. Report shortages to the Architect and hardware supplier immediately after receipt of material at the job site.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

PART 2 - PRODUCTS

2.01 Butt Hinges

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Hager	McKinney	Bommer
1.	5PB1	1279	T2714	5000
2.	5BB1	BB1279	TB2714	BB5000
3.	5BB1 630	BB1191	TB2314	BB5002
4.	5BB1HW	BB1168	T4B3786	BB5004
5.	5BB1HW 630	BB1199	T4B3386	BB5006

B. Furnish the following hinge quantities for each door leaf.

1. Three (3) hinges for doors up to 90”.
2. One (1) additional hinge for every 30” on doors over 90”.
3. (Four) 4 hinges for Dutch door applications.

C. Weight and Type:

1. Standard weight: plain bearing hinge 5PB1 for interior openings through 36” wide without a door closer.

2. Standard weight: ball bearing hinge 5BB1 for interior opening over 36 through 40” wide without a door closer, and for interior openings through 40” wide with a door closer.

3. Heavyweight: 4 ball bearing hinge 5BB1HW for interior openings over 40” wide, and for all vestibule doors.

4. Heavyweight: 4 ball bearing hinge 5BB1HW630 for exterior openings unless otherwise listed in groups.

5. Butts for lockable doors opening outward shall have non-removable pin (NRP); other butts shall have non-rising pins.

D. Size: Furnish doors with the following:

1. 1¾” Doors 4½” by 4½”

E. Provide proper butt width to clear trim and allow full 180 degree swing.

F. Butts shall have flat bottom tips unless otherwise noted in hardware groups.

2.02 Continuous Pin and Barrel Hinges

A. Acceptable manufacturers and respective catalog numbers:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Continuous Pin and Barrel Hinges (continued)

Markar	Ives	Stanley	McKinney	Hager
300 Series	700 Series	650 Series	300 Series	700 Series

B. Continuous hinges shall be full height pin and barrel type hinge providing full height door support up to 600 lbs. Edge mount (unless noted otherwise).

C. Construct hinges of heavy-duty 14 gauge material. The stainless internal pin shall have a diameter of 0.25 and the exterior barrel diameter of 0.438.

D. Hinge shall be non-handed with symmetrical templated hole pattern and factory drilled. Hinge must accept a minimum of 21 fasteners on the door and 21 fasteners on the frame.

E. Each knuckle to be 2", including split nylon bearing at each separation for quiet, smooth, self-lubricating operation.

F. Hinge to be able to carry Warnock Hersey Int. or UL for fire rated doors and frames up to 3 hours.

G. Provide adjusting screws equal to Markar's "AdjustaScrew" for continuous hinges specified as HG-305. Adjustment to be able to correct frame fit problems up to 3/8".

H. All fasteners to be machine screws drilled and tapped with additional reinforcement provided in door/frame.

2.03 Flush Bolts and Dust Proof Strikes

A. Acceptable manufacturers and respective catalog numbers:

Ives	Door Controls	Hager	Rockwood
FB458	780	282D	555
FB31P	842	292D	1842
FB41P	942	291D	1942
FB51P	845	293D	2849
FB61P	945	294D	1945
DP2	80	280X	570

B. Furnish dustproof strike DP2 for bottom bolt.

2.04 Exit Devices

A. Acceptable manufacturers and respective catalog numbers:

Monarch	Corbin	Sargent	Yale	Falcon
18 Series	ED5000 Series	80 Series	6000 Series	24/25 Series

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.04 Exit Devices (continued)

B. Surface applied strikes shall be roller type unless otherwise noted in groups.

C. Provide thru bolts as required.

D. Devices shall be the product of 1 manufacturer.

E. Exit devices specified “LBR” are to be supplied with surface vertical rods with “Less Bottom Rod” (LBR) and no strikes installed on the floor.

F. Exit devices that are supplied with levers shall match trim design of locks and latches.

2.05 Locks and Latches

A. Acceptable manufacturers and respective catalog numbers:

Schlage	Sargent	Yale	Corbin Russwin
ND Series Rhodes	FW-10-LineXLL	AU-5400LN	CL3300
AL Series Saturn	7-LineXLL	AV5300LN	CL3800
S200 Series Saturn	7500XLL	AV4800LN	
F Series Accent			

B. Furnish lock types and functions specified in the hardware schedule, with the following provisions:

1. Backsets: 2-3/4”
2. Strikes:
   a. Wrought box type for the inactive leaf of pairs of wood doors, and wood frames.
   b. ANSI A115.2 type for hollow metal doors and frames.
   c. Lip length sufficient to protect trim, frame and inactive leaf.

2.06 Pulls, Pushbars, Push/Pull Plates

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Hager	Burns	Rockwood
1. 1” diameter straight pull	8103EZ-0	4J	26C	111
2. 1” diameter pushbar and pull	9103EZ-0	153	422 x 26C	11147
3. Push/Pull Plate	8200 4 x16	30S 4 x 16	54	70C
4. Pull	8102-8	3G	25B	107

B. Length of push bars shall be sufficient to mount each end on center of stile. Push bars on flush doors shall be 3” less than door width. Mount all push bars and pulls back to back with shoulder bolts and set screw. Set screw to be on the inside.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.07 Coordinators

A. Acceptable manufacturers and respective catalog numbers:

Ives	Door Controls	Hager	Rockwood
COR7G	600 Series	297D	2600

B. Furnish a COR series coordinator for labeled pairs of doors equipped with automatic flush bolts and those with vertical rod / mortise lock fire exit device combinations with overlapping astragals.

C. Furnish filler bars to fill the complete opening width, closer mounting brackets, carry bars, and special preparation for top latches where applicable.

2.08 Closers

A. Acceptable manufacturers and respective catalog numbers:

Dor-O-Matic	Norton	Dorma	Falcon	Yale
SC81	7700 Series	8600 Series	SC80 Series	2700 Series

B. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UL10C.

C. Closers shall have field adjustable spring power that at the low end is capable of meeting A.D.A. requirements.

D. Furnish complete with mounting brackets, drop plates, special shoes, and thru bolts as may be required by the door and frame conditions.

E. Provide door closers for labeled doors, whether called for in the hardware groups or not.

F. Install closers on the room side of corridor doors, stair side of stairways and interior side of exterior doors.

2.09 Kick Plates and Mop Plates

A. Furnish protective plates as specified in hardware groups.

B. Kick plates shall be 10” high and 2” LDW (less door width).

C. Mop plates shall be 4” high and 2” LDW (less door width).

D. Thickness to be (16 gauge) 0.050” stainless steel.

E. Plates shall have countersunk holes and beveled (all four) edges.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 71 00 - DOOR HARDWARE

2.10 Overhead Stops

A. Acceptable manufacturers and respective catalog numbers:

Glynn-Johnson	Rixson	Sargent
GJ90 Series	9 Series	590 Series
GJ100 Series	1 Series	690 Series
GJ450 Series	10 Series	1540 Series

B. Furnish GJ450 series overhead stop for doors equipped with regular arm surface type closers that swing more than 140 degrees before striking a wall, for doors that open against equipment, casework, sidelights, or other objects that would make wall bumpers inappropriate, and as specified in hardware groups.

C. Furnish sex bolt attachments for wood and mineral core doors unless doors are supplied with proper reinforcing blocks.

2.11 Wall Stops and Holders

A. Acceptable manufacturers and respective catalog numbers:

Ives	Hager	Burns	DCI	Rockwood
WS407CVX	232W	570	3210	406
WS407CCV	236W	575	3211	409
WS11X	255W	530	3260X	518
WS40	326W	533	3487X	490

B. Where wall stops are not applicable, furnish overhead stops.

2.12 Magnetic Hold Opens

A. Provide types as listed in groups.

B. Acceptable manufacturers and respective catalog numbers:

LCN	ABH	Sargent	Rixon
SEM7800	2100/2300	1560	998/989

C. Provide proper voltage and power consumption as required by Division 16.

D. Magnetic holder's housing and armature shall be constructed of a die cast zinc material.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 71 00 - DOOR HARDWARE

2.13 Weatherstrip, Thresholds, Gasketing

A. Acceptable manufacturers and respective catalog numbers:

	Pemko	National Guard	Reese	Hager	Zero
Thresholds:	171A	425	S205A	4125	655
Weatherstrip:	2891APK	700NA	755A	-----	328PB
*Head & Jamb Gasket:	S88D	2525	797B	-----	----
Drip Cap:	346A	16A	R201A	8105	142
Sweeps:	18061CP	B606A	964A	8023	8192
Smoke Astragel	S77	5060	------	-----	----

B. Where specified in the hardware groups, furnish the above products unless otherwise detailed in groups

C. *Furnish head/jamb gaskets and edge stile astragals for pairs, at fire labeled doors whether listed in group or not. Provide material based on passing UL 10C.

D. Coordinate with door manufacturer the intumescent fire and smoke material for fire rated openings as required by door and frame manufacturer to comply with UL 10C.

2.14 Finishes and Base Materials

A. Except where indicated otherwise in the hardware groups or herein, hardware finishes shall be applied over base metals as specified in the finish schedule that follows.

Finish Schedule:

Hardware Item	Finish and Base Material
Butt Hinges	US26D / US32D (BHMA#626, 630)
Flush Bolts	US26D
Exit Devices	US26D
Locks and Latches	US26D, F Series, satin nickel
Pulls and Push Plates/Bars	US32D
Coordinators	Prime painted or mill alum.
Closers	Painted Aluminum
Protective Plates	US32D
Overhead Stops	Painted Aluminum
Wall Stops and Holders	US32D
Thresholds	Mill Aluminum
Weather-strip, Sweeps Drip Caps	Clear Aluminum Anodized
Magnetic Holders	Sprayed Aluminum
Miscellaneous	US26D on brass or bronze

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.15 Keying

A. Key locksets and cylinders into a new Master Key System.

B. Furnish three (3) change keys each lock, furnish six (6) master keys each set. Furnish six (6) grand master keys.

C. Provide keying as required by owner's representative.

D. Furnish building entrance door change keys.

E. Ship master keys to the owner via registered mail.

2.16 Key Cabinets

A. Acceptable manufacturers and respective catalog numbers:

Lund	Key Control	Telkee	MMF Industries
1200-1205 AA	M228-2480	RWC-AWC	T9-AB Series

Furnish one (1) model 1200 or 1205 AA key cabinet with a capacity 1.5 times the number of key sets.

2.17 Stanley Magic-Force Low Energy swing door operator with push-plates.

A. Horton Automatics low energy electric operator, or approved equal.

PART 3 - EXECUTION

3.01 Examination

A. Examine doors, frames, and related items for conditions that would prevent the proper application of finish hardware. Do not proceed until defects are corrected.

3.02 Installation

A. Install each hardware item in strict compliance with the manufacturer's printed instructions and recommendations, using only fasteners supplied by or called for by manufacturer.

B. Set units level, plumb and true to the line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

C. Install hardware on UL labeled openings in accordance with manufacturer's requirements to maintain the label.

D. Install per door and/or frame manufacturer’s supplemental “S” label instructions on fire rated openings.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Installation (continued)

E. Mortise and cut to close tolerance and conceal evidence of cutting in the finished work.

F. Drill countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accord with industry standards.

G. Mounting Heights:

1. Install hardware at mounting heights conforming to ANSI/BMHA recommended mounting locations.
2. Install wall stops WS407CVX and WS407CCV to engage levers and pulls.
3. Do not mount wall stops on casework, cabinet work or equipment.

H. Deliver to the owner one (1) complete set of installation and adjustment instructions, and tools as furnished with the hardware.

I. Inspection of Hardware and Installation: The hardware supplier and manufacturer's representative (locksets, closers, exit devices and overhead stops) shall visit the project after all the hardware has been installed and shall notify the Architect if there is any hardware that has not been installed correctly. The Contractor and hardware supplier shall furnish the Architect with written certification to this effect. After the hardware is installed, the hardware supplier and manufacturer's representative shall meet with the Owner to explain the functions, uses and maintenance of all types of hardware installed.

J. Apply self-adhesive gasketing on frame stop at head and latch side and on rabbet of frame at hinge side.

3.03 Adjustment and Cleaning

A. At final completion, adjust and check each operating item of hardware and each door to ensure proper operation and function of every unit. Lubricate moving parts with type lubrication recommended by the manufacturer.

B. Replace unit that cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.

C. Instruct owner's personnel in the proper adjustments of the hardware.

D. Clean and restore hardware to the original finish.

3.04 Hardware Schedule

A. Furnish hardware items in the amount indicated unless additional hardware is required for a complete and operable facility. Ensure completeness, proper function and proper application of hardware for each door.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Hardware Schedule (continued)

HW SET: 01 ~ Apartment Entrance Door and Guest Room Door

2	Ea	Spring Hinge	3SP1	IVE
1	Ea	Hinge	5BB1	IVE
1	Ea	Entrance Lock	S210	SCH
1	Ea	Door Stop	060	IVE
1	Set	Smoke Gasket	797 (at rated or smoke & draft control doors only)	REE
1	Ea	Sweep	964	REE
1	Ea	Wide Angle Viewer	U698 (mount 60” AFF; mount additional viewer at 43” AFF at Type ‘A’ Units and Guest Rooms)	IVE

HW SET: 02 ~ Pre-hung Door and Frame

1	Ea	Passage Set	F10	SCH
1	Ea	Door Stop	060	IVE

Hinges By Door And Frame Supplier. F10 (F75) Passage Latch. Both levers always unlocked.

HW SET: 03 ~ Pre-hung Door Privacy

1	Ea	Privacy Set	F40	SCH
1	Ea	Door Stop	060	IVE

Hinges By Door And Frame Supplier.
Function: F40 (F76) Bath/Bedroom Privacy Lock
Push-button locking. Can be opened from outside with small circular tool. Turning inside lever releases button.

HW SET: 04 ~ Vestibule Exterior Door

	Ea	Hinges	As Specified	IVE
1	Ea	Offset Pull/Pushbar	9190-0	IVE
1	Ea	Power Operator	Magic Force	STA
1	Ea	Hd Overhead Stop	100S	GLY
1	Ea	Weatherstrip	By Dr/Fr Supplier	
1	Ea	Sweep	964	REE
1	Ea	Threshold	As Required	
2	Ea	Actuator		STA

Function: Push / Pull.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Hardware Schedule (continued)

HW SET: 05 ~ Interior Vestibule Door

			Hinges as required	
1	Ea	Panic Device	CD-25-R-NL-OP	IVE
2	Ea	Cylinder	Interchangeable Core	MON
1	Ea	Door Pull	8190-0	SCH
1	Ea	Power Operator	Magic Force	VON
1	Ea	Overhead Stop	100S	IVE
2	Ea	Actuator		DOR
1	Ea	Power Supply	PS902	GLY
1		Electronic Strike	6111	VON

Intercom and Access Control by Electrical
Access control to provide authorization to outside actuator

HW SET: 06 ~ Mens, Womens

	Ea	Hinges	As Specified	IVE
1	Ea	Privacy Set	AI40S	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS06ccv	IVE
1	Set	Smoke Gasket	797 (at rated or smoke & draft control doors only)	REE

Function: AL40 (F76) Bath/Bedroom Privacy Lock. Push-button locking. Can be opened from outside with small screwdriver. Turning inside lever or closing door releases button.

HW SET: 07 ~ Mechanical Room, Storage Room

	Ea	Hinges	As specified	IVE
1	Ea	Storeroom Lock	AI80	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS406CCV	IVE
1	Set	Smoke Gasket	797 (at rated or smoke & draft control doors only)	REE
1	Ea	Threshold	S225	REE

Function: AL80 (F86) Storeroom Lock. Outside lever fixed. Entrance by key only. Inside lever always unlocked.

HW SET: 08 ~ Elevator Equipment and Garage/Stair

	Ea	Hinges	As specified	IVE
1	Ea	Storeroom Lock	AL80	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kickplate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS406CCV	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Sweep	964	REE
1	Ea	Threshold	As required	

Function: AL80 (F86) Storeroom Lock
Outside lever fixed. Entrance by key only. Inside lever always unlocked.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Hardware Schedule (continued)

HW SET: 09 ~ Stair, Door, Closet

	Ea	Hinges	As specified	IVE
1	Ea	Passage set	AL10S	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS406CCV	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Threshold	S225	REE

Function: AL10 (F75) Passage Latch. Both levers always unlocked.

HW SET: 10 ~ Trash Room

	Ea	Hinges	As specified	IVE
1	Ea	Passage Set	AL10S	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Overhead Stop	450S	GLY
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Threshold	S225	REE

Function: AL10 (F75) Passage Latch. Both levers always unlocked.

HW SET: 11 ~ Shop Door, Fitness

	Ea	Hinges	As Specified	IVE
1	Ea	Classroom Lock	AL70	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS406CCV	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Sweep	964	REE
1	Ea	Threshold	As Required	

Function: AL70 (F84) Classroom Lock
Outside Function lever locked and unlocked by key. Inside lever always unlocked.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Hardware Schedule (continued)

HW SET: 12 ~ Insulated Exterior Door, Exterior Door at Stair

	Ea	Hinges	As specified	IVE
1	Ea	Panic Device	CD-18-R-P	MON
1	Ea	IC Cylinder	As required	SCH
1	Ea	Surface Closer	SC81 DS	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Set	Seals	DS69	REE
1	Ea	Sweep	964	REE
1	Ea	Rain Drip	R201	REE
1	Ea	Threshold	As required	

Function: Latchbolt retracted inside by exit device push pad and outside by key in cylinder. Door locks when key is removed and door is closed. Access from exterior when exit device push pad is dogged down.

HW SET: 13 ~ Office

	Ea	Hinges	As specified	IVE
1	Ea	Entrance Lock	AL53	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Overhead Stop	450S	GLY
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE

Function: AL53 (F109) Entrance Lock. Turn/push-button locking: pushing and turning button locks outside lever requiring use of key until button is manually unlocked. Push-button locking: pushing button locks outside lever until unlocked by key or by turning inside lever.

HW SET: 14 ~ Overhead Door

		Hardware	By Door Supplier

HW SET: 15 ~ Bi-fold Door

1	Ea	Metal Knob	Rockler Grand Avenue Collection Satin Nickel 13/16” ridged knob
		Balance of Hardware	By Door Supplier

HW SET: 16 ~ Elevator Lobby at Garage

	Ea	Hinges	As specified	IVE
1	Ea	Storeroom Lock	AL80	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS406CCV	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Threshold	S225	REE

Function: AL80 (F86) Storeroom Lock. Outside lever fixed. Entrance by key only. Inside lever always unlocked.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Hardware Schedule (continued)

HW SET: 17 ~ Elevator Lobby

	Ea	Hinges	As specified	IVE
1	Ea	Passage Set	AL10S	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Magnetic Hold-Open	SEM 1900	LCN
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Threshold	S225	REE

Function: AL10 (F75) Passage Latch. Both levers always unlocked.

HW SET: 18 ~ Commons Pair of Doors, Double Egress Fire Door

	Ea	Hinges	As specified	IVE
2	Ea	Fire Exit Device	F-18-V-L-LBR	MON
2	Ea	IC Cylinder	As required	SCH
2	Ea	Surface Closer	SC81	DOR
2	Ea	Kick Plate	8400 10” X 1” LDW	IVE
2	Ea	Magnetic Hold-Open	SEM 1900	LCN
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Set	Astragal Seal	959	REE

Function: Latchbolt retracted inside by exit device push pad, exterior by lever. Outside key locks or unlocks outside lever.

HW SET: 19 ~ Commons Exit Door

	Ea	Hinges	As specified	IVE
1	Ea	Fire Exit Device	F-18-R-L	MON
1	Ea	IC Cylinder	As required	SCH
1	Ea	Surface Closer	SC81 DS	DOR
1	Ea	Kick Plate	8400 10” X 2” LDW	IVE
1	Ea	Wall Stop	WS406CVX	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE

Function: Latchbolt retracted inside by exit device push pad, exterior by lever. Outside key locks or unlocks outside lever.

HW SET: 20 ~ Trash Room Pair of Doors

	Ea	Hinges	As specified	IVE
1	Set	Auto Flush Bolt	FB31P/FB41P	IVE
1	Ea	Dust Proof Strike	DP2	IVE
1	Ea	Storeroom Lock	ND80 14-042	SCH
1	Ea	Coordinator	COR X FL	IVE
2	Ea	Surface Closer	SC81	DOR
1	Ea	Overhead Stop	900S	GLY
2	Ea	Kick Plate	8400 10” X 1” LDW	IVE
1	Ea	Wall Stop	WS405CCV	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE

Function: ND80 (F86) Storeroom Lock
Outside lever fixed. Entrance by key only. Inside lever always unlocked.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Hardware Schedule (continued)

HW SET: 21 ~ Pre-hung Door and Frame

1	Ea	Storeroom Lock	AL80	SCH
1	Ea	Door Stop	70	IVE

Threshold, Gaskets and Hinges By Door And Frame Supplier.

HW SET: 22 ~ Mechanical and Electrical Room

	Ea	Hinges	As specified	IVE
1	Ea	Panic Device	CD-18-R-P	MON
1	Ea	IC Cylinders	As Required	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Kick Plate	8400 10” X 1” LDW	IVE
1	Set	Smoke Gasket	797 (at rated or smoke and draft control doors only)	REE
1	Ea	Sweep	964	REE
1	Ea	Threshold	As Required	REE

HW SET: 24 ~ Pair of Doors and Frame

4	Ea	Single dummy trim	F170	SCH
2	Ea	Roller latch	RL36 (top mount)	IVE
2	Ea	Door stop	060	IVE

Hinges by door and frame supplier.
Function: F170 single dummy trim. Single dummy trim for both sides of door. Used for door pull or as matching inactive trim.

HW SET: 25 ~ Pre-hung Door and Frame

1	Ea	Deadbolt	BC160	SCH
1	Ea	Door Stop	70	IVE

Hinges by door and frame supplier
Function: BC160 (E2152) Deadbolt
Deadbolt thrown or retracted by cylinder outside or turn unit inside. Bolt automatically deadlocks when fully thrown.

HW SET: 26 ~ Commons Room Aluminum Exterior

	Ea	Hinges	As specified	IVE
1	Ea	Passage set	AL10S	SCH
1	Ea	Surface Closer	SC81	DOR
1	Ea	Deadbolt	BC160	SCH
1	Ea	HD Overhead Stop	100S	GLY
1	Ea	Weatherstrip	By door/frame supplier	
1	Ea	Threshold	As required	REE
1	Ea	Sweep	964	REE
1	Ea	Rain Drip	R201	REE

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 81 00 - GLASS AND GLAZING

PART 1 - GENERAL

1.01 Section Includes

A. Glass glazed into frames (except factory glazed windows and doors).

B. Setting materials and cleaners.

1.02 Related Sections

A. Section 10 80 00 - Toilet Accessories: Mirrors

1.03 Submittals

A. Submit and following in accordance with Section 01 33 00.

1. Samples: 12" square sample of each type of glass indicated except for clear single pane units.

1.04 Quality Assurance

A. Unless otherwise shown, or governed by other reference standards specified, conform with details and procedures of the "Glazing Manual", Flat Glass Marketing Association.

B. American National Standard Institute (ANSI) Z97.1.

1. Each piece of safety glass shall exhibit appropriate label.

C. Consumer Product Safety Commission (CPSC), "Safety Standards for Architectural Glazing Materials".

1.05 Delivery, Storage and Handling

A. Deliver glazing materials to Project site in manufacturer's unopened containers, fully identified with trade name, color, size, hardness, type, class, and grade. Store each item in accordance with manufacturer's instructions. Damaged and otherwise unsuitable material, when so determined, shall be immediately removed from the Project site.

1.06 Project Conditions

A. Maintain a minimum temperature of 40° F. during glazing unless the manufacturer of the glazing materials specifically agrees to installation at lower temperatures. If job progress and other conditions require glazing work when temperatures are below 40° F. (or below the minimum temperature recommended by the manufacturer), consult the manufacturer and establish the minimum provisions required to ensure satisfactory work. Record in writing tot he manufacturer, with copy to the Architect, the conditions under which such glazing work proceeds, and the provisions made to ensure satisfactory work.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 81 00 - GLASS AND GLAZING

1.07 Warranty

A. The General Contractor shall warrant in writing that the insulating glass units will be free of faults and defects in accordance with the General Conditions, except the warranty period shall be extended by the manufacturer's 10-year warranty:

1. Against material obstruction of vision between interior glass surfaces. Warranty shall be signed by the material supplier and the manufacturer.

PART 2 - PRODUCTS

2.01 Materials

A. Clear Float Glass: Complying with ASTM C1036, Type 1, Class 1, Quality q3, 1/4" thick, clear "Clear Glass" Ford Motor Co. Glass Division; "Clear Glass" PPG Industries, Inc. Glass Group.

B. Tempered Float Glass: Float glass which has been heat strengthened (fully tempered) to achieve strength 4 to 5 times stronger than regular annealed glass, complying with ASTM C1048 and ANSI-Z97.1. Glass shall be tempered horizontally. ("Tong marks at top only will be permitted.)

C. Insulating Glass: 1" insulating glass complying with ASTM E774 tested and approved in accordance with SIGMA, Sealed Insulating Glass Manufacturers Association requirements; Cardinal IG; Viracon, Inc.; or approved substitution. Provide following where shown:

1. 1/4" clear glass outboard, 1/2" air space and 1/4" clear glass inboard, low E.

a. Temper both panes where shown on Drawings and as required.

D. Laminated Wire Glass: ASTM C1036-85, Type III, Class 1, Quality q11, flat, with square wire mesh and polished both faces; 1/4" thick.

E. Safety Glazing: Fire rated and impact safety rated ANSI 20 mil 297.1 and CPSC 16CFR1201 ¼" thick. 20 min. and 45 min. rated at door lights and sidelights, 90 min. rated at door lights. Vetrotech Pyroswiss or Keralite SR-F or approved equal.

E. Glazing Tape: Polyisobutylene/butyl "Tremco 440 Tape" (Tremco); "Extru-Seal" (Pecora Corporation).

F. Setting Blocks: Neoprene blocks, 70 to 90 Type A durometer hardness.

G. Spacers: Neoprene blocks, 40 to 50 Type A durometer hardness, 3" long, self-adhesive on 1 (one) face only.

H. Cleaners: Type recommended by gasket manufacturer.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 08 81 00 - GLASS AND GLAZING

PART 3 - EXECUTION

3.01 Examination

A. Examine the framing and glazing channel surfaces, backing, removable stop design, and the conditions under which the glazing is to be performed, and notify the General Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the glazing until unsatisfactory conditions have been corrected in a manner acceptable to the glazier.

3.02 Preparation

A. Measure openings and cut glass accurately to fit each opening with minimum edge clearances and bite on glass as specified by FGMA. If glass is to be cut to size at Project site, deliver each piece to Project at least 2" larger (in both dimensions) than required, to facilitate the cutting of clean-cut edges without the necessity of seaming, and nipping.

1. Do not attempt to cut, seam, nip, and abrade glass which is tempered, heat strengthened, and coated.

B. Clean glazing stops and rabbets to receive glazing materials of obstructions and deleterious substances which might impair the work.

3.03 Installation

A. Unify appearance of each series of lights by setting each piece to match others as nearly as possible. Set each piece with pattern, draw and bow oriented in the same direction as other pieces.

B. Examine each piece of glass immediately before installation. Pieces which have significant impact damage at edges, scratches and abrasion of faces, and other evidence of damage shall not be installed.

C. Locate setting blocks at the quarter points of sill, but no closer than 6" to corners of glass. Use blocks of proper size to support the glass in accordance with manufacturer's recommendations.

D. Provide spacers for all glass to separate glass from stops, except where continuous gaskets, and tape are required. Locate spacers 36" o.c. maximum inside and out, with a minimum of 2 spacers per edge of glass. Provide width as required for minimum of 3/8" bite on glass each edge.

E. Butt or lap ends of sealant tape in accordance with the manufacturer's recommendations.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Adjusting and Cleaning

A. Protect glass from breakage immediately upon installation. Use streamers or ribbons suitable attached to framing and held free of the glass. Warning markings shall not be applied directly to the glass.

B. Remove and replace glass which is broken, chipped, and damaged including that caused by vandalism and accidents during the construction period.

C. Maintain glass in a reasonable clean condition during construction so that it will not become stained.

D. Wash and polish glass just prior to final acceptance. Comply with instructions and recommendations of the glass manufacturer for cleaning.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 20 00 - GYPSUM BOARD

PART 1 - GENERAL

1.01 Description of Work

A. Types of work include:

1. Gypsum drywall including screw-type metal support system.
2. Gypsum drywall applied to wood framing and furring.
3. Gypsum backing boards for application of other finishes.
4. Drywall finishing (joint tape and compound treatment).
5. Spray texture finish.

1.02 Related Sections

A. Section 06 10 00 - Rough Carpentry

B. Section 07 20 00 - Building Insulation: Sound batt insulation

1.03 Quality Assurance

A. Fire-Resistance Rating: Where gypsum drywall systems with fire-resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E-119 by fire testing laboratories acceptable to authorities having jurisdiction.

B. Gypsum Board Terminology Standard: GA-505 by Gypsum Association.

C. Single-Source Responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

D. Manufacturers:

1. U.S. Gypsum Co.
2. Georgia-Pacific Corp.

1.04 Delivery, Storage and Handling

A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

C. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 20 00 - GYPSUM BOARD

1.05 Project Conditions

A. Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum board.

B. Cold Weather Protection: When ambient outdoor temperatures are below 55 degrees F, maintain continuous, uniform, comfortable building working temperatures of not less than 55 degrees F for a minimum period of 48 hours prior to, during, and following application of gypsum board and joint treatment materials or bonding of adhesives.

C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

PART 2 - PRODUCTS

2.01 Gypsum Board

A. Gypsum Wallboard: ASTM C-36, of types, edge configurations in thickness indicated below; in maximum lengths available to minimize end-to-end butt joints.

1. Edges: Tapered.
2. Thickness: 5/8" Type 'X' or Type 'C' as indicated.

B. Water-Resistant Backing Board: ASTM C-630, with tapered edges and of type and thickness indicated below; in maximum lengths available to minimize end-to-end butt joints.

1. Type 'X', unless otherwise indicated.
2. Thickness: 5/8".

C. Interior Gypsum Wallboard at Mechanical Closets: Georgia-Pacific Fireguard Densarmor Plus paperless interior gypsum panels.

1. Edges: Tapered
2. Thickness: 5/8” Type X

D. USG Durock cement board ~ 5/8” thick; provide if wet conditions do exist.

2.02 Trim Accessories

A. General: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for nailing and beaded for concealment of flanges in joint compound. Provide corner beads, L-type edge trim beads, U-type edge trim-beads, special L-kerf-type edge trim beads, and one- piece control joint beads.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Trim Accessories (continued)

B. Semi-Finishing Type: Manufacturer's standard trim units which are not to be finished with joint compound (non-beaded).

C. Resilient Channels: RC-1 16" o.c. with type S-1 screws.

D. Gypsum Board Control Joints: USG Control Joint No. 093.

2.03 Joint Treatment Materials

A. General: ASTM C-475; type recommended by the manufacturer for the application indicated, except as otherwise indicated.

B. Joint Tape: Paper reinforcing tape.

C. Joint Compound: Ready-mixed vinyl-type for interior use.

1. Grade: A single multi-purpose grade, for entire application.

D. Water-Resistant Joint Compound: Special water-resistant type for treatment of joints, fastener heads and cut edges of water-resistant backing board.

2.04 Miscellaneous Materials

A. General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

B. Gypsum Board Screws: Comply with ASTM C-646.

C. Concealed Acoustical Sealant: Non-drying, non-hardening, non-skinning, non-staining, non-bleeding, gunnable sealant for concealed applications per ASTM C-919.

D. Exposed Acoustical Sealant: Non-oxidizing, skinnable, paintable, gunnable sealant for exposed applications per ASTM C-919.

E. Water-Resistant Adhesive: Type I organic adhesive for ceramic tile complying with ANSI A136.1.

F. Ceiling Coating: Sheetrock first coat. Use spattered knockdown texture and paint the same color as walls..

PART 3 - EXECUTION

3.01 General Gypsum Board Installation Requirements

A. Gypsum Board Application and Finishing Standards: ASTM C840 and GA 216.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 General Gypsum Board Installation Requirements (continued)

B. Install sound attenuation blankets as indicated, prior to gypsum board unless readily installed after board has been installed.

C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1'-0" in alternate courses of board.

D. Install ceiling boards in the direction and manner which will minimize the number of end-butt joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints at least 1'-0".

E. Install wall/partition boards horizontally, but try to avoid end-butt joints wherever possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.

F. Install exposed gypsum board with face side out. Do not install imperfect, damaged, or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.

G. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill- cut or field-cut ends against mill-cut or field cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

H. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

I. Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

3.02 Methods of Gypsum Drywall Application

A. Single-layer Application: Install gypsum wallboard.

1. On ceilings, apply gypsum board prior to wall/partition board application to the greatest extent possible.
2. On partitions/walls, apply gypsum board vertically (parallel) unless otherwise indicated, and provide sheet lengths which will minimize end joints.

B. Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.

1. At ceramic tile areas, install water- resistant backing board. Apply with uncut long edge at bottom of Work, and space 1/4" above fixture lips. Seal ends, cut- edges and penetrations of each piece with water-resistant adhesive or, where recommended by backing board manufacturer, with water-resistant joint compound.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Methods of Gypsum Drywall Application (continued)

a. Screw all sheetrock to wood studs or resilient channels as follows: Single Applications: Attach panels with 1¼" type 'W' screws spaced 12" o.c. at walls and spaced 8" o.c. at ceilings. Refer to actual UL assemblies for spacing requirements.

2. Double Layer Applications:

a. Base Layer: Attach with power-driven 1¼" type 'W' screws spaced 24" o.c. maximum. Refer to specified UL assembly for spacing.

b. Face Layer: Attach face layer with 1½" type 'G' screws. Space screws along edges 8" o.c. maximum within 2" of joint and 12" of both ends. In field of panel, space screws along centerline, 12" o.c. maximum and within 24" of ends. Stagger joints 24" o.c. between layers.

3. Application over resilient furring channels - attach panels with power driven 1" type 'S' screws spaced 12" o.c.

3.03 Installation of Drywall Trim Accessories

A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.

B. Install metal corner beads at external corners of drywall work.

C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound except where semi-finishing type is indicated. Install L-type trim where Work is tightly abutted to other Work, and install special kerf-type where other work is kerfed to receive long leg of L-type trim. Install U-type trim where edge is exposed, revealed, gasketed, or sealant filled (including expansion joints).

3.04 Finishing of Drywall

A. General: Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere as required to prepare work for decoration. Pre-fill open joints and rounded or beveled edges, if any, using type of compound recommended by manufacturer.

1. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.

2. Apply joint compound in three coats (not including prefill of openings in base), and sand between last two coats and after last coat.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Finishing of Drywall (continued)

B. Water-Resistant Gypsum Base for Ceramic Tile: Treat joints and fasteners to comply with directions of water-resistant joint compound manufacturer.

1. In areas to be tiled, treat fastener heads with water-resistant joint compound. Fill tapered edges in gypsum panels with water-resistant joint compound, embed joint tape firmly and wipe off excess compound; follow immediately with a second coat of water-resistant joint compound over taping coat, being careful not to crown the joint. Fold and embed tape in all interior angles to form true angles.

2. In areas not to be tiled, treat fastener heads and embed tape as indicated above using water-resistant joint compound but finish with two coats of joint compound used for regular gypsum board work.

C. Regular Gypsum Board Base for Ceramic Tile: In areas to be tiled using organic adhesive, tape joints and apply 4" wide coat of joint compound.

D. Apply "orange peel" finish to all walls to be painted and a knockdown texture to all ceilings to be painted a different color as walls.

3.05 Protection of Work

A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall work being without damage or deterioration at the time of Substantial Completion.

3.06 Warranty

A. This Contractor shall make one on-site inspection of all his Work after the painter has primed all walls and ceilings and correct any deficient work called to his attention by himself, painter, General Contractor or Architect. He shall warranty all gypsum board for one year from Date of Substantial Completion and shall assume responsibility of correcting any peeling, shrinkage, nail pops, and cracking for a minimum of two years from that date.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 30 00 - TILE

PART 1 - GENERAL

1.01 Description of Work

A. Definitions: Tile includes ceramic surfacing units made from clay or other ceramic materials.

B. Extent of tile work is indicated on Drawings and Schedules.

C. Types of tile work in this Section include the following:

1. Wall tile.
2. Floor tile

1.02 Quality Assurance

A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.

1.03 Submittals

A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.

B. Samples for Initial Selection Purposes: Submit manufacturer's color charts consisting of actual tiles or sections of tiles showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.

1.04 Product Handling

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

1.05 Project Conditions

A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

C. Maintain temperatures at not less than 50 degrees F in tiled areas during installation and for seven days after completion, unless higher temperatures required by referenced installation standard or manufacturer's instruction.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 30 00 - TILE

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

American Olean Tile Co.
Dal-Tile Corp.
United States Ceramic Tile Co.

2.02 Products, General

A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 American National Standard Specifications for Ceramic Tile for types and grades of tile indicated.

1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.

B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with installation products and materials indicated.

C. Colors, Textures and Patterns: For tile and other products requiring selection of colors, surface textures or other appearance characteristics, provide products to match characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standards.

1. Provide tile trim and accessories which match color and finish of adjoining flat tile.

D. Mounting: Where factory-mounted tile is required, provide back or edge mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.

1. Where tile is indicated for installation in swimming pools, on exterior or in wet areas, do not use back or edge mounted tile assemblies unless tile manufacturer specifies that this type of mounting is suitable for these kinds of use and has been successfully used on other projects.

2.03 Tile Products

A. Ceramic wall tile - 4¼" x 4¼" bright glazed cushion edges with 4¼" x 4¼" cove base.

B. Ceramic floor tile - dust pressed unglazed ceramic mosaic 2" x 2" x ¼" size cushion edged.

C. Quarry tile - 8" x 8" x ½". Summitville Price Group III quarry tile, square edged with standard finish.

E. Mosaic hatches - 2" x 4" split face. Tuscany Scabas in 12" x 12" mesh.

F. Marble threshold: White marble with honed face and bevels.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 30 00 - TILE

2.04 Preparation

A. Clean all surfaces in a manner recommended by the manufacturer of the setting material. Application by this installer shall constitute acceptance of the substrate.

2.05 Setting Materials

A. Thin-Set Portland Cement Mortar: Where thin-set portland cement mortar applications are indicated, use the following unless otherwise indicated. Acceptable products are Kerabond and Keralastic by Mapei or Dry Bond and Laticrete 150 by Laticrete.

1. Dry-set portland cement mortar, ANSI A118.1, factory sanded.
2. Latex-portland cement mortar, ANSI A118.4 at kitchen, toilets, and dishroom.
3. Organic adhesive - at veneer plaster finished walls only ANSI 136.1, ANSI 108.4.

2.06 Grouting Materials

A. Latex-Portland Cement Grout: Proprietary pre-blended compound of portland cement, selected and graded aggregates, color pigments and chemical additives gaged with latex additive to comply with manufacturer's directions.

1. Use latex additive in grout which is compatible with latex additive in latex-portland cement mortar.
2. Use in all locations not listed in the epoxy grout section.

2.07 Penetrating Sealer

A. Aqua-Mix Penetrating Sealer - use on all ceramic and quarry tile floors.

2.08 Waterproof Membrane

A. Install Neverstral or equal waterproof membrane on precast plank or concrete slab at shower locations prior to setting bed.

PART 3 - EXECUTION

3.01 Inspection

A. Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard.

3.02 Installation, General

A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under American National Standard Specifications for the Installation of Ceramic Tile.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Installation, General (continued)

B. TCA Installation Guidelines: TCA Handbook for Ceramic Tile Installation; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

C. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.

E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.

F. Grout tile to comply with referenced installation standards, using grout materials indicated.

3.03 Floor Installation Methods

A. Quarry Tile: Install tile to comply with requirements indicated below for setting bed method, TCA installation method related to type of subfloor construction and grout type:

1. Concrete Subfloors, Interior: TCA F113, TCA F115 for epoxy grout, TCA F131 epoxy mortar and grout.

B. Grout: Latex-portland cement or dry-set grout.

C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood or other flooring which finishes flush with top of tile.

3.04 Wall Tile Installation Methods

A. Install types of tile designated for wall application to comply with requirements indicated below for setting bed methods, TCA installation methods related to subsurface wall conditions, and grout types:

1. Thin-Set Portland cement Mortar: ANSI A108.5
2. Wood or Metal Studs, Interior: TCA W243, TCA W244 at Durock, TCA W202 at concrete, TCA W223 organic adhesive over gypsum board, Durock, plaster, or concrete.
3. Grout: Dry-set or latex-portland cement.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 30 00 - TILE

3.05 Cleaning and Protection

A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.

C. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining damage and wear.

1. Prohibit foot and wheel traffic from using tiled floors for at least seven days after grouting is completed.

2. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.06 Extra Tile

A. Provide to the Owner a minimum of six sq. ft. of uncut, full size, undamaged tile of size and color for each tile used in this project.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 51 00 - ACOUSTICAL CEILINGS

PART 1 – GENERAL

1.01 Description of Work

A. Extent of each type of acoustical ceiling is shown and scheduled on Drawings.

B. Type of acoustical ceilings specified in this Section include the following:

1. Acoustical panel ceilings, exposed suspension.

1.02 Quality Assurance

A. Installer Qualifications: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirement for this project and which is acceptable to manufacturer of acoustical units as shown by current written statement from manufacturer.

B. Fire Performance Characteristics: Provide acoustical ceiling components that are identical to those tested for the following performance characteristics, according to ASTM test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate marking of applicable testing and inspecting agency.

1. Surface Burning Characteristics: As follows, tested per ASTM E-84:

a. Flame Spread: 25 or less.
b. Smoke Developed: 50 or less.

C. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other Work supported by or penetrating through ceilings, including light fixtures, HVAC equipment, fire-suppression system components and partition system.

1.03 Submittals

A. Product Data: Manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these Specifications.

B. Samples: Set of 6" x 4" square samples for each acoustical unit required, showing full range of exposed color and texture to be expected in completed work.

1. Set of 12" long samples of each exposed runner and molding.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 51 00 - ACOUSTICAL CEILINGS

1.04 Project Conditions

A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

PART 2 - PRODUCTS

2.01 Acoustical Panels

A. Panels - Mineral Composition with Standard Washable Painted Finish:

1. U.S. Gypsum Co. Radar 24” x 24” x 5/8” Shadowline tapered
2. Rockfon Alaska 10350 24” x 24” x ¾” (direct adhered system).

2.02 Metal Suspension Systems, General

A. Standard for Metal Suspension Systems: Provide exposed metal direct-hung suspension system of intermediate duty, structural classification and finish indicated which comply with applicable ASTM C-635 requirements.

B. Finishes and Colors: Provide manufacturer's standard finish for type of system indicated, unless otherwise required. For exposed suspension members and acces-sories with painted finish, provide colors to match ceiling tile color white baked enamel finish.

C. Attachment Devices: Size for five times design load indicated in ASTM C-635, Table 1, direct hung.

D. Hanger Wire: Galvanized carbon steel wire, ASTM A-641, soft temper, prestretched, Class 1 coating, sized so that stress at three times hanger design load (ASTM C-635, Table 1, Direct Hung), will be less than yield stress of wire, but provide not less than 12 gauge.

E. Edge Moldings and Trim: Metal of types and profiles indicated or, if not indicated, provide manufacturer's standard molding for edges and penetrations of ceiling which fits with type of edge detail and suspension system indicated.

F. Acceptable Available Manufacturers: Subject to compliance with requirements, manufacturers offering suspension systems which may be incorporated in the Work include the following:

1. Manufacturers of Steel Exposed Suspension Systems

a. Same as acoustical unit manufacturer.
b. Chicago Metallic Corp.
c. Donn Corp.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.03 Adhered Systems

A. Adhesive manufacturers

1. ITW TACC Miracle Brand ceiling tile adhesive.
2. Franklin International Titebond adhesive.

PART 3 - EXECUTION

3.01 Preparation

A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans wherever possible.

3.02 Installation

A. General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire resistance rating requirements as indicated, and industry standards applicable to Work.

B. Arrange acoustical units and orient directionally patterned units (if any) in manner shown by Reflected Ceiling Plans.

1. Install tile with pattern running in one direction.

C. Install suspension systems to comply with ASTM C-636, with hangers supported only from building structural members. Locate hangers not less than 6" from each end and spaced 4'-0" along each carrying channel or direct hung runner, unless otherwise indicated, leveling to tolerance of 1/8" in 10'-0".

1. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.

2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal force by bracing, counter-splaying or other equally effective means.

D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.

1. Screw-attach moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 10'-0". Miter corners accurately and connect securely.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Installation (continued)

E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

F. Fixture Protection: Using acoustical lay-in panels specified, from protective hoods over lights and other accessories recessed into fire rated ceiling systems in accordance with UL Design systems shown.

3.03 Adjust and Clean

A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.04 Extra Tile

A. Provide to the Owner one full carton of tile of each size and pattern used on this project. Tile shall be uncut full sized, and undamaged.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 65 00 - RESILIENT FLOORING

PART 1 - GENERAL

1.01 Description of Work

A. Extent of resilient flooring and accessories is shown on Drawings and in Schedules.

1. Sheet vinyl flooring
2. Luxury vinyl tile (LVT) flooring
3. Rubber flooring
4. Rubber base

1.02 Quality Assurance

A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.

1.03 Submittals

A. Product Data: Submit manufacturer's technical data for each type of resilient flooring and accessory.

B. Samples: Submit the following samples of each type, color, and pattern of resilient flooring required, showing full-range of color and pattern variations. Colors as selected by Architect and Owner.

1. 3" x 3" tile samples.
2. 2" long and full height base.

C. Maintenance Instructions: Submit two copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.

1.04 Project Conditions:

A. Maintain minimum temperature of 65 degrees F in spaces to receive resilient flooring for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 55 degrees F in areas where Work is completed.

B. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter have been cured and are sufficiently dry to achieve bond with adhesive as determined by resilient flooring manufacturer's recommended bond and moisture test.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 65 00 - RESILIENT FLOORING

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Manufacturers of Sheet Vinyl (SV) Flooring:

1. Armstrong World Industries, Inc.
2. Mannington Mills, Inc.
3. Tarkett, Inc.

B. Manufacturers of Luxury Vinyl Tile (LVT) Flooring:

1. Shannon Specialty Floors, Inc.
2. Mannington Commercial

C. Manufacturers of Rubber Flooring:

1. Rubber Flooring Inc., or approved equal.

2.02 Resilient Flooring

A. Sheet Vinyl (SV)

1. In units: Mannington “Benchmark”
2. In public areas: Armstrong “Connection Corlon”

    a. Minimum Roll Width: 72”

B. Luxury Vinyl Tile (LVT)

1. Shannon Specialty Floors: Tuf Stuf™ Woodland Path Luxury Vinyl Plank
2. Mannington: Spacia Collection

    a. Minimum Plank Size: 4” x 36”
    b. Minimum Nominal Thickness: 2.5mm
    c. Minimum Wear Layer Gauge: 20 mils.
    d. Minimum Static Load Limit: 1,000 psi
    e. Slip Resistance: 0.5 Dry or better
    f. Colors selected by the Owner from manufacturer’s standard colors.

C. Rubber Flooring

1. Provide 3/8” thick standard rubber rolls with flecks from standard colors.

D. Rolled Rubber Flooring (Fitness Room)

1. Nike Grind or approved equal.
    a. 8 mm x 4’ wide x 50’ long.
    b. Manufacturer’s standard colors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Resilient Flooring (continued)

E. Rubber Base

1. Rubber Wall Base: Provide rubber base complying with FS SS-W-40, Type I, with matching end stops and preformed corner units:

   a. Height: 4”
   b. Style: Standard top-set cove
   c. Finish: Matte

F. Metal Edge Strips: Of required width and thickness to protect exposed edge of resilient flooring. Provide units of maximum available length, to minimize number of joints.

1. Material: Extruded aluminum with mill finish, unless otherwise shown.
2. Type: Overlap type metal edge strips for exposed anchorage.

G. Adhesives (Cements): Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.

H. Concrete Slab Primer: Non-staining type as recommended by flooring manufacturer.

I. Leveling and Patching Compounds: Latex type as recommended by flooring manufacturer.

J. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 - EXECUTION

3.01 Inspection

A. Require Installer to inspect sub-floor surfaces to determine that they are satisfactory. A satisfactory sub-floor surface is defined as one that is smooth and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance.

B. Do not allow resilient flooring work to proceed until subfloor surfaces are satisfactory.

3.02 Preparation

A. Prepare subfloor surfaces as follows:

1. Use leveling and patching compounds recommended by resilient flooring manufacturer for filling small cracks, holes and depressions in subfloors.
2. Remove coatings from subfloor surfaces that would prevent adhesive bond, including curing compounds incompatible with resilient flooring adhesives, oils, paint, waxes and sealers
3. Broom clean or vacuum surfaces to be covered, and inspect subfloor.
4. Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply in compliance with manufacturer's directions.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.03 Installation

A. General:

1. Install resilient flooring using method indicated in strict compliance with manufacturer's printed instructions. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.

2. Scribe, cut, and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets and permanent columns, walls and partitions.

3. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other non-permanent marking device.

4. Tightly cement resilient flooring to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll resilient flooring at perimeter of each covered area to assure adhesion.

B. Installation of Sheet Vinyl Flooring: Lay sheet flooring without seams or with as few seams as possible with economical use of materials.

C. Installation of Tile Floors:

1. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.
2. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped, or deformed tiles are not acceptable. Lay tile with grain running in checkerboard pattern.
3. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.

3.04 Installation of Accessories

A. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.

B. On masonry surfaces, or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

C. Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which would otherwise be exposed.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Installation of Accessories (continued)

D. Apply overlap metal edge strips where shown on Drawings, and after flooring installation. Secure units to substrate with countersunk stainless steel anchors, complying with edge strip manufacturer's recommendations.

E. Apply butt type metal edge strips where shown on Drawings, and before installation of resilient flooring. Secure units to substrate with countersunk stainless steel anchors, complying with manufacturer's recommendations.

3.05 Cleaning and Protection

A. Perform following operations immediately upon completion of resilient flooring:

1. Sweep or vacuum floor thoroughly.
2. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well-sealed in adhesive.
3. Damp mop floor being careful to remove black marks and excessive soil.
4. Remove any excess adhesive or other surface blemishes, using appropriate cleaner recommended by resilient flooring manufacturers.

B. Protect flooring against damage during construction period to comply with resilient flooring manufacturer's directions.

C. Clean, seal and wax resilient flooring not more than four days prior to date scheduled for inspections intended to establish Date of Substantial Completion in each area of project. Clean and seal resilient flooring by method recommended by resilient flooring manufacturer.

3.06 Extra Stock

A. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.

1. Tile Flooring: Furnish not less than one box for each 50 boxes or fraction thereof, for each type, color, pattern and size installed.

3.07 Guarantee

A. Materials and workmanship shall be guaranteed against shrinkage cracks, or coming loose for a period of two years.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 68 00 - CARPET

PART 1 - GENERAL

1.01 Section Includes

A. Carpeting as specified and indicated on Drawings and Schedules.

B. Cushioned underlay beneath carpet.

C. Accessories

1.02 Related Sections

A. Section 03 30 00 - Concrete Floor Surface.

B. Section 03 54 00 - Gypsum Underlayment.

1.03 Quality Assurance

A. Installer: Engage a carpet installation firm which has at least five years successful experience in carpet installations similar in size and type to the carpeting requirements of this project.

B. As a minimum, all materials, testing, weight, flame resistance, densities shall be in accord with requirements of HUD Bulletin UM- 44D Minimum Standards for Carpeting and Cushioning and all addenda in effect at date of this Contract.

C. Urethane cushion materials shall meet HUD UM47A and other carpet cushion shall meet UM72 requirements.

D. Flame resistance: The carpet or separate pad underlayment shall individually meet the flammability requirements for Consumer Product Safety Commission - Standard DOCFF 1-70, with the pill test or tunnel test being equally applicable.

1.04 Submittals

A. Samples: Provide the General Contractor with a properly identified set of manufacturer's full color range samples for color selection and approval. Colors as selected by Architect and Owner.

B. Manufacturer's Literature:

1. Installation instructions, including allowable temperature range.
2. Maintenance and cleaning instructions.

1.05 Environmental Requirements

A. Store materials for one day prior to installation in area of installation to achieve temperature stability.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.05 Environmental Requirements (continued)

B. Keep materials dry during delivery and store inside in well ventilated area, protected from weather, moisture and soiling.

1.06 Warranty

A. The carpet installer shall guarantee materials and workmanship for a period of one (1) year after the Date of Substantial Completion. This guarantee shall include any re-stretching or repair of seams that may occur during this one year warranty period.

PART 2 - PRODUCTS

2.01 Materials

A. Carpet Contractor shall furnish written certification to the Architect from the manufacturer that the carpets and cushion provided meet or exceed the traffic ratings for the intended application. The manufacturer's certificate shall contain the following:

1. Name of manufacturer.
2. Manufacturer's RN (Registry Number) with the Federal Trade Commission.
3. Pile fiber type (if blended fiber, percentage of each fiber type).
4. Pile yarn weight of finished carpet (minimum).
5. Density (minimum).
6. Tufts per inch (minimum).
7. Tufts height (where applicable).
8. Statement that carpet meets or exceeds the minimum requirements.

B. Carpeting:

1. Living units:

    a. Tufted cut pile ~ continuous filament
    b. Type II, Class 1
    c. 32 oz. minimum pile yarn weight

2. Public spaces:

    a. Tufted level loop
    b. Type II, Class 2, Texture A
    c. 28 oz. minimum pile yarn weight

3. Corridors and Club Room

    a. Barrett Commercial Statesman 11333.

C. Alternate for carpet tiles at common areas.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Cushion Materials

A. Units - Class 1, bonded urethane or rebond 8 lb. ½" thick for moderate traffic use.

B. First, second and third level corridor, and public space - no cushion required.

2.03 Accessories

A. Sub-floor Filler: White premix latex, type recommended by carpet manufacturer.

B. Carpet Gripper: Wood type recommended by carpet manufacturer to suit application, with attachment devices.

C. Edging strips: Metal strips, aluminum finish. Koffler A614 hammered silver, or MD Building Products Z-Bar – 48".

D. Hot melt seaming tape, type recommended by manufacturer.

E. Adhesive: Recommended by carpet manufacturer.

PART 3 - EXECUTION

3.01 Examination

A. Verify that substrate surfaces are smooth, flat and ready to receive Work.

B. Beginning of installation means acceptance of existing substrate and site conditions.

3.02 Preparation

A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with premix latex filler.

B. Apply, trowel, and float filler to leave smooth, flat, hard surface.

C. Prohibit traffic until filler is cured.

D. Vacuum floor surfaces.

3.03 Installation - Cushion

A. Install in accordance with manufacturer's instructions.

B. Install tackless strip securely around the entire perimeter of room.

C. Install cushion using maximum size pieces. Securely adhere to sub-floor.

D. Lay out cushion so that carpet seams will not fall directly over cushion seams.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.03 Installation - Cushion (continued)

E. Butt edges together and tight to edge of tackless strip. Tape all joints.

F. Remove air pockets and ridges and slightly stretch. Anchor securely around projections and contours.

G. Install cushion on stair treads and lap over nosing.

3.04 Installation - Carpet

A. Install in accordance with manufacturer's instructions.

B. Lay out rolls of carpet.

C. Verify carpet match before cutting to ensure minimal variation between dye lots.

D. Double cut carpet, to allow intended seam and pattern match. Make cuts straight, true, and unfrayed.

E. Locate seams in area of least traffic.

F. Join seams by hot melt carpet seaming tape method. Form seams straight, not overlapped or peaked, and free of gaps.

G. Lay carpet on floors with run of pile in same direction as anticipated traffic. Lay carpet on stairs with the run of the pile in opposite direction of anticipated traffic to avoid peeking of backing at nosings.

H. Do not change run of pile in any room where carpet is continuous through a wall opening into another room. Locate change of color or pattern between rooms under door centerline.

I. Cut and fit carpet at walls and door jambs as needed. Install carpet in all closets.

J. Lay carpet tight and flat on sub-floor, well fastened at edges, with a uniform appearance. Provide mono-lithic color, pattern, and texture match within any one area.

K. Install one piece edging strip where carpet terminates at other floor coverings. Where splicing cannot be avoided, seam ends tight and flush.

3.05 Cleaning

A. Remove spots and smears of adhesive from floor, base, and wall surfaces immediately and in accordance with carpet manufacturer's recommendations.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.05 Cleaning (continued)

B. Remove all rubbish, wrapping paper, and salvages shall be removed from the project site.

C. Vacuum clean all carpet surfaces and clean soiled areas.

3.06 Protection

A. Carpeting shall be adequately covered and protected against damage during the remainder of the construction period, and until acceptance by the Owner. Damaged carpeting shall be replaced at no additional cost to the Owner.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 09 91 00 - PAINTING

PART 1 - GENERAL

1.01 Description of Work

A. Extent of painting work is indicated on Drawings and Schedules, and as herein specified.

B. Work includes painting and finishing of interior and exterior exposed items and surfaces throughout project, except as otherwise indicated.

1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other Sections of Work.

C. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

D. Surfaces to be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated in Schedules. Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors or finishes available. All ceilings are to be painted.

E. Following categories of Work are not included as part of field-applied finish work:

1. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items as (but not limited to) metal materials, architectural woodwork and casework, and finished mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets.

2. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundations spaces, furred areas, pipe spaces, and duct shafts.

3. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.

4. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sensing devices, motor and fan shafts will not require finish painting.

F. Following categories of Work are included under other Sections of these Specifications.

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, metal fabrications, hollow metal work and similar items.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.01 Description of Work (continued)

2. Unless otherwise specified, shop priming of fabricated components such as architectural woodwork, wood casework and shop- fabricated or factory built mechanical and electrical equipment or accessories is included under other Sections of these Specifications.

G. Mechanical and Electrical Work: Painting of mechanical and electrical work is specified in their divisions, respectively.

H. Do not paint over any code-required labels, such as Underwriters Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.02 Quality Assurance

A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

B. Coordination of Work: Review other Sections of these Specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

1.03 Submittals

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

B. Samples: Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

1.04 Delivery and Storage

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

1. Name or title of material.
2. Fed. Spec. number, if applicable.
3. Manufacturer's stock number and date of manufacturer.
4. Manufacturer's name.
5. Contents by volume, for major pigment and vehicle constituents.
6. Thinning instructions.
7. Application instructions.
8. Color name and number.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.04 Delivery and Storage (continued)

1. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.

1.05 Job Conditions

A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F and 90 degrees F, unless otherwise permitted by paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F and 95 degrees F, unless otherwise permitted by paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

1. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

I.C.I.
Benjamin Moore and Co. (Moore)
PPG Industries, Pittsburgh Paints (Pittsburgh)
Pratt and Lambert (P & L)
The Sherwin-Williams Co. (S-W)
Diamond Vogel Paints
Iowa Paint Mfg. Co.

2.02 Materials

A. Material Quality: Provide best quality grade of various types of coating as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Materials (continued)

1. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

2. Federal Specifications establish minimum acceptable quality for paint materials. Provide written certification from paint manufacturer that mater-ials provided meet or exceed these minimums.

B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

PART 3 - EXECUTION

3.01 Inspection

A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.

B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.02 Surface Preparation

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

1. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems in using the specified coating systems with substrates primes by others.

2. Remove hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.02 Surface Preparation (continued)

B. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scraper, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of which shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish sur-faces with putty or plastic wood-filler. Sandpaper smooth when dried. Fill nail holes of prefinished wood trim.

1. Prime, stain, or seal wood required to be job painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counter cases, and paneling.
2. When transparent finish is required, use spar varnish for back-priming.
3. Back-prime paneling on interior partitions only where masonry, plaster, or other wet wall construction occurs on backside.
4. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

C. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

D. Touch-up shop applied prime coats wherever damaged or bare, where required by other Sections of these Specifications. Clean and touch-up with same type shop primer.

E. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.

3.03 Materials Preparation

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film, and, if necessary, strain material before using.

3.04 Application

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint colors, surface treatments, and finishes, are indicated in Schedules of the Contract Documents. If colors are not shown they will be selected by the Architect from the manufacturer's standard colors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Application (continued)

2. Provide finish coats which are compatible with prime paints used.

3. Apply additional coats when undercoats, stains or other conditions shown through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure the surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.

5. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.

6. Sand lightly between each succeeding enamel or varnish coat.

7. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.

B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

D. Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

1. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

E. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

F. Transparent (Clear) Finishes: Use multiple coats to produce glass- smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Application (continued)

1. Provide satin finish for final coats, unless otherwise indicated.

G. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint Work not in compliance with specified requirements.

3.05 Clean-up and Protection

A. Clean-up: During progress of Work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.

1. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing Work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

C. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their Work, after completion of painting operations.

D. At completion of Work of other trades, touch-up and restore all damaged or defaced painted surfaces.

3.06 Paint Schedules

Interior Work

Surface	*Finish*	*Abbr.*	*Application*
Plaster Concrete Concrete Block	Alkyd Satin	Pt.	One coat Moore's Quick Dry Prime Seal or Moorecraft 273 Vinyl Latex Primer Sealer One coat Moore's Satin Impervo or Moorecraft Alkyd Semi Gloss #271
Drywall	Latex flat enamel and, latex eggshell enamel	Pt.	One coat Glidden 1290 High Build Latex Flat Interior Primer/Finish at all ceilings. One coat Eggshell 1472 Enamel at all walls.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.06 Paint Schedules (continued)

Interior Work

Surface	*Finish*	*Abbr.*	*Application*
Ferrous metal hollow metal door and frames, guard and handrails, Section 05500 items	Enameled	E.	One coat primer-Moore Ironcald Retardo Rust Inhibitive Paint #16300 (if ferrous metal has a shop applied prime coat; touch-up chips, sand out runs and omit field application of primer). Moore's Satin Impervo or Moorcraft Alkyd Semi-Gloss #271
Woodwork (noted to be painted or enameled)	Enameled	E.	One coat Moore's Alkyd Enamel Underbody #217. Two coats Moore's Satin Impervo or one coat Moorcraft Alkyd Enamel Underbody #262. Two coats Moorcraft Semi-Gloss Enamel #271
Woodwork (includes all millwork other than that noted to be painted or sealed)	Stain & Varnish	S & V	One coat Moore's Interior Wood Finishes Penetrating Stain #241. Finish: Two coats Benwood Polyurethane finish Low Lustre #435. Over close grain or unfilled wood, apply first coat thinned with one quart mineral spirits per gallon. Second coat as packaged.
Wood Benches	Seal		Two coats Moore's interior Finishes Scandinavian Oil Finish #412. Buff each coat with fine steel wool.
Car Wash	Epoxy paint	Ep. Pt.	ICI Devoe Devran 224 HS High Build Epoxy coating.

Exterior Work

Surface	*Finish*	*Application*
Galvanized Metal	Enameled	One coat galvanized metal primer - Moore's Ironclad Metal Galvanized Metal Latex Primer #155. (If galvanized metal has a shop applied prime coat; touch up chips, sand out runs and omit field application of primer.) Two coats Moore's Impervo Enamel #133.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.06 Paint Schedules (continued)

Exterior Work Surface	*Finish*	*Application*
Exterior wood	Stain	Two coats Olympic solid body wood stain
Ferrous metal items - all Section 05500 and overhead garage door and insulated steel pre-hung door units	Enameled	One coat ferrous metal primer metal primer - Moore's Ironclad Retardo Rust Inhibitive Paint #163. (If ferrous metal has a shop applied prime coat; touch up chips, sand out runs and omit field application of primer). Two coats metal enamel gloss - Moore's Impervo Enamel #133.
Rock face concrete units	Acrylic exterior cementitious coating	Clean surface and dampen prior to application of Thorocoat 100% acrylic textured coating. Apply Thorocoat in a heavy, un-stretched, uniform manner in one direction.
Hardiplank	Acrylic latex	Two coats Sherwin-Williams Duration Exterior Latex Satin coating

3.07 Additional Work

A. Fill nail holes at all pre-finished millwork and field finish all sawcut ends of prefinished millwork.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 01 00 – MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

1.01 Description of Work

A. Extent of miscellaneous specialties as specified and indicated on Drawings.

1.02 Related Work

A. Section 10 14 00 - Plastic Signs

B. Section 10 44 00 - Fire Extinguishers

1.03 Submittals

A. Submit Shop Drawings for all items consisting of the manufacturer's printed brochures properly referenced to the project and indicating the quantities and locations of each item. Include information pertaining to the method of anchorage to be used for each condition.

B. Submit layout drawings for manufactured components such as tackboards. For prefinished items with several standard colors and/or finishes available, submit samples and/or color cards for selections to be made by the Architect.

1.04 Product Delivery, Storage and Handling

A. Provide suitable packing for all items to prevent damage from handling and from the elements during shipment and storage. Do not deliver until suitable storage space is available at the project site or installation can be made directly upon delivery.

B. Deliver, uncrate, assemble and erect all items as the progress of the other work requires and allows.

PART 2 - PRODUCTS

2.01 Traffic Control Signs

A. Signs shall be manufactured from 16 ga. Aluminum and shall be 12” x 18”. Signs shall have standard traffic symbols as indicated. Provide one (1) handicap parking sign per handicap parking stall. Provide handicap van parking signage as required by law. At exterior locations, mount sign on U-channel steel post. Posts shall be 10’ long. Include all messages required by the State and the ADA. At 8’ wide van accessible access aisle provide sign which states: “ACCESS AISLE – NO PARKING”.

B. “Stop” signs – locate at exit to street ~ total of one (1).

C. “One Way, Do Not Enter” ~ total of one (1).

D. “No Parking, Fire Lane” ~ total of four (4).

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 01 00 – MISCELLANEOUS SPECIALTIES

2.02 Horizontal Type Mailboxes

A. General: Provide high security horizontal front loading, recessed style mailbox units of the style and size shown. Each gang of box units to open by mail carrier's key. Tenant's key only operates a single door, and is keyed with apartment entry door. Mailboxes to comply with USPS Std. 4C regulations.

B. Manufacturers offering products to comply with the requirements for mailboxes include the following:

1. Bommer
2. Auth-Florence Corporation
3. Salsbury Industries – 3700 series
4. Security Manufacturing, Inc.

C. Doors and frames: Provide manufacturer's standard heavy metal construction ganged and nested units. Construct doors with concealed full-length flush hinge, and slots to receive tenant's name and number.

1. Fabricate units of aluminum extrusions, with natural anodized aluminum finish. Front trim as required.

2. Locking provide lock system conforming to U.S. Postal Dept. regulations, with three keys for each box door key each box differently. Master lock by local Post Office. Deliver box keys and master keys to Owner, with record of each lock and key numbers.

D. Provide a collection box and parcel at each bank of mailboxes.

2.03 House Numbers

A. Address numbers are to be injected molded plastic, 8" high, stud mounted for application to 2” manufactured stone veneer, in color selected by Architect from standard color line. Provide four letters at building entry. Verify address with city or local post office.

2.04 Access Panels

A. Provide one hour rated 12" x 12" metal wall access panels for sillcock shut-off valves. Prime painted steel, concealed hinge, key lock, spring closer, 16 ga. frame and 20 ga. door.

2.05 Fire Rated Ceiling Access Door

A. Furnish and install where indicated on Plans, 22" x 36" fire rated ceiling access door Model "FD" by J.L. Industries, Nystrom approved equal.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 01 00 – MISCELLANEOUS SPECIALTIES

2.06 Tack Board

A. Pre-framed tack board shall be ¼" colored cork, vinyl impregnated with anodized aluminum extruded trim similar to Neal Slate 7100 Series or comparable by Claridge, Congoleum or Gotham. Size noted on Drawings. Owner to select standard color.

2.07 Entrance Mat

A. Manufacturer

1. Provide products by Arden Architectural Specialties, St. Paul, MN-"Rugged Scrub" (651-631-1607).
2. Reese entrance mats with N0540 ½" deep aluminum recessed frame and No. 538 polypropylene brush tread.
3. Base Specialties Model MB302 approved.

B. Mat Frames

1. Manufacturer's standard design, model F-6 thinline size on the drawings. Furnish complete with installation anchorages. Provide frames of extruded 6063-T5 alloy aluminum. Coat surface of frame, which will contact concrete with zinc chromate paint or manufacturer's standard protective coating. Provide frame members in single lengths.

C. Mat:

1. Provide aluminum hinge recessed. Polypropylene fiber equal to Arden's "Rugged Scrub."
2. Fabricate mats in one piece to closely fit mat frames and as recommended by manufacturer for ease of handling and installation.

D. Shop Assembly

1. Pre-assemble mat frames and mats in shop to ensure proper fit of mat to frame and of frame joinery. Disassemble frame to the extent necessary for shipping and job handling limitations. Clearly mark units for reassembly and coordinated installation with ceramic tile floor.

2.08 Flagpoles

A. Provide and install the flagpole as detailed. Flagpole shall be Acme Flagpole Co., American Flagpole, Concord Industries, Morgan-Francis, Pole Tech Co., or Eder Flag Manufacturing Co.

B. Flagpole shall be cone tapered aluminum with standard fittings and equipment and the following:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.08 Flagpoles (continued)

30'-0" exposed height x 33'-0" in length 6" butt diameter
32" top diameter
3/16" wall thickness
Steel core type operating rope

C. Provide a heavy coat of black asphaltum to inside and outside of pole before shipment.

D. Set pole in concrete as detailed.

2.09 Wash Area Vacuum System ~ Wall Mounted

A. Beam #225C central vacuum system for car wash in garage. Include 30' hose, upholstery brush, crevice tool and hose hanger.

2.10 Pressure Washer ~ Wall Mounted

A. Northstar electric cold water stationary pressure washer at car wash. 2.5 GPM @ 3,000 PSI, 5 HP motor, 230 volts and 30 amps, 50 ft. hose, spray nozzles.

2.11 Brass Foot Rail at Club Room

A. Provide Lido Designs, Inc. #402 foot rail mount bracket with 1-1/2" o.d. #A120 tubing or approved equal.

2.12 Countertop Support Brackets

A. Provide 6" x 6" front mounted support brackets at 48" o.c. Brackets to be 2½" wide x 3/8" thick from A-36 steel. Paint black.

2.13 Permanent Project Sign

A. See Drawings for permanent two sided sign.

2.14 Stairwell Safety Gates

A. Provide and install self-closing safety gates Model LSG, stairless steel, manufactured by Michigan Safety Products of Flint, Inc., verify width.

2.15 Unit Entrance Wall Outlet Wireless Door Chime

A. Provide and install at each unit entrance the following: Honeywell wall outlet wireless doorbell; Heath-Zenith wall outlet wireless door bell.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.16 Bike Racks

A. Provide one (1) Patterson-Williams single sided 1616-08 bike rack in garage, galvanized, size 67” x 32” x 30”, or Belson Outdoors BR10-G 8 bike capacity, galvanized, or approved equal.

PART 3 - EXECUTION

3.01 Installation

A. Install miscellaneous specialties in accordance with reviewed Shop Drawings and manufacturer's printed instructions.

B. Install items where shown plumb, level and true. Provide anchors, bolts and other fastenings of the types shown or as required for fastening work in place. Unless otherwise specified, provide fastenings of same material, color and finish as the metal in which fastenings occur.

C. Note: In past projects the central vacuum system and pressure washer have not been installed by the General Contractor. Please note that this installation is part of the Contract.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 14 00 - PLASTIC SIGNS

PART 1 - GENERAL

1.01 Description of Work

A. Extent of specialty signs is shown on Drawings.

B. Forms of specialty signs required include the following:

1. Room identification signs.

1.02 Quality Assurance

A. Uniformity of Manufacturer: For each sign form and graphic image process indicated, furnish products of a single manufacturer.

1.03 Regulatory Requirements

A. All interior plastic signs shall comply with all requirements of the Americans With Disabilities Act (ADA).

1.04 Submittals

A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sign required.

B. Owner to select colors and numbering system.

PART 2 - PRODUCTS

2.01 Materials, General

A. Plastic Laminate: High pressure plastic laminate engraving stock with face and core plies in contrasting colors, in finishes and color combinations indicated or, if not indicated, as selected from manufacturer's standard.

B. All tactile letters and symbols shall be raised 1/32” from the surface and accompanied with grade 11 braille. Raised characters shall be minimum 5/8” and no higher than 2”. Pictograms shall be manufactured to comply with Section 4.30.4 in Title 111 of the ADA requirements.

C. Fasteners: Use concealed fasteners, unless otherwise indicated, which are fabricated from metals which are non-corrosive to either sign materials or mounting surface.

D. Anchors and Inserts: Use non-ferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 14 00 - PLASTIC SIGNS

2.02 Fabrication of Panel Signs

A. Fabricate panel signs to comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes and details of construction.

B. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16" measured diagonally from corner to corner.

C. Unframed Panel Signs: Fabricate unframed panel signs with edges mechanically and smoothly finished to conform to the following requirements:

1. Edge Condition: Square cut.
2. Edge Color for Plastic Laminate: Same as copy.
3. Corner Condition: Square.

PART 3 - EXECUTION

3.01 Installation

A. Locate sign units and accessories where shown or scheduled, using mounting methods of type described and in compliance with manufacturer's instructions, unless otherwise indicated.

B. Install sign units level, plumb and at height indicated, with sign surfaces free from distortion or other defects of appearance.

C. Wall Mounted Units: Attach panel signs to wall surfaces using methods indicated below:

1. Vinyl-Tape Mounting (VTM): Use double-sided foam tape, of thickness indicated, to mount signs to smooth non-porous surfaces. Do not use for vinyl covered or rough surfaces.

2. Attach to wall with adhesive and brads. Pre-drill plate as required.

3.02 Cleaning and Protection

A. At completion of installation, clean soiled sign surfaces in accordance with manufacturer's instruction. Protect units from damage until acceptance by Owner.

3.03 Sign Schedule

A. Sign Size

1. Length: As required for copy length + 2".
2. Height: Letter height + 1".

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 14 00 - PLASTIC SIGNS

3.03 Sign Schedule (continued)

B. Letter Type: Helvetica Medium.

C. Letter Height: 1" or ¾" where noted.

D. Sign Colors: To be selected from manufacturer's standard colors.

E. Sign Location: Wall mount on latch side of door, 58" above finished floor to center of sign.

F. Sign Inscriptions:

Quantity	Inscription
Garage	
1	Refuse
1	Wet Stall
2	Elevator lobby
1 ea.	Stair A, Stair B, Stair C
2	Elevator Equipment
1	Work Shop
1	Electrical/Mechanical
1	Maintenance
1	Residence Storage
1	Unisex Toilet
17	S1-S17
1	Meter Room
First Floor	
1 ea.	Stair A, Stair B, Stair C
1	Office
1	Men
2	Mechanical/Electrical
1	Storage
1	Cafe
2	Great Room
1	Refuse
1	Women
2	Elevator lobby
First Floor (continued)	
1	Mail
1	Lounge
1	Library
1	Mechanical
Second Floor	
1	Stair A, Stair B, Stair C
2	Elevator Lobby
1	Refuse
2	Mechanical/Electrical
1	Fitness Center
1	Club Room
2	Guest Room
1	Unisex Toilet
Third Floor	
1 ea.	Stair A, Stair B, Stair C
2	Elevator lobby
1	Refuse
1	Mechanical/Electrical
1	Storage

G. Apartment numbers ~ see Floor Plans for unit numbers.

H. In case of fire, do not use elevator, use stairs.

I. 12" x 8" directional Signage – First, Second and Third Floor corridor indicating direction from elevators to units ~ total 6.

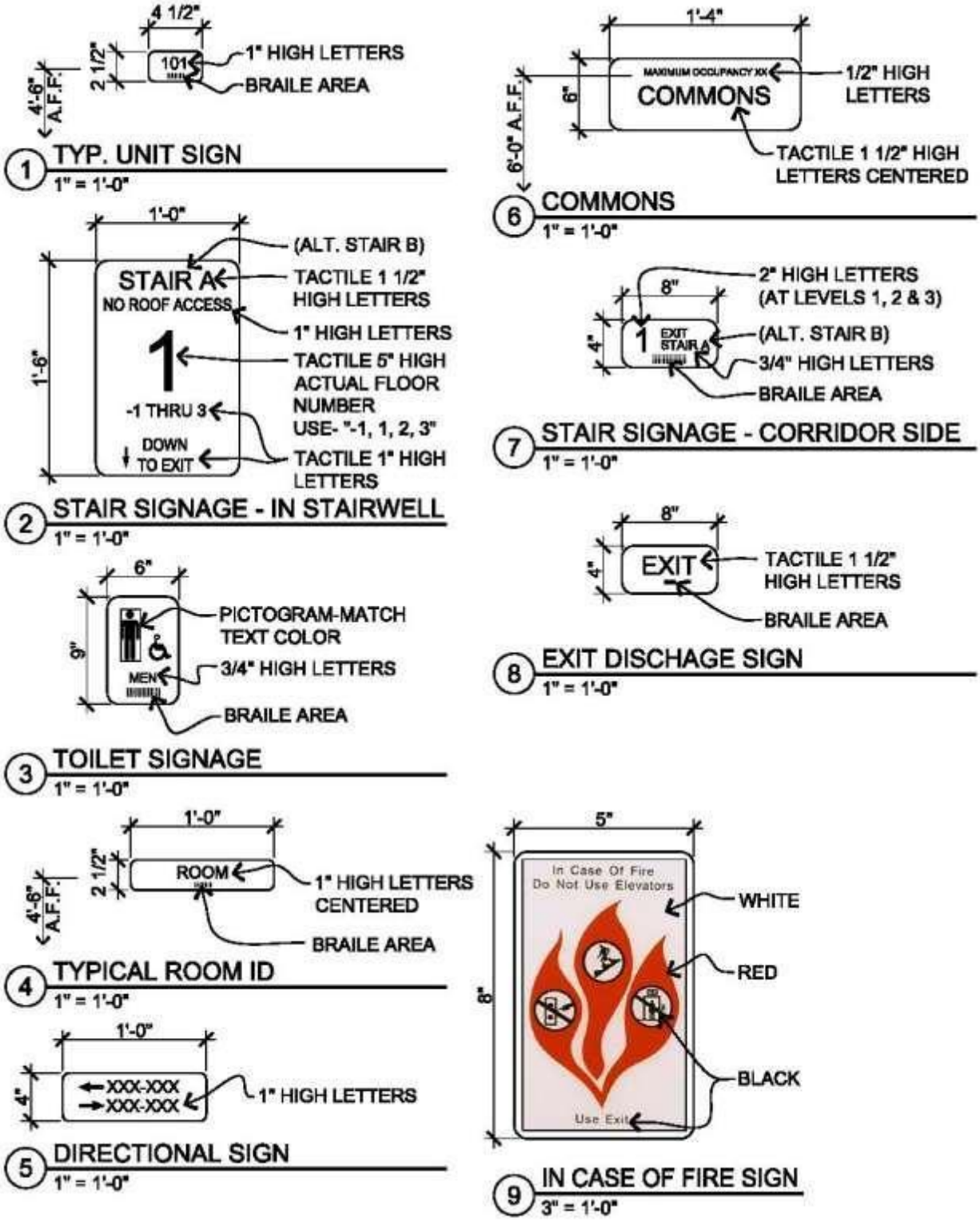
J. Exit signs - at exit discharge locations ~ total 5.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 14 00 - PLASTIC SIGNS



END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 30 00 – PREFABRICATED FIREPLACES

PART 1 – GENERAL

1.01 Section Includes

A. Prefabricated gas fireplaces.

1.02 Related Work

A. Mechanical: For gas rough-in and final connections.

B. Electrical: For power to controls and final connections.

1.03 Submittals

A. Submit the following in accordance with Section 01 33 00:

1. Manufacturers' Literature: Materials description and installation, operating and maintenance instructions.
2. Shop Drawings: Show required clearances and diagram of flue configuration for each condition, interface with adjoining work, special support and installation details.
3. Certification: Manufacturer's certification of compliance with UL and building code requirements.

1.04 Quality Assurance

A. Comply with State Building Code and local ordinances and Underwriters Laboratories, Inc., for design and testing.

B. Fireplaces shall be AGA design certified and CGA certified.

1.05 Warranty

A. The Contractor shall warrant the fireplaces and installation to be free of faults and defects in accordance with the General Conditions, except that the warranty shall be extended by manufacturer's standard 5-year written warranty and multi-year protection plan. Warranty shall be signed by the manufacturer.

PART 2 – PRODUCTS

2.01 Acceptable Manufacturers

A. Heatilator

B. Heat-N-Glo Fireplace Products, Inc.

C. Hussong Mfg. Co., Inc.

D. Majestic Company, Division of American Standard, Inc.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 30 00 – PREFABRICATED FIREPLACES

2.02 Fireplace Units

A. For reference purposes only, Heat-N-Glo components are specified herein.

B. Prefabricated Wall Fireplace Unit: Model SL-750TR direct vent, zero-clearance, gas fireplace.

1. Features:

a) 24,300 BTU/hr input.
b) Tempered glass doors.
c) Polished brass upper and lower grilles.
d) Gas logs.

2. Size (Actual): 37-7/8” high, 42” wide (front) and 16-5/16” deep.

C. Prefabricated see-thru fireplace unit Model ST-36TR direct vent, with folio front.

1. Features:

a) 37,000 BTU/hr input.
b) Tempered glass doors.
c) Polished brass upper and lower grilles.
d) Gas logs

2. Size: 38” high; 42½” wide (front) and 24” deep.

D. Insulated Flue: Vertically vented from top of unit with rigid direct vent pipe and pipe adapter; sizes, lengths and accessories as required for complete assembly, spark arestor and insect screen.

PART 3 – EXECUTION

3.01 Examination

A. Examine the areas and conditions under which fireplaces are to be installed and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Verify that preparations in structure are properly aligned and that required clearances between units and combustible members are provided.

3.02 Installation

A. General: Comply with manufacturer’s instructions and final Shop Drawings.

B. Fireplace units shall be in operable condition upon completion of installation.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 44 00 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

PART 1 - GENERAL

1.01 Section Includes:

A. Portable fire extinguishers.

B. Fire extinguisher cabinets.

1.02 Related Sections

A. Section 06 20 00 - Finish Carpentry: Installation.

1.03 Quality Assurance

A. Single Source Responsibility: Obtain products in this Section from one manufacturer.

B. Coordination: Verify that fire extinguisher cabinets are sized to accommodate fire extinguishers of type and capacity indicated.

C. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed "Listing Mark" for type, rating, and classification of extinguisher indicated.

D. Conform to NFPA 10 requirements for portable fire extinguishers.

1.04 Submittals

A. Shop Drawings: Submit Shop Drawings for each type of product included in this Section. For fire extinguisher cabinets include roughing-in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, and panel style and materials.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Fire extinguishers, cabinets:

1. J.L. Industries
2. Larsen's Mfg. Co.
3. Modern Metal Products, Division of Technico, Inc.

2.02 Materials

A. Cabinets shall be surface mounted and semi-recessed type, all steel construction.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Materials (continued)

1. Types:

   a. Larsen's Architectural Series No. FS2409-6R, semi-recessed breakaway acrylic panel door with lock. 1 hour rated.
   b. 1 hr. fire rated cabinet.

2. Finish: Manufacturer's standard white paint finish.

3. Door Hardware: Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous type hinge permitting door to open 180 degrees.

4. Cabinet Identification: Identify cabinet with 2” die cut lettering in contrasting color, or clear glass panel as approved by the building official.

B. Provide manufacturer's standard bracket designed to prevent accidental dislodgement of extinguisher, of proper size for type and capacity of extinguisher specified, in manufacturer's standard plated finish.

C. Extinguishers

1. Typical extinguishers shall be multi-purpose, dry chemical type with a minimum UL rating of 4A-60 B:C Larsen's Mfg. Co MP10.

2. Extinguisher bodies and valve assemblies shall be all metal construction. Plastic components are NOT acceptable.

D. Fire Department Lock Box: Furnish and install one (1) recessed lock box as manufactured by the Knox Company. Verify type and location with the Fire Department. Order must be accompanied with a signed order form from the Fire Department.

PART 3 - EXECUTION

3.01 Installation

A. Install cabinets and extinguishers in locations and at mounting heights indicated.

B. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

C. Where exact location of semi-recessed cabinets and bracket-mounted fire extinguishers is not indicated, locate as directed by Architect.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 50 00 - LOCKERS

PART 1 - GENERAL

1.01 Section Includes

A. Material and installation of lockers specified here and shown on Plans.

1.02 Submittals

A. Submit the following in accordance with Section 01 33 00:

1. Manufacturer's Literature: Materials description, color chart and installation instructions.

2. Shop Drawings: Show locker layout based on field measurements, elevations and installation details. Numbering of lockers to be determined by Owner at time of Shop Drawings.

1.03 Delivery, Storage and Handling

A. Do not deliver metal lockers until building is enclosed and ready for locker installation. Protect from damage during delivery, handling, storage and installation. Damaged materials, when so determined, shall be immediately removed from the Project site.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Interior Steel Equipment Co.
B. Lyon Metal Products, Inc.
C. Penco Products, Inc.
D. Republic Storage Systems Co., Inc.
E. DeBourgh Mfg. Co.
F. List Industries

2.02 Locker Type

A. Locker Rooms: 12" wide x 12" deep x 72" high two tier street clothes lockers with mini louver full louvered door and enclosed base.

1. Interior of street clothes lockers shall be complete with one hat shelf, three single prong wall hooks and one double prong shelf hook, number plates, equipped for padlock. Panels at all open ends of wall rows or peninsula lockers that are exposed to view.

2.03 Fabrication

A. Lockers shall be manufactured as units, each to have its own door and frame. Fabricate lockers in sizes and arrangements shown.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.03 Fabrication (continued)

B. Door frame members shall be channel shaped of not less than 16 gauge steel. Corners shall be tenoned and electrically welded, making a rigid one-piece structure. Frame construction shall permit full door width entry. Frames shall be punched for attaching to the body on 9" centers.

C. Doors shall be 16-gauge steel suitably flanged: with one right angle bend at top and bottom, and a channel formation at the vertical flanges on the lock and hinge side. Doors 15" wide and wider shall be arc-welded at each corner for added rigidity.

D. Locker sides, backs, shelves and tops shall be of 24 gauge steel with edges suitably formed to provide a rigid assembly when bolted together. Locker bottom shall be of 20 gauge steel. Exposed sides of end

E. For ventilation fabricate doors with four louvers top and bottom (minimum).

F. Hinges shall be welded to frame and bolted to door with two bolts to each hinge. Doors shall have three hinges.

G. Locking device shall permit door to be locked while door is open, then be closed without unlocking. Locking shall be accomplished by means of a spring actuated slide latch, enclosed on four sides by a boxed receptacle in the lock bar, and engaging heavy gauge frame hooks. The lock bar shall be channel formed and tamper-proof. Rubber silencers shall be riveted to frame hooks on door frame. Locking shall be three point.

H. Each locker shall have one (1) at shelf.

I. Hooks shall be attached to locker body with no less than two bolts. Provide one (1) double prong hook and three single prong wall hooks each locker.

J. Provide sloping hoods at locker tops.

K. Provide filler panels, closure strips, and inside corner strips where required, of not less than 18 gauge steel sheet, finished to match locker units for continuous finished appearance.

L. Provide 16 gauge solid end panels at exposed end of locker bays and adjacent to corner fillers and filler panels, in color to match lockers.

M. Finish: All steel parts shall be thoroughly cleaned, given a bonding and rust resisting phosphate treatment, followed by a coat of baked-on enamel applied by electrostatic spray. Two colors will be selected from manufacturer's standard colors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 50 00 - LOCKERS

PART 3 - EXECUTION

3.01 Preparation

A. Field Measurements: Take measurements prior to preparation of shop drawings and fabrication of special components, when possible, to ensure proper fitting of work. However, allow for adjustment and fitting of trim and filler panels wherever taking of field measurements before fabrication might delay work.

3.02 Installation

A. Install lockers at the locations shown in accordance with the manufacturer's instructions, anchoring securely to supporting construction.

B. Adjust doors and locking devices for proper operation. Instruct Owner's personnel in proper operation and maintenance of lockers.

3.03 Cleaning

A. Touch-up marred finishes of new lockers, but replace units which cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 80 00 - TOILET ACCESSORIES

PART 1 - GENERAL

1.01 Section Includes:

A. Toilet and shower accessories.

1.02 Related Sections

A. Section 06 20 00 - Finish Carpentry

1.03 Quality Assurance

A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other Work to avoid delay.

B. Accessory Locations: Coordinate accessory locations with other Work to avoid interference and to assure proper operation and servicing of accessory units.

1.03 Submittals

A. Product Data: Submit manufacturer's technical data and installation instructions for each toilet accessory.

B. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other Work.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Toilet Accessories:

1. Bobrick Washroom Equipment, Inc.
2. Bradley Corporation
3. American Specialties, Inc.
4. General Accessory Mfg. Co.
5. Basco Incorporated

2.03 Fabrication

A. Fabricate toilet accessories of Type 302 or 304 stainless steel, satin finish, unless otherwise specified or approved.

B. Omit manufacturer's labels and imprinted names.

C. Provide accessories produced by one manufacturer unless otherwise specified, or approved.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.03 Fabrication (continued)

D. Furnish fastening devices, including screws, bolts, anchors, and backplates. Match exposed portions of fastening devices with that of accessories.

2.04 Toilet Accessories

A. Paper Towel Dispensers: At public toilets Bobrick B-262. Surface Mounted Towel Dispensers: Fabricate of stainless steel with hinged front equipped with tumbler lockset. Provide pierced slots at sides as refill indicator. Capacity: Not less than 400 C-fold or 525 multi-fold paper towels without need for special adaptors.

B. Provide the following for each bathroom: (numbers by Bobrick)

Two (2) 24" towel bars (use 1" diameter grab bars)
One (1) toilet tissue holder B7685 surface mount
Provide ¼" plate glass mirror (frameless) and hardware mounting over vanity - See Drawings for sizes.

C. Grab bars:

1. At each water closet and each bath tub or shower stall, add the following 1-1/2" diameter grab bars with anti-slip surface, powder coat paint to match color of walls by TSM (see Plans for size and location).
2. At public toilets – 1½" diameter (see Plans for size and location): Anti-slip surface, powder coat paint by TSM.

D. Shower rod: B6107 chrome. Verify height.

E. Soap dispenser at public toilets – B2112.

F. Shower doors at Guest Room(s)

1. Provide custom made 3/8" clear tempered glass frameless sliding door, brushed nickel hardware finish with horizontal bar.

PART 3 - EXECUTION

3.01 Installation

A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners, which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.

B. Secure mirrors to walls in tamper-proof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated in accordance with manufacturer's instructions for type of substrate involved.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 10 80 00 - TOILET ACCESSORIES

3.02 Adjusting and Cleaning

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.

3.02 Adjusting and Cleaning (continued)

B. Clean and polish all exposed surfaces after removing labels and protective coatings.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 11 30 00 - RESIDENTIAL KITCHEN EQUIPMENT

PART 1 - GENERAL

1.01 Description of Work

A. Residential kitchen appliances and equipment, washers and dryers, and accessories. Co-ordination of equipment with Mechanical and Electrical Work.

B. Owner desires bid prices for both General Electric and Frigidaire.

1.02 Related Sections

A. Section 11 40 00 - Kitchen Cabinets.

1.03 Submittals

A. Shop Drawings: Submit in accordance with Section 01 33 00.

B. Samples: Submit samples of factory finish to Owner for color selection and appearances acceptance.

1.04 Product Delivery, Storage and Handling

A. Provide suitable packing for all items to prevent damage from handling and from the elements during shipment and storage. Do not deliver until suitable storage space is available at the project site or installation can be made directly upon delivery.

B. Deliver residential equipment to the project site, unload, distribute, uncrate, assemble as required, place in permanent position and connect up.

PART 2 - PRODUCTS

2.01 Standard Appliances

A. Microwave: Over the range Frigidaire MWV150KW

B. Freestanding Range: Frigidaire FFEF3018LW

C. Top Mount Refrigerator: Frigidaire FFHT2021Q

D. Icemaker: Frigidaire IM116000

E. Dishwasher: Frigidaire FFBD2408NW

F. Stacked Washer/Dryer: GE model #GUD27ESSJW

G. Disposals: Frigidaire FFD1501CMS ½ HP corded

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 11 30 00 - RESIDENTIAL KITCHEN EQUIPMENT

2.02 Common Rooms Appliances

A. Drop-in Range: Frigidaire FFED3025PS

B. Broan 4100 Series 2 speed non-ducted range hood.

C. Side-by-Side Refrigerator: Frigidaire FFHS2622MS with icemaker

D. Dishwasher: Frigidaire FDB2410HIC

E. Microwave: Countertop Frigidaire FFCE2278LS

F. Compact Refrigerator: Frigidaire FFPE4522QM

G. Stacked Washer/Dryer: GE model #GUD27ESSJW

H. Guest Room built-in microwave Frigidaire FGM0205K

2.03 Type A Unit Appliances

A. Drop-in Range: Frigidaire GGRF3025zpWW

B. Dishwasher: Frigidaire FDB2410HIS

C. Front Load Electric Dryer: GE GFDN160EJWW

D. Range Hood: Broan 41000 series 2 speed non-ducted – white

E. Front Load Washer: GE GFWN1600JWW

F. Top Mount Refrigerator: Frigidaire FFHT1821TW

G. Microwave: Countertop Frigidaire FFCE1638LW

2.04 Washers and Dryers Upgrade

A. Front Load Washer: Frigidaire FFFW5000QW

B. Front Load Dryer: Frigidaire FFQE5000QW

2.05 Refrigerators Upgrade

A. FFHS2622MB
Frigidaire 25.6 Cu. Ft. Side-by-Side Refrigerator

B. FFHS2622MW
Frigidaire 25.6 Cu. Ft. Side-by-Side Refrigerator

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.05 Refrigerators Upgrade (continued)

C. FFHB2740PE
Frigidaire 27.2 Cu. Ft. French Door Refrigerator

D. FFHB2740PP
Frigidaire 27.2 Cu. Ft. French Door Refrigerator

E. FFHI2131QS
Frigidaire 20.5 Cu. Ft. Top Freezer Refrigerator

F. FFHB2740PS
Frigidaire 27.2 Cu. Ft. French Door Refrigerator

G. FFHS2622MS
Frigidaire 25.6 Cu. Ft. Side-by-Side Refrigerator

H. FGHI2164QF
Frigidaire Gallery Custom-Flex Cu. Ft. Top Freezer Refrigerator

I. FGHB2866PF
Frigidaire Gallery 27.2 Cu. Ft. French Door Refrigerator

J. FGHS2631PF
Frigidaire Gallery 25.6 Cu. Ft. Side-by-Side Refrigerator

2.06 Microwave Upgrade

A. FGMV153CLB
Frigidaire Gallery 1.5 Cu. Ft. Over-The-Range Microwave with Convection

B. FGMV153CLW
Frigidaire Gallery 1.5 Cu. Ft. Over-The-Range Microwave with Convection

C. FFMV164LS
Frigidaire 1.6 Cu. Ft. Over-The-Range Microwave

D. FFMV154CLS
Frigidaire 1.5 Cu. Ft. Over-The-Range Microwave

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.06 Microwave Upgrade (continued)

E. FGMV175QF
Frigidaire Gallery 1.7 Cu. Ft. Over-The-Range Microwave

F. FGMV154CLF
Frigidaire Gallery 1.5 Cu. Ft. Over-The-Range Microwave with Convection

2.07 Dishwasher Upgrade

A. FGBD2445NB
Frigidaire Gallery 24" Built-In Dishwasher

B. FGBD2445NW
Frigidaire Gallery 24" Built-In Dishwasher

C. FFID2423RS
Frigidaire 24" Built-In Dishwasher

D. FGID2474QF
Frigidaire Gallery 24" Built-In Dishwasher

E. SHE53TL6UC
Bosch 24" Recessed Handle Dishwasher

2.08 Electric Range Upgrade

A. FFEF3048LS
Frigidaire 30" Freestanding Electric Range

B. FGEF3035RF
Frigidaire Gallery 30" Freestanding Electric Range

2.09 Exterior Natural Gas Grill

A. Heritage Series WNK Patio Post Mount Gas BBQ Grill, or approved equal.

B. 40,000 BTU, CSA certified, electronic ignition system.

C. Full length grill cover.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 11 30 00 - RESIDENTIAL KITCHEN EQUIPMENT

PART 3 - EXECUTION

3.01 Installation

A. Install residential equipment appliances, washers and dryers in accordance with reviewed Shop Drawings and manufacturers printed instructions. Adjust operating parts of residential equipment for proper operation.

3.02 Adjusting and Cleaning

A. Adjust equipment to ensure proper working order and conditions.

B. Clean up and remove all rubbish from the job site.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 11 40 00 - KITCHEN CABINETS

PART 1 - GENERAL

1.01 Work Includes

A. Pre-finished wall and base kitchen cabinets, island cabinets, pantry cabinets.

B. Bath vanities, linen cabinets.

C. Kitchen plastic laminate countertops, and backsplashes.

D. Hardware and accessories.

E. Great Room kitchen.

1.02 Related Sections

A. Section 11 30 00 - Residential Kitchen Equipment

B. Division 22 00 00 - Kitchen Sinks

1.03 Submittals

A. Shop Drawings: Submit in accordance with Section 01 33 00.

B. Samples: Submit samples of finish for color and pattern selection and appearance acceptance.

1.04 Applicable Standards

A. Comply with NKCA recommended minimum construction and performance standards of National Kitchen Cabinet Association.

B. Kitchen cabinets shall have labels indicating manufacturer's name and symbol, and as complying with ANSI 161.1 recommended minimum construction and performance standards for kitchen cabinets.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Smart SC100 Dover Oak with standard finishes. Raised panel “Oxford” oak with standard finishes at public spaces. Mid-Continent Cabinets are an approved equal.

B. Waypoint Cabinets (White Finish) – in the Great Room

2.02 Materials

A. Wall Cabinets: Nominal 12" deep, width and height as indicated.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Materials (continued)

B. Base Cabinets: Nominal 24" deep and 36" high to top of counter, unless indicated otherwise, width as indicated. Blind corner base cabinets.

C. Shelves: Nominal full depth for wall and 21" manufacturer's standard depth for base cabinets, including corners.

D. Provide drawer stops that will allow drawer to be removed but prevent accidental pull-outs.

E. Drawers: Nominal full depth for base cabinets. All drawers shall have two standard side mount drawer slides.

F. Cabinet design: Square picture frame with oak plywood panel doors and beveled drawers, with self-closing hinges or catches. All exposed surfaces and face frames in prefinished oak.

G. Extended stiles, fillers and blocking: Furnish as required to match cabinets. Toe spaces shall be finished to match cabinets. Field applied toe kicks.

H. Finish exposed panels to match door panels.

I. Sink Cabinets: Back panels and bottoms are required.

J. Finish, exposed wood: Manufacturer's standard prefinished transparent stain, plastic laminate or polyester.

K. Hardware: Furnish and install manufacturer's standard hardware required for proper operation and fastening of moveable parts.

L. Tops – post formed type with 1/16" premium plastic laminate (NEMA-LDI Class I) surface.

M. Provide continuous tops for counter type cabinets without joints in straight top section 12' long or less. Provide edge at exposed sides of countertop, backsplash and end splash where shown.

N. Top material shall be securely bonded to 3/4" plywood or other equivalent material.

O. Granite or Quartz Tops – 3 cm thick with eased edge, 1/8” radius top and bottom. Color to be selected by Owner with a square foot price of $35.00 for materials only.

P. Provide for drop in type lavatories and sinks.

Q. Provide crown moulding at top of wall cabinets.

R. Provide two (2) roll out shelves at bottom of pantry cabinets.

2.02 Materials (continued)

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

S. All laminated plastic overhangs to have radius corners. Verify radius with Architect.

T. Provide for drop-in type lavatories and sinks.

PART 3 - EXECUTION

3.01 Cabinet Fabrication

A. Shop assemble cabinet units as large as can be delivered into the area of installation. Provide shop prepared attachment devices for the necessary field connections. Finish interior of cabinets with vinyl type sealer. Assemble face frames into rigid unit with no face nailing. Provide steel corner braces in each base cabinet.

B. Protect finished surfaces with heavy-duty canvas or polyethylene sheets. Secure loose components, such as adjustable shelving and sliding and hinged elements from damage during delivery.

3.02 Installation

A. Install prefinished cabinets as indicated, in accordance with reviewed Shop Drawings and manufacturer's printed instructions.

B. Cabinets shall be protected against dampness during and after delivery. Store in well ventilated area of the building and where not exposed to extreme changes in temperature and/or humidity.

C. Install units plumb, level, true and straight with no distortions. Shim as required using concealed shims. Secure to grounds, stripping and blocking with countersunk concealed fasteners and blind nailing as required. Scribe and fit for accurate fit to other finished Work.

D. Verify cutout size required for sinks furnished in Division 22 00 00 Plumbing and coordinate as required.

E. After completion of cabinet work, clean exposed exterior and interior surfaces, touch up finish as required, remove and refinish damages or soiled areas of finish, adjust and lubricate hardware for proper operation and repair damaged or defective Work as directed.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 11 82 00 - WASTE CHUTES

PART 1 - GENERAL

1.01 Work Included

A. Aluminized steel rubbish chute and accessories. Intake door at all floors.

1.02 Related Work

A. Water piping, valves and connection - Division 22 00 00.

1.03 Submittals

A. Shop Drawings - submit in accordance with Section 01 33 00 including anchorage details.

B. Manufacturer's Data - submit manufacturer's Specifications and operation instructions for trash compactor and accessories.

PART 2 - PRODUCTS

2.01 Rubbish Chute

A. Type and manufacturer - 24" diameter 16 ga. aluminized steel rubbish chute by Wilkinson Chutes, Valient Chutes, Midland Metalcraft, or comparable chutes.

B. Intakes: 15" x 18" stainless steel, self-closing, bottom hinges, hand operated hopper type doors, 1-1/2 hr. 'B' label, with "Rubbish" embossed frame.

C. Discharge - open end with 24" Type A normally open included rolling door with fusible link hold open. Coordinate height with dumpster.

D. Vent - Full diameter chute to extend through roof to metal top vent cap 4'-0" above roof complete with flashing and saddle.

E. Accessories - Flushing spray head and sprinkler head above top intake, additional sprinkler heads at every second intake.

F. Disinfecting and Sanitizing Unit - Mount on top floor with flushing spray head in chute. Unit shall be complete with one gallon polyethylene container proportioning valve, wall mounting bracket and piping into chute, ready to receive final hot water connection, vacuum breaker and shut-off valve and drain by Mechanical.

G. Access Door - provide 15" x 16" 'B' label access door at shaft wall at top floor for access to flushing spray head.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 11 82 00 - WASTE CHUTES

PART 3 - EXECUTION

3.01 Installation

A. Install rubbish chute and accessories, in accordance with reviewed shop drawings and manufacturer's printed instructions.

B. Assemble waste handling equipment and accessories in place, align and securely attach to supporting structure.

C. Adjust and lubricate operating parts to proper operation as recommended by manufacturer.

D. Instruct Owner's personnel in proper use, operation and maintenance of equipment.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 12 20 00 - VERTICAL AND HORIZONTAL BLINDS

PART 1 - GENERAL

1.01 Description of Work

A. Complete installation of all horizontal blind assemblies at all windows and vertical blinds at patio doors as shown on the drawings.

1.02 Related Work

A. Section 06 10 00 - Rough Carpentry

1.03 Submittals

A. Refer to Section 01 33 00 for required Shop Drawings.

1.04 Product Delivery

A. Do not deliver window treatment until building is enclosed and ready for installation.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers:

A. Levolor

B. Bali

C. Graber

D. Hunter Douglas

E. A Better Blind

2.02 Materials

A. Vertical blinds for reference purposes only, products manufactured by Levolor Corporation are referred to herein unless otherwise noted.

1. Headrail: 3½" headrail system. Extruded aluminum alloy with clean anodized finish.
2. Carriers: Plastic two wheels of self-lubricating, mounted on individual plastic axles.
3. Vane Hooks: Clear, high, ultra-violet resistant polycarbonate, field replaceable while headrail is installed.
4. Tilting Control: Vanes shall be self-aligning with one full cycle of control chain.
5. Traversing Control; Cord loop traveling along smooth surfaces and silently around plastic pulleys on steel axles.
6. Cord Weight: Readily removable without detaching cord from headrail.
7. Installation Brackets: Spring-tempered steel to positively engage rails at top of headrail.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.02 Materials (continued)

8. Vanes: 3½" wide, PVC blinds. Vanes shall be selected from sampler.
9. Operation: Vanes shall stack one-way draw. Track shall have a stack release lever to allow all vanes to be moved aside for easy window openings.
10. Valance to match vanes.

B. Prefinished 2" faux wood horizontal blinds at windows by Hunter Douglas, Levelor, Bali or Graber. Furnish with headrail, bottom rail, tilting mechanism and installation brackets.

C. Blinds shall be flush mounted between jambs in window or patio door openings.

PART 3 - EXECUTION

3.01 Examination

A. Verify that openings are ready to receive the Work.

B. Inspect project prior to installation of gypsum wallboard and verify location and adequacy of blocking and backing material.

3.02 Installation

A. Install blinds in accordance with manufacturer's installation procedures.

B. Install intermediate support brackets and extension brackets. Furnish additional anchors and brackets as recommended by manufacturer.

C. Install blinds with adequate clearance to permit smooth operation of blinds and any sash operators.

3.03 Cleaning

A. Clean soiled blind surfaces with a mild soap solution. To ensure proper drying, proved adequate ventilation for blinds.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 14 20 00 - ELEVATOR

PART 1 - GENERAL

1.01 Description of Work

A. This Specification is intended to cover the complete furnishing and installing of one (1) oil hydraulic passenger elevator as manufactured by Minnesota Elevator, Inc. Similar elevators by Shindler Elevator Corp., Thyssenkrupp Elevator, Otis LVM 4500, Schumacher Elevator are approved equal.

B. All Work shall be performed in a workmanlike manner and is to include all Work and material in accordance with the Drawings and as specified herein. In all cases where a device or part of the equipment is herein referred to in the singular number, it is intended that such reference shall apply to as many such devices as are required to complete the installation.

1.02 Related Work

1. Section 03 30 00 - Cast-in-Place Concrete
2. Section 03 40 00 - Precast Concrete
3. Section 04 20 00 - Unit Masonry
4. Section 05 50 00 - Metal Fabrications
5. Division 26 00 00 - Electrical

1.03 Work Furnished by Other Sections - to complete this installation, the following items must be performed or furnished by other than the elevator contractor in accordance with governing codes:

A. A properly framed and enclosed legal hoistway.

B. Suitable machine room with legal access and ventilation, with concrete floor. Temperature in machine room to be maintained between 55 degrees F. and 85 degrees F. Machine room door to be self-closing and have self-latching lock.

C. Installation of rail bracket supports, bracket spacing as required by governing code. Separator beams where required.

D. Dry pit reinforced to sustain normal vertical forces from rails and impact loads from buffer and cylinder.

E. Adequate support for sill angle across full width of hoistway at each landing. Vertical surfaces of entrance sill supports to be plumb, one above the other, and square with the hoistway. Finished floor and grout, if required, between door frames to sill line.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.03 Work Finished by Other Sections (continued)

F. Hoistway walls are to be designed and constructed in accordance with the required fire rating including where penetrated by elevator fixture boxes and to include adequate fastening to hoistway entrance assemblies. Front entrance walls are not be constructed until after door frames and sills are in place.

G. Any cutting, including cutouts to accommodate hall signal fixtures, patching and painting of walls, floors or partitions together with finish painting of entrance doors and frames.

H. Mechanical requirements - machine room venting.

I. Electrical requirements as follows:

1. All electric power for light, tools, hoists, etc., during erection as well as electric current for starting, testing, and adjusting the elevator.

2. A fused disconnect switch or circuit breaker for each elevator per the National Electrical Code with feeder or branch wiring to controller. Size to suit elevator contractor.

3. A 120 volt, AC, 20 amp, single phase power supply with fused SPST disconnect switch for each elevator, with feeder wiring to each controller for car lights.

4. Suitable light and convenience outlets in machine room with light switches located within 18" of lock jamb side of machine room door. Illumination shall not be less than 10 foot candles at floor level.

5. GFI convenience outlet and light fixture in pit with switch located adjacent to the access door.

J. Guarding and protecting the hoistway during construction. The protection of the hoistway shall include solid panels surrounding each hoistway opening at each floor, a minimum of 48" high. Hoistway guards to be erected, maintained and removed by others.

K. Removal of the excavation spoils deposited at the pit shall not be the responsibility of the elevator contractor.

L. To provide means of access to and egress from location of cylinder well for truck mounted drilling equipment.

1.04 Quality Assurance

A. All Work shall be performed in accordance with the latest revised edition (as of the date bids are taken) of the American National Standard Safety Code for Elevators, Escalators, (ANSI A-17), the National Electrical Code and/or such State and Local Codes as may be applicable.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 14 20 00 - ELEVATOR

1.05 Submittals

A. Shop Drawings: The Elevator Contractor shall prepare Drawings showing the general arrangement of the elevator equipment and cab. These Drawings shall be approved and the hoistway size guaranteed before proceeding with fabrication and installation of the elevator.

1.06 Permits, Taxes and Licenses

A. All applicable sales and use taxes, permit fees and licenses, of the date bids are taken, shall be paid for the Elevator Contractor.

1.07 Guarantee

A. The elevator contractor shall guarantee the materials and workmanship of the apparatus furnished by him under these Specifications and he will make good any defects not due to ordinary wear and tear or improper use or carelessness which may develop within one (1) year from date of completion of each elevator.

1.08 Maintenance

A. A quality maintenance service consisting of regular examination, adjustments, and lubrication of the elevator equipment shall be provided by the elevator contractor for a period of three (3) months after the elevator has been turned over for the customer's use.

B. All work shall be performed by competent employees during regular working hours of regular working days and shall include emergency 24 hrs. call-back service. This service shall not cover adjustments, repairs or replacement of parts due to negligence, misuse, abuse, or accidents caused by persons other than the elevator contractor.

C. Only genuine parts and supplies as used in the manufacture and installation of the original equipment shall be provided.

D. Continuing Maintenance: The elevator contractor shall submit a separate full maintenance proposal for the ongoing maintenance of the elevator.

1. Terms and Conditions: The proposal shall be based on monthly examinations and annual no-load tests included. The proposal shall be for 5 year 24/7 maintenance agreement covering parts and labor.

2. Owner's Rights: The Owner reserves the right to evaluate bids on the basis of this information and shall solely determine the weight placed on these provisions in his decision.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 14 20 00 - ELEVATOR

1.09 Job Conditions

A. The elevator contractor shall be reimbursed for any labor and material which is not part of the permanent elevator installation and which is required to provide temporary elevator service. In addition, the elevator contractor's temporary acceptance form shall be executed before any elevator is placed in temporary service, and the cost of power and operation, maintenance of the equipment and rehabilitation of equipment shall be paid for by others.

PART 2 - PRODUCTS

2.01 Materials

A. Description of equipment: Two (2) Oil Hydraulic Passenger Elevators.

1. Control:	Across the line
2. Capacity:	4,000 lbs.
3. Speed:	100 F.P.M. up 100 F.P.M. down
4. Operation:	Selective Collective
5. Car Size:	Per manufacturer
6. Travel:	See Plans
7. Power Supply	208 volt three phase 60 cycle (verify with local power company)
8. Machine Location:	As shown on Drawings
9. Stops:	Four
10. Openings:	Four
11. Hoistway Doors:	3'-6" x 7'-0" two speed, single slide operation (Size and Type)
12. Door Operation:	Automatic, D.C. Powered
13. Car Enclosure:	Laminate plastic with suspended ceilings, carpeted floor
14. Signals:	Illuminated landing buttons

15. Special Features:
    a. Two way communication telephone instrument in car with automatic dialer at phone panel.
    b. Dual photo cell car door protection.
    c. Emergency cab lighting and alarm.
    d. Braille plates, main floor designated by a star symbol.
    e. Audible signal.
    f. Locate all fixtures for handicapped usage.
    g. Exhaust fan.
    h. Pictorial sign posted at each elevator call station indicating that in case of fire, elevators are out of service – use exit.
    i. Stainless handrails on sides and rear of car.
    j. Matrix style elevator eyes.
    k. Move in pads

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

B. Cylinder and Plunger (jack unit)

1. The cylinder shall be constructed of steel pipe of sufficient thickness and suitable for the operating pressure per current ANSI Code. The top of the cylinder shall be equipped with a cylinder head with drip ring and self adjusting packing.

2. The plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. The plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder.

3. The plunger and cylinder shall be installed plumb and must operate freely with minimum friction.

C. Well for Cylinder - The well for the cylinder including a casing, if necessary, shall be sunk into the ground.

D. Pumping Unit - The pumping unit shall be in integral design and shall include an electric motor connected to a pump, a hydraulic control system, storage tank, necessary piping connections, and a controller, all compactly designed.

E. Pump - The pump shall be a positive displacement screw type to give smooth operation and shall be especially designed and manufactured for elevator service.

F. Motor - The motor shall be of the alternating current, poly-phase squirrel cage induction type and shall be of a design especially adapted to electro-hydraulic requirements. Motor shall be self-starter.

G. Storage Tank - The storage tank shall be constructed of 10 gauge steel and shall be provided with a removable cover containing a removable oil dip stick. The pump and submersible motor shall be mounted on a special reinforced isolation mount in the bottom of the tank. The control valve shall be mounted in the discharge line above the oil level and easily accessible from the top of the tank. An initial supply of oil sufficient for proper operation shall be provided.

H. Piping - Pipe of adequate size and thickness shall be installed between the pumping unit and the cylinder head. A shut-off valve shall be provided in the machine room for maintenance and adjusting purposes.

J. Pit Switch, Receptacle, Pit Ladder - An emergency stop switch and duplex GFI receptacle with weatherproof cover shall be located in the pit. This Contractor to provide pit ladder as required by Code.

K. Platform - The car platform shall be of steel construction with a plywood subflooring and aluminum sill.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

L. Carframe - A suitable carframe fabricated from formed or structural steel members shall be provided with adequate bracing to support the platform and car enclosure. The buffer striking plate on the underside of the carframe plank members must fully compress the spring buffer mounted in the pit before the plunger reaches its down limit of travel. Roller guides shall be mounted on top and bottom of the carframe to engage the guide rails.

M. Guides and Rail Anchorage Brackets - Steel elevator guide rails shall be furnished to guide the car, erected plumb and securely fastened to the building structure. Provide anchorage brackets to be installed by Mason.

N. Door Operation

1. Doors on the car and at the hoistway entrances shall be power operated by means of a direct current operator mounted on top of the car. The motor shall have positive control over door movement for smooth operation. Each car door shall have a safety shoe to cause instant reopening should contact be made with an obstruction during the closing cycle.

2. Door operation shall be automatic at each landing with door opening being initiated as the car arrives at the landing and closing taking place after expiration of a time interval. A car door electric contact shall prevent starting the elevator away from the landing unless the car door is in the closed position.

3. Door close shall be arranged to start, within a time consistent with handicapped requirements, from notification that a car is answering a hall call.

4. Doors shall be arranged to remain open for a time period sufficient to meet handicapped requirements.

5. The time interval for which the elevator doors remain open when a car stops at a landing shall be independently adjustable for response to car calls and response to hall calls.

6. An approved positive interlock shall be provided for each hoistway entrance which shall prevent operation of the elevator unless all doors for that elevator are closed and shall maintain the doors in their closed position while the elevator is away from the landing. Emergency access to the hoistway as required by governing codes shall be provided.

O. Light Ray Device - A two beam light ray device shall be provided in the elevator car entrance, in addition to the retractable safety shoe, which when interrupted shall cause the closing doors to stop and reopen.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

P. Wiring - All wiring and electrical interconnections shall comply with the governing codes. Insulated wiring shall have flame retardant and moisture-proof outer covering, and shall be run in conduit tubing or electrical wireways. Traveling cables shall be flexible and suitable suspended to relieve strain on individual conductors.

Q. Hydraulic Control System

1. The hydraulic control system shall be of compact design suitable for the operation under the required pressures and it shall be mounted in the storage tank. The control valve shall be manifold with up, down, and check valve sections. A control section including solenoid valves will direct the main valve and control up and down starting, transition from full speed to leveling speed, up and down stops, pressure relief and manual lowering. Down speed and up and down leveling shall be controlled at the main valve sections. All of these functions shall be fully adjustable for maximum smoothness and to meet contract conditions. All control systems shall be pre-adjusted at the factory.

2. The manual lowering feature shall permit lowering the elevator at slow speed in the event failure or for adjusting purposes.

R. Leveling Device - The elevator shall be provided with an automatic leveling device which will bring the car to a stop within ¼" of the landing level regardless of load or direction of travel. Landing level will be maintained within the leveling zone irrespective of the hoistway doors being open or closed.

S. Controller - A relay logic or microprocessor controller shall be provided including necessary starting switches of adequate size together with all relays, switches and hardware required to accomplish the operation specified. A three-phase overload device shall be provided to protect the motor against overloading.

T. Car Stall Protective Circuit - A protective circuit shall be provided which will stop the motor and the pump, and return the car to its lowest landing in the event that the car, while traveling up, does not reach its designated landing within a predetermined time interval. This circuit shall permit a normal exit from the car but prevent further operation of the elevator until the trouble has been corrected.

U. Operation - One Car - Operation shall be automatic by means of the car and landing buttons. Stops registered by the momentary actuation of the car or landing buttons shall be made in the order in which the landings are reached in each direction of travel after the buttons have been actuated. All stops shall be subject to the respective car or landing button being actuated sufficiently in advance of the arrival of the car at the landing to enable the stop to be made. The direction of travel for an idle car shall be established by the first car or landing button actuated.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

V. Emergency Car Lighting - An emergency power unit employing a 6 volt sealed rechargeable battery and totally static circuits shall be provided that shall illuminate the elevator car and provide current to the alarm bell in the event of normal power failure. The equipment shall comply with the requirements of the ANSI Code. This unit shall be an integral part of the car operating panel. A separate branch circuit shall supply the car lights for each elevator.

W. Applied Car Operating Panel - An applied car operating panel shall be furnished. Cabinet will contain a bank of mechanical illuminated buttons marked to correspond to the landings served, an emergency stop button, door open and door close buttons. The emergency call button shall be connected to a bell that serves as an emergency signal. Switches for lights and fan shall also be located in the car operating panel. Locable single disconnecting means shall be located in Elevator Equipment Room.

X. Handicapped Markings - Special markings shall be furnished for car buttons, car controls and hoistway door jambs in compliance with NEII Handicapped Requirements.

Y. Telephone Compartment - A telephone compartment and telephone instrument within the car for communicating or signaling to an accessible point outside the hoistway or central 24 hr. exchange system. Necessary wires shall be included in the car traveling cable.

Z. Audible Signal (to indicate stopping at a floor) - An audible signal shall sound in the car to tell a passenger that the car is stopping at the floor served by the elevator.

1. Exhaust Fan - A single speed exhaust fan shall be installed subject to a key switch in the car operating panel.

2. Hall Button

   a. At each terminal landing a single push button shall be provided.

   b. When a call is registered by momentary pressure on a landing button, that button shall become illuminated and remain illuminated until the call is answered.

3. Zoned Hoistway Access Keyswitch - A keyswitch shall be provided at bottom terminal landing and at top terminal landing, which shall allow limited car operation while car and hoistway doors are opened.

2.02 Fire Fighters Service

A. Elevators having a travel distance of 25 ft. or more above or below the designated level shall conform to ANSI Standard Rule 211.3 Phase 1 Emergency Recall Operation and Phase II Emergency In-Car Operation.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 14 20 00 - ELEVATOR

PART 3 - EXECUTION

3.01 Inspection

A. Prior to beginning the installation of elevator equipment, examine the following and verify that no irregularities exist that would affect quality of execution of Work as specified.

1. Hoistway size and plumbness
2. Sill pockets
3. Sill supports

B. Do not proceed with installation until previous Work conforms to project requirements.

3.02 Installation

A. Install the elevator in accordance with accepted manufacturer's directions and ANSI A-17.1.

B. Install machine room equipment with clearance, hoists or other means for each maintenance.

C. Install items so that they may be removed by portable hoists or other means for easy maintenance.

3.03 Field Quality Control

A. Provide all personnel, equipment and instruments required for inspection and testing.

B. Have acceptance inspection, required by local authority, performed by enforcing agency.

3.04 Adjust and Clean

A. Adjustments:

1. Adjust brackets, controllers, leveling switches, generators, limit switches, stopping switches and safety governors to operate to within accepted design tolerances.
2. Adjust car leveling devices so car stops with ¼" of finished floor.
3. Lubricate all equipment in accordance with accepted manufacturer's instructions.

B. Clean Up:

1. Remove from hoistway surfaces all loose materials and filings resulting from this Work.
2. Clean machine room floor of dirt, oil and grease.
3. Remove crating and packing materials from premises.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

MECHANICAL SPECIFICATIONS
ELECTRICAL SPECIFICATIONS

FOR:

VINTAGE COOPERATIVE OF
IOWA CITY
IOWA CITY, IA

ARCHITECTS

JSSH ARCHITECTS, INC
14525 HIGHWAY 7, SUITE 375
MINNETONKA, MN 55345
(952) 935-6337

ENGINEERS

STEEN ENGINEERING, INC.
5430 DOUGLAS DRIVE NORTH
CRYSTAL, MN 55429
(763) 585-6742

Date: September 27, 2017
CD Set

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Mark R. Brengman — Registration No. 14346

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Steven M. Youngs — Registration No. 13139

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

MECHANICAL SPECIFICATION INDEX

FIRE SPECIFICATIONS

SECTION 21 00 10	GENERAL CONDITIONS
SECTION 21 10 00	FIRE SPRINKLER (PERFORMANCE BASED)

PLUMBING SPECIFICATIONS

SECTION 22 00 10	GENERAL CONDITIONS
SECTION 22 00 50	BASIC MATERIALS AND METHODS
SECTION 22 05 00	TESTING AND BALANCING
SECTION 22 05 29	SUPPORTS AND ANCHORS
SECITON 22 07 00	INSULATION
SECTION 22 10 00	PIPING MATERIALS AND METHODS
SECTION 22 30 00	PLUMBING SPECIALTIES
SECTION 22 40 00	PLUMBING FIXTURES

HVAC SPECIFICATIONS

SECTION 23 00 10	GENERAL CONDITIONS
SECTION 23 00 50	BASIC MATERIALS AND METHODS
SECTION 23 05 00	TESTING AND BALANCING
SECTION 23 05 29	SUPPORTS AND ANCHORS
SECTION 23 05 50	VIBRATION ISOLATORS
SECTION 23 07 00	INSULATION
SECTION 23 08 00	PIPING MATERIALS AND METHODS
SECTION 23 09 00	AUTOMATIC TEMPERATURE CONTROL
SECTION 23 30 00	DUCTWORK MATERIALS AND METHODS
SECTION 23 80 00	HEATING, VENTILATING AND AIR CONDITIONING
SECTION 23 82 00	ELECTRIC SPACE HEATING EQUIPMENT

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. General and Supplementary conditions within Division 0 and 1 are hereby incorporated and become part of these Specifications, covering all work in Mechanical Division.

B. Before submitting a proposal on the project, the Contractor shall visit the site and familiarize themselves with the conditions and limitations affecting Mechanical Division work. No additional costs to the Owner shall be allowed for items verifiable during site visits.

C. Contractor shall provide sufficient workers and materials to keep pace with the construction schedule. Contractor shall place orders for equipment such that job progress is not slowed due to late delivery and shall confirm delivery dates with suppliers.

D. The Contractor shall provide office space and storage for materials and equipment supplied as required. Location shall be as directed by the General Contractor or the Architect/Engineer.

E. Upon completion of the work shown and specified under Mechanical Division and prior to final close out of the Project, the Contractor shall verify in writing that all systems are 100% complete and operating properly. This notification shall include copies of all Subcontractor notifications. Any system not operating properly at final inspection shall be immediately repaired and demonstrated to the Engineer.

F. Rebates or credits provided by utility companies or equipment manufacturers shall be directly credited to the Owner.

1.2 MECHANICAL PLANS

A. The Mechanical Drawings and Specifications shall form a set of Plans for the mechanical work. Neither the Drawings nor the Specifications shall be complete without the other. Any item shown on the Drawings or specified in the Specifications shall be considered as shown and specified on both.

B. Any questions regarding the intent of the Drawings or Specifications shall be brought to the Engineer's attention as soon as possible. If direction from the Engineer cannot be obtained due to time or communication limitations, the greater quantity, higher quality or condition most favorable to the Owner shall be assumed. Contractor shall provide all labor, materials, equipment, and miscellaneous items necessary for a complete and operational mechanical installation, as shown on the Drawings and called for in these Specifications.

C. Drawings:

1. Contractor shall familiarize themselves with Architectural, Structural and Electrical Drawings and Specifications. Coordinate all shafts, chases, furred spaces, suspended ceilings, locations of equipment, etc.
2. Mechanical Contractor shall coordinate routing of all piping and ductwork within soffits provided by the General Contractor. The Mechanical Contractor shall provide all soffiting required to cover installations not coordinated or specifically approved by the Architect and Engineer.
3. Mechanical Drawings are diagrammatic and are intended to show approximate location only. Placement of mechanical equipment and devices shall not interfere with locations or clearances of other trades' materials or equipment.
4. Contractor shall verify locations with architectural elevations.
5. Dimensions given on the Drawings shall take precedence over scaled dimensions. Dimensions, whether given in figures or scaled, shall be verified in the field.
6. Contractor shall verify that the equipment to be furnished under Contract will fit within the available space.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

7. Notify the Architect and Engineer of any discrepancies between Electrical, Architectural and Mechanical Drawings.
8. Verify items such as door swings, window locations, casework, etc., before installing any mechanical equipment or devices. All devices conflicting with other trade's work due to lack of coordination shall be relocated at no additional cost to the Owner.

D. The following terms used in the Drawings and Specifications shall be defined as follows:

1. Contractor: Shall mean Mechanical Contractor or any of their Subcontractors.
2. Work: Shall mean labor and/or materials of the Mechanical Contractor or any of their Subcontractors.
3. Furnish: Shall mean purchase, submit for Engineer approval, coordinate with Contract Documents and deliver to site in new, undamaged condition.
4. Connect: Shall mean to bring mechanical service and/or control wiring to equipment, make all final connections, provide all necessary miscellaneous materials required and do final check out to ensure proper equipment connections.
5. Install: Shall mean to store as directed, protect from damage, set in place, connect, test as required and turn over to the Owner in full operating condition.
6. Provide: Shall mean furnish and install.

E. CAD and Drawing Files:

1. Mechanical CAD drawings prepared by Steen Engineering, Inc. for this Project are instruments of Steen Engineering, Inc. for use solely with respect to this Project. During the course of the implementation of the Project, and with Steen Engineering, Inc. approval, copies may be obtained of CAD drawings for the preparation of Shop Drawings. These CAD drawings shall not be used on other projects, for additions to this Project, or for completion of this Project by others. Any revisions, additions and/or deletions to these CAD drawings, either intentional or unintentional, shall be made at the full risk of the person(s) making such revisions, additions and/or deletions. Such person(s) shall hold harmless and indemnify Steen Engineering, Inc. of any and all responsibilities and liabilities.
2. CAD drawings files of Architectural floor plans, elevations, sections, etc, shall be requested directly from the Architect.

1.3 COORDINATION OF DRAWINGS

A. For typical or repetitive unit installations, contractor shall schedule an inspection with local and/or state AHJ to review a complete mock-up example installation and receive approval prior to proceeding with additional installations. Installation shall meet all code and manufacturer's service clearance requirements. Contractor shall coordinate installation and subsequent inspection with general contractor and any related trades.

B. Contractor shall submit a ¼-inch scale drawing to the Engineer indicating placement of all mechanical and electrical systems and equipment. Indicate proposed locations of all major equipment and materials, including but not limited to service equipment, exterior wall and foundation penetrations, fire-rated wall and floor penetrations, sizes and location of required concrete pads and bases, and mechanical/electrical equipment room layouts. This effort will require each trade to closely work together to produce a ¼-inch set of coordination drawings for each area of the building.

C. Coordinate scheduling and sequencing required for movement and positioning of large equipment into the building with all other Contractors to minimize impact on their work.

D. This Contractor shall provide any and all input required to complete these drawings.

1.4 MATERIALS AND EQUIPMENT

A. Materials:

1. All materials shall be new and of the type and quality specified herein.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2. Specific materials and equipment specified is intended to establish a minimum standard of required quality. Where specified materials and equipment fail to meet minimum standards of existing federal, state and local codes and ordinances, the governing codes and ordinances shall prevail.
3. The Contractor shall provide all minor miscellaneous materials necessary for the complete mechanical installation.
4. For materials and equipment specified by description only, the Contractor shall provide materials or equipment suitable for the purpose intended. These shall be in conformance with all governing codes, these Specifications and normal trade practice.
5. Supply materials and equipment to the site in original packages, containers or crates insofar as is practical. It shall be the Contractor's responsibility to schedule deliveries in accordance with the overall Project schedule. The Contractor shall closely coordinate all deliveries with other Contractors and the Engineer.
6. Provide for proper receipt, handling, storage, and protection from the elements for all materials and equipment to be used on this Project so as to effectively prevent damage or deterioration. Materials or equipment sustaining damage or undue deterioration from any cause whatsoever shall be replaced or repaired by Contractor as required by the Engineer.
7. The Contractor shall properly protect all equipment from damage during construction. Thoroughly clean all fixtures, equipment and other supplied materials. Make all necessary repairs and apply touch up paint as required prior to final inspection and contract close out.
8. All materials and equipment shall be listed by Underwriters' Laboratories, Inc. (UL). Materials and Equipment shall meet the UL requirements of each standard in every case where such a standard has been established for that particular type of material. Equipment shall be UL listed as an entire assembly or system.

B. Prior Approvals:

1. All requests for prior approvals must be received by the Engineer at least seven working days prior to bid date. Applications for prior approval shall be considered only from Contractors submitting bids on the Project. Contractors shall determine whether materials receiving prior approval are actually in accordance with details of the Specifications.
2. The Contractor shall be responsible for all deficiencies that may exist from the use of substituted products or equipment, including all additional labor and materials required to complete the work. All dimensions and characteristics of substituted products shall be verified and coordinated with all affected trades and Subcontractors. Any required changes or modifications to the work of any other trade or Subcontractor incurred due to using accepted substituted products shall be coordinated and performed by this Contractor at no additional cost to the Owner.

1.5 SUBMITTALS

A. Submittal and Approvals:
1. Prepare drawings of fire protection systems indicating pipe sizes, pipe locations, head layouts and type, fittings, shutoff valves, equipment, fire department connections, etc. The design, hydraulic calculations and subsequent drawings shall reflect all modifications and extensions to existing piping equipment and head layout. Indicate elevations, slopes, floor and wall penetrations, drains, etc.
2. Submit to all Agencies having jurisdiction for approval. Submit to Owner insurance carrier for approval if required. After the documents have been approved by all reviewing agencies, submit the approved copies bearing stamps and/or signatures of Fire Marshal or agency having jurisdiction to the Architect for their use, before proceeding with installation.

1.6 WORKMANSHIP AND CONSTRUCTION PROCEDURES

A. Installation of all materials specified herein shall be performed in a neat and workmanlike manner by workers experienced and skilled in the trade. Only the best quality workmanship will be accepted.

B. The Contractor shall regularly clean their work area of debris. Removal of all Contractor generated debris and rubbish caused by their work shall be at the Contractor's expense.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Contractor shall coordinate with the Owner any interruptions necessary to existing systems prior to shut down.

D. Coordination:

1. Contractor shall give careful consideration to work of other Contractors on the Project and shall organize work as detailed in the Contractor's ¼" coordination drawings so as to not interfere with or delay the work of other trades.
2. This Contractor shall provide a complete installation manual to the Electrical Contractor for each piece of equipment requiring electrical power/control connections scheduled to be performed by the Electrical contractor. This shall be done prior to any rough-ins by the Electrical Contractor to insure proper power/control wiring has been provided. Notify the Engineer of any discrepancies between the installation manuals, the electrical plans and the mechanical specifications for each piece of equipment.
3. Contractor shall consult all Architectural, Structural and Electrical Drawings and Specifications that apply for correlating information.
4. Conflicts or interference with work of other trades shall be brought to the attention of the Engineer, in writing, before installation.
5. Should the Mechanical Contractor not follow above procedures and install work that interferes with work of other Contractors, the Mechanical Contractor shall make all necessary changes as directed by Engineer to eliminate the interference or conflict at the Mechanical Contractor's expense.

E. Protection of Equipment:

1. Until final acceptance of the work by the Owner, the Contractor shall be responsible for the safety, good condition, and protection from damage of all materials and equipment installed.
2. If, during shipment or installation, the finish of equipment becomes chipped or scratched, the Contractor shall touch up or refinish surfaces to match original finish.

F. The Contractor shall complete all safety forms required by General Contractor.

1.7 LICENSES, CODES AND FEES

A. The Contractor shall be a licensed Contractor in the State where the project is being constructed. The Contractor shall employ all Licensed Professional Tradesmen required for each type of work covered under these Drawings and Specifications.

B. The Contractor shall procure all necessary certificates and permits and pay all required fees. The Contractor shall pay all fees and installation charges by the utility company for the permanent services.

C. Codes and Ordinances: All work and materials shall meet the requirements of national, state and local codes and ordinances, in every respect. This requirement shall not relieve the Contractor from meeting the requirements of Drawings and Specifications that may be in excess of all codes and ordinances and not contrary to them.

D. Inspections: Regular inspections shall be requested by the Mechanical Contractor to meet all state and local requirements. Contractor shall furnish a certificate of final inspection and approval from all enforcement agencies to the Owner.

1.8 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall deliver two sets of Operation and Maintenance (O&M) manuals to the Owner prior to final close out. O&M manuals shall consist of approved shop drawings, manufacturer's bulletins, equipment manuals, a list of manufacturers with telephone numbers for all equipment that contains replaceable parts and all other data covering the care, maintenance and operation of each piece of furnished equipment. O&M manuals shall be neatly bound in 3-ring binders, contain an index and section tabs and be labeled with the Project name.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Name, address, and telephone number of each Contractor installing equipment and systems, local representative for each item of equipment and each system. Table of contents shall correspond to the Specifications with the Section tab sheets placed before the respective Shop Drawings and operation and maintenance instructions.

1. Warranties for more than 1 year shall be included in appropriate section.
2. A maintenance and lubrication schedule shall include each motor, function, control location, fuse location, belt sizes type of lubricant, and rate of lubrication in accordance with manufacturer.
3. A filter maintenance schedule shall include filter size and quantity for each unit, located by room number.

1.9 OPERATING INSTRUCTIONS AND TESTING

A. The Contractor shall fully instruct the Owner in the operation of mechanical equipment prior to final close out. Contractor shall provide, without additional expense to Owner, services of competent instructors who will give full instruction in the care, adjustment, operation and maintenance of all mechanical systems provided by this Contractor to Owner's permanent employees. Instructor shall be thoroughly familiar with all parts of the installation that they are to give instructions and shall be trained in operating theory, as well as in practical operation and maintenance work. Factory trained instructors shall be employed wherever they are available. Instruction shall be given during regular work week and at a time just prior to the time the equipment is accepted and turned over to Owner for regular operation.

B. The Contractor or his representative shall provide a minimum of five days instruction period for Owner's personnel.

C. Contractor shall test all equipment installed under this Specification and shall demonstrate its proper operation to the Engineer. No equipment shall be tested or operated for any purpose until it has been fully prepared, connected and made ready for normal operation. Damage to equipment due to improper or ill-timed operation or testing shall be repaired, at Contractor's expense, before final inspection and acceptance.

1.10 WARRANTY

A. The Contractor shall guarantee all materials and equipment to be free of defects that may develop in any part of their work, caused by faulty workmanship, material or equipment failures, for a minimum of one year from the date of final completion of the Project or for as long as normal equipment manufacturer warranties are in effect from the date of final completion of the Project, whichever is later.

B. During the guarantee period, notification by letter, personal contact or telephone conversation of a problem with any mechanical system, shall cause the Contractor to respond within one week, making repairs or corrections as necessary. After all repairs and corrections are complete, the Contractor shall notify the Engineer.

C. During the guarantee period, the Contractor shall agree to provide 24 hour service on call for emergency.

Part 2. – PRODUCTS

N/A

Part 3. - EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. The Contract for the fire protection installation must be a qualified Fire Protection Contractor regularly engaged in the installation of automatic fire sprinkler systems. Provide a fire protection technician certified with the National Institute of Certified Engineering Technicians (NICET level IV), to certify direct and supervise the work or if required by governing authorities, a registered professional engineer.

B. Codes and Standards:

1. NFPA compliance: Install fire protection systems in accordance with the latest edition of the NFPA. Verify with Local Inspector.
2. UL Compliance: Provide fire protection products in accordance with pre approval guide UL standards; provide UL label on each product.
3. Fire Department/Marshal Compliance: Install fire protection systems in accordance with local and/or state regulations of fire department or fire marshal.
4. Latest applicable State and Local Codes.
5. City Water Department Compliance: The water service connection and sprinkler system valve assembly shall comply with all City Water Department Requirements. Contractor shall coordinate with the Civil Engineer and the local utility to provide any post indicating valves required on site or on the building.
6. Obtain all required approvals and permits. Permits shall be obtained from the city or municipality in which the system will be installed. If permits are not issued by the city or municipality, a permit shall be obtained from the State Fire Marshal.

C. Description of Work:

1. Scope: Provide a fully functioning automatic fire sprinkler system for the entire building.
2. The sprinkler contractor is responsible for verifying and complying with State, City and Local municipalities any and all code requirements related to the fire sprinkler system.
3. Verify need if applicable to provide fire sprinkler protection in wood construction ceiling space with local inspectors. It is the sole responsibility of the sprinkler contractor to review all construction documents and verify with local inspectors the need for any special coverage, dry fire sprinkler protection for unheated spaces, pressure and flow requirements prior to submitting a bid.
4. **VERIFY EXISTING SITE CONDITIONS INCLUDING SERVICE SIZE AVAILABLE AND PRESSURE. PROVIDE A DEDUCT ALTERNATE PRICE FOR A FIRE PUMP INCLUDING ALL INCOMING ELECTRICAL FEEDERS FROM THE UTILITY COMPANIES TRANSFORMER AND THE EMERGENCY GENERATOR PER NFPA, NEC AND ELECTRIC UTILITY REQUIREMENTS AS WELL AS ALL FINAL CONNECTIONS TO EQUIPMENT. THIS ALTERNATE PRICE SHALL INCLUDE PROFESSIONAL ENGINEERING AS REQUIRED TO MEET ALL STATE AND LOCAL REQUIREMENTS. FIRE PUMP CONTROLLER SHALL INCLUDE AN INTEGRAL AUTOMATIC TRANSFER SWITCH AND SERVICE RATED DISCONNECT. IF UPON FINAL CALCULATIONS THE PUMP IS NOT NECESSARY, THE DEDUCT ALTERNATE PRICE WILL BE ACCEPTED.** Additional compensation will not be allowed for modifications to the bid documents to meet any additional code requirements.
5. Provide all labor and materials and perform all operations required in connection with the installation of the fire extinguishing systems.
6. **For system notification, coordinate with Electrical Contractor for connection of signaling devices to Fire Alarm and Detection System, provided by electrical.**

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

D. Submittal and Approvals:

1. Prepare drawings of fire protection systems indicating pipe sizes, pipe locations, head layouts and type, fittings, shutoff values, equipment, fire department connections, etc. The design, hydraulic calculations and subsequent drawings shall reflect all modifications and extensions to existing piping equipment and head layout. Indicate elevations, slopes, floor and wall penetrations, drains, etc.
2. Submit to all Agencies having jurisdiction for approval. Submit to Owner insurance carrier for approval if required. **AFTER THE DOCUMENTS HAVE BEEN APPROVED BY ALL REVIEWING AGENCIES, SUBMIT THE APPROVED COPIES BEARING STAMPS AND/OR SIGNATURES OF FIRE MARSHAL OR AGENCY HAVING JURISDICTION TO THE ARCHITECT FOR THEIR USE, BEFORE PROCEEDING WITH INSTALLATION**.

Part 2. – PRODUCTS

2.1 GENERAL

A. The following is a general guideline on types of sprinkler heads and their recommended usage. Final design will need to be approved by local inspector and coordinated with Architect and Owner.

1. Decorative lobbies, meeting rooms, executive: Fully concealed sprinkler heads with only ceiling plate visible. Cover plate shall be factory finished in white.
2. In all spaces with finished ceilings: Recessed chrome plated sprinkler.
3. All areas where piping will be exposed without finished ceilings: Exposed sprinklers, brass finish.
4. High areas with/finished ceilings: Exposed sprinklers, chrome finish with matching escutcheon.
5. Areas exposed to pool areas, high humidity or weather: Corro-proof (polyester coated) sprinklers with matching escutcheon.
6. Extended coverage where possible, on concealed piping in areas with finished ceilings. Concealed type in decorative lobbies, meeting rooms and executive offices. Recessed in all other areas with finished ceilings, on concealed piping: Extended coverage sprinklers to be concealed with white cover plates in finished areas. Sidewall, recessed, white with white escutcheon for concealed piping and upright or pendent sprinklers with brass finish in areas with exposed piping.
7. Areas such as decks, canopies, small unheated interior spaces and attics enclosed entrances, elevator shafts, overhead doors vehicle parking areas, storage areas, loading docks, exhaust ducts, vestibules, coolers, freezers, entry way, etc, subject to freezing conditions, shall provide with a non-freeze system that meets NFPA standards and all state and local codes. Dry type sprinklers pendent, recessed concealed or horizontal sidewall, or fast response: All areas requiring more than two sprinklers shall be designed with complete dry pipe sprinkler systems.
8. Areas of high heat potential such as boiler rooms, furnace rooms and laundry rooms shall use intermediate temperature class sprinklers.

Part 3. – EXECUTION

3.1 GENERAL

A. The design of the sprinkler system shall be dictated by the building construction and usage and as specified herein. Piping shall be concealed above suspended ceilings.

1. The design and method of installation of the fire protection work shall be in accordance with Uniform Fire Code, UBC, International Building Code Standards, National Fire Protection Association Standards and National Fire Protection Association Standards that contain reference to or supplementary material on sprinkler systems along with the requirements of the Owner's insurance authority, the State, and the Fire Department.
2. The sprinkler systems shall be hydraulically calculated. Calculations shall conform to NFPA and UBCS 9-1.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Coordination:

1. The successful contractor must coordinate with the existing conditions, all other, building components, all new construction, and make all necessary modifications to the pipe routing before submitting for approval. Provide hydraulic calculations for all areas of the building including supplemental hydraulic calculations for all modification.
2. Additional compensation will not be allowed for modifications to the bid documents for additional sprinklers, coordination, or for additional hydraulic calculations.
3. Sprinkler head locations and all pipe routing shall be coordinated with all mechanical and electrical equipment and all structural and architectural components to avoid obstructions. All head locations shall be coordinated with architectural reflective ceiling plan.
4. This contractor shall carefully review all of the bid documents from all disciplines (architectural, structural, kitchen equipment, electrical and mechanical) and design the sprinkler systems to properly protect all areas of the facility.
5. The sprinkler system shall be installed in a manner that is aesthetically unobtrusive, with all sprinkler heads symmetrically aligned and centered in lay-in ceiling tile. System shall not interfere with existing equipment and building components (clocks, speakers, lights, etc.), and is not to be subject to damage by the building occupants.
6. **Prior to installing any mains or branches, the Sprinkler Contractor shall coordinate routing with all other trades to avoid conflicts. Contractor coordination details and sections shall be signed-off on by all Contractors prior to installation. Any installation that hinders another Contractor from installing their conduits, piping, ductwork, etc., shall be immediately removed to allow for their installation at no additional cost to the Owner or other Contractors.**
7. Contractor shall coordinate the routing of all sprinkler piping to maintain 12” minimum clearance from outside air ductwork and ducts or vents that communicate directly with the outdoors.
8. Prior to piping fabrication, the contractor shall submit to the architect, plans showing the routing of the sprinkler mains and branches. Approval of the architect must be obtained prior to fire sprinkler installation

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. General and Supplementary conditions within Division 0 and 1 are hereby incorporated and become part of these Specifications, covering all work in Mechanical Division.

B. Before submitting a proposal on the project, the Contractor shall visit the site and familiarize themselves with the conditions and limitations affecting Mechanical Division work. No additional costs to the Owner shall be allowed for items verifiable during site visits.

C. Contractor shall provide sufficient workers and materials to keep pace with the construction schedule. Contractor shall place orders for equipment such that job progress is not slowed due to late delivery and shall confirm delivery dates with suppliers.

D. The Contractor shall provide office space and storage for materials and equipment supplied as required. Location shall be as directed by the General Contractor or the Architect/Engineer.

E. Upon completion of the work shown and specified under Mechanical Division and prior to final close out of the Project, the Contractor shall verify in writing that all systems are 100% complete and operating properly. This notification shall include copies of all Subcontractor notifications. Any system not operating properly at final inspection shall be immediately repaired and demonstrated to the Engineer.

F. Rebates or credits provided by utility companies or equipment manufacturers shall be directly credited to the Owner.

1.2 MECHANICAL PLANS

A. The Mechanical Drawings and Specifications shall form a set of Plans for the mechanical work. Neither the Drawings nor the Specifications shall be complete without the other. Any item shown on the Drawings or specified in the Specifications shall be considered as shown and specified on both.

B. Any questions regarding the intent of the Drawings or Specifications shall be brought to the Engineer's attention as soon as possible. If direction from the Engineer cannot be obtained due to time or communication limitations, the greater quantity, higher quality or condition most favorable to the Owner shall be assumed. Contractor shall provide all labor, materials, equipment, and miscellaneous items necessary for a complete and operational mechanical installation, as shown on the Drawings and called for in these Specifications.

C. Drawings:

1. Contractor shall familiarize themselves with Architectural, Structural and Electrical Drawings and Specifications. Coordinate all shafts, chases, furred spaces, suspended ceilings, locations of equipment, etc.
2. Mechanical Contractor shall coordinate routing of all piping within soffits provided by the General Contractor. The Mechanical Contractor shall provide all soffiting required to cover installations not coordinated or specifically approved by the Architect and Engineer.
3. Mechanical Drawings are diagrammatic and are intended to show approximate location only. Placement of mechanical equipment and devices shall not interfere with locations or clearances of other trades' materials or equipment.
4. Contractor shall verify locations with architectural elevations.
5. Dimensions given on the Drawings shall take precedence over scaled dimensions. Dimensions, whether given in figures or scaled, shall be verified in the field.
6. Contractor shall verify that the equipment to be furnished under Contract will fit within the available space.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

7. Notify the Architect and Engineer of any discrepancies between Electrical, Architectural and Mechanical Drawings.
8. Verify items such as door swings, window locations, casework, etc., before installing any mechanical equipment or devices. All devices conflicting with other trade's work due to lack of coordination shall be relocated at no additional cost to the Owner.

D. The following terms used in the Drawings and Specifications shall be defined as follows:

1. Contractor: Shall mean Mechanical Contractor or any of their Subcontractors.
2. Work: Shall mean labor and/or materials of the Mechanical Contractor or any of their Subcontractors.
3. Furnish: Shall mean purchase, submit for Engineer approval, coordinate with Contract Documents and deliver to site in new, undamaged condition.
4. Connect: Shall mean to bring mechanical service and/or control wiring to equipment, make all final connections, provide all necessary miscellaneous materials required and do final check out to ensure proper equipment connections.
5. Install: Shall mean to store as directed, protect from damage, set in place, connect, test as required and turn over to the Owner in full operating condition.
6. Provide: Shall mean furnish and install.

E. CAD and Drawing Files:

1. Mechanical CAD drawings prepared by Steen Engineering, Inc. for this Project are instruments of Steen Engineering, Inc. for use solely with respect to this Project. During the course of the implementation of the Project, and with Steen Engineering, Inc. approval, copies may be obtained of CAD drawings for the preparation of Shop Drawings. These CAD drawings shall not be used on other projects, for additions to this Project, or for completion of this Project by others. Any revisions, additions and/or deletions to these CAD drawings, either intentional or unintentional, shall be made at the full risk of the person(s) making such revisions, additions and/or deletions. Such person(s) shall hold harmless and indemnify Steen Engineering, Inc. of any and all responsibilities and liabilities.
2. CAD drawings files of Architectural floor plans, elevations, sections, etc, shall be requested directly from the Architect.

1.3 COORDINATION OF DRAWINGS

A. For typical or repetitive unit installations, contractor shall schedule an inspection with local and/or state AHJ to review a complete mock-up example installation and receive approval prior to proceeding with additional installations. Installation shall meet all code and manufacturer's service clearance requirements. Contractor shall coordinate installation and subsequent inspection with general contractor and any related trades.

B. Contractor shall submit a ¼-inch scale drawing to the Engineer indicating placement of all mechanical and electrical systems and equipment. Indicate proposed locations of all major equipment and materials, including but not limited to service equipment, exterior wall and foundation penetrations, fire-rated wall and floor penetrations, sizes and location of required concrete pads and bases, and mechanical/electrical equipment room layouts. This effort will require each trade to closely work together to produce a ¼-inch set of coordination drawings for each area of the building.

C. Coordinate scheduling and sequencing required for movement and positioning of large equipment into the building with all other Contractors to minimize impact on their work.

D. This Contractor shall provide any and all input required to complete these drawings.

1.4 MATERIALS AND EQUIPMENT

A. Materials:

1. All materials shall be new and of the type and quality specified herein.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2. Specific materials and equipment specified is intended to establish a minimum standard of required quality. Where specified materials and equipment fail to meet minimum standards of existing federal, state and local codes and ordinances, the governing codes and ordinances shall prevail.
3. The Contractor shall provide all minor miscellaneous materials necessary for the complete mechanical installation.
4. For materials and equipment specified by description only, the Contractor shall provide materials or equipment suitable for the purpose intended. These shall be in conformance with all governing codes, these Specifications and normal trade practice.
5. Supply materials and equipment to the site in original packages, containers or crates insofar as is practical. It shall be the Contractor's responsibility to schedule deliveries in accordance with the overall Project schedule. The Contractor shall closely coordinate all deliveries with other Contractors and the Engineer.
6. Provide for proper receipt, handling, storage, and protection from the elements for all materials and equipment to be used on this Project so as to effectively prevent damage or deterioration. Materials or equipment sustaining damage or undue deterioration from any cause whatsoever shall be replaced or repaired by Contractor as required by the Engineer.
7. The Contractor shall properly protect all equipment from damage during construction. Thoroughly clean all fixtures, equipment and other supplied materials. Make all necessary repairs and apply touch up paint as required prior to final inspection and contract close out.
8. All materials and equipment shall be listed by Underwriters' Laboratories, Inc. (UL). Materials and Equipment shall meet the UL requirements of each standard in every case where such a standard has been established for that particular type of material. Equipment shall be UL listed as an entire assembly or system.

B. Prior Approvals:

1. All requests for prior approvals must be received by the Engineer at least seven working days prior to bid date. Applications for prior approval shall be considered only from Contractors submitting bids on the Project. Contractors shall determine whether materials receiving prior approval are actually in accordance with details of the Specifications.
2. The Contractor shall be responsible for all deficiencies that may exist from the use of substituted products or equipment, including all additional labor and materials required to complete the work. All dimensions and characteristics of substituted products shall be verified and coordinated with all affected trades and Subcontractors. Any required changes or modifications to the work of any other trade or Subcontractor incurred due to using accepted substituted products shall be coordinated and performed by this Contractor at no additional cost to the Owner.

1.5 SUBMITTALS

A. Within fifteen days after the award of the Contract, the Mechanical Contractor shall submit shop drawings on all major mechanical equipment to the Architect for approval. Shop Drawings shall be submitted by the Mechanical Contractor, not their Subcontractors. **Shop drawings shall be submitted separately per specification section. Multiple shop drawing sections received in a single submittal will be rejected.** These shop drawings shall cover such items as boilers, pumps, fittings, valves, plumbing fixtures, water heaters, water softeners, etc. The Contractor shall thoroughly review each item for compliance with these Specifications making any necessary corrections prior to submittal. Each shop drawing set shall be stamped, signed and dated indicating Contractor review. If the Contractor fails to properly review shop drawings, the Contractor shall reimburse the Engineer for all additional reviews on a time and material basis. No equipment shall be released for shipment or installed prior to final approval by the Engineer.

B. The Engineer will review all Shop Drawings submitted and will retain one copy for record file.

C. Approval Stamp: This review is to verify general conformance with the design concept of the Project and substantial compliance with the information provided in the Contract Documents. This review does not in any way relieve the Contractor or their suppliers of their responsibility to provide all materials and equipment as specified, in quantities, quality and dimensions required. Submittals will be reviewed with the following actions:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. "No Exception Taken" indicates that the Submittal appears to conform to the design concept of the Work and that the Contractor, at his discretion, may proceed with fabrication and/or procurement and installation.
2. "Make Noted Corrections" indicates that the Submittal, after noted corrections are made, appears to conform to the design concept of the Work and that the Contractor, at his discretion, may proceed with fabrication and/or procurement and installation, if the corrections are accepted by the Contractor without an increase in Contract Sum or Time.
3. "Revised and Resubmit" indicates that the noted revisions are such that a corrected copy of the Submittal is required for review to confirm that the noted revisions have been understood and made. The Contractor, at his discretion, may proceed with fabrication and/or procurement and installation after submitting a corrected copy and verifying with the reviewer that the corrected copy is acceptable, if the corrections are accepted by the Contractor without an increase in the Contract Sum or Time.
4. "Rejected" indicates that the Submittal does not appear to conform to the specifications, a resubmission is required and fabrication or procurement is not authorized.

D. If the Engineer rejects (Revised and Resubmit or Rejected) the same section two times the engineer shall be compensated for additional reviews. Compensation will be incorporated by Change Order and will be deducted from the Contractor's application for payment. Contractor is responsible for all delays caused by the resubmittal process.

E. Provide samples of materials or equipment proposed to be furnished, if requested. Samples shall become the property of the Architect/Engineer and will be returned only when accompanied by a written request to do so.

F. Record Drawings: The Contractor shall provide and maintain an "As Built" set of bluelines on site, neatly notating routing, location or other field changes to the Contract Documents. Upon Project completion and prior to final close out, turn the "As Built" drawings over to the Owner. Provide a detailed transmittal indicating each sheet and other information turned over to the Owner and acquire their representative's signature. This information shall be included at the project close out.

1.6 WORKMANSHIP AND CONSTRUCTION PROCEDURES

A. Installation of all materials specified herein shall be performed in a neat and workmanlike manner by workers experienced and skilled in the trade. Only the best quality workmanship will be accepted.

B. The Contractor shall regularly clean their work area of debris. Removal of all Contractor generated debris and rubbish caused by their work shall be at the Contractor's expense.

C. Contractor shall coordinate with the Owner any interruptions necessary to existing systems prior to shut down.

D. Coordination:

1. Contractor shall give careful consideration to work of other Contractors on the Project and shall organize work as detailed in the Contractor's ¼" coordination drawings so as to not interfere with or delay the work of other trades.
2. This Contractor shall provide a complete installation manual to the Electrical Contractor for each piece of equipment requiring electrical power/control connections scheduled to be performed by the Electrical Contractor. This shall be done prior to any rough-ins by the Electrical Contractor to insure proper power/control wiring has been provided. Notify the Engineer of any discrepancies between the installation manuals, the electrical plans and the mechanical specifications for each piece of equipment.
3. Contractor shall consult all Architectural, Structural and Electrical Drawings and Specifications that apply for correlating information.
4. Conflicts or interference with work of other trades shall be brought to the attention of the Engineer, in writing, before installation.
5. Should the Mechanical Contractor not follow above procedures and install work that interferes with work of other Contractors, the Mechanical Contractor shall make all necessary changes as directed by Engineer to eliminate the interference or conflict at the Mechanical Contractor's expense.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

E. Protection of Equipment:

1. Until final acceptance of the work by the Owner, the Contractor shall be responsible for the safety, good condition, and protection from damage of all materials and equipment installed.
2. If, during shipment or installation, the finish of equipment becomes chipped or scratched, the Contractor shall touch up or refinish surfaces to match original finish.

F. The Contractor shall complete all safety forms required by General Contractor.

1.7 LICENSES, CODES AND FEES

A. The Contractor shall be a licensed Contractor in the State where the project is being constructed. The Contractor shall employ all Licensed Professional Tradesmen required for each type of work covered under these Drawings and Specifications.

B. The Contractor shall procure all necessary certificates and permits and pay all required fees. The Contractor shall pay all fees and installation charges by the utility company for the permanent services.

C. Codes and Ordinances: All work and materials shall meet the requirements of national, state and local codes and ordinances, in every respect. This requirement shall not relieve the Contractor from meeting the requirements of Drawings and Specifications that may be in excess of all codes and ordinances and not contrary to them.

D. Inspections: Regular inspections shall be requested by the Mechanical Contractor to meet all state and local requirements. Contractor shall furnish a certificate of final inspection and approval from all enforcement agencies to the Owner.

1.8 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall deliver two sets of Operation and Maintenance (O&M) manuals to the Owner prior to final close out. O&M manuals shall consist of approved shop drawings, manufacturer's bulletins, equipment manuals, a list of manufacturers with telephone numbers for all equipment that contains replaceable parts and all other data covering the care, maintenance and operation of each piece of furnished equipment. O&M manuals shall be neatly bound in 3-ring binders, contain an index and section tabs and be labeled with the Project name.

B. Name, address, and telephone number of each Contractor installing equipment and systems, local representative for each item of equipment and each system. Table of contents shall correspond to the Specifications with the Section tab sheets placed before the respective Shop Drawings and operation and maintenance instructions.

1. Warranties for more than 1 year shall be included in appropriate section.
2. A maintenance and lubrication schedule shall include each motor, function, control location, fuse location, belt sizes type of lubricant, and rate of lubrication in accordance with manufacturer.
3. A filter maintenance schedule shall include filter size and quantity for each unit, located by room number.

1.9 OPERATING INSTRUCTIONS AND TESTING

A. The Contractor shall fully instruct the Owner in the operation of mechanical equipment prior to final close out. Contractor shall provide, without additional expense to Owner, services of competent instructors who will give full instruction in the care, adjustment, operation and maintenance of all mechanical systems provided by this Contractor to Owner's permanent employees. Instructor shall be thoroughly familiar with all parts of the installation that they are to give instructions and shall be trained in operating theory, as well as in practical operation and maintenance work. Factory trained instructors shall be employed wherever they are available. Instruction shall be given during regular work week and at a time just prior to the time the equipment is accepted and turned over to Owner for regular operation.

B. The Contractor or his representative shall provide a minimum of five days instruction period for Owner's personnel.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Contractor shall test all equipment installed under this Specification and shall demonstrate its proper operation to the Engineer. No equipment shall be tested or operated for any purpose until it has been fully prepared, connected and made ready for normal operation. Damage to equipment due to improper or ill-timed operation or testing shall be repaired, at Contractor's expense, before final inspection and acceptance.

1.10 WARRANTY

A. The Contractor shall guarantee all materials and equipment to be free of defects that may develop in any part of their work, caused by faulty workmanship, material or equipment failures, for a minimum of one year from the date of final completion of the Project or for as long as normal equipment manufacturer warranties are in effect from the date of final completion of the Project, whichever is later.

B. During the guarantee period, notification by letter, personal contact or telephone conversation of a problem with any mechanical system, shall cause the Contractor to respond within one week, making repairs or corrections as necessary. After all repairs and corrections are complete, the Contractor shall notify the Engineer.

C. During the guarantee period, the Contractor shall agree to provide 24 hour service on call for emergency.

Part 2. – PRODUCTS

N/A

Part 3. - EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Work included under this Division shall consist of furnishing labor and materials necessary for the installation of the work called for under the Mechanical, Fire Sprinkler Protection, Temperature Control and Mechanical Test & Balance contracts as listed in the Instruction to Bidders, as specified, and as shown on Drawings to provide a complete, operable and approved system.

1.2 REFERENCES

A. The following is a partial list of related standards:

1. American National Standard Institute (ANSI).
2. American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE).
3. American Society of Mechanical Engineers (ASME).
4. American Society of Sanitary Engineers (ASSE).
5. American Society for Testing and Materials (ASTM).
6. American Water Works Association (AWWA).
7. Cast Iron Soil Pipe Institute (CISPI).
8. Manufacturer's Standardization Society (MSS of the Valve and Fittings Industry, Inc.).
9. National Electrical Manufacturers Association (NEMA).
10. National Fire Protection Association (NFPA).
11. Plastic Pipe Institute (PPI).
12. Steel Tank Institute (STI).

1.3 QUALITY ASSURANCE

A. Where equipment is specified by manufacturer, brand name or catalog number, this shall establish the standard of quality and style of the product to be provided under the Contract.

B. Where two or more units of the same kind of equipment are required, they shall be products of a single manufacturer. Mixing and matching of various manufacturers' like or similar components shall not be permitted.

C. The Contractor shall field verify and inspect existing buildings for connections to existing systems, equipment, and materials designated, on Drawings or in Specifications, to be used.

D. The Contractor shall have full responsibility of component parts of the mechanical system to ensure that new equipment, integrated with existing equipment and systems, will perform and operate in accordance with requirements of the Specifications without excessive or unusual service or maintenance requirements.

E. The Contractor shall be responsible for verifying locations of such things as piping, ductwork, equipment, door swings, heights of cabinets and counters, etc., prior to the installation of any mechanical equipment. Installed mechanical work that interferes with the work of other trades shall be relocated by the Mechanical Contractor at no additional cost to the Owner.

F. Contractors shall coordinate with all other trades and install their systems in the space provided/coordinated within the structure. Install systems and materials for ease of maintenance. Equipment arrangements shall provide at least the minimum clearances as recommended by equipment manufacturer to facilitate proper maintenance and servicing of system. Deviations in minimum clearance requirements shall be permitted only upon prior written authorization from the Architect/Engineer.

G. For project sites higher than 2000 feet or more above sea level, gas fired equipment shall be modified as required to maintain specified output.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 2. - PRODUCTS

2.1 FIRE BARRIER PENETRATION SEALING SYSTEMS:

A. Approved Manufacturers: 3M, Transco Products, Nelson Flameseal Systems, Tremco, Inc.

B. Firestopping materials shall conform to local building code requirements and shall be tested according to UL 1479 and ASTME-814 for through-penetration firestop systems.

C. Firestopping materials shall be furnished by a supplier who specializes in the selection and furnishing of firestopping materials for building systems.

D. Submit shop drawings including a penetration protection schedule which lists each fire resistive construction type for this project, its fire rating, item penetrating and insulation (if any) UL through-penetration firestop systems number, manufacturer and model numbers. Include installation diagrams and product data sheet.

E. Contractor shall submit all fire stopping methods to Local Authorities for approval. Provide copies of all approved fire stopping methods to the Engineer. Seal all penetrations and sleeves through floors and fire walls with high temperature, fire rated sealant. Fire stop material shall be 3M brand Fire Barrier Penetration System. In lieu of type system described above, modular component system shall be ProSet System Inc. may be utilized. Install the appropriate concrete or wood penetration system as required by code.

2.2 WALL, FLOOR, AND CEILING OPENINGS

A. General Requirements:

1. Contractor shall be responsible for exact sizes and locations of chases and openings required for mechanical work.

B. Chases and Openings:

1. General Contractor shall leave chases and openings in walls, floors, ceilings, and partitions where shown on Drawings or otherwise necessary to receive mechanical work. It is this contractor's responsibility to coordinate sizes and locations prior to framing, pouring or setting of precast.

2.3 SLEEVES

A. General Requirements:

1. Provide sleeves in conjunction with water tight piping passing through concrete or masonry walls, partitions, and slabs. Provide sleeves in mechanical equipment rooms and chases to prevent water flooding from floor to floor in addition to separating piping from building structure.
2. Sleeves shall extend 3" beyond the full thickness of walls and slabs and shall be at least 2 pipe diameters larger than or 2" larger than ducts piping passing through. Where piping with covering is installed, a minimum of 1" shall be provided between outside of pipe covering and inside surface of the sleeve.

B. Pipe Sleeves:

1. Exterior Walls: Sleeves shall be standard weight steel pipe. Install sleeves in exterior walls and floors below grade with approved caulking between sleeves and piping to make it waterproof. Plastic sleeves shall not be used.
2. Floors: Sleeves shall be standard weight steel pipe. Vertical pipe sleeves through floors shall have space between pipe and sleeve packed with an approved fire stop material flush with top of sleeve to make a watertight and fire rated joint.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3. Interior Sleeves: Sleeves shall be standard weight steel pipe. Piping through walls of adjacent rooms shall have soundproof packing in non-rated walls and an approved fire stop material in fire rated walls.
4. Fire Rated Wall and Floor Openings: Piping passing through fire rated walls and floors shall be provided with an Underwriter's Laboratories, Inc. listed pipe and pipe sleeve assembly. Pipe and pipe sleeve assembly shall meet or exceed fire rating of wall and floor which the pipe passes through.
5. Contractor shall provide all sleeves required through footings, foundation walls and floors. Underground water services as indicated on plans shall be sleeved with schedule 40 PVC sleeving. Sleeve to be (1) size larger than the pipe it serves. Extend sleeves 0'-3" beyond penetration. Coordinate with Structural Engineer.

2.4 ACCESS PANELS

A. The Contractor shall provide means of access for all equipment valves and fittings specified. Furnish wall and ceiling access panels as required to the General Contractor for installation. Access doors and panels required within rated separations shall carry the appropriate rating. Conform to Division 8 access panel specifications. Contractor to provide separates per unit price per access panel for pricing purposes.

Part 3. - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. On-Site Review: Contractor shall visit site to become thoroughly acquainted with existing conditions of site and services.
2. Existing Active Services: When encountered during construction, Contractor shall protect, brace or support pneumatic tubing, existing active sewers, water, gas, ductwork, or other services, where required, for proper execution of Work.
3. Inactive Services: If encountered during construction, Contractor, as appropriate, shall cap or plug inactive pipes, ducts, and temperature control tubing or wiring at no additional cost to Owner.
4. Responsibility: Liability for repairs or replacement of damaged or defective materials, including, but not limited to, property damage resulting from negligence or other causes, shall be the Contractor's sole responsibility until work has been accepted by Architect/ Engineer and Owner.

3.2 PREPARATION

.

A. Protection: After delivery, and before and after installation, equipment shall be protected against theft or damage.

1. Contractor shall protect plumbing fixtures, metal heating enclosures and other equipment and all baked enamel or glazed surfaces from damage by covering or coating as recommended in Bulletin, "Handling and Care of Enameled Cast Iron Plumbing Fixtures", issued by Plumbing Fixture Manufacturers Association or by other methods approved by Architect/Engineer.
2. Coat polished or plate metal parts with vaseline immediately after installation. Protect equipment outlets, pipe and conduit openings with temporary plugs, caps or burlap as required to prevent filling with construction dirt.

3.3 EXCAVATION AND BACKFILL

A. Excavation: Contractor shall perform excavation boring, drilling, back filling and compaction at required depth for installation of work indicated or specified.

1. Excavated material not required or not suitable for backfilling shall be removed from site.
2. Protect excavation by grading and pumping to keep space clear of water during construction.
3. Provide shoring and sheeting as necessary for protection of work and safety of personnel. Protect bottom of excavation from frost.
4. Excavation in rock shall be 8-inch below invert of pipe to be installed and shall be backfilled to a depth of

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

8-inch with clean, washed sand before pipe installation.

5. Excavation terminating in unstable or organic material at pipe invert elevation shall be continued to 30-inch below pipe invert elevation and backfilled with pit run gravel to pipe invert. Soil boring reports are available for inspection at Architect's office.
6. Pipe installation in backfilled areas shall not occur until backfill is 2 feet above pipe invert, at which time backfill shall be excavated to proper depth, pipe installed, and backfill replaced as specified.
7. All lines are to be properly capped to prevent the entrance of dirt or any other foreign matter. All debris and water shall be removed from the trench prior to final installation. Properly protect piping or ductwork until backfilling can be performed. Inspection of all installations by Local Inspection Authorities shall be completed prior to backfilling.

B. Backfilling Under Floors and Slabs: Backfill areas below concrete slabs on grade in horizontal layers not to exceed 8-inch in depth and compact with approved equipment until dry density is not less than 95 percent of Standard Proctor Density.

1. Backfill material shall be pit run gravel or coarse sand free of rubbish, compacted and leveled to receive slab. If natural earth is of similar structure with same material as specified above, no additional material will be required. Fill to raise subgrades to required elevation shall be accomplished as specified above.
2. Materials and methods of compaction shall be approved by Architect/Engineer before start of work.
3. Areas not below concrete or asphalt slabs and footings shall be backfilled with suitable excavated material, free of debris and rubbish.
4. Carefully backfill to a point 6” above piping or ductwork and thoroughly tamp. Complete backfilling in 8” lifts and compact each layer to 98% standard proctor density. Restore surface to its original condition, i.e. grass, concrete, blacktop, etc.
5. Contractor shall pay costs for testing of compacted backfill by an approved testing laboratory when tests are requested by Architect/Engineer.

C. Backfilling Outside: Backfill excavations below finished grades with materials similar to that removed in excavation, free from rubbish or other unsuitable material. Place backfill and compact as required to prevent settling.

1. Backfilling shall be done to finished grades indicated on Drawings. If no finished grading is done in excavated areas, Contractor shall backfill to existing grades and restore surface to original condition.
2. Compaction over ditches less than 3 feet in width and around walls and columns shall be done by the use of mechanical hand compactors.
3. Contractor shall pay costs for testing of compacted backfill by an approved testing laboratory when tests are requested by Architect/Engineer.

D. Pavement, Curb, and Sidewalk Replacement:

1. Contractor shall be responsible for the replacement of existing street pavement, curbs and sidewalks removed or damaged by Contractor or related subcontractors.
2. Make necessary arrangements to perform such repairs and pay incurred costs in connection with said repairs, including amount in Bid.

3.4 CUTTING AND PATCHING

A. Cutting and patching shall be held to practical minimum consistent with good construction practice by properly locating and leaving sleeves and boxes, or notifying General Contractor of openings, where required, as construction progresses. All cutting and patching shall be done with the prior approval of the Architect/Engineer.

1. Necessary cutting and patching of walls, floors, partitions and ceilings, as required for the proper installation of work under this Contract, shall be the sole responsibility of this Contractor. Perform cutting and patching in such a manner as to leave no visible trace and to return the part affected to the condition of undisturbed work. Cutting and patching shall be performed by men experienced, skilled, and licensed for the particular type of work involved. Inferior work will not be accepted.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Pavements and Concrete: Cutting shall be accomplished by saw cutting a minimum of 1 ½-inch deep prior to jack hammering. Contractor shall bore below the surface where indicated on Drawings or where required by Architect/Engineer.

C. Repair: Patch pavements and concrete to match existing conditions. All labor and materials required to replace and repair sections cut or damaged shall be furnished and installed by this Contractor.

3.5 INSTALLATION

A. Connection to Equipment Specified: Provide material and labor required to connect to the mechanical system of fixtures and equipment having mechanical connections and which are specified in other Sections or Divisions of the Specifications or furnished by Owner.

1. Provide piping supply connections with shut-off valves.
2. Drainage connections shall be properly trapped and vented.

B. The Mechanical Contractor shall provide concrete pads for all floor mounted equipment. Pads shall be 4" thick and extend a minimum of 2" beyond equipment.

C. Mechanical Contractor shall provide angle iron stands for all gas fired equipment located on the same level or below any enclosed parking garage floor where the mechanical room opens to that same level. Stands shall elevate burners above 18" or as required by Local Code. This includes all water heaters, boilers, etc. Verify exact requirements with the Local Inspector prior to performing any fabrication.

D. Floor, Wall and Ceiling Plates:

1. Where uncovered exposed pipes pass through floors, walls or ceilings in finished rooms and inside casework, fit with approved type chrome plated metal plate.
2. Plastic escutcheon plates shall not be permitted.

E. Mechanical Systems Painting: Exposed supporting iron and steel work, bare pipe, fittings, hangers, and supports shall be wire brushed, washed with mineral spirits to remove dirt and grease, and painted with one coat of metal primer followed by two finish coats of battleship gray paint.

F. Concealed Equipment location: Location of motor operated equipment, furnished under this Contract, installed above ceiling shall be identified by placing a color coded thumb tack (or adhesive applied dot) in the ceiling directly below item noted. Identification colors shall be as follows:

1. Pumps: Green
2. Control Valves: Yellow
3. Shut-off Valves: Orange

G. Chlorination of Domestic Water Lines: Contractor shall clean entire domestic water system in building, shall disinfect system in strict accordance with governing codes and State Health Department Requirements, and shall flush entire system clean with potable water.

1. The piping system shall be flushed with clean, potable water until no dirty water appears at the points of outlet.
2. The system or part thereof shall be filled with a water-chlorine solution containing at least 50 parts per million of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours.
3. The system or part thereof shall be filled with a water-chlorine solution containing at least 200 parts per million of chlorine and allowed to stand for 3 hours.
4. Following the allowed standing time, the system shall be flushed with clean potable water until no chlorine remains in the water coming from the system.
5. Contractor shall provide written certification to Architect/Engineer that chlorination and flushing of domestic water system has been completed.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

H. Filtration: At time of substantial completion, and prior to turning equipment over to Owner, Contractor shall install a complete set of unused, clean filters in each type of unit supplying filtered air to the building.

3.6 IDENTIFICATION

A. Exposed Piping: Bare and insulated, exposed new piping in Boiler Room, Mechanical Rooms, and unfinished rooms shall be identified with labels, painted on using metal stencils. Stencils shall have 1-inch high letters and shall include a directional arrow 3-inch long by 1/2-inch wide, indication direction of flow. Color of stenciling shall be black lettering on a yellow background.

1. Labels shall be located at each change in direction of pipe runs and at intervals not to exceed 20 feet.
2. Setmark snap-on pipe markers by Seton Nameplate Corporation or snap-on pipe markers by W. H. Brady Company, which are similar to above stencil description shall be acceptable.

B. Concealed Piping: Bare and insulated new piping running in ceilings and soffits shall be identified with labels painted on using metal stencils. Each stencil shall have 1-inch high letters and shall include a directional arrow 3-inch long by 1/2-inch wide indicating direction of flow. Color of stenciling shall be black lettering on a yellow background.

1. Labels shall be located at each change in direction of pipe runs and at intervals not to exceed 20 feet.
2. Labels shall be located on each side of wall, partition and floor penetrations.
3. Setmark snap-on pipe markers by Seton Nameplate Corporation or snap-on pipe markers by W. H. Brady Company, which are similar to above stencil description shall be acceptable.

C. Pipe Markers: Contractor shall label the piping as follows:

1.	Domestic Cold Water	CW
2.	Domestic Hot Water	HW
3.	Domestic Recirculating Hot Water	RHW
4.	Natural Gas	G
5.	Fire Sprinkler	FIRE

D. Equipment: All scheduled equipment under this Division shall be identified with stamped labeled placards matching the scheduled identification tags and adhere directly to the equipment.

E. Controls: Controls and switches furnished under this Division shall be clearly labeled and identified.

3.7 CLEANING

A. Housekeeping, Cleaning and Storage: Remove from the building and site, scrap material, temporary building, packaging material, miscellaneous debris, and dirt on a regular schedule, or as required, and in accordance with Architect/Engineer's direction, to maintain building in a reasonably clean, workable condition during construction.

1. Cutting oil and steel shavings shall be caught in a suitable container to ensure final finish material in building will not be marred or damaged.
2. Upon completion of work and before final inspection, Contractor shall remove plaster, paint, rust, stickers, and shipping tags from installed equipment.
3. Clean foreign matter from installed equipment and remove dirt and debris, in connection with work, from building.

3.8 PRE-OPERATIONAL SYSTEM CLEANOUT

A. Pre-Cleaning Chemicals: New piping systems and appurtenances shall be cleaned with a one percent solution of Ferrosol 345, neutral pH cleaner, to remove any iron deposits, oil-based coatings, mill scale and construction residues.

1. Follow manufacturers' directions regarding equipment.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Section includes testing, adjusting and balancing, plumbing and natural gas systems, measurement of final operating condition systems, sound measurement of equipment and vibration measurement of equipment during operating conditions.

1.2 REFERENCES

A. NEBB (National Environmental Balancing Bureau). Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.

1.3 SUBMITTALS

A. Field Reports: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.

B. Prior to commencing Work, submit report forms or outlines indicating adjusting, balancing, and equipment data required.

C. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.

D. Provide reports in bound manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

E. Include detailed procedures, agenda, sample report forms and a copy of NEBB Certificate of Conformance Certification prior to commencing system balance.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

3.1 GENERAL

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:

1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Domestic Water Systems:

    a. Pumps are rotating correctly.
    b. Proper strainers are clean and in place or in normal positions.
    c. Service and balance valves are open.

B. Test and start-up all equipment supplied under this contract.

1. Provide all reports necessary to assure the Engineer and Owner that all functions of each piece of equipment have been thoroughly evaluated and deemed operable as designed.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2. Ensure recorded data represents actual measured or observed conditions.
3. Permanently mark settings of valves and other adjustment devices allowing settings to be restored. Set and lock memory stops.
4. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
5. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.2 WATER SYSTEM PROCEDURE

A. Plumbing:

1. Defects: Contractor shall be responsible for defects which develop in the systems caused by faulty workmanship, material or equipment and shall replace any such faulty workmanship, material or equipment during a period of 1 year from date of final acceptance. Acceptance of the work shall not waive the guarantee.
2. Approval: Inspect and test plumbing work for approval by Architect/ Engineer or a designated representative.
3. Tests: Tests shall be made in the presence of the Architect/Engineer or a designated representative. Tests shall be made, at Contractor's expense, and a certification furnished to the Architect/Engineer stating that satisfactory tests have been made.
4. Piping: Tests of piping systems, except final test of complete systems, shall be made before piping is covered or connected to fixtures and equipment. Tests required shall not be less than as specified in the following paragraphs, unless designated otherwise in specific sections.

    a. Sanitary, waste and vent piping, inside the building shall be tested with air at 5 psi gauge pressure and shall hold this pressure for 15 minutes without addition of more air. Provide final test with fixtures including flammable waste trap, grease trap, floor and roof drains in place with 1" W.G. air pressure.
    b. Test Domestic water piping, tanks, valves and fittings with hydraulic pressure of 100 psig for a period of 24 hours.
    c. Test natural gas piping per 2003 International Fuel Gas Code, Chapter 4, Section 406.

        1) Piping shall be tested at a pressure of 25 psig minimum for 30 minutes.

3.3 START-UP AND COMMISSIONING

A. Following substantial completion, contractor shall return to the site on a quarterly basis including four (4) balancing/commissioning sessions. Commissioning shall consist of rebalancing both air and water side systems to the extent required to verify proper operation of all system components and controls. Balancing contractor shall coordinate with all trades including controls contractor to make required adjustments.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Section Includes: Include labor, materials, equipment, and accessories to furnish and install supports, anchors, and seals for equipment, materials, and related work specified elsewhere.

1.2 SUBMITTALS

A. Submit shop drawings for all equipment provided under this section. Drawing shall include registered Structural Engineers Seal where required.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Guides manufactured by: Metraflex, Hyspan, Flexweld- Keflex, Flexicraft, Flexonic.

B. Hangers manufactured by: B-Line, Grinnell, Michigan, Anivil.

C. Expansion anchors manufactured by: Hilti, Simpson, Illinois Tool Works.

D. Power driven fasters manufactured by: Hilti , Simpson, Norbord.

E. Firestop material for penetration or construction manufactured by: 3M MP-1 Moldable Putty Flamseal Putty, 3M Caulk CP-25WB, Dow Corning 3-6548 RTV Foam, Tremco.

2.2 PIPING INSERTS AND HANGERS

A. Hanger Supports and Inserts: Piping suspended from construction above shall be hung from concrete inserts in concrete construction, toggle bolts and rod coupling on prefabricated, reinforced hollow concrete slabs, I-beam clamps or hanger rod, washer and two nuts on bar joist construction On other types of building construction a field approved type clamp or bracket shall be used.

B. Hangers, Clamps, and Collars: Piping shall be suspended from inserts, clamps or brackets by means of clevis type or roller type hanger and solid steel rods spaced not more than 10 feet apart on steel pipe and pipe rings spaced not more than 8 feet apart on copper pipe. Support vertical cast iron and steel pipes at each floor by heavy wrought steel riser clamps or collars. Support vertical copper pipes at each floor by riser clamps with asphalt felt lining under couplings placed in vertical copper piping. Support piping 4-inches and larger by single pipe roller assemblies with adjustable socket.

C. Support horizontal piping subject to expansion with adjustable roller hangers.

2.3 ANCHORS AND GUIDES

A. Anchor Fabrication: Construct anchors using I-beams, channel iron, tees, or angles or a combination thereof.

1. Tee iron shall be welded to side, top or bottom of pipe. Angle iron diagonal bracing shall be welded or bolted to tee iron and wall or ceiling. Anchors shall be welded or double clamped to pipe.
2. Where a group of pipes are to be anchored, but cannot be secured as above, the pipes shall be anchored to an assembly constructed of I-beams, channels or both, which shall be anchored to the building structure.

B. Guides: Guides shall be fabricated from carbon steel. Housing shall be of two piece design, connecting upper and lower housing with two bolt or by welding, after spider and pipe have been set in lower half of housing.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

Lower housing shall have two legs for support running the full length of housing. Two piece spider clamp shall be fastened around pipe (or pipe with insulation) with two bolts forming six legs which guide pipe inside housing. Legs may be on bottom, side or top of unit for bolting to floor or top of beam, wall or underside of structure.

1. Insulation inside the spider clamp shall be hydrous calcium chloride with vapor barrier from entering and exiting pipe continuing through the clamp.
2. Unit shall be furnished with a factory baked enamel finish.

C. For multi-level wood floor construction allow for wood shrinkage and movement. Provide clearance for piping near wood construction.

1. For metal piping, provide Josam #26200 expansion joints on vertical sanitary and storm. Expansion Joints with telescoping design with triple (3) EPDM or Vilon O-ring seals, including center pressure seal and outer debris seals and internal support piston. Maximum joint travel length shall be either 6" or 12". All Expansion Joints shall be pressure rated according to the manufacturer's specifications. All Expansion Joints shall be fabricated from PVC or CPVC material conforming to ASTM D1784. All sockets shall meet the dimensional requirements of ASTM D2467.
2. For horizontal take-offs from stacks use no-hub connections and on the inlet side and seal of traps provide slip joints. All mechanical joints shall be accessible.

2.4 BRACKETS, BRACES AND SUPPORTS

A. General Requirements: Furnish and install brackets, braces or reinforcing angles in partitions not sufficient in themselves to support piping or plumbing fixtures or other wall hung equipment included in this Specification. Bolts shall extend through walls, finished on opposite side, or one wall of a pipe chase, and shall be not less than 3/8-inch brass bolts with 3-inch cut washer on opposite side of wall.

B. Fasteners: Bolt head and washer shall be concealed under wall finish on finished walls. On hollow walls not finished on opposite sides, use toggle bolts. On solid walls use 3/8-inch brass bolt extending 4 inches into wall secured with molten lead poured around bolt. Secure floor mounted wall closets with 5/16-inch brass bolt with chrome plated cap, nut, and washer.

C. Support Racks: Support tunnel piping on Unistrut, Bee-Line or approved equal, pipe racks assembled as indicated by details on Drawings. Unistrut steel products shall have prime bonderized finish coating.

D. Pipe Drop Supports: Brace exposed pipe drops to pumps and other equipment with angle iron framework to relieve strain on flexible connectors or equipment and anchor piping to eliminate movement.

PART 3. - EXECUTION

3.1 HANGER INSTALLATION

A. Hanger Location: Locate hangers to properly support pipes and ducts; relieve strain on pipe, duct, and fittings; and allow for ample expansion and contraction. Piping smaller than 4-inch size shall be hung with individual ring hangers where space prevents use of other type hangers.

1. Piping shall not be hung from the roof deck.
2. Except where trapeze hangers are used to support piping, all piping shall be individually supported. Do not support ducts or pipes from other pipes, ducts or equipment or conduit.
3. Place a hanger within one foot of each horizontal elbow.

B. Domestic Water Piping Support: Suspend and support domestic water piping as indicated above, except domestic water piping shall be supported over piping insulation saddles as indicated in Section 22 07 00 with no break in insulation vapor barrier.

C. Anchor Piping in Chases: Copper piping in pipe chases behind plumbing fixtures shall be anchored to waste and vent piping with angle iron and U-clamps with asphalt felt lining under clamps.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

D. Glass Piping Protection: Protect glass piping with 1/16-inch thick by 1-inch wide rubber band between hanger and piping.

E. Trapeze Hangers: Groups of pipes at the same elevation and close together may, at the option of the Contractor, be supported by suitable trapeze hangers suspended from inserts, clamps or brackets by solid steel rods.

F. Bell and Spigot Support: Support bell and spigot pipe not underground from above hangers at each joint in the pipe run.

G. "No Hub" Pipe Support: "No hub" soil pipe runs shall have two hangers per joint, one on each side of joints.

H. Plastic Piping Support: Support plastic piping from above inserts, clamps or brackets with Grinnell Figure 269 adjustable ring hanger on 32-inch centers.

I. Thoroughly and substantially support all piping from approved hangers. The design, selection, spacing and application of horizontal pipe hangers, supports, restraints, anchors and guides shall be in accordance with applicable standards. The power Piping Code ANSI B31.1 shall take precedence over the MSS SP-69 Standard.

3.2 PIPE HANGERS AND SUPPORT INSTALLATION

A. Support horizontal steel and copper piping with maximum spacing between supports as noted.

Nominal Pipe Size (In.)	Distance Between Supports (Ft.)	Hanger Rod Diameter (In.)
½ & ¾	6	3/8
1 to 1 ½	8	3/8
2 & 2 ½	10	½
3 & 4	12	5/8
5 to 12	14	7/8
14 to 18	20	1

B. Provide additional supports for valves or other concentrated loads between supports.

C. Install hangers to provide minimum ½ inch clear space between finished pipe insulation and adjacent work.

D. Use hangers which are vertically adjustable 1-1/2 inch minimum after piping is erected.

E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

F. Provide hanger spreaders on hangers for pipes 4 inches and larger.

3.3 ANCHORS AND GUIDES INSTALLATION

A. Boiler Room: Provide adequate anchors and guides on domestic, piping in Mechanical Rooms and Boiler Room to prevent swaying of pipe.

B. Anchors: Install anchors approximately centered in every 70-foot run, blind ends, changes in pipe direction, except when elbow is used to absorb expansion and at major branch connections.

1. An expansion joint or loop or expansion elbow, but not more than one, with appropriate guides, shall be installed between each pair of anchors.
2. If expansion loops are installed in same line with expansion joints, the section containing the loop shall be isolated from the section containing the joint by means of an anchor.

C. Guides: Install 4 guides, 2 on each side, for each expansion loop or joint. On each side, install one pipe guide a maximum of 4 pipe diameters from expansion loop or joint and one pipe guide a maximum of 14 diameters from the first guide.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.4 INSULATION PROTECTION AT PIPE HANGERS

A. Shield insulation shall be galvanized steel, 16 gauge for piping small than 4 inches, 14 gauge for piping 4 inches and larger and larger and shall span an arc of 180 degrees. Lengths of shields shall be as follows:

Pipe Size	Shield Length
Up to 6”	12”
8”-12”	16”
Over 12”	20”

B. On cold water piping install a wood block at hanger points. Insulation jacketing shall be sealed where cut to install the block.

C. Provide offsets and transitions to plumbing and piping due to existing structure and trades work.

3.5 EXPANSION JOINTS

A. Provide Metraflex, Model HP axial expansion compensators rated for minimum 150 psi working pressure. Acceptable Manufactures: Flexicraft, Hyspan, Duraflex, Microflex, Flexonics.

B. Provide additional expansion joints and offsets for excessive expansion in plastic piping.

C. Installation of piping and expansion products shall be in strict accordance with manufacturer’s instructions.

D. No plastic piping vertical horizontal storm or sanitary stack may exceed 30 ft. in total height or length unless an approved expansion and contraction joint is installed at intervals not to exceed 30 ft. In lieu of expansion joints, offsets of 2’-0” at 45° every 30 feet may also be used.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Field applied insulation for thermal efficiency and condensation control for plumbing piping and equipment.

B. Definitions:

1. ASJ: All service jacket, white finish facing or jacket.
2. Air conditioned space: Space directly supplied with heated or cooled air.
3. Cold: Equipment or piping handling media at design temperature of 60° F or below.
4. Concealed: Piping above ceilings and in chases and pipe spaces.
5. Exposed: Piping and equipment exposed to view in finished areas or exposed to outdoor weather.
6. FSK: Foil-scrim-kraft facing.
7. Hot: Plumbing equipment or piping handling media above 105° F.
8. Density: Pcf - pounds per cubic foot.
9. Thermal conductance: Heat flow rate through materials.
10. Flat surface: BTU per hour per square foot.
11. Pipe or Cylinder: BTU per hour per linear foot.
12. Thermal Conductivity (k): BTU per inch thickness, per hour, per square foot, per degree F temperature difference.
13. PVDC: Polyvinylidene chloride vapor retarder jacketing, white.

Part 2. - PRODUCTS

2.1 SUMMARY

A. Materials:

1. All insulation shall have composite (insulation, jacket, and/or facing and adhesive used to adhere the facing or jacket to the insulation), fire and smoke hazard ratings as tested by Procedure ASTM E-84, NFPA 225 and U/LI 723 not exceeding Flame Spread 25 and Smoke Developed 50.
2. Jacket and Facing Descriptions:

    a. All purpose vapor barrier jackets.
    b. VB vapor barrier, white kraft bonded to 1 mil aluminum foil, reinforced with glass yarn. Water vapor permeability 0.02 perms.
    c. FSK reinforced foil and paper (Foil Scrim Kraft). Aluminum foil (minimum 0.75 mil thick) reinforced with fiberglass yard mesh and laminated to 40 lbs. chemically treated fire resistant Kraft UL rated.

3. Exterior Jacket:

    a. Venture Tape, Ventureclad 1557CW, (Alumaguard 60) 6 mil thickness, adhesive backed, aluminum finish jacket otherwise with zero permeability, shall be capable of being applied down to -20° F.

2.2 PIPING

A. Piping shall be insulated with Manville (IMCOA, Owens-Corning, Knauf) "FLAME SAFE" fiber glass insulation. The insulation shall have an average thermal conductivity not exceeding 0.22 BTU in. per sq. ft. per °F. hour at mean temperature of 75°F.

B. Exposed areas inside a building shall be furnished with factory applied "FLAME SAFE" All-Purpose Vapor barrier jacket.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. All piping in concealed areas inside a building shall be provided with factory applied "FLAME SAFE" VB (Vapor Barrier Jacket or All-Purpose Jacket).

D. All piping that is located outside and directly or indirectly exposed to the weather and is insulated, shall be totally enclosed and wrapped with a PVC pre-formed jacket.

E. Fittings, valve bodies and flanges for pipe size 4" and smaller shall be provided with PVC jackets over fiberglass inserts.

F. Armstrong (Rubatex, Halstead) Armaflex II flame retardant elastomeric thermal insulation, installed according to manufacturer's recommendations and as allowed by Local Codes, shall be suitable for pipe temperatures between -40° and 220°.

Part 3. - EXECUTION

3.1 GENERAL

A. All piping shall be thoroughly cleaned and dry prior to the application of insulation.

B. Provide continuous vapor barrier over all seams.

3.2 PIPING:

A. On cold water piping all seam edges shall be additionally sealed with vapor barrier adhesive and ends wrapped with vapor barrier tape overlapped the adjacent jacket.

B. Domestic Water, above 40°F and Under 200°F:

1. Apply fiberglass insulation to provide a K-value of 0.27. If the K-value of a product is less 0.22, then the thickness must be adjusted to have an equivalent R-value. Runout branches 2" in diameter and less (not exceed 12 feet length) to individual terminal units: 0.5".

C. All fire sprinkler and domestic water piping within 15' of any exterior opening within the mechanical room shall be insulated with a minimum of 1" Fiberglass unless indicated otherwise in this specification section.

D. For piping exposed to outdoor air, see insulation thicknesses for specific piping types below. Increase insulation thickness listed by ½".

E. <u>DOMESTIC COLD AND HOT WATER PIPNG:</u>

1. Domestic cold and hot water shall have fiberglass insulation in thickness as follows or per applicable State Energy Code, whichever is greater.

2. (0ºF - 130ºF):

a. 1/2" thru 2 " 1/2"
b. 2 1/4" and larger 1"
c. No insulation required on 3/4" and smaller PEX piping.

F. <u>DOMESTIC RECIRCULATING HOT WATER:</u>

1. (0ºF - 130ºF):

a. 1/2" thru 2 " 1/2"
b. 2 1/4 " and larger 1"
c. No insulation required on 3/4" and smaller PEX piping.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.3 JACKETS

A. Foil and Paper Jackets: Install jackets drawn tight. Install lap or butt strips at joints with material same as jacket. Secure with adhesive. Install jackets with 1 1/2" laps at longitudinal joints and 3-inch-wide butt strips at end joints.

1. Seal openings, punctures and breaks in vapor barrier jackets and exposed insulation with vapor barrier compound.
2. Install PVC fitting covers over insulated flanges, fittings and valves.

B. Install the PVC jacket with 1” overlap at longitudinal and butt joints and seal with adhesive.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. All piping materials and methods of construction and workmanship shall be provided as per the requirements of local codes and regulations.

1. All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.
2. All castings used for coupling housings, fittings, valve bodies, etc., shall be date stamped for quality assurance and traceability.

B. Lead pipe, solders, flux, etc., are not allowed.

C. The contractor is responsible for verifying all invert elevations with respect to building finished floor elevations and site provisions.

Part 2. - PRODUCTS

2.1 PIPING

A. Below Grade Sanitary, Vent and Waste:

1. Bell and spigot (SV) cast iron piping and fittings conforming to ASTM A74 (latest edition), manufactured by either AB & I Foundry, Charlotte Pipe, New Age Costing or Tyler Pipe, bearing the raised trademark on the piping of the Cast Iron Soil Pipe Institute and be listed by N.S.F. International. For other Manufacturers, in addition to meeting the ASTM A74, they must also submit through the contractor the following records: (1) Radiation screening, (2) Chemical Testing Records for every 4 hours, (3) Mechanical Tensile testing for every 4 hours, (4) Dimensional Inspection records done every 12 hours and (5) Certification Letter from Manufacturer. The Contractor shall select 3 random dates for the afore mentioned tests. Provide Neoprene compression joints conforming to ASTM C564, latest revision. Pipe, fittings & gaskets to be installed per manufacturers recommendations.
2. Hubless cast iron pipe and fittings conforming to CISPI 301 and ASTM A888, (latest revision), manufactured by AB & I Foundry, Charlotte Pipe, or Tyler Pipe, New Age Costing, bearing the raised trademark on the piping of the Cast Iron Soil Pipe Institute and be listed by N.S. F. International. For other Manufacturers, in addition to meeting the ASTM A74, they must also submit through the contractor the following records: (1) Radiation screening, (2) Chemical Testing Records for every 4 hours, (3) Mechanical Tensile testing for every 4 hours, (4) Dimensional Inspection records done every 12 hours and (5) Certification Letter from Manufacturer. The Contractor shall select 3 random dates for the above mentioned tests. Provide Neoprene compression joints conforming to ASTM C564, latest revision. Pipe, fittings & gaskets to be installed per manufacturers recommendations. Contractor shall submit to engineer, pipe manufacturers the following records: (1) Radiation screening, (2) Chemical Testing Records for every 4 hours, (3) Mechanical Tensile testing for every 4 hours, (4) Dimensional Inspection records done every 12 hours and (5) Certification Letter from Manufacturer. The Contractor shall select 3 random dates for the afore mentioned tests. Provide Standard stainless steel couplings, manufactured by Husky, Anaco or Ideal conforming to ASTM C1277, latest revision, or with heavy duty stainless steel couplings (Husky/Anaco/Ideal) third party certifying to ASTM C1540, latest revision. All cast iron pipe, fittings & couplings must be installed, supported & restrained using the installation procedures detailed in ASTM C1277 or ASTM C1540, whichever applies.
3. PVC Schedule 40, ASTM D2665-04a with mechanical ring, or fusion or solvent cement. Piping shall be laid on a continuous granular bed and installed per ASTM D2321.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Above Grade Sanitary, Vent and Waste:

1. Bell and spigot (SV) cast iron piping and fittings conforming to ASTM A74, (latest revision) bearing trademark of Cast Iron Soil Pipe Institute and be listed by N.S.F. International. For other Manufacturers, in addition to meeting the ASTM A74, they must also submit through the contractor the following records: (1) Radiation screening, (2) Chemical Testing Records for every 4 hours, (3) Mechanical Tensile testing for every 4 hours, (4) Dimensional Inspection records done every 12 hours and (5) Certification Letter from Manufacturer. The Contractor shall select 3 random dates for the afore mentioned tests. Provide Neoprene compression joints conforming to ASTM C564, latest revision. Pipe, fittings & gaskets to be installed per manufacturers recommendations with neoprene compression joints conforming to ASTM C564, latest revision. Pipe, fittings & gaskets to be installed per the manufacturers recommendations.
2. Hubless cast iron pipe and fittings conforming to CISPI 301 Standards and ASTM A888, (latest revision), bearing trademark of Cast Iron Soil Pipe Institute and be listed by N.S.F. International. For other Manufacturers, in addition to meeting the ASTM A74, they must also submit through the contractor the following records: (1) Radiation screening, (2) Chemical Testing Records for every 4 hours, (3) Mechanical Tensile testing for every 4 hours, (4) Dimensional Inspection records done every 12 hours and (5) Certification Letter from Manufacturer. The Contractor shall select 3 random dates for the afore mentioned tests. Provide Neoprene compression joints conforming to ASTM C564, latest revision. Pipe, fittings & gaskets to be installed per manufacturers recommendations with standard stainless steel couplings (Husky/Anaco), conforming to ASTM C1277, latest revision, or with heavy duty stainless steel couplings (Husky/Anaco), conforming to ASTM C1540, latest revision. All cast iron pipe, fittings & couplings must be installed, supported & restrained using the installation procedures detailed in ASTM C1277 or ASTM C1540, whichever applies.
3. PVC Schedule 40, ASTM D2665-04c with mechanical ring, or fusion or solvent cement.
4. ABS Schedule 40, ASTM D2661-02. Pipe and corresponding fitting installed per code limitations.
5. PVC Schedule 80 threaded, ASTM D2665. Pipe and corresponding fittings, installed per code limitations.
6. Plastic piping shall not be used in air plenum spaces.
7. Pressurized waste discharge (i.e. sump pumps, etc.) shall be schedule 40 galvanized steel.

C. Below Grade Domestic Water:

1. 2 ½" and smaller, tube Type 'K' or 'L', ASTM B-88 soft copper, seamless and no fittings.
2. Chlorinated Polyvinyl Chloride (CPVC): Manufactured from Type IV Grade I CPVC compound with a cell classification of 23447 per ASTM D 2846.

D. Above Grade Domestic Water Piping:

1. Type "L" seamless hard temper copper tubing with wrought copper fittings, using 95/5 solder or brazing.
2. Type "L" seamless grooved copper tube with copper-tube dimensioned grooved copper couplings and fittings.

    a. Fittings shall be ASME B16.22 wrought copper or ASME B16.18 cast bronze, with copper-tube dimensioned grooved ends. Victaulic or Grinnell Copper-Connection.
    b. Couplings shall be installation-ready. Grade EHP or EHT gasket rated to + 250* F, and zinc electroplated steel bolts and nuts.
    c. System shall be manufactured to copper-tube dimensions. (Flaring of tube or fitting ends to accommodate alternate sized couplings is not permitted.)

3. Type "M" seamless copper hard and soft temper ANSI-H23.1 with wrought copper fittings using 95/5 solder or brazing. Type "M" shall not be used on domestic hot water circulating systems.
4. Grinnell Copper G-Press and Viega Pro-Press system may be used on type L and M hard copper tubing, sizes ½" to 4" and soft copper tubing in ½" to 1 ¼". System shall be approved for up to 200 psi operating pressure and 250ºF for joining copper tubing. These systems shall only be used on piping system containing fluids and gases as indicated in the manufacturers approved listing. All application shall include the proper factory standard or field installed specialty seals.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

5. Chlorinated Polyvinyl Chloride (CPVC): Manufactured from Type IV Grade I CPVC compound with a cell classification of per ASTM D1784 of 24448 for pipe materials and 23447 for fitting materials. CPVC pipe and fittings shall be certified by NSF International for use with potable water.
   a. Pipe and fittings 2" and smaller:
      (1) Pipe and fittings shall be copper tube size (CTS) SDR 11 and shall meet or exceed ASTM D2846.
      (2) The maximum water design velocity shall be 8ft./sec.
      (3) Pipe and fittings: FlowGuard Gold, Charlotte Pipe.
   b. Pipe and fittings larger than 2":
      (1) Pipe shall be iron pipe size (IPS) Schedule 80 and shall meet or exceed the requirements of ASTM F441.
      (2) Fittings shall be iron pipe size (IPS) Schedule 80 and shall meet or exceed the requirements of ASTM F437.
      (3) The maximum water design velocity shall be 5 ft./sec.
      (4) Pipe: Corzan, GFHarvel of IPEX.
      (5) Fittings: Corzan, NIBCO or IPEX.
   c. All socket type joints shall be made with solvent cements and primers shall meet or exceed current ASTM standards. Solvent cement and primer shall be listed by NSF International for use with potable water and approved for use with pipe and fittings manufacturer.
   d. Provide smooth pipe supports and bracing to allow for expansion and contraction. Spaced per manufacturer's recommendations.
   e. Installation shall be by a factory trained installer per manufacturer's installation instruction. Provide Owner with minimum of 5 year manufacturer's warranty.
   f. Plastic piping shall not be used in air plenum spaces.
6. Cross Linked Polyethylene (PEX) (for branch run-outs only): Manufactured in the PEX-A Engel Method by Uponor, Watts Water PEC, Nibco or Viega PEX Ultra.
   a. Contractor to formally submit product/installation package to local jurisdiction prior to bid, based on Minnesota Plumbing Code Section 4715.0330.
   b. Piping shall meet or exceed ASTM F876-04 and ASTM F877-02a and be certified by NSF International for use with potable water. Piping shall be rated at 100 psi at 130˚ F.
   c. Fittings shall be PEX-A cold expansion type manufactured to meet or exceed current ASTM standards and by certified by NSF International for use with potable water. Provide color coded rings.
   d. Manifolds shall be provided with appropriate sized fittings on manifold supply outlets.
   e. Provide angle stops, straight stops, bend supports, clips and/or pex rails as supplied by tubing manufacturer for supporting tubing. Support piping every 2'-8".
   f. Piping installed in plenum ceilings shall be maximum of ¾" size. Individual piping shall maintain an 18" minimum spacing. Bundled piping is not acceptable.
   g. Installation shall be by a factory trained installer per manufacturer's installation instruction. Provide Owner with 25 year manufacture's warranty.
   h. Shall not be used on systems exceeding 160ºF.
   i. Pex piping shall not be in contact with any other uninsulated piping.
   j. PEX piping shall be air plenum rated.

E. Domestic Hot Water Circulation:

1. Type "L" seamless hard temper copper tubing with wrought copper fittings, using 95/5 solder or brazing.
2. Type "L" seamless grooved copper tube with grooved copper fittings and couplings.
   a. Fittings shall be ASME B16.22 wrought copper or ASME B16.18 cast bronze, with copper-tube dimensioned grooved ends. Grinnell Copper Grove System and Victaulic Copper-Connection.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

b. Couplings shall be installation-ready, for direct stab installation without field disassembly. Couplings shall consist of two ductile iron housing segments cast with offsetting angle-pattern bolt pads, Grade EHP gasket rated to +250° F, and zinc electroplated steel bolts and nuts. Victaulic Style 607 and Grinnell Style 640.
c. System shall be manufactured to copper-tube dimensions. (Flaring of tube or fitting ends to accommodate alternate sized couplings is not permitted.)

3. Grinnell Copper G-Press and Viega Pro-Press system may be used on type L and M hard copper tubing, sizes ½" to 4" and soft copper tubing in ½" to 1 ¼". System shall be approved for up to 200 psi operating pressure and 250ºF for joining copper tubing. These systems shall only be used on piping system containing fluids and gases as indicated in the manufacturers approved listing. All application shall include the proper factory standard or field installed specialty seals.
4. Chlorinated Polyvinyl Chloride (CPVC): Manufactured from Type IV Grade I CPVC compound with a cell classification of per ASTM D1784 of 24448 for pipe materials and 23447 for fitting materials. CPVC pipe and fittings shall be certified by NSF International for use with potable water.

a. Pipe and fittings 2" and smaller:

(1) Pipe and fittings shall be copper tube size (CTS) SDR 11 and shall meet or exceed ASTM D2846.
(2) The maximum water design velocity shall be 8ft./sec.
(3) Pipe and fittings: FlowGuard Gold, Charlotte Pipe.

b. Pipe and fittings larger than 2":

(1) Pipe shall be iron pipe size (IPS) Schedule 80 and shall meet or exceed the requirements of ASTM F441.
(2) Fittings shall be iron pipe size (IPS) Schedule 80 and shall meet or exceed the requirements of ASTM F437.
(3) The maximum water design velocity shall be 5 ft./sec.
(4) Pipe: Corzan, GFHarvel of IPEX.
(5) Fittings: Corzan, NIBCO or IPEX.

c. All socket type joints shall be made with solvent cements and primers shall meet or exceed current ASTM standards. Solvent cement and primer shall be listed by NSF International for use with potable water and approved for use with pipe and fittings manufacturer.
d. Provide smooth pipe supports and bracing to allow for expansion and contraction. Spaced per manufacturer's recommendations.
e. Installation shall be by a factory trained installer per manufacturer's installation instruction. Provide Owner with minimum of 5 year manufacturer's warranty.
5. Plastic piping shall not be used in air plenum spaces
6. Cross Linked Polyethylene (PEX): Manufactured in the PEX-A Engel Method by Uponor, Watts Water PEX, Nibco or Viega PEX Ultra.

a. Contractor to formally submit product/installation package to local jurisdiction prior to bid.
b. Piping shall meet or exceed ASTM F876-04 and ASTM F877-02a and be certified by NSF International for use with potable water. Piping shall be rated at 100 psi at 160°F.
c. Fittings shall be PEX-A cold expansion type manufactured to meet or exceed ASTM F 1960-04 and by certified by NSF International for use with potable water.
d. Provide angle stops, straight stops, bend supports, clip and/or pex rails as supplied by tubing manufacturing for supporting tubing. Support piping every 2'-8". Bending piping is not acceptable.
e. Installation shall be by a factory trained installer per manufacturer's installation instruction. Provide Owner with 25 year manufacture's warranty.
f. Shall not be used on systems exceeding 160ºF.
g. Pex piping shall not be in contact with any other uninsulated piping.
h. Plastic piping shall not be used in air plenum spaces.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

F. Rigid Natural Gas Piping:

1. Inside Building:

   a. Schedule 40 black steel with threaded fittings, ASTM A 53/ASTM A 53M-04a.
   b. Type L seamless soft copper, ASTM B 88-03 and copper fittings. Copper piping shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic of gas.

2. In Ceiling Air Plenum:

   a. Schedule 40 black steel with standard weld butt fittings.
   b. Type L seamless soft copper and copper fittings. Copper piping shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic of gas.
   c. All welded or brazed connections in air plenum ceilings and concealed spaces. Use no valves, threads, unions or connectors in these locations. Concealed gas piping in solid partitions shall be inside a Schedule 40 black steel pipe sleeve capped at both ends and vented outside the building.

3. Inside Mechanical Room: Schedule 40 black steel with threaded fittings.
4. Exterior Aboveground:

   a. Schedule 40 steel, black, welded and seamless with threaded fittings, ASTM A 53.
   b. Schedule 40 steel, hot dipped zinc-coated (galvanized welded and seamless with threaded fittings, ASTM A 53.

2.2 VALVES

A. Acceptable Valve Manufacturers:

1. Apollo, Titan FCI, Milwaukee, Victaulic, Nibco, Watts, Mueller, Hammond, Griswold, Gruvlok, Grinnell.

B. Gate Valves –Domestic Water Piping:

1. 2 inches and Smaller: Milwaukee Figure UP148 or Hammond Figure UP640, 300 pound bronze bodied valve with screwed end connections. The solid style disc and bonnet shall also be bronze, and the rising-type stem shall be copper-silicon alloy.
2. 2-1/2 inches and Larger: Milwaukee Figure 2885 or Hammond Figure IR 1140, 125 pound cast iron bodied valve with bronze fittings and flanged end connections. The solid style bronze disc shall be fully guided. The stem shall be steel with OS & Y construction.

C. Check Valves –Domestic Water Piping:

1. 2 inches and Smaller: Milwaukee Figure UP148/Hammond Figure 640, 200 pound bronze, screwed ends, bronze disc, swing check.
2. 2 ½" inches and Larger: Milwaukee Figure 29274-M13/Hammond IR1937, 150 pound check valve with 3 percent nickel cast iron body and disc, a stainless steel seat and pin and flanged connections.
3. 2 inches and Larger: Grooved end swing check valve, Victaulic Series 712, 300 psig CWP, with ductile iron body and cap, with stainless steel disc and shaft, for horizontal installation or Grinnell Style 590.
4. DELETED.
5. Non-Slam Check Valves - 2 inches and Larger: Mueller Steam Specialty 105 MAT, Titan CV-50-DI-DBS, 125 pound globe style check valves with EPDM inserts.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

D. Ball Valves –Domestic Water Piping:

1. 3" and smaller for domestic water: Milwaukee UPBA 475/485 two piece full port forged brass body 600 WOG chrome plated ball, blow out proof stem, reinforced PTFE seats and where necessary, extended stems for insulation conforming to NSF /ANSI 372 for potable water.
2. Grooved End Ball Valves: 2-1/2" and Larger, for domestic water service with steel piping systems, Grinnell Fig BV835 or Victaulic Series 726 two-piece ductile iron body with chrome-plated steel or stainless steel standard port ball, blow out proof stem, PTFE seats, and lever handle or gear operator as required.
3. 4" and larger for domestic water: Milwaukee Series F20SS150R-02 flanged full port 150 lb. stainless steel ball valve with stainless steel ball and stem, reinforced PTFE seats and blow out proof stem. Provide extended stems for insulation or balancing stops for modulating services as required.

2.3 FLOW FITTINGS/BALANCE VALVE

A. Acceptable Manufactures:

1. Bell & Gossett, Nibco, Mueller, Victaulic/TA Hydronics, Gruvlok, Grinnell.

B. Bell & Gossett "Circuit Setter" or Victaulic/TA Hydronics balance valve. All bronze/brass ball or copper-alloy/ductile iron globe type construction with memory stop and integral valved read-out ports. Provide metal identification tags indicating location, size, GPM and meter reading.

2.4 BACKFLOW PREVENTERS

A. Acceptable backflow preventer Manufacturers:

1. Watts, Conbraco, Febco, Ames, Lawler, Hersey, Wilkins, Apollo.

B. Contractor shall verify the availability of testing agency for reduced pressure zone backflow preventers in project area.

C. Irrigation - Watts #009-QT-Reduced Pressure Zone assemblies, high hazard, continuous pressure and quarter turn ball valves.

D. Trash Chute Wash-Down – Watts #288A, Atmospheric, anti-siphon vacuum breaker, high hazard, non-continuous pressure.

E. Residential Type Dishwasher - Watts #N388, Atmospheric Vacuum Breaker, high hazard, non continuous pressure.

2.5 GAS VALVES

A. Acceptable Manufacturers:

1. Apollo, Siemens, Asco, Backmann, Milwaukee, Hammond, Velan, Homestead.

B. 2" and Smaller: Milwaukee B 475 threaded forged brass two piece ball valve with chrome plated ball, blowout, blowout proof stem and reinforced PTFE seats in accordance with UL-MHKZ (600#) CSA 3371-08/CSA3371-88 (1/2#), CSA 3371-92/CSA 3371-12 (5#), CSA 3371-94 (125#). Provide stem extensions where required.

C. Provide a natural gas pressure regulator shall be Maxitrol to reduce gas pressure to an acceptable limit at gas fired equipment. See plans for gas company meter outlet pressure. See mechanical equipment schedule for required capacities and operational manuals for pressure limits. Provide with code approved pressure limiting device or pipe pressure regulating valve relief vent individually to the outside. Verify with the local code authorities.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.6 MISCELLANEOUS VALVES:

A. Drain Valves- Domestic Water Piping:

1. Nibco #C56-VB, ¾" male thread, tee handle and vacuum breaker.
2. Apollo Series 78-100 ball valve, 600 pound, bronze body, chrome plated brass ball and blow-out proff brass stem, reinforced Teflon seals and seats and ¾" hose thread outlet with cap.
3. Domestic water drains shall be equipped with vacuum breakers.

Part 3. - EXECUTION

3.1 GENERAL

A. Provide offsets and transitions to plumbing, piping due to structure and trades work.

B. Slope water piping 1" per 40' and arrange to drain at all low points.

C. All sanitary piping 4" (Iowa) and larger sloped at 1/8", 3" and smaller sloped at ¼" per foot, unless noted otherwise or if required to meet inverts. Notify engineer of any changes. All horizontal vent piping shall be sloped to allow internal moisture drain-off.

D. All underground sewer pipe within 10 feet of buried water supply piping shall be constructed in accordance with State and/or Local Code.

E. Provide all appropriate sanitary piping fittings, wyes and bends. No double-wye fittings for sanitary drainage in horizontal position shall be used.

F. Vent pipes passing through roofs shall terminate at least 12" above the roof line.

G. Above grade plastic drain and vent piping horizontal and vertical runs cannot exceed 35 feet. Solvent welds shall be done with a contrasting primer to the color of the pipe and cement. Plastic piping shall not be installed in air plenum spaces including parking garage area.

H. Provide shut-off valves as required by Code and good installation practice for the proper isolation of equipment. All branch take offs shall have isolation shut off valves. Provide extended stem valves where required for insulation. Except as otherwise specified or shown on plans, valves 2-1/2 inch and smaller shall have screwed end connections and valves 3 inch and larger shall have grooved end or flange end construction. Install manual drain valves at every low point of each water piping system.

I. Mechanical formed tees connections as created by T-Drill shall be formed in a continuous operation consisting of drilling a pilot hole and drawing out the surface to form a collar having a height of not less than three times the thickness of the tube wall. Branch tube shall not obstruct the flow in the main line tube. All joints shall be brazed in accordance with the Copper Development Association. Soft soldered joints will not be permitted. Mechanical formed connections shall be listed by the National Standard Plumbing Code, B.O.C.A., I.A.M.P.O., S.B.C.C., H.U.D., U.S. Army corps of Engineers, Underwriters Laboratory, ASME Code for Pressure Piping and shall be acceptable to governing authorities.

J. All threaded nozzle fixtures to have atmospheric vacuum breakers.

K. Grooved joints shall be installed in accordance with the manufacturer's latest published installation instructions. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Gaskets shall be of an elastomer grade suitable for the intended service, and shall be molded and produced by the coupling manufacturer. The grooved coupling manufacturer's factory trained representative shall provide on-site training for contractor's field personnel in the use of grooving tools and installation of grooved joint products. The representative shall periodically visit the jobsite and review contractor is following best recommended practices in grooved product installation. (A distributor's representative is not considered qualified to conduct the training or jobsite visit(s).

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

L. Installation of cross connection control devices and related valves shall maintain 1'-6" clear from wall or other obstructions, no more than 5'-0" above floor or closer than 2'-0" from floor.

M. Provide escutcheon plates at all wall, floor, or ceiling piping penetrations. This includes all mechanical piping systems. Escutcheon plates shall match the finish of the surrounding area.

N. Exposed PVC venting through roof shall be painted at the discretion of the Architect.

O. Provide a dielectric coupling or waterway fitting at all connections of dissimilar metals. Provide adequate clearance for insulation and for access to valves. All piping shall be concealed and shall maintain proper clearances for ceilings, ducts, walls, lighting, etc. except that piping may be exposed in mechanical areas. At all fixture and equipment connections where nipples are necessary between copper fixtures and tubing, such nipples shall be full size brass nipples with brass or copper adapters.

P. Ream pipe ends to remove burrs. Make joints smooth and unobstructed inside. Remove any obstructions or debris inside piping, blowing it out with compressed air or otherwise cleaning it internally immediately prior to assembly.

Q. Provide shut-off valve for all gas fired equipment. Locate valve in an easily accessible location.

R. Push-to-Connect Joints: Install Permalynx joints in accordance with the manufacturer's latest published installation instructions. Prepare and mark tubing ends using a tool supplied by the manufacturer and in accordance with the manufacturer's instructions.

S. Install Vic-Press 304™ in accordance with Victaulic recommendations. Pipe shall be certified for use with the Vic-Press 304™ system, square cut (+/-0.030"), properly deburred, and cleaned. Pipe ends shall be marked with a gauge supplied by Victaulic. Use a Victaulic 'PFT' series tool with the proper sized jaw for pressing.

T. Provide 1/2" ethafoam on all above grade vertical piping to all pipes and slab movement at wood floor penetrations.

U. Contractor shall comply with the CISPI Guide Lines Manual when installing piping.

V. Provide cleanouts where all sanitary and storm piping are connected to existing piping to facilitate testing as required.

W. In the event plastic and/or PEX piping is approved and installed, contractor shall maintain a minimum of 2 inch spacing hot and cold water and individual floor penetrations shall be provided. Bundling of hot and cold piping is not acceptable.

X. PEX piping shall not be installed within the first 1'-6' of piping connected to a water heater.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Contractor shall provide all labor and materials to provide a complete plumbing and fuel system for all fixtures and equipment shown on drawings. Contractor shall rough-in and make final connections to all fixtures and appliances supplied by others.

B. Contractor shall thoroughly review the manufacturer's installation instructions prior to installing any piece of equipment or its associated service, (domestic drains, water piping, etc.). Any conflicts between the manufacturer's installation instructions and the plans or specification shall be brought to the engineer at once for clarification. Contractor will not receive additional money for installations requiring modifications due to these conflicts.

C. All plumbing systems shall meet State and Local codes as well as ADA requirements.

D. Gas Service: Make arrangements with the local gas company and pay all costs and fees for firm gas service including gas meter with shut off valve on each side of the meter. Verify exact location of gas meter and provide a gas shut off valve at the first accessible point within the building. Provide a gas pressure regulator and shut off valve in an easily accessible location at each appliance or unit of equipment as required and identify valve. Vent gas pressure regulators per code. Coordinate with all gas firing equipment including equipment supplied by others for gas pressure compatibility with the gas company. Contractor to provide gas company with a list of gas fired equipment and requirements. Coordinate gas pipe locations with all other trades.

E. Water Service:

1. Provide a domestic and fire sprinkler service from a point 5'-0" outside of the building as shown on the drawings. Minimum earth cover to be 5' - 0". Coordinate exact location of new services with other utility services and civil engineer. Refer to civil engineer's plan for continuation of services on site and refer to building Engineer's plan for service into the building. Provide 'Tee' fitting on sprinkler service in building, for domestic service connections. Provide backflow prevention that complies with AWWA-M14, Section 6.3 (1990) if required by local authorities. Contractor shall excavate, install, backfill, compact and patch as required by the owner.
2. Provide domestic water meter, as supplied by the city purchased by the contractor. Installation shall conform to City requirements.
3. Coordinate with the Civil Engineer, City Water Department, City Fire Marshal and the Fire Sprinkler Contractor.
4. Coordinate with the General Contractor. Verify and provide any special irrigation system requirements.

F. Sanitary and Storm Service:

1. Provide sanitary sewer service from a point 5'-0" outside of building where shown on the plans. Minimum earth cover to be 5' - 0". Contractor shall excavate, install, backfill, compact and patch as required by the owner. Contractor shall coordinate with the city and civil engineer.

Part 2. - PRODUCTS

2.1 EQUIPMENT

A. Miscellaneous Plumbing Equipment:

1. Cleanouts:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

a. Floor cleanouts in finished areas shall be Josam (Sioux Chief, MIFAB, Wade, Smith, Watts, Ancon, Zurn) Series 56000, with Nikaloy top. Provide carpet marker for carpeted floors. In unfinished areas, use Series 56000 floor cleanout with cast iron top. Install cleanouts at the bottom of all stacks, as indicated on drawings and as required by code.
b. Bottom of stacks in unfinished areas shall be provided with a cleanout that has a plug with a seating flange, lead gasket and four square lugs for plug removal.
c. Access cover for wall cleanouts in finished rooms shall be Josam Series 58600 stainless steel round cover with screw.
d. Floor cleanouts in residences shall be 56010.
e. Clean-out plug or cover plates in walls shall not face public corridors or public areas.

2. Roof Jacks:
   a. Terminate all vents stacks 12" above roof in a frost-proof galvanized roof jack. Use lead top on cast iron and vinyl top on PVC vent pipe.
   b. All vents thru roof shall be 3" unless otherwise noted.
3. Floor Drains:
   a. Approved Manufacturers: Josam, Wade, Watts-Ancon, J.R. Smith, Zurn, Sioux Chief, MIFAB.
   b. Josam Series #30000-A complete with flashing and clamp and with adjustable nickel-bronze strainers.
   c. Floor drains in the mechanical rooms shall be Josam #32100 cast iron.
   d. Floor drain for garage area flammable waste system shall be Josam #32100, cast iron, medium duty, anti-tilting, cast iron grate. No trap.
   e. Floor drains in wood floors above grade shall be of the type which can be set with rim flush with gypcrete floor topping.
   f. Floor drains shall be provided with a separate deep seal P-trap.
4. Shock Arrestors:
   a. Approved Manufacturers: Josam, Zurn, Sioux Chief, Watts Drainage, MIFAB.
   b. Josam Absorbatron II 75000-S with wrought copper shell. Provide where required by Code, on flush valve systems and on the piping to any laundry unit or dishwasher. Size as required.

B. Flammable waste trap (FT): Midwest Tank Company, PPF Metal Fabricating. Steel 3/16" with bitumastic coating with 3/8" gas proof steel cover suitable for a vehicle service area. Tank shall be independently vented to the roof.

C. Sump Basin (SPX): Basin and cover shall be fiberglass Weil (Topp, Gould, Zoeller). Install flush with finished floor and provide durable cover capable of supporting foot traffic. Verify depth required.

D. Sump Pumps (SPXX): Weil (Enpo, Hydromatic, Gould, Swaby, Zoeller, ABS) as scheduled. Pump shall be submersible with permanently lubricated bearings, stainless steel shaft, cast iron housing and galvanized strainer.

1. Simplex: Provide with differential mercury level float switch and high water alarm.
2. Duplex: Furnish four float switches for duplex operation. Furnish a Nema 1/UL labeled control panel with main disconnect, with thru-the-door interlock, two manual disconnects with thermal overload, two magnetic contactors, electric alternator, selector switches, pilot lights, control transformers, high water alarm bell with silencing switch. Alternator to distribute operation to both pumps on each successive cycle, and operate both units when one unit cannot handle the load. All control and alarm wiring shall be by the mechanical contractor. Provide check valve and shut off valve for pump. Pipe discharge as shown on drawing.
3. All control and alarm wiring shall be by the mechanical contractor. Provide check valve and shut off valve for pump. Pipe discharge as shown on drawing.

E. Water Heater (WH) Sealed Combustion, Combination Burner and Storage Tank Type ASME: Provide a (A.O. Smith, Lochinvar, Rheem, State, Richmond, Mor-Flo, Bradford-White, P.V.I., Bock, Reco) sealed combustion water heater, with capacities indicated in the mechanical equipment schedule. Unit shall be AGA certified and have intermittent electronic ignition, glass lined tank, dip tube, screw in magnesium anode rods, turbo shot combustion system. ASME T & P relief valve piped to the floor, 150 psig working pressure, 5 year tank warranty, ASHRAE 90.1b-1992 and NAECA compliant, draft switch.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

F. Venting flues for condensing water heaters or domestic water heating boilers shall be resistant to deleterious effects of corrosive materials, such as chloride ion pitting, crevice corrosion and stress corrosion, cracking and general corrosion in oxidizing environments. Material shall be made of superferritic stainless steel, type AL29-4C. In lieu of stainless steel, Poly Propylene (PP) or Chlorinated Poly Vinyl Chloride (CPVC may be acceptable, but are subject to manufacturers instruction. Poly Vinyl Chloride (PVC) is not acceptable

G. Thermal Expansion Domestic Water Absorber: Provide an Amtrol ST Therm-X-Trol ST-25 or Rheem for the domestic water heater. Tank shall have a NSF listed rigid polypropylene liner, heavy duty butyl diaphram and outer steel shell. Tank shall be precharged to 40 psig and be of adequate size. All internal wetted parts must comply with FDA regulations. An internal butyl diaphragm shall be used to isolate air charge from water.

H. Circulating Pump (CP): Provide all bronze circulating pump to a B & G Series (Taco, Grundfos, Armstrong, Thrush, Peerless, Paco, Mepco) as scheduled with lubricated bearings. Provide isolation valves, check valve, strainer and balancing valve with integral read-out port and memory stop. Balance system to between 3 and 6 feet per second velocity.

I. Aquastat: Provide a Honeywell, nonimmersion, 30 degree differential, strap on type aquastat to cycle the domestic hot water pump when return water temperatures drop below its setting. The aquastat shall be installed and wired by the Mechanical Contractor.

J. Water Leak Detection System: Water Alert by Dorlen Products, Inc., Milwaukee, Wisconsin, Model SS-2100 single detector. Detector shall have gold plated adjustable sensing probes and circuitry shall be encapsulated in epoxy. System to include interconnect cable for remote alarm box connection. Required length and remote alarm location to be field verified. Provide a separate power supply unit Model PS-3, 120 volt plug-in for back-up power to detector. Power unit to have battery with internal battery charger and key reset switch. For Multiple Detectors, provide remote wall mounted monitor, Model WM-6(T). Monitor shall be capable of testing, visual and audible alarms. Monitor input is 120 volt, single phase with internal transformer for 9VDC to detector.

Part 3. - EXECUTION

3.1 GENERAL

A. Provide shut off valve on all branch piping take offs. Locate as close as possible to main in an accessible location. Provide unions threaded connections and shut-off valves on both sides of any of the following but not limited to: Mixing valves, pressure reducing/regulating valves, water softeners, water heaters, check valves, hose reels, circulation pumps, flow fittings, back flow preventers, humidifiers, laundry washers and boiler make-up.

B. Rough-in and make final connections for kitchen food service equipment furnished under another division of the specifications. Refer to schedule on drawings for specific requirements. Furnish cast brass "P" traps with cleanouts and water supplies with loose key stops for all equipment. All exposed water piping shall be chrome plated brass. Where vent piping must be run exposed, install it within stainless steel sleeves.

C. Provide temperature and pressure gauges, pressure regulators, strainers, shock arrestors for residential dishwasher and laundry washers and an above counter to air gap fittings as required by Code for dishwashers.

D. Rough-in and make final connections for all equipment in addition to equipment specified in this section. Coordinate with supplier to obtain correct location and sizes prior to rough-in.

E. Avoid installing sanitary waste piping over any food preparation equipment and food storage area or provide protection from drips with a functional water-tight safe pan.

F. Contractor shall coordinate all floor joist headering required for piping installation. Headering shall be done at contractor’s expense.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

G. Coordinate locations of all venting sidewall or through the roof with the Architect and General Contractor prior to installation.

H. All floor mounted equipment shall be set on a 4" concrete pad extending 2" beyond the edge of the equipment. Pads are by this Contractor.

3.2 FIELD QUALITY CONTROL

A. Contractor shall engage a factory authorized representative service to supervise the field assembly of components and installation of domestic water heaters, including pumps, piping and electrical connections. Report results in writing.

1. A factory authorized service representative shall provide start-up service. Start-up to be performed only after complete water heater system is field verified and there is a full load and complete circulation.
2. Verify that the electrical wiring installation complies with manufacturer's installations requirements.
3. Ensure pumps and operate properly. Start pumps, water heaters and adjust burners to maximum operating efficiency.
4. Measure and record temperature rise through each water heater.
5. Operate water heater, including accessories and controls to demonstrate compliance with requirements.
6. Train Owner's maintenance personnel on procedures and schedules related to start-up and shut-down, troubleshooting servicing and preventive maintenance.
7. Schedule training with Owner with at least 7 days advance notice.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Contractor shall provide all labor and materials to provide a complete plumbing and fuel system for all fixtures and equipment shown on drawings. Contractor shall rough-in and make final connections to all fixtures and appliances supplied by others.

B. Contractor shall thoroughly review the manufacturer's installation instructions prior to installing any piece of equipment or its associated services, (domestic drains, water piping, etc.). Any conflicts between the manufacturer's installation instructions and the plans or specification shall be brought to the engineer at once for clarification. Contractor will not receive additional money for installations requiring modifications due to these conflicts.

C. All plumbing systems and products shall meet State and Local codes as well as ASNI, ASME and ADA requirements regardless of information shown within the documents.

D. This contractor shall provide a complete installation manual for each piece of equipment requiring electrical power/control connections scheduled to be performed by the Electrical contractor. This shall be done prior to any rough-ins by them to insure the proper power/control wiring has been provided. Notify the Engineer of any discrepancies between the installation manuals and the electrical plans and specifications for each piece of equipment.

Part 2. - PRODUCTS

2.1 GENERAL

A. Miscellaneous Plumbing Equipment:

1. Carriers for wall hung and lavatories:
   a. Provide commercial grade carrier of approved style. Verify with General Contractor for type of wall construction and space prior to ordering carriers.
2. Fittings, Trim and Accessories:
   a. Install stop and escutcheon for each supply pipe, trap and escutcheon for each waste pipe and vacuum breaker supplied with hose attachments or integral with flush valve, or where water connection is below spill line of fixture.
3. Water Closet Seats:
   a. Apartments: Church seat, #135TT, elongated seat, solid plastic closed front with cover and molded-in bumpers.
   b. Public or Staff used Restrooms: Church seat, #295C elongated seat, solid plastic, open front, concealed stainless steel check hinges, molded-in bumpers and without cover.

B. Fixtures:

1. ACCEPTABLE MANUFACTURERS:
   a. Lavatories: American Standard, Briggs, Eljer, Kohler, Toto, Gerber, Mansfield, Zurn, Peerless Pottery, Eclipse, Sloan.
   b. Water closets: American Standard, Briggs, Eljer, Kohler, Toto, Gerber, Mansfield, Zurn, Peerless Pottery, Eclipse, Sloan.
   c. Tub and shower: Best Bath System, Aquatic Bath, American Standard, Aquaglass, Warm Rain/Embassy, Hamilton, Maax, Aquarius, Salo, Aqua Bath and Clairon Bathware.
   d. Tub/Shower, lavatory and sink faucets: Delta, Symmons, Peerless, Moen, American Standard, Chicago Faucet, Crane, Eljer, Kohler, Speakman, T & S Faucets, Zurn, Gerber, ProFlo.
   e. Electric water coolers: Elkay, Halsey Taylor, Oasis, Sunroc, Haws, Acorn Aqua.
   f. Mop sinks and laundry tub: Fiat, Mustee, Stern-Williams, Swan, Zurn, Jonespec, Gerber.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

g. Stainless Steel Counter Sinks: Elkay, Just, LaCrosse, Dayton, Moen, Sterling, Advance-Tabco, Franke, Dayton.
h. Hose bibbs and Wall Hydrants: Chicago Faucet, T & S, Woodford, Josam, Wade, Zurn, Watts Drainage, MIFAB.
i. Toilet seats: Bemis, Beneke, Church, Olsonite, Sperzel, ProFlo.
j. Carriers: Josam, Jonespec, J. R. Smith, Wade, Zurn, Watts
k. Laundry Box: Guy Gray, Water Tite.
l. ADA Insulation Kits: Truebro, Plumberex, Handy-Shield.

Water Closets

2. Water Closet (P-1): American Standard Cadet Pro Right Height, #215.AA.004 floor mounted, tank type, 3" flapper, 1000 grams per flush, 2 1/8" trap way, 2" ball pass, 1.6 gpf, vitreous china, 17" high with seat, elongated rim, with bolt caps.
   a. 3" waste, 2" vent and 1/2" cold water.
3. Water Closet (P-1A) (ADA): American Standard Cadet Pro Right Height, #215.AA.004 floor mounted, tank type, 3" flapper, 1000 grams per flush, 2 1/8" trap way, 2" ball pass, 1.6 gpf, vitreous china, 17" high with seat, elongated rim, with bolt caps.
   a. 3" waste, 2" vent and 1/2" cold water.

Lavs

4. Wall Lavatory (P-2A) (ADA): American Standard "Lucerne" #0355.012, 20" x 18" wall hung with concealed arm support, overflow, rectangular vitreous china, drilled for 4" centerset faucet.
   a. Trim: Delta #22C541, single handle 5 3/4" long spout, red/blue handle indicators, 1.5 gpm flow control aerator, adjustable rotating temperature limit stop, offset open grid strainer.
   b. 1 1/4" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.
5. Lavatory (P-2C): Cultured marble top furnished by General Contractor and installed by this Contractor.
   a. Trim: Delta #22C341 series, single handle, 5 ¾" long spout, red/blue handle indicators, 1.5 gpm flow control aerator, adjustable rotating temperature limit stop, metal pop-up waste and P-trap.
   b. 1 1/4" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.

Tub and Shower

6. Shower (P-3A2): AQUATIC 1603STS, overall dimensions 60"L x 33" d x 77" h, one piece fiberglass reinforced polyester, smooth wall finish, 4" threshold, flat adaptable wall, built-in soap shelves and seat through the floor drain installation and slip resistant floor. Shower walls shall be fully reinforced backed for on site installed grab bars. Coordinate color with Architect.
   a. Trim: Delta shower valve T13020 temperature control only, valve body #r10000-UNWS for back to back installation, single handle, pressure balance, anti-scald with integral check stops. Field adjustable temperature limit stop. 2.5 gpm Touch-Clean shower head #RP40594 with rigid shower arm. Provide shower drain strainer, body and trap.
   b. 1 ½" waste, 1 ¼" vent, ½" hot water and ½" cold water.
7. Shower (P-3M) (ADA): Best Bath System, #LSS6333A75B, overall dimension 63" x 36" x 78 ¾" , wheelchair roll-in, one piece smooth surface, fiberglass shower unit with gelcoat finish and slip resistant floor. Unit fully reinforced back for site grab bar installation. Provide a combination of ½" tri-cell laminate core and ½" plywood backing. Unit to have a ½" high threshold, when installed above finish floor. Provide 1 3/8" collapsible rubber water retainer.
   a. Trim: Delta shower trim T13420-SHC and valve body #R10000-UNWS for back to back installation, single handle, pressure balance, anti-scald with integral check stops. Temperature controls only. Field adjustable temperature limit stop. Provide shower drain strainer, body and trap. Provide a personal hand held shower, Delta #RPW336HDF, 2.5 gpm, push button on-off control, without a check valve, non-positive type. This unit provides backflow protection by means of two check valves which individually meet the requirements of ASME A11.18.3 Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings, which is referenced in ASME A112.18.1. These check valves are listed as being in compliance with the ASME A112.18.3 standard. Provide chrome plated, wall supply elbow and a 69" long vinyl hose. Provide 3'-0" combination slide/grab bar for slip on hand held shower.
   b. 1 1/2" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.
8. Tub and Shower (P-3O): Lasco #260330M, overall dimension 60"w x 31 1/4"d x 75 1/4"h. Dam height = 17". One piece unit, fiberglass reinforced polyester, smooth wall finish, and slip resistant floor. Above floor rough-in. Shower walls shall be fully reinforced backed for on site installed grab

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

bars. Provide metallic over-the-rim tub filler spout, Delta #RP5834. Provide tub pop-up drain with overflow drain, drain strainer, body and trap. Coordinate color with Architect.

a. Trim: Delta Shower valve #T13420-SHC, and body #R10000-UNWS for back to back installation, single handle, pressure balance, anti-scald with integral check stops. Temperature controls only. Field adjustable temperature limit stop. Pull-up diverter valve on tub faucet. 2.5 gpm Touch-Clean shower head with rigid shower arm. Provide metallic like over –the-rim tub filler spout. Provide tub adjustable trip lever bath waste pop-up drain with overflow drain, drain strainer, body and trap.

b. 1 1/2" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.

Kitchen Sinks

9. Kitchen Sink (P-4): Elkay #PSR-3321 20 gauge type 302 stainless steel, self-rimming sink. Size 33" x 21" x 7 1/2" deep with double compartment, sound deadening undercoat, chrome cup strainers.
   a. Trim: Delta 400 Series, single lever, solid brass chrome faucet with 8" swing spout, 2 gpm aerator, and separate spray attachment. Provide all required accessories.
   b. Food Waste Disposer: Provide an Insinkerator Badger 1 Food Waste Disposer or approved equal. Provide with all required accessories.
   c. 1 1/2" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.
10. Kitchen Sink (P-4C) (ADA): Elkay #LRAD-3321 18 gauge type 302 stainless steel, self-rimming sink. Size 33" x 21 1/4" x 5 1/2" deep with double compartment, sound deadening undercoat, chrome cup strainers.
   a. Trim: Delta 400-HDF-DST Series, single lever, solid brass chrome faucet with 8 ¾" swing spout, 1.5 gpm vandanl resistant aerator, and separate spray attachment. Provide all required accessories.
   b. Food Waste Disposer: Provide an Insinkerator Badger 1 Food Waste Disposer or approved equal. Provide with all required accessories.
   c. 1 1/2" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.

Counter Sinks

11. Counter Sink (P-5): Elkay #LR-1517 18 gauge Type 302 stainless steel, self-rimming sink. Size 15" x 17 1/2" x 7 1/2" with single compartment, sound deadening undercoat, chrome cup strainer, 8" center set.
   a. Trim: Delta #24T2643, single 6" handle, swing gooseneck 7" high, 4.3" radius with limited 120 degree swing spout, red/blue handle indicators, vandal resistant, 1.5 gpm flow control aerator, adjustable rotating temperature limit stop and offset trap.
   b. 1 1/2" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.
12. Counter Sink (P-5A): Elkay #LR-2222, 18 gauge Type 304 stainless steel, self-rimming sink. Overall size 22" x 22" x 7 1/2" with single compartment, sound deadening undercoat, chrome cup strainer, 8" center set.
   a. Trim: Delta #26C3242, single handle swing gooseneck 5.8" high, 7.3" radius with limited swing spout, red/blue handle indicators, vandal resistant, 1.5 gpm flow control aerator, adjustable rotating temperature limit stop and offset trap.
   b. 1 1/2" waste, 1 1/4" vent, 1/2" hot water and 1/2" cold water.

Service Sinks and Basins

13. Mop Basin (P-6): Fiat MSB 24" x 24" X 10" molded stone floor sink. Provide with stainless steel strainer.
   a. Trim: Delta #28C2384, faucet chrome polished with rigid vacuum breaker spout, integral check stops, wall brace and wall hook, 3/4" hose thread and four arm handles.
   b. 3" waste, 1 1/2" vent, 1/2" hot water, and 1/2" cold water.
14. Service Sink (P-6F): Fiat #FL-TD white "molded stone", double compartment. Size 46" x 22" floor mounted. Complete with #A-2 chrome overflow pipe and "P" trap.
   a. Trim: Deck mounted faucet, 4" centers and 6 ¾" swing spout.
   b. 2" waste, 1 1/2" vent, 1/2" hot water and 1/2" cold water.

Drinking Cooler

15. Water Cooler - single unit (P-7) (ADA): Elkay EZ-8, Gray Beige Vinyl Cabinet, wall mounted with all stainless steel top and spring return front push bar water control, rated at 8.0 gpm, flexiguard safety bubbler.
   a. 1 1/2" waste, 1 1/4" vent and 1/2" cold water.
16. Water Cooler - two level (P-7A) (ADA): Elkay #EZTL8-C barrier free, wall hung, with capacity of 8.0 gph from 80º F to 50º F at 90º F ambient temperature, stainless steel top with front and side push bars

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

to activate bubbler and baked enamel cabinet of color selected by Architect. Free of lead containing brass parts. Flexiguard safety bubbler. Provide cooler apron #LKAPREZL.

a. 1 1/2" waste, 1 1/4" vent and 1/2" cold water.

Hydrants and Bibbs

17. Wall Hydrant (P-8): Woodford #67C, field testable 3/4" non-freeze loose key operated, with bronze finish and vacuum breaker.
18. Interior Hose Bibb (P-8A): Chicago (inside wall faucet #952) (on wall faucet #998) with 3/4" hose threaded outlet, vacuum breaker and polish chrome plate.
19. Interior H & C Water Hose Bibb (P-8B): Delta #28C8183, faucet chrome polished with rigid vacuum breaker spout, integral check stops, wall brace and wall hook, 3/4" hose thread and four arm handles. Faucet shall have continuous pressure rated integral check stops. Install 36" above the floor in an accessible location.
    a. 1/2" hot water and 1/2" cold water.
20. Yard Hydrant (P-8C) Woodford Utility Yard Hydrant, #Y2, 1" FPT brass inlet, 3/4" outlet, automatic draining, adjustable bury depth, backflow protected, and manual removable lever handle.

Miscellaneous

21. Washing Machine Wall Box (P-11B): Guy-Grey, B-200 20 gauge steel minimum with valved hose connections, vacuum breakers and 2" drain connection.
    a. 2" waste, 1 1/2" vent, 1/2" hot water, and 1/2" cold water.
22. Flexible vinyl insulation system kit, Truebro Hand-lav Guard #102W with accessory #105. Install sink insulation kit on all exposed P-traps and water supplies.
    a. Trim: Mixing valve, Leonard #TA300.
    b. ½" cold water and ½" hot water.

Part 3. - EXECUTION

3.1 GENERAL

A. All exposed piping, supplies and stop valves shall be chrome plated brass unless indicated otherwise. No stops with internal supply lines and no plastic stop valves. Traps shall include chrome plated cast brass with clean-outs however, standard PVC traps for non-food service plumbing fixtures may be installed in non-rated walls. All water supplies to each fixture shall have chrome stop valves. Floor mounted water closets shall be connected using a cast iron floor flange and ring putty or gaskets. Wax gaskets are not acceptable for wall hung fixtures. Provide adequate supports and reinforcing for all wall hung fixtures, valves and shower heads. Install all fixtures rigid, plumb and true.

B. Grout and caulk all fixtures with water and mildew resistant white epoxy shall be Hydroment or Dow Corning No. 786. Grout shall not exceed 1/4" width and shall be installed flush with finished wall or floor.

C. All fixture installation dimensions shall be determined from the Architectural documents. Plumbing fixture colors to be selected by Architect.

D. P-Traps and water supplies insulate per ADA, ANSI and Minnesota Accessibility.

E. Controls for flushing water closets shall be mounted on the wide or most accessible side of the water closet.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. General and Supplementary conditions within Division 0 and 1 are hereby incorporated and become part of these Specifications, covering all work in Mechanical Division.

B. Before submitting a proposal on the project, the Contractor shall visit the site and familiarize themselves with the conditions and limitations affecting Mechanical Division work. No additional costs to the Owner shall be allowed for items verifiable during site visits.

C. Contractor shall provide sufficient workers and materials to keep pace with the construction schedule. Contractor shall place orders for equipment such that job progress is not slowed due to late delivery and shall confirm delivery dates with suppliers.

D. The Contractor shall provide office space and storage for materials and equipment supplied as required. Location shall be as directed by the General Contractor or the Architect/Engineer.

E. Upon completion of the work shown and specified under Mechanical Division and prior to final close out of the Project, the Contractor shall verify in writing that all systems are 100% complete and operating properly. This notification shall include copies of all Subcontractor notifications. Any system not operating properly at final inspection shall be immediately repaired and demonstrated to the Engineer.

F. Rebates or credits provided by utility companies or equipment manufacturers shall be directly credited to the Owner.

1.2 MECHANICAL PLANS

A. The Mechanical Drawings and Specifications shall form a set of Plans for the mechanical work. Neither the Drawings nor the Specifications shall be complete without the other. Any item shown on the Drawings or specified in the Specifications shall be considered as shown and specified on both.

B. Any questions regarding the intent of the Drawings or Specifications shall be brought to the Engineer's attention as soon as possible. If direction from the Engineer cannot be obtained due to time or communication limitations, the greater quantity, higher quality or condition most favorable to the Owner shall be assumed. Contractor shall provide all labor, materials, equipment, and miscellaneous items necessary for a complete and operational mechanical installation, as shown on the Drawings and called for in these Specifications.

C. Drawings:

1. Contractor shall familiarize themselves with Architectural, Structural and Electrical Drawings and Specifications. Coordinate all shafts, chases, furred spaces, suspended ceilings, locations of equipment, etc.
2. Mechanical Contractor shall coordinate routing of all piping and ductwork within soffits provided by the General Contractor. The Mechanical Contractor shall provide all soffiting required to cover installations not coordinated or specifically approved by the Architect and Engineer.
3. Mechanical Drawings are diagrammatic and are intended to show approximate location only. Placement of mechanical equipment and devices shall not interfere with locations or clearances of other trades' materials or equipment.
4. Contractor shall verify locations with architectural elevations.
5. Dimensions given on the Drawings shall take precedence over scaled dimensions. Dimensions, whether given in figures or scaled, shall be verified in the field.
6. Contractor shall verify that the equipment to be furnished under Contract will fit within the available space.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

7. Notify the Architect and Engineer of any discrepancies between Electrical, Architectural and Mechanical Drawings.
8. Verify items such as door swings, window locations, casework, etc., before installing any mechanical equipment or devices. All devices conflicting with other trade's work due to lack of coordination shall be relocated at no additional cost to the Owner.

D. The following terms used in the Drawings and Specifications shall be defined as follows:

1. Contractor: Shall mean Mechanical Contractor or any of their Subcontractors.
2. Work: Shall mean labor and/or materials of the Mechanical Contractor or any of their Subcontractors.
3. Furnish: Shall mean purchase, submit for Engineer approval, coordinate with Contract Documents and deliver to site in new, undamaged condition.
4. Connect: Shall mean to bring mechanical service and/or control wiring to equipment, make all final connections, provide all necessary miscellaneous materials required and do final check out to ensure proper equipment connections.
5. Install: Shall mean to store as directed, protect from damage, set in place, connect, test as required and turn over to the Owner in full operating condition.
6. Provide: Shall mean furnish and install.

E. CAD and Drawing Files:

1. Mechanical CAD drawings prepared by Steen Engineering, Inc. for this Project are instruments of Steen Engineering, Inc. for use solely with respect to this Project. During the course of the implementation of the Project, and with Steen Engineering, Inc. approval, copies may be obtained of CAD drawings for the preparation of Shop Drawings. These CAD drawings shall not be used on other projects, for additions to this Project, or for completion of this Project by others. Any revisions, additions and/or deletions to these CAD drawings, either intentional or unintentional, shall be made at the full risk of the person(s) making such revisions, additions and/or deletions. Such person(s) shall hold harmless and indemnify Steen Engineering, Inc. of any and all responsibilities and liabilities.
2. CAD drawings files of Architectural floor plans, elevations, sections, etc, shall be requested directly from the Architect.

1.3 COORDINATION OF DRAWINGS

A. For typical or repetitive HVAC unit installations, contractor shall schedule an inspection with local and/or state AHJ to review a complete mock-up example installation and receive approval prior to proceeding with additional installations. Installation shall meet all code and manufacturer's service clearance requirements. Contractor shall coordinate installation and subsequent inspection with general contractor and any related trades.

B. Contractor shall submit a ¼-inch scale drawing to the Engineer indicating placement of all mechanical and electrical systems and equipment. Indicate proposed locations of all major equipment and materials, including but not limited to service equipment, exterior wall and foundation penetrations, fire-rated wall and floor penetrations, sizes and location of required concrete pads and bases, and mechanical/electrical equipment room layouts. This effort will require each trade to closely work together to produce a ¼-inch set of coordination drawings for each area of the building.

C. Coordinate scheduling and sequencing required for movement and positioning of large equipment into the building with all other Contractors to minimize impact on their work.

D. This Contractor shall provide any and all input required to complete these drawings.

1.4 MATERIALS AND EQUIPMENT

A. Materials:

1. All materials shall be new and of the type and quality specified herein.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2. Specific materials and equipment specified is intended to establish a minimum standard of required quality. Where specified materials and equipment fail to meet minimum standards of existing federal, state and local codes and ordinances, the governing codes and ordinances shall prevail.
3. The Contractor shall provide all minor miscellaneous materials necessary for the complete mechanical installation.
4. For materials and equipment specified by description only, the Contractor shall provide materials or equipment suitable for the purpose intended. These shall be in conformance with all governing codes, these Specifications and normal trade practice.
5. Supply materials and equipment to the site in original packages, containers or crates insofar as is practical. It shall be the Contractor's responsibility to schedule deliveries in accordance with the overall Project schedule. The Contractor shall closely coordinate all deliveries with other Contractors and the Engineer.
6. Provide for proper receipt, handling, storage, and protection from the elements for all materials and equipment to be used on this Project so as to effectively prevent damage or deterioration. Materials or equipment sustaining damage or undue deterioration from any cause whatsoever shall be replaced or repaired by Contractor as required by the Engineer.
7. The Contractor shall properly protect all equipment from damage during construction. Thoroughly clean all fixtures, equipment and other supplied materials. Make all necessary repairs and apply touch up paint as required prior to final inspection and contract close out.
8. All materials and equipment shall be listed by Underwriters' Laboratories, Inc. (UL). Materials and Equipment shall meet the UL requirements of each standard in every case where such a standard has been established for that particular type of material. Equipment shall be UL listed as an entire assembly or system.

B. Prior Approvals:

1. All requests for prior approvals must be received by the Engineer at least seven working days prior to bid date. Applications for prior approval shall be considered only from Contractors submitting bids on the Project. Contractors shall determine whether materials receiving prior approval are actually in accordance with details of the Specifications.
2. The Contractor shall be responsible for all deficiencies that may exist from the use of substituted products or equipment, including all additional labor and materials required to complete the work. All dimensions and characteristics of substituted products shall be verified and coordinated with all affected trades and Subcontractors. Any required changes or modifications to the work of any other trade or Subcontractor incurred due to using accepted substituted products shall be coordinated and performed by this Contractor at no additional cost to the Owner.

1.5 SUBMITTALS

A. Within fifteen days after the award of the Contract, the Mechanical Contractor shall submit shop drawings on all major mechanical equipment to the Architect for approval. Shop Drawings shall be submitted by the Mechanical Contractor, not their Subcontractors. **Shop drawings shall be submitted separately per specification section. Multiple shop drawing sections received in a single submittal will be rejected.** These shop drawings shall cover such items as boilers, chillers, pumps, fittings, valves, plumbing fixtures, dampers, AHUs, fintube, exhaust fans, MUAs, diffusers, water heaters, water softeners, fire protection, etc. The Contractor shall thoroughly review each item for compliance with these Specifications making any necessary corrections prior to submittal. Each shop drawing set shall be stamped, signed and dated indicating Contractor review. If the Contractor fails to properly review shop drawings, the Contractor shall reimburse the Engineer for all additional reviews on a time and material basis. No equipment shall be released for shipment or installed prior to final approval by the Engineer.

B. The Engineer will review all Shop Drawings submitted and will retain one copy for record file.

C. Approval Stamp: This review is to verify general conformance with the design concept of the Project and substantial compliance with the information provided in the Contract Documents. This review does not in any way relieve the Contractor or their suppliers of their responsibility to provide all materials and equipment as specified, in quantities, quality and dimensions required. Submittals will be reviewed with the following actions:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. "No Exception Taken" indicates that the Submittal appears to conform to the design concept of the Work and that the Contractor, at his discretion, may proceed with fabrication and/or procurement and installation.
2. "Make Noted Corrections" indicates that the Submittal, after noted corrections are made, appears to conform to the design concept of the Work and that the Contractor, at his discretion, may proceed with fabrication and/or procurement and installation, if the corrections are accepted by the Contractor without an increase in Contract Sum or Time.
3. "Revised and Resubmit" indicates that the noted revisions are such that a corrected copy of the Submittal is required for review to confirm that the noted revisions have been understood and made. The Contractor, at his discretion, may proceed with fabrication and/or procurement and installation after submitting a corrected copy and verifying with the reviewer that the corrected copy is acceptable, if the corrections are accepted by the Contractor without an increase in the Contract Sum or Time.
4. "Rejected" indicates that the Submittal does not appear to conform to the specifications, a resubmission is required and fabrication or procurement is not authorized.

D. If the Engineer rejects (Revised and Resubmit or Rejected) the same section two times the engineer shall be compensated for additional reviews. Compensation will be incorporated by Change Order and will be deducted from the Contractor's application for payment. Contractor is responsible for all delays caused by the resubmittal process.

E. Provide samples of materials or equipment proposed to be furnished, if requested. Samples shall become the property of the Architect/Engineer and will be returned only when accompanied by a written request to do so.

F. Record Drawings: The Contractor shall provide and maintain an "As Built" set of bluelines on site, neatly notating routing, location or other field changes to the Contract Documents. Upon Project completion and prior to final close out, turn the "As Built" drawings over to the Owner. Provide a detailed transmittal indicating each sheet and other information turned over to the Owner and acquire their representative's signature. This information shall be included at the project close out.

1.6 WORKMANSHIP AND CONSTRUCTION PROCEDURES

A. Installation of all materials specified herein shall be performed in a neat and workmanlike manner by workers experienced and skilled in the trade. Only the best quality workmanship will be accepted.

B. The Contractor shall regularly clean their work area of debris. Removal of all Contractor generated debris and rubbish caused by their work shall be at the Contractor's expense.

C. Contractor shall coordinate with the Owner any interruptions necessary to existing systems prior to shut down.

D. Coordination:

1. Contractor shall give careful consideration to work of other Contractors on the Project and shall organize work as detailed in the Contractor's ¼" coordination drawings so as to not interfere with or delay the work of other trades.
2. This Contractor shall provide a complete installation manual to the Electrical Contractor for each piece of equipment requiring electrical power/control connections scheduled to be performed by the Electrical Contractor. This shall be done prior to any rough-ins by the Electrical Contractor to insure proper power/control wiring has been provided. Notify the Engineer of any discrepancies between the installation manuals, the electrical plans and the mechanical specifications for each piece of equipment.
3. Contractor shall consult all Architectural, Structural and Electrical Drawings and Specifications that apply for correlating information.
4. Conflicts or interference with work of other trades shall be brought to the attention of the Engineer, in writing, before installation.
5. Should the Mechanical Contractor not follow above procedures and install work that interferes with work of other Contractors, the Mechanical Contractor shall make all necessary changes as directed by Engineer to eliminate the interference or conflict at the Mechanical Contractor's expense.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

E. Protection of Equipment:

1. Until final acceptance of the work by the Owner, the Contractor shall be responsible for the safety, good condition, and protection from damage of all materials and equipment installed.
2. If, during shipment or installation, the finish of equipment becomes chipped or scratched, the Contractor shall touch up or refinish surfaces to match original finish.

F. The Contractor shall complete all safety forms required by General Contractor.

1.7 LICENSES, CODES AND FEES

A. The Contractor shall be a licensed Contractor in the State where the project is being constructed. The Contractor shall employ all Licensed Professional Tradesmen required for each type of work covered under these Drawings and Specifications.

B. The Contractor shall procure all necessary certificates and permits and pay all required fees. The Contractor shall pay all fees and installation charges by the utility company for the permanent services.

C. Codes and Ordinances: All work and materials shall meet the requirements of national, state and local codes and ordinances, in every respect. This requirement shall not relieve the Contractor from meeting the requirements of Drawings and Specifications that may be in excess of all codes and ordinances and not contrary to them.

D. Inspections: Regular inspections shall be requested by the Mechanical Contractor to meet all state and local requirements. Contractor shall furnish a certificate of final inspection and approval from all enforcement agencies to the Owner.

1.8 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall deliver two sets of Operation and Maintenance (O&M) manuals to the Owner prior to final close out. O&M manuals shall consist of approved shop drawings, manufacturer's bulletins, equipment manuals, a list of manufacturers with telephone numbers for all equipment that contains replaceable parts and all other data covering the care, maintenance and operation of each piece of furnished equipment. O&M manuals shall be neatly bound in 3-ring binders, contain an index and section tabs and be labeled with the Project name.

B. Name, address, and telephone number of each Contractor installing equipment and systems, local representative for each item of equipment and each system. Table of contents shall correspond to the Specifications with the Section tab sheets placed before the respective Shop Drawings and operation and maintenance instructions.

1. Warranties for more than 1 year shall be included in appropriate section.
2. A maintenance and lubrication schedule shall include each motor, function, control location, fuse location, belt sizes type of lubricant, and rate of lubrication in accordance with manufacturer.
3. A filter maintenance schedule shall include filter size and quantity for each unit, located by room number.

1.9 OPERATING INSTRUCTIONS AND TESTING

A. The Contractor shall fully instruct the Owner in the operation of mechanical equipment prior to final close out. Contractor shall provide, without additional expense to Owner, services of competent instructors who will give full instruction in the care, adjustment, operation and maintenance of all mechanical systems provided by this Contractor to Owner's permanent employees. Instructor shall be thoroughly familiar with all parts of the installation that they are to give instructions and shall be trained in operating theory, as well as in practical operation and maintenance work. Factory trained instructors shall be employed wherever they are available. Instruction shall be given during regular work week and at a time just prior to the time the equipment is accepted and turned over to Owner for regular operation.

B. The Contractor or his representative shall provide a minimum of five days instruction period for Owner's personnel.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Contractor shall test all equipment installed under this Specification and shall demonstrate its proper operation to the Engineer. No equipment shall be tested or operated for any purpose until it has been fully prepared, connected and made ready for normal operation. Damage to equipment due to improper or ill-timed operation or testing shall be repaired, at Contractor's expense, before final inspection and acceptance.

1.10 WARRANTY

A. The Contractor shall guarantee all materials and equipment to be free of defects that may develop in any part of their work, caused by faulty workmanship, material or equipment failures, for a minimum of one year from the date of final completion of the Project or for as long as normal equipment manufacturer warranties are in effect from the date of final completion of the Project, whichever is later.

B. During the guarantee period, notification by letter, personal contact or telephone conversation of a problem with any mechanical system, shall cause the Contractor to respond within one week, making repairs or corrections as necessary. After all repairs and corrections are complete, the Contractor shall notify the Engineer.

C. During the guarantee period, the Contractor shall agree to provide 24 hour service on call for emergency.

Part 2. – PRODUCTS

N/A

Part 3. - EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Work included under this Division shall consist of furnishing labor and materials necessary for the installation of the work called for under the Mechanical, Fire Sprinkler Protection, Temperature Control and Mechanical Test & Balance contracts as listed in the Instruction to Bidders, as specified, and as shown on Drawings to provide a complete, operable and approved system.

1.2 REFERENCES

A. The following is a partial list of related standards:

1. Air Conditioning and Refrigeration Institute (ARI).
2. American National Standard Institute (ANSI).
3. American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE).
4. American Society of Mechanical Engineers (ASME).
5. American Society for Testing and Materials (ASTM).
6. Air Moving and Conditioning Association (AMCA).
7. Manufacturer's Standardization Society (MSS of the Valve and Fittings Industry, Inc.).
8. National Electrical Manufacturers Association (NEMA).
9. Plastic Pipe Institute (PPI).
10. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
11. Steel Tank Institute (STI).

1.3 QUALITY ASSURANCE

A. Where equipment is specified by manufacturer, brand name or catalog number, this shall establish the standard of quality and style of the product to be provided under the Contract.

B. Where two or more units of the same kind of equipment are required, they shall be products of a single manufacturer. Mixing and matching of various manufacturer's like or similar components shall not be permitted.

C. The Contractor shall field verify and inspect existing buildings for connections to existing systems, equipment, and materials designated, on Drawings or in Specifications, to be used.

D. The Contractor shall have full responsibility of component parts of the mechanical system to ensure that new equipment, integrated with existing equipment and systems, will perform and operate in accordance with requirements of the Specifications without excessive or unusual service or maintenance requirements.

E. The Contractor shall be responsible for verifying locations of such things as piping, ductwork, equipment, door swings, heights of cabinets and counters, etc., prior to the installation of any mechanical equipment. Installed mechanical work that interferes with the work of other trades shall be relocated by the Mechanical Contractor at no additional cost to the Owner.

F. Contractors shall coordinate with all other trades and install their systems in the space provided/coordinated within the structure. Install systems and materials for ease of maintenance. Equipment arrangements shall provide at least the minimum clearances as recommended by equipment manufacturer to facilitate proper maintenance and servicing of system. Deviations in minimum clearance requirements shall be permitted only upon prior written authorization from the Architect/Engineer.

G. For project sites higher than 2000 feet or more above sea level, gas fired equipment shall be modified as required to maintain specified output.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 2. - PRODUCTS

2.1 FIRE BARRIER PENETRATION SEALING SYSTEMS:

A. Approved Manufacturers: Hilti, 3M, Transco Products, Nelson Flameseal Systems, Tremco, Inc..

B. Firestopping materials shall conform to local building code requirements and shall be tested according to UL 1479 and ASTME-814 for through-penetration firestop systems.

C. Firestopping materials shall be furnished by a supplier who specializes in the selection and furnishing of firestopping materials for building systems.

D. Submit shop drawings including a penetration protection schedule which lists each fire resistive construction type for this project, its fire rating, item penetrating and insulation (if any) UL through-penetration firestop systems number, manufacturer and model numbers. Include installation diagrams and product data sheet.

E. Contractor shall submit all fire stopping methods to Local Authorities for approval. Provide copies of all approved fire stopping methods to the Engineer. Seal all penetrations and sleeves through floors and fire walls with high temperature, fire rated sealant. Fire stop material shall be 3M brand Fire Barrier Penetration System. In lieu of type system described above, modular component system shall be ProSet System Inc. may be utilized. Install the appropriate concrete or wood penetration system as required by code.

2.2 WALL, FLOOR, AND CEILING OPENINGS

A. General Requirements:

1. Contractor shall be responsible for exact sizes and locations of chases and openings required for mechanical work.

B. Chases and Openings:

1. General Contractor shall leave chases and openings in walls, floors, ceilings, and partitions where shown on Drawings or otherwise necessary to receive mechanical work. It is this contractor's responsibility to coordinate sizes and locations prior to framing, pouring or setting of precast.

2.3 SLEEVES

A. General Requirements:

1. Provide sleeves in conjunction with water tight piping passing through concrete or masonry walls, partitions, and slabs. Provide sleeves in mechanical equipment rooms and chases to prevent water flooding from floor to floor in addition to separating piping from building structure.
2. Sleeves shall extend 3" beyond the full thickness of walls and slabs and shall be at least 2 pipe diameters larger than or 2" larger than ducts piping passing through. Where piping with covering is installed, a minimum of 1" shall be provided between outside of pipe covering and inside surface of the sleeve.

B. Duct Sleeves:

1. Material: Except as otherwise indicated, duct sleeves shall be constructed of minimum 22 gauge galvanized iron.
2. Vertical Sleeves: Vertical duct sleeves through floors shall have space between duct and sleeve packed with an approved fire stop material flush with top of sleeve to make a fire rated and watertight joint. Insulated duct shall have foamed rubber insulation full length within sleeves.
3. Placement: Set sheet metal sleeves for ductwork passing through floors above grade. Sleeve shall extend 3-inch above finished floor elevation. Sleeve shall be supported in place before floor is poured and shall

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

be caulked to make a waterproof joint between floor and sleeve. Where more than one duct is passing through a floor slab above grade and one floor opening for all ducts is provided, sleeve shall be same size as the overall opening.

4. Interior Sleeves: Ductwork through walls shall have soundproof packing in non-rated wall sleeves and an approved fire stop material in fire rated wall sleeves. Ducts passing through corridor walls not containing fire dampers shall be sleeved.
5. Exterior Sleeves: Ductwork passing through exterior walls shall be sleeved and caulked watertight. Exterior ductwork shall be so installed as to pitch away from wall penetration a minimum of ¼-inch per foot.
6. Fire Rated Wall and Floor Openings: Ductwork passing through fire rated walls and floors shall be provided with an Underwriters' Laboratories listed duct and sleeve assembly. Duct and sleeve assembly shall meet or exceed fire rating of wall and floor through which the duct passes.

C. Pipe sleeves:

1. Exterior Walls: Sleeves shall be standard weight steel pipe. Install sleeves in exterior walls and floors below grade with approved caulking between sleeves and piping to make it waterproof. Plastic sleeves shall not be used.
2. Floors: Sleeves shall be standard weight steel pipe. Vertical pipe sleeves through floors shall have space between pipe and sleeve packed with an approved fire stop material flush with top of sleeve to make a watertight and fire rated joint.
3. Interior Sleeves: Sleeves shall be standard weight steel pipe. Piping through walls of adjacent rooms shall have soundproof packing in non-rated walls and an approved fire stop material in fire rated walls.
4. Fire Rated Wall and Floor Openings: Piping passing through fire rated walls and floors shall be provided with an Underwriter's Laboratories, Inc. listed pipe and pipe sleeve assembly. Pipe and pipe sleeve assembly shall meet or exceed fire rating of wall and floor which the pipe passes through.
5. Contractor shall provide all sleeves required through footings, foundation walls and floors. Underground water services as indicated on plans shall be sleeved with schedule 40 PVC sleeving. Sleeve to be (1) size larger than the pipe it serves. Extend sleeves 0'-3" beyond penetration. Coordinate with Structural Engineer.

2.4 ACCESS PANELS

A. The Contractor shall provide means of access for all equipment, smoke/fire dampers, fire damper, valves and fittings specified. Furnish wall and ceiling access panels as required to the General Contractor for installation. Access doors and panels required within rated separations shall carry the appropriate rating. Conform to Division 8 access panel specifications. Contractor to provide separate per unit price per access panel for pricing purposes.

Part 3. - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. On-Site Review: Contractor shall visit site to become thoroughly acquainted with existing conditions of site and services.
2. Existing Active Services: When encountered during construction, Contractor shall protect, brace or support pneumatic tubing, existing active sewers, water, gas, ductwork, or other services, where required, for proper execution of Work.
3. Inactive Services: If encountered during construction, Contractor, as appropriate, shall cap or plug inactive pipes, ducts, and temperature control tubing or wiring at no additional cost to Owner.
4. Responsibility: Liability for repairs or replacement of damaged or defective materials, including, but not limited to, property damage resulting from negligence or other causes, shall be the Contractor's sole responsibility until work has been accepted by Architect/ Engineer and Owner.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.2 PREPARATION

A. Protection: After delivery, and before and after installation, equipment shall be protected against theft or damage.

1. Contractor shall protect plumbing fixtures, metal heating enclosures and other equipment and all baked enamel or glazed surfaces from damage by covering or coating as recommended in Bulletin, "Handling and Care of Enameled Cast Iron Plumbing Fixtures", issued by Plumbing Fixture Manufacturers Association or by other methods approved by Architect/Engineer.
2. Coat polished or plate metal parts with vaseline immediately after installation. Protect equipment outlets, pipe and conduit openings with temporary plugs, caps or burlap as required to prevent filling with construction dirt.

3.3 EXCAVATION AND BACKFILL

A. Excavation: Contractor shall perform excavation boring, drilling, back filling and compaction at required depth for installation of work indicated or specified.

1. Excavated material not required or not suitable for backfilling shall be removed from site.
2. Protect excavation by grading and pumping to keep space clear of water during construction.
3. Provide shoring and sheeting as necessary for protection of work and safety of personnel. Protect bottom of excavation from frost.
4. Excavation in rock shall be 8-inch below invert of pipe to be installed and shall be backfilled to a depth of 8-inch with clean, washed sand before pipe installation.
5. Excavation terminating in unstable or organic material at pipe invert elevation shall be continued to 30-inch below pipe invert elevation and backfilled with pit run gravel to pipe invert. Soil boring reports are available for inspection at Architect's office.
6. Pipe installation in backfilled areas shall not occur until backfill is 2 feet above pipe invert, at which time backfill shall be excavated to proper depth, pipe installed, and backfill replaced as specified.
7. All lines are to be properly capped to prevent the entrance of dirt or any other foreign matter. All debris and water shall be removed from the trench prior to final installation. Properly protect piping or ductwork until backfilling can be performed. Inspection of all installations by Local Inspection Authorities shall be completed prior to backfilling.

B. Backfilling Under Floors and Slabs: Backfill areas below concrete slabs on grade in horizontal layers not to exceed 8-inch in depth and compact with approved equipment until dry density is not less than 95 percent of Standard Proctor Density.

1. Backfill material shall be pit run gravel or coarse sand free of rubbish, compacted and leveled to receive slab. If natural earth is of similar structure with same material as specified above, no additional material will be required. Fill to raise subgrades to required elevation shall be accomplished as specified above.
2. Materials and methods of compaction shall be approved by Architect/Engineer before start of work.
3. Areas not below concrete or asphalt slabs and footings shall be backfilled with suitable excavated material, free of debris and rubbish.
4. Carefully backfill to a point 6” above piping or ductwork and thoroughly tamp. Complete backfilling in 8” lifts and compact each layer to 98% standard proctor density. Restore surface to its original condition, i.e. grass, concrete, blacktop, etc.
5. Contractor shall pay costs for testing of compacted backfill by an approved testing laboratory when tests are requested by Architect/Engineer.

C. Backfilling Outside: Backfill excavations below finished grades with materials similar to that removed in excavation, free from rubbish or other unsuitable material. Place backfill and compact as required to prevent settling.

1. Backfilling shall be done to finished grades indicated on Drawings. If no finished grading is done in excavated areas, Contractor shall backfill to existing grades and restore surface to original condition.
2. Compaction over ditches less than 3 feet in width and around walls and columns shall be done by the use of mechanical hand compactors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3. Contractor shall pay costs for testing of compacted backfill by an approved testing laboratory when tests are requested by Architect/Engineer.

D. Pavement, Curb, and Sidewalk Replacement:

1. Contractor shall be responsible for the replacement of existing street pavement, curbs and sidewalks removed or damaged by Contractor or related subcontractors.
2. Make necessary arrangements to perform such repairs and pay incurred costs in connection with said repairs, including amount in Bid.

3.4 CUTTING AND PATCHING

A. Cutting and patching shall be held to practical minimum consistent with good construction practice by properly locating and leaving sleeves and boxes, or notifying General Contractor of openings, where required, as construction progresses. All cutting and patching shall be done with the prior approval of the Architect/Engineer.

1. Necessary cutting and patching of walls, floors, partitions and ceilings, as required for the proper installation of work under this Contract, shall be the sole responsibility of this Contractor. Perform cutting and patching in such a manner as to leave no visible trace and to return the part affected to the condition of undisturbed work. Cutting and patching shall be performed by men experienced, skilled, and licensed for the particular type of work involved. Inferior work will not be accepted.

B. Pavements and Concrete: Cutting shall be accomplished by saw cutting a minimum of 1 ½-inch deep prior to jack hammering. Contractor shall bore below the surface where indicated on Drawings or where required by Architect/Engineer.

C. Repair: Patch pavements and concrete to match existing conditions. All labor and materials required to replace and repair sections cut or damaged shall be furnished and installed by this Contractor.

3.5 INSTALLATION

A. Connection to Equipment Specified: Provide material and labor required to connect to the mechanical system of fixtures and equipment having mechanical connections and which are specified in other Sections or Divisions of the Specifications or furnished by Owner.

1. Provide piping supply connections with shut-off valves.
2. Ductwork connections to equipment, diffusers, and appurtenances shall be made with flexible ductwork unless a solid connection is indicated.
3. Drainage connections shall be properly trapped and vented.

B. The Mechanical Contractor shall provide concrete pads for all floor mounted equipment. Pads shall be 4” thick and extend a minimum of 2” beyond equipment.

C. Mechanical Contractor shall provide angle iron stands for all gas fired equipment located on the same level or below any enclosed parking garage floor where the mechanical room opens to that same level. Stands shall elevate burners above 18” or as required by Local Code. This includes all MUA units, furnaces, water heaters, boilers, etc. Verify exact requirements with the Local Inspector prior to performing any fabrication.

D. Floor, Wall and Ceiling Plates:

1. Where uncovered exposed pipes pass through floors, walls or ceilings in finished rooms and inside casework, fit with approved type chrome plated metal plate.
2. Plastic escutcheon plates shall not be permitted.

E. Mechanical Systems Painting: Exposed supporting iron and steel work, bare pipe, fittings, hangers, and supports shall be wire brushed, washed with mineral spirits to remove dirt and grease, and painted with one coat of metal

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

primer followed by two finish coats of battleship gray paint.

F. Concealed Equipment location: Location of motor operated equipment, furnished under this Contract, installed above ceiling shall be identified by placing a color coded thumb tack (or adhesive applied dot) in the ceiling directly below item noted. Identification colors shall be as follows:

1.	Exhaust Fans:	Green
2.	Air Handling Units:	Blue
3.	Control Valves:	Yellow
4.	Shut-off Valves:	Orange
5.	Fan Coils:	Red

G. Filtration: At time of substantial completion, and prior to turning equipment over to Owner, Contractor shall install a complete set of unused, clean filters in each type of unit supplying filtered air to the building.

3.6 IDENTIFICATION

A. Exposed Piping: Bare and insulated, exposed new piping in Boiler Room, Mechanical Rooms, and unfinished rooms shall be identified with labels, painted on using metal stencils. Stencils shall have 1-inch high letters and shall include a directional arrow 3-inch long by 1/2-inch wide, indication direction of flow. Color of stenciling shall be black lettering on a yellow background.

1. Labels shall be located at each change in direction of pipe runs and at intervals not to exceed 20 feet.
2. Setmark snap-on pipe markers by Seton Nameplate Corporation or snap-on pipe markers by W. H. Brady Company, which are similar to above stencil description shall be acceptable.

B. Concealed Piping: Bare and insulated new piping running in ceilings and soffits shall be identified with labels painted on using metal stencils. Each stencil shall have 1-inch high letters and shall include a directional arrow 3-inch long by 1/2-inch wide indicating direction of flow. Color of stenciling shall be black lettering on a yellow background.

1. Labels shall be located at each change in direction of pipe runs and at intervals not to exceed 20 feet.
2. Labels shall be located on each side of wall, partition and floor penetrations.
3. Setmark snap-on pipe markers by Seton Nameplate Corporation or snap-on pipe markers by W. H. Brady Company, which are similar to above stencil description shall be acceptable.

C. Pipe Markers: Contractor shall label the piping as follows:

1.	Condensate Drain	CD

D. Equipment: All scheduled equipment under this Division shall be identified with stamped labeled placards matching the scheduled identification tags and adhere directly to the equipment.

E. Controls: Controls and switches furnished under this Divisions shall be clearly labeled and identified.

F. Rated Dampers:

1. All rated fire, smoke and combination smoke/fire dampers shall be numbered and clearly labeled at ceilings and/or walls with ½" lettering. At duct penetrations in exposed areas, labels may apply directly on damper assembly or ductwork in a conspicuous location. For dampers located in floor penetrations, identification labels shall be at corresponding wall/ceiling access panel.

3.7 CLEANING

A. Housekeeping, Cleaning and Storage: Remove from the building and site, scrap material, temporary building, packaging material, miscellaneous debris, and dirt on a regular schedule, or as required, and in accordance with Architect/Engineer's direction, to maintain building in a reasonably clean, workable condition during construction.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. Cutting oil and steel shavings shall be caught in a suitable container to ensure final finish material in building will not be marred or damaged.
2. Upon completion of work and before final inspection, Contractor shall remove plaster, paint, rust, stickers, and shipping tags from installed equipment.
3. Clean foreign matter from installed equipment and remove dirt and debris, in connection with work, from building.

3.8 PRE-OPERATIONAL SYSTEM CLEANOUT

A. Pre-Cleaning Chemicals: New piping systems and appurtenances shall be cleaned with a one percent solution of Ferrosol 345, neutral pH cleaner to remove any iron deposits, oil-based coatings, mill scale and construction residues.

1. Follow manufacturers' directions regarding equipment.

B. Cooling and Heating Water Systems: The chiller, condenser and chilled water lines and related cooling equipment, boiler, heat exchangers, heating piping and related heating equipment shall be thoroughly flushed out with precleaning chemicals, as called for above, designed to remove deposits such as pipe dope, oils, loose rust, mill scale and other extraneous materials.

1. Add recommended dosages of manufactured and blended pre-cleaner chemical products and circulate throughout the water system. Drain, fill and flush water systems until no foreign mater is observed and the total alkalinity of the rinse water is equal to that of the make-up water.
2. Clean strainer screen after each flush and furnish and install new strainer screens prior to filling system for operation.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Section includes testing, adjusting, and balancing of air, plumbing and natural gas systems, testing, adjusting, and balancing of hydronic [steam] [and] [refrigerating] systems, measurement of final operating condition of HVAC systems, sound measurement of equipment operating conditions, vibration measurement of equipment of operating conditions.

1.2 REFERENCES

A. AABC (Associated Air Balance Council)-National Standards for Total System Balance.

B. ASHRAE 111 (American Society of Heating, Refrigerating and Air Conditioning Engineers). Practices for Measurement, Testing Adjusting and Balancing of Building, Heating, Ventilation, Air Conditioning and Refrigeration Systems.

C. NEBB (National Environmental Balancing Bureau). Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.

D. TABB (Testing, Adjusting and Balancing Bureau). International Standards for Environmental Systems Balance.

1.3 DEFINITIONS

A. TAB: Testing, Adjusting, and Balancing. The process of checking and adjusting HVAC systems to meet design objective.

B. Basic TAB terms used in this Section: Chapter, “Testing, Adjusting and Balancing” of ASHRAE Handbook, latest Applications Volume.

1.4 SUBMITTALS

A. Test Reports: Indicate data on AABC National Standards for Total System Balance forms, forms prepared following ASHRAE 111, TABB/SMACNA or NEBB Report forms.

B. Field Reports: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.

C. Prior to commencing Work, submit report forms or outlines indicating adjusting, balancing, and equipment data required.

D. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.

E. Provide reports in bound manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

F. Include detailed procedures, agenda, sample report forms and a copy of either AABC National Project Performance Guaranty or NEBB Certificate of Conformance Certification prior to commencing system balance.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

3.1 GENERAL

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:

1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Ventilation Systems:

    a. Final filters are clean and in place. If required, install temporary media in addition to final filters.
    b. Duct systems are clean of debris.
    c. Fans are rotating correctly.
    d. Fire and volume dampers are in place and open.
    e. Access doors are closed and duct end caps are in place.
    f. Air outlets are installed and connected.
    g. Air coil fins are cleaned.

5. Hydronic Systems:

    a. Pumps are rotating correctly.
    b. Proper strainers are clean and in place or in normal positions.
    c. Service and balance valves are open.
    d. Systems are flushed, filled and vented.

B. When the work has been completed, balance the air flow from each diffuser and register in accordance with the recommendations of the diffuser manufacturer, setting dampers, controls and/or other volume control devices in such a manner as to produce the air flow rate indicated on the drawings. Test to the satisfaction of the Engineer to insure for satisfactory operation of all equipment:

1. Air Handling Systems: Adjust to within plus or minus 10 percent of design.
2. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.
3. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

C. Test and start-up all equipment supplied under this contract.

1. Provide all reports necessary to assure the Engineer and Owner that all functions of each piece of equipment have been thoroughly evaluated and deemed operable as designed.
2. Ensure recorded data represents actual measured or observed conditions.
3. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
4. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
5. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.
6. For variable air volume system powered units set volume controller to airflow setting indicated. Confirm connections properly made and confirm proper operation for automatic variable-air-volume temperature control.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.2 WATER SYSTEM PROCEDURE

A. Adjust water systems after air balancing to provide design quantities:

1. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gauges to determine flow rates for system balance. Where flow-metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.
2. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.
3. Effect system balance with automatic control valves fully open or in normal position to heat transfer elements.
4. Effect adjustment of water distribution systems by means of balancing cocks, valves and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.
5. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

3.3 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return and exhaust air quantities.

B. Make air quantity measurements in main ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts.

E. Use volume control devices to regulate air quantities only to extent that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.

F. Vary total system air quantities by adjustment of fan speeds. Provide sheave drive changes as required to vary fan speed. Vary branch air quantities by damper regulation.

G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers to check leakage.

J. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches w.c. (12.5 Pa) positive static pressure near the building entries.

K. Check multi-zone units for motorized damper leakage. Adjust air quantities with mixing dampers set first for cooling, then heating, then modulating.

L. Ventilation: Contractor shall guarantee complete uniform circulation of air through ventilated spaces without objectionable noise. Contractor shall assume responsibility for and shall replace any faulty workmanship, material or equipment during a period of 1 year from date of final acceptance.

3.4 START-UP AND COMMISSIONING

A. Following substantial completion, contractor shall return to the site on a quarterly basis including four (4) balancing/commissioning sessions. Commissioning shall consist of rebalancing both air and water side systems to the extent required to verify proper operation of all system components and controls. Balancing contractor shall coordinate with all trades including controls contractor to make required adjustments.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Section Includes: Include labor, materials, equipment, and accessories to furnish and install supports, anchors, and seals for equipment, materials, and related work specified elsewhere.

1.2 SUBMITTALS

A. Submit shop drawings for all equipment provided under this section. Drawing shall include registered Structural Engineers Seal where required.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Guides manufactured by: Metraflex, Hyspan, Flexweld- Keflex, Flexicraft, Flexonic, Anvil International.

B. Supports and hangers manufactured by: B-Line, Grinnell, Michigan, Anvil International, NIBCO, National, Empire Industries and L.C. Penner.

C. Expansion anchors manufactured by: Hilti, Simpson, Illinois Tool Works.

D. Power driven fasteners manufactured by: Hilti, Simpson, Norbord.

E. Firestop material for penetration or construction manufactured by: 3M MP-1 Moldable Putty Flamseal Putty, 3M Caulk CP-25WB, Dow Corning 3-6548 RTV Foam, Tremco.

2.2 DUCTWORK INSERTS AND HANGERS

A. General: Support ductwork by concrete inserts in concrete construction, "C" clamps for beams and bar joists, or toggle bolts on prefabricated reinforced hollow concrete slabs. All supports shall be installed per SMACNA Duct Construction Standards latest addition.

B. Rectangular Ductwork: From any of these structure connection supports, provide hanger straps or hanger rod with supporting angle iron below rectangular ductwork:

Longest Dimension of Duct (Inches)	Rod Hangers	Strap Hangers	Trapeze Hanger or Shelf Angles	Spacing Max.
Up Through 18	3/8-Inch Rod	1 Inch by 18 Gauge	1 by 1 by 1/8	10 Feet
19 Through 30	3/8-Inch Rod	1 Inch by 18 Gauge	1 by 1 by 1/8	10 Feet

C. Round Ductwork: Form any of these structure connection supports, provide hanger straps or hanger rod with supporting angle iron below round ductwork:

Duct Diameter	Rod Hangers	Strap Hangers	Maximum Spacing
Up Through 18	1/4-Inch Rod	1 Inch by 22 Gauge	12 Feet

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

D. Support:

1. Provide bridging between structural members, as required, to provide adequate support locations for hangers.

2.3 PIPING INSERTS AND HANGERS

A. Hanger Supports and Inserts: Piping suspended from construction above shall be hung from concrete inserts in concrete construction, toggle bolts and rod coupling on prefabricated, reinforced hollow concrete slabs, I-beam clamps or hanger rod, washer and two nuts on bar joist construction. On other types of building construction a field approved type clamp or bracket shall be used.

B. Hangers, Clamps, and Collars: Piping shall be suspended from inserts, clamps or brackets by means of clevis type or roller type hanger and solid steel rods spaced not more than 10 feet apart on steel pipe and pipe rings spaced not more than 8 feet apart on copper pipe. Support vertical cast iron and steel pipes at each floor by heavy wrought steel riser clamps or collars. Support vertical copper pipes at each floor by riser clamps with asphalt felt lining under couplings placed in vertical copper piping. Support piping 4-inches and larger by single pipe roller assemblies with adjustable socket.

2.4 ANCHORS AND GUIDES

A. Anchor Fabrication: Construct anchors using I-beams, channel iron, tees, or angles or a combination thereof.

1. Tee iron shall be welded to side, top or bottom of pipe. Angle iron diagonal bracing shall be welded or bolted to tee iron and wall or ceiling. Anchors shall be welded or double clamped to pipe.
2. Where a group of pipes are to be anchored, but cannot be secured as above, the pipes shall be anchored to an assembly constructed of I-beams, channels or both, which shall be anchored to the building structure.

B. Guides: Guides shall be fabricated from carbon steel. Housing shall be of two piece design, connecting upper and lower housing with two bolt or by welding, after spider and pipe have been set in lower half of housing. Lower housing shall have two legs for support running the full length of housing. Two piece spider clamp shall be fastened around pipe (or pipe with insulation) with two bolts forming six legs which guide pipe inside housing. Legs may be on bottom, side or top of unit for bolting to floor or top of beam, wall or underside of structure.

1. Insulation inside the spider clamp shall be hydrous calcium chloride with vapor barrier from entering and exiting pipe continuing through the clamp.
2. Unit shall be furnished with a factory baked enamel finish.

C. For multi-level wood floor construction allow for wood shrinkage and movement. Provide clearance for piping near wood construction.

PART 3. - EXECUTION

3.1 HANGER INSTALLATION

A. Hanger Location: Locate hangers to properly support pipes and ducts; relieve strain on pipe, duct, and fittings; and allow for ample expansion and contraction. Piping smaller than 4-inch size shall be hung with individual ring hangers where space prevents use of other type hangers.

1. Piping or ductwork shall not be hung from the roof deck.
2. Except where trapeze hangers are used to support piping, all piping and ductwork shall be individually supported. Do not support ducts or pipes from other pipes, ducts or equipment or conduit.
3. Place a hanger within one foot of each horizontal elbow.

B. Anchor Piping in Chases: Copper piping in pipe chases behind plumbing fixtures shall be anchored to waste and vent piping with angle iron and U-clamps with asphalt felt lining under clamps.

C. Trapeze Hangers: Groups of pipes at the same elevation and close together may, at the option of the Contractor,

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions
DATE: 06/28/18
BLD #: BLD17-00688

be supported by suitable trapeze hangers suspended from inserts, clamps or brackets by solid steel rods.

D. Plastic Piping Support: Support plastic piping from above inserts, clamps or brackets with Grinnell Figure 269 adjustable ring hanger on 32-inch centers.

3.2 PIPE HANGERS AND SUPPORT

A. Support horizontal steel and copper piping with maximum spacing between supports as noted.

Nominal Pipe Size (In.)	Distance Between Supports (Ft.)	Hanger Rod Diameter (In.)
½ & ¾	6	3/8
1 to 1 ½	8	3/8
2 & 2 ½	10	½
3 & 4	12	5/8
5 to 12	14	7/8

B. Provide additional supports for valves or other concentrated loads between supports.

C. Install hangers to provide minimum ½ inch clear space between finished pipe insulation and adjacent work.

D. Use hangers which are vertically adjustable 1-1/2 inch minimum after piping is erected.

E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

F. Provide hanger spreaders on hangers for pipes 4 inches and larger.

3.3 BRACKETS, BRACES AND SUPPORTS

A. General Requirements: Furnish and install brackets, braces or reinforcing angles in partitions not sufficient in themselves to support piping or plumbing fixtures or other wall hung equipment included in this Specification. Bolts shall extend through walls, finished on opposite side, or one wall of a pipe chase, and shall be not less than 3/8-inch brass bolts with 3-inch cut washer on opposite side of wall.

B. Fasteners: Bolt head and washer shall be concealed under wall finish on finished walls. On hollow walls not finished on opposite sides, use toggle bolts. On solid walls use 3/8-inch brass bolt extending 4 inches into wall secured with molten lead poured around bolt. Secure floor mounted wall closets with 5/16-inch brass bolt with chrome plated cap, nut, and washer.

C. Support Racks: Support tunnel piping on Unistrut, Bee-Line, pipe racks assembled as indicated by details on Drawings. Unistrut steel products shall have prime bonderized finish coating.

D. Pipe Drop Supports: Brace exposed pipe drops to pumps and other equipment with angle iron framework to relieve strain on flexible connectors or equipment and anchor piping to eliminate movement.

3.4 INSULATION PROTECTION AT PIPE HANGERS

A. Shield insulation shall be galvanized steel, 16 gauge for piping smaller than 4 inches, 14 gauge for piping 4 inches and larger and shall span an arc of 180 degrees. Lengths of shields shall be as follows:

Pipe Size	Shield Length
Up to 6”	12”
8”-12”	16”

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Intent:

1. All mechanical equipment, piping and ductwork as noted on the equipment schedule or in the specification shall be mounted on or suspended from vibration isolators to reduce the transmission of vibration and mechanically transmitted sound to the building structure. Vibration isolators shall be selected in accordance with the weight distribution so as to produce reasonably uniform deflections.
2. All isolation materials shall be supplied by the same manufacturer.
3. Any variance or non-compliance with these specification requirements shall be corrected by the contractor in an approved manner.

B. The work in this section includes, but is not limited to the following:

1. Vibration isolation for piping, ductwork and equipment.
2. Equipment isolation bases.
3. Flexible piping connections.
4. Resilient Pipe Anchors and Guides.

1.2 SUBMITTAL DATA REQUIREMENTS

A. The manufacturer of vibration isolation shall provide submittals for products as follows:

1. Descriptive Data:

   a. Schedules of flexibly mounted equipment, referencing drawings by number.
   b. Catalog cuts or data sheets on vibration isolators.

2. Drawings:

   a. Submit details of equipment bases including dimensions, structural member sizes and support point locations.
   b. Submit details of isolation hangers for ceiling hung equipment, piping and ductwork.
   c. Submit details of mountings for floor supported equipment, piping and ductwork.
   d. All hanger, mounting or pad drawings shall indicate deflections and model numbers as well as any other requirements in the specifications.
   e. Spring diameters, rated loads and deflections, heights at rated load and closed height shall be provided for all springs shown in the submittals in tabular form.
   f. Complete flexible connector details.

Part 2. - PRODUCTS

2.1 INTENT

A. All vibration isolators described in this section shall be the product of a single manufacturer. Mason Industries products are the basis of these specifications; products of other manufacturers will be considered provided samples strictly comply with the specification and have the approval of the specifying engineer. Submittals and certification sheets shall be in accordance with Section 1.2.

B. Refer to Equipment Schedules on Drawings for specified isolator types in Section 2.2 that correspond to the letters in that section.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

2.2 PRODUCT DESCRIPTION

A. Neoprene mountings shall have a minimum static deflection of 0.35"(9mm). All metal surfaces shall be neoprene covered and have friction pads both top and bottom. Bolt holes shall be provided on the bottom and a tapped hole and cap screw on top. Steel rails shall be used above the mountings under equipment such as small vent sets to compensate for the overhang. Mountings shall be type ND or rails type DNR as manufactured by Mason Industries, Inc.

B. Spring isolators shall be free standing and laterally stable without any housing and complete with a molded neoprene cup or 1/4"(6mm) neoprene acoustical friction pad between the baseplate and the support. All mountings shall have leveling bolts that must be rigidly bolted to the equipment. Installed and operating heights shall be equal. The ratio of the spring diameter divided by the compressed spring height shall be no less than 0.8. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Submittals shall include spring diameters, deflection, compressed spring height and solid spring height. Mountings shall be type SLF, as manufactured by Mason Industries, Inc.

C. Multiple bellow air springs shall be manufactured with powder coated upper and lower steel sections connected by a replaceable, flexible Nylon reinforced Neoprene element to achieve a maximum natural frequency of 3 Hz. (We have found 3 Hz adequate when using air springs. Should the specifying engineer require a lower frequency, change the 3 Hz to the lower number). Burst pressure must be a minimum of 3 times the published maximum operating pressure. All air spring systems shall be equipped with 3 leveling valves connected to the building control air or a supplementary air supply to maintain elevation plus or minus 1/8"(3mm). An air filter and water separator shall be installed before the air distribution system to the leveling valves.

Submittals shall include natural frequency, as well as load and damping tests, all as performed by an independent lab or acoustician. Air springs shall by type MT and leveling valves type LV as manufactured by Mason Industries, Inc.

D. Equipment with large variations in the operating and installed weight, such as chillers, boilers, etc., and equipment exposed to the wind such as cooling towers, roof mounted fans and roof mounted air handling equipment shall be mounted on spring mountings, as described in Engineering Specification B, including the neoprene acoustical pad within a rigid sided housing that includes vertical limit stops to prevent spring extension when weight is removed and temporary steel spacers between the upper and lower housings. Housings shall serve as blocking during erection. When the equipment is at full operating weight, the springs shall be adjusted to assume the weight and the spacers removed, without changing the installed and operating heights. All restraining bolts shall have large rubber grommets to provide cushioning in the vertical as well as horizontal modes. The hole through the bushing shall be a minimum of 0.75"(20mm) larger in diameter than the restraining bolt. Horizontal clearance on the sides between the spring assembly and the housing shall be a minimum of 0.5"(12mm) to avoid bumping and interfering with the spring action. Vertical limit stops shall be out of contact during normal operation. Cooling tower mounts are to be located between the supporting steel and the roof or the grillage and dunnage as shown on the drawings when there is no provision for direct mounting. Housings and springs shall be powder coated and hardware electro-galvanized. Mountings shall be SLR as manufactured by Mason Industries, Inc.

E. Equipment with large variations in the operating and installed weight, such as chillers, boilers, etc., and equipment exposed to the wind such as cooling towers, roof mounted fans and roof mounted air handling equipment shall be mounted on air springs, as described in Engineering Specification C, but within a rigid sided housing that includes vertical limit stops to prevent spring extension when weight is removed and temporary steel spacers between the upper and lower housings. Housings shall serve as blocking during erection. When the equipment is at full operating weight, the air springs shall be pressurized to take the weight so the spacers can be removed without changing the installed and operating heights. All restraining bolts shall have large rubber grommets to provide cushioning in the vertical as well as the horizontal modes. The hole through the bushing shall be a minimum of 0.75"(20mm) larger in diameter than the restraining bolt. Horizontal clearance between the air spring assembly and the housing shall be a minimum of 0.5"(12mm) to avoid bumping and interference with the air spring action. Vertical limit stops shall be out of contact during normal operation. Mountings and air spring parts shall be powder coated. Hardware electro-galvanized. Air spring systems shall be connected to the building control air or a supplementary air supply and equipped with three leveling valves to maintain level within plus or minus 0.125"(3mm). Cooling tower mounts are to be located between the supporting steel and the roof or the grillage and dunnage as shown on the drawings when there is no provision for direct mounting. Mountings shall be SLR-MT

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

and leveling valves type LV as manufactured by Mason Industries, Inc.

F. Hangers shall consist of rigid steel frames containing minimum 1-1/4"(32mm) thick neoprene elements at the top and a steel spring with general characteristics as in specification B seated in a steel washer reinforced neoprene cup on the bottom. The neoprene element and the cup shall have neoprene bushings projecting through the steel box. In order to maintain stability the boxes shall not be articulated as clevis hangers nor the neoprene element stacked on top of the spring. Spring diameters and hanger box lower hole sizes shall be large enough to permit the hanger rod to swing through a 30° arc from side to side before contacting the cup bushing and short circuiting the spring. Submittals shall include a hanger drawing showing the 30° capability. Hangers shall be type 30N as manufactured by Mason Industries, Inc.

G. Hangers shall be as described in F, but they shall be precompressed and locked at the rated deflection by means of a resilient upstop to keep the piping or equipment at a fixed elevation during installation. The hangers shall be designed with a release mechanism to free the spring after the installation is complete and the hanger is subjected to its full load. Deflection shall be clearly indicated by means of a scale. Submittals shall include a drawing of the hanger showing the 30° capability. Hangers shall be type PC30N as manufactured by Mason Industries, Inc.

H. Hangers shall be manufactured with minimum characteristics as in Specification B, but without the neoprene element. Springs are seated in a steel washer reinforced neoprene cup that has a neoprene bushing projecting through the bottom hole to prevent rod to hanger contact. Spring diameters and the lower hole sizes, shall be large enough to allow the hanger rod to swing through a 30° arc from side to side before contacting the cup bushing.

If ducts are suspended by flat strap iron, the hanger assembly shall be modified by the manufacturer with an eye on top of the box and on the bottom of the spring hanger rod to allow for bolting to the hanger straps. Submittals on either of the above hangers shall include a scale drawing of the hanger showing the 30° capability. Hangers for rods shall be Type 30 or for straps W30 as manufactured by Mason Industries, Inc.

I. When total air thrust exceeds 10% of the isolated weight, floor mounted or suspended air handling equipment shall be protected against excessive displacement by the use of horizontal thrust restraints. The restraint shall consist of a modified Specification B spring mounting. Restraint springs shall have the same deflection as the isolator springs. The assembly shall be preset at the factory and fine tuned in the field to allow for a maximum of 1/4"(6mm) movement from stop to maximum thrust. The assemblies shall be furnished with rod and angle brackets for attachment to both the equipment and duct work or the equipment and the structure. Restraints shall be attached at the center line of thrust and symmetrically on both sides of the unit. Horizontal thrust restraints shall be WB as manufactured by Mason Industries, Inc.

J. Vibration isolation manufacturer shall furnish integral structural steel bases. Rectangular bases are preferred for all equipment. Centrifugal refrigeration machines and pump bases may be T or L shaped. Pump bases for split case pumps shall be large enough to support suction and discharge elbows. All perimeter members shall be steel beams with a minimum depth equal to 1/10 of the longest dimension of the base. Base depth need not exceed 14"(350mm) provided that the deflection and misalignment is kept within acceptable limits as determined by the manufacturer. Height saving brackets shall be employed in all mounting locations to provide a base clearance of 1"(25mm). Bases shall be type WF as manufactured by Mason Industries, Inc.

K. Vibration isolation manufacturer shall provide steel members welded to height saving brackets to cradle equipment having legs or bases that do not require a complete supplementary base. Members shall have sufficient rigidity to prevent distortion of equipment. Inverted saddles shall be type ICS, as manufactured by Mason Industries, Inc.

L. Vibration isolation manufacturer shall furnish rectangular steel concrete pouring forms for floating concrete bases. Bases for split case pumps shall be large enough to provide support for suction and discharge elbows. Bases shall be a minimum of 1/12 of the longest dimension of the base but not less than 6"(150mm). The base depth need not

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

exceed 12"(300mm) unless specifically recommended by the base manufacturer for mass or rigidity. Forms shall include minimum concrete reinforcing consisting of 1/2"(12mm) bars welded in place on 6"(150mm) centers running both ways in a layer 1-1/2"(40mm) above the bottom. Forms shall be furnished with steel templates to hold the anchor bolt sleeves and anchor bolts while concrete is being poured. Height saving brackets shall be employed in all mounting locations to maintain a 1"(25mm) clearance below the base. Wooden formed bases leaving a concrete rather then a steel finish are not acceptable. Base shall be type BMK or K as manufactured by Mason Industries, Inc.

M. Curb mounted rooftop equipment shall be mounted on vibration isolation bases that fit over the roof curb and under the isolated equipment. The extruded aluminum top member shall overlap the bottom to provide water runoff independent of the seal. Aluminum members shall house electro-galvanized or powder coated springs selected for 0.75"(20mm) minimum deflection. Travel to solid shall be 1.5"(40mm) minimum. Spring diameters shall be no less than 0.8 of the spring height at rated load. Wind resistance shall be provided by means of resilient snubbers in the corners with a minimum clearance of 1/4"(6mm) so as not to interfere with the spring action except in high winds. Manufacturer's self adhering closed cell sponge gasketing must be used both above and below the base and a flexible EPDM duct like connection shall seal the outside perimeter. Foam or other sliding or shear seals are unacceptable in lieu of the EPDM ductlike closure. Submittals shall include spring deflections, spring diameters, compressed spring height and solid spring height as well as seal and wind resistance details. Curb mounted bases shall be Type CMAB as manufactured by Mason Industries, Inc.

N. Curb mounted rooftop equipment shall be mounted on spring isolation curbs. The lower member shall consist of a sheet metal Z section containing adjustable and removable steel springs that support the upper floating section. The upper frame must provide continuous support for the equipment and must be captive so as to resiliently resist wind forces. All directional neoprene snubber bushings shall be a minimumof 1/4"(6mm) thick. Steel springs shall be laterally stable and rest on 1/4"(6mm) thick neoprene acoustical pads. Hardware must be plated and the springs provided with a rust resistant finish. The curbs waterproofing shall consist of a continuous galvanized flexible counter flashing nailed over the lower curbs waterproofing and joined at the corners by EPDM bellows. All spring locations shall have access ports with removable waterproof covers. Lower curbs shall have provision for 2"(50mm) of insulation. Curb shall be type RSC as manufactured by Mason Industries, Inc.

O. Rubber expansion joints shall be peroxide cured EPDM throughout with Kevlar tire cord reinforcement. The raised face rubber flanges must encase solid steel rings to prevent pull out. Flexible cable wire is not acceptable. Sizes 1-1/2" through 14"(40mm through 350mm) shall have a ductile iron external ring between the two spheres. Sizes 16" through 24" (400mm to 600mm) may be single sphere. Sizes 3/4" through 2"(20mm through 50mm) may have one sphere, bolted threaded flange assemblies and cable retention.

Minimum ratings through 14"(350mm) shall be 250psi at 170°F and 215psi at 250°F. (1.72MPa at 77°C and 1.48MPa at 121°C), 16"(400mm) through 24"(600mm) 180psi at 170°F and 150psi at 250°F. (1.24MPa at 77°C and 1.03 MPa at 121°C). Higher published rated connectors may be used where required.

Safety factors shall be a minimum of 3/1. All expansion joints must be factory tested to 150% of maximum pressure for 12 minutes before shipment.

The piping gap shall be equal to the length of the expansion joint under pressure. Control rods passing through 1/2"(12mm) thick Neoprene washer bushings large enough to take the thrust at 1000psi (0.7 kg/mm2) of surface area may be used on unanchored piping where the manufacturer determines the condition exceeds the expansion joint rating without them. Submittals shall include two test reports by independent consultants showing minimum reductions of 20 DB in vibration accelerations and 10 DB in sound pressure levels at typical blade passage frequencies on this or a similar product by the same manufacturer. All expansion joints shall be installed on the equipment side of the shut off valves. Expansion joints shall be SAFEFLEX SFDEJ, SFEJ, SFDCR or SFU and Control Rods CR as manufactured by Mason Industries, Inc.

P. Flexible stainless steel hose shall have stainless steel braid and carbon steel fittings. Sizes 3"(75mm) and larger

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

shall be flanged. Smaller sizes may have male nipples. Minimum lengths shall be as tabulated:

Flanged

3" x 14" (75 x 350mm)	6" x 20" (150 x 500mm)	12" x 28" (300 x 700mm)
4" x 15" (100 x 375mm)	8" x 22" (200 x 550mm)	14" x 30" (350 x 750mm)
5" x 19" (125 x 475mm)	10" x 26" (250 x 650mm)	16" x 32" (400 x 800mm)

Male Nipples

1/2" x 9" (12 x 225mm)	1-1/4" x 12" (32 x 300mm)	2" x 14" (50 x 350mm)
3/4" x 10" (19 x 250mm)	1-1/2"x 13" (38 x 325mm)	2-1/2" x 18" (64 x 450mm)
1" x 11" (25 x 275mm)		

At equipment, hoses shall be installed on the equipment side of the shut-off valves horizontal and parallel to the equipment shafts wherever possible. Hoses shall be type BSS as manufactured by Mason Industries, Inc.

Q. Split Seals consist of pipe halves with minimum 3/4"(20mm) thick neoprene sponge cemented to the inner faces. The seal shall be tightened around the pipe to eliminate clearance between the inner sponge face and the piping. Concrete may be packed around the seal to make it integral with the floor, wall or ceiling if the seal is not in place prior to the construction of the building member. Seals shall project a minimum of 1"(25mm) past either face of the wall. Where temperatures exceed 240°F (115°C), 10 lb. density fiberglass may be used in lieu of the sponge. Seals shall be Type SWS as manufactured by Mason Industries, Inc.

R. All-directional acoustical pipe anchors consist of two sizes of steel tubing separated by a minimum 1/2"(12mm) thickness of 60 duro or softer neoprene. Vertical restraint shall be provided by similar material arranged to prevent up or down vertical travel. Allowable loads on the isolation material shall not exceed 500 psi(3.45 N/mm^2) and the design shall be balanced for equal resistance in any direction. All-directional anchors shall be type ADA as manufactured by Mason Industries, Inc.

S. Pipe guides shall consist of a telescopic arrangement of two sizes of steel tubing separated by a minimum 1/2"(12mm) thickness of 60 durometer or softer neoprene. The height of the guides shall be preset with a shear pin to allow vertical motion due to pipe expansion or contraction. Guides shall be capable of 1-5/8"(40mm) motion, or to meet location requirements. Pipe guides shall be type VSG as manufactured by Mason Industries, Inc.

T. The first four pipe hangers in the main lines near the mechanical equipment shall be as described in specification Type G. Hangers supporting piping 2"(50mm) and larger in all other locations throughout the building shall be isolated by hangers as described in specification F. Floor supported piping shall rest on isolators as described in specification D. Heat exchangers and expansion tanks are considered part of the piping run. The first four isolators from the isolated equipment shall have the same static deflection as specified for the mountings under the connected equipment. If piping is connected to equipment located in basements and hangs from ceilings under occupied spaces the first four hangers shall have 0.75"(20mm) deflection for pipe sizes up to and including 3"(75mm), 1-1/2"(40mm) deflection for pipe sizes over 3"(75mm) and up to and including 6"(150mm), and 2-1/2" (65mm) deflection thereafter. Where piping connects to mechanical equipment install specification O expansion joints or specification P stainless hoses if O is not suitable for the service. All piping passing through the equipment walls, floors or ceilings shall be protected against sound leakage by means of an acoustical seal, as described in Specification Q.

U. All vertical risers shall be supported by spring isolators designed to support the riser filled with water, if it is a water line. Assigned loads must be within the building design limits at the support points. Neutral central resilient anchors close to the center of the run shall direct movement up and down. The anchors shall be capable of holding an upward force equal to the water weight when the system is drained. If one level cannot accommodate this force, anchors can be located on 2 or 3 adjacent floors. Resilient guides shall be spaced and sized properly depending on

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

the pipe diameter. Submittals must include the initial load, initial deflection, change in deflection, final load and change in load at all spring and anchor support locations, as well as guide spacing. The initial spring deflection shall be a minimum of 0.75"(20mm) or four times the thermal movement at the isolator location, whichever is greater. Calculations shall include pipe stress at end conditions and branch off locations and the manufacturer must include installation instructions. Submittal must be stamped and signed by a licensed professional engineer in the employ of the vibration vendor for at least 5 years. Proper provision shall be made for seismic protection in seismic zones. The isolator manufacturer shall be the same firm supplying the mechanical contract. Support spring mountings shall be Specification B, anchors Specification R, telescoping guides Specification S.

V. The isolation vendor shall design and provide all brackets or clamps at riser spring guide and anchor locations. The contractor must install and adjust all isolators under the supervision of the isolator vendor or his representatives.

W. All air ducts with a cross section of $2ft^2(0.19m^2)$ or larger shall be isolated from the building structure by specification H hangers or B floor supports with a minimum deflection of 0.75"(20mm). Isolators shall continue for 50'(15m) from the equipment. If air velocity exceeds 1000 fpm (5.3mps), hangers or supports shall continue for an additional 50'(15m) or as shown on the drawings.

2.3 PUMPS AND MOTOR BASES

A. 5 Horsepower and Less: Mount pumps on floors above grade, 5 horsepower and less, grouted and bolted to a 4-inch concrete pad 4-inches larger in all directions than pump base and reinforced with three No. 4 rods running long dimensions. Pour concrete pad over pre-compressed molded fiberglass pads bonded to galvanized sheet metal and design for load and rpm as pump requires. Fiberglass pads shall be as manufactured by Consolidated Kinetics Corporation or shall be neoprene waffle mounts same as Mason Industries WMW.

B. Above 5 Horsepower: Mount pumps on floors above grade over 5 horsepower and provide with mason Industries, Type K, bases constructed of 6-inch channels with ½-inch reinforcing rods welded in place 6-ionches on center both ways, 1 1/2-inche deflection anchored to floor and brackets. Pour frame solid with concrete and locate anchor bolts for pump in pour.

C. Units on Grade: Mount pumps located on grade on thickened concrete floor slab, top 4-inches above floor with ½-inch rubber expansion joint material between floor and perimeter of pump concrete pad. Pump assembly base shall have 5/8-inch thick by 3-inch wide neoprene waffle pad at all points of contract between pump base and concrete.

Part 3. - EXECUTION

3.1 GENERAL

A. The isolation vendor shall design and provide all brackets or clamps at riser spring guide and anchor locations. The contractor must install and adjust all isolators under the supervision of the isolator vendor or his representative.

B. All vibration isolators must be installed in strict accordance with the manufacturers written instructions and all certified submittal data. Remove space blocks and similar devices intended for any temporary protection against overloading during installation.

C. Installation of vibration isolators must not cause any change of position of equipment, piping or duct work resulting in stresses or misalignment.

D. No rigid connections between equipment and the building structure shall be made that degrades the noise and vibration control system herein specified.

E. The contractor shall not install any equipment, piping, duct or conduit which makes rigid connections with the

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

building unless isolation is not specified. Building includes, but is not limited to, slabs, beams, columns, studs and walls.

F. Coordinate work with other trades to avoid rigid contact with the building.

G. Any conflicts with other trades which will result in rigid contact with equipment or piping due to inadequate space or other unforeseen conditions should be brought to the architects/engineers attention prior to installation. Corrective work necessitated by conflicts after installation shall be at the responsible contractors expense.

H. Bring to the architects/engineers attention any discrepancies between the specifications and the field conditions or changes required due to specific equipment selection, prior to installation. Corrective work necessitated by discrepancies after installation shall be at the responsible contractor's expense.

I. Correct, at no additional cost, all installations which are deemed defective in workmanship and materials at the contractor's expense.

I. Hand built elastomeric expansion joints may be used when pipe sizes exceed 24"(600mm) or specified movements exceed 2.2-O capabilities.

J. Where piping passes through walls, floors or ceilings the vibration isolation manufacturer shall provide 2.2-Q seals.

K. Locate isolation hangers as near to the overhead support structure as possible.

L. Air handling equipment and centrifugal fans shall be protected against excessive displacement which results from high air thrust when thrust forces exceed 10% of the equipment weight. Horizontal thrust restraints shall be 2.2-I restraints.

M. Rooftop equipment isolators must be bolted to the equipment and structure. Mountings must be designed to resist 100m/h(160 km/h) wind loads.

3.2 VIBRATION ISOLATION OF PIPING

A. Horizontal pipe shall be installed in accordance with 2.2-T Horizontal Pipe Isolation.

B. Risers shall be installed in accordance with 2.2-U Riser Isolation.

C. Spring Isolators:

1. Provide spring isolators on piping connected to isolated equipment as follows:

   a. 3- to 4-inch Diameter: First 3 points of support or 20 feet in both directions, whichever is greater.
   b. 5- to 8-inch Diameter: First 4 points of support or 50 feet in both directions, whichever is greater.
   c. 10-inch Diameter and Over: First 6 points of support or 50 feet in both directions, whichever is greater.

2. Static deflection of first point shall be twice deflection of isolated equipment.

3.3 VIBRATION ISOLATION OF DUCTWORK

A. All duct runs shall be installed in accordance with 2.2-W Duct Isolation.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Field applied insulation for thermal efficiency and condensation control for hydronic piping, ductwork and equipment.

B. Definitions:

1. ASJ: All service jacket, white finish facing or jacket.
2. Air conditioned space: Space directly supplied with heated or cooled air.
3. Cold: Equipment, ductwork or piping handling media at design temperature of 60° F or below.
4. Concealed: Ductwork and piping above ceilings and in chases and pipe spaces.
5. Exposed: Piping, ductwork, and equipment exposed to view in finished areas or exposed to outdoor weather.
6. FSK: Foil-scrim-kraft facing.
7. Hot: HVAC Ductwork handling air at design temperature above 60° F; HVAC and plumbing equipment or piping handling media above 105° F.
8. Density: Pcf - pounds per cubic foot.
9. Thermal conductance: Heat flow rate through materials.
10. Flat surface: BTU per hour per square foot.
11. Pipe or Cylinder: BTU per hour per linear foot.
12. Thermal Conductivity (k): BTU per inch thickness, per hour, per square foot, per degree F temperature difference.
13. PVDC: Polyvinylidene chloride vapor retarder jacketing, white.

Part 2. - PRODUCTS

2.1 SUMMARY

A. Materials:

1. All insulation shall have composite (insulation, jacket, and/or facing and adhesive used to adhere the facing or jacket to the insulation), fire and smoke hazard ratings as tested by Procedure ASTM E-84, NFPA 225 and U/LI 723 not exceeding Flame Spread 25 and Smoke Developed 50.
2. Jacket and Facing Descriptions:

    a. All purpose vapor barrier jackets.
    b. VB vapor barrier, white kraft bonded to 1 mil aluminum foil, reinforced with glass yarn. Water vapor permeability 0.02 perms.
    c. FSK reinforced foil and paper (Foil Scrim Kraft). Aluminum foil (minimum 0.75 mil thick) reinforced with fiberglass yard mesh and laminated to 40 lbs. chemically treated fire resistant Kraft UL rated.

3. Exterior Jacket:

    a. Venture Tape, Ventureclad 1557CW, (Alumaguard 60) 6 mil thickness, adhesive backed, aluminum finish jacket otherwise with zero permeability, shall be capable of being applied down to -20° F.

2.2 DUCTWORK

A. External rigid board insulation shall be Owens Corning 703 Series with FSK or ASJ (All Service Jacket) vapor barrier facing, 3 pound density fiberglass complete with non-combustible foil faced vapor barrier. Entire system shall be UL listed.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. 0.030 thick PVC preformed jackets with seams made for welding.
2. 0.024 thick stucco embossed, smooth or corrugated pattern by Childers Products Company.

B. Internal Duct lining shall be Knauf Eclipse™ Air Duct Board is a resin-bonded fiber glass formed into rigid, rectangular boards faced on one side with a fire-resistant foil-scrim-kraft (FSK) vapor retarder and a lightweight black fiber glass mat on the airstream surface. Rigidity shall be EI-475. Thermal conductivity shall be 0.23 BTU in. per sq. ft. per °F. hour at mean temperature of 75°F. The airstream surface of duct board shall be is treated with an EPA registered, antimicrobial agent that prevents growth of mold, fungus or bacteria in accordance with ASTM C 1071, G21 and G22. Material shall be UL 181 listed and shall not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255, and UL 723.

C. Fiberglass blanket shall be 1 pound density, with factory applied type FSK jacket. Conductivity shall be 0.26 average maximum at mean temperature of 75°F.

2.3 PIPING

A. Piping shall be insulated with Manville (IMCOA, Owens-Corning, Knauf) "FLAME SAFE" fiber glass insulation. The insulation shall have an average thermal conductivity not exceeding 0.22 BTU in. per sq. ft. per °F. hour at mean temperature of 75°F.

B. Provide galvanized steel shields at all pipe hangers on insulated piping except hot water heating piping where pipes bear directly on the clevis. Shields shall be 16 gauge for pipes 4” and larger diameter and 20 gauge for smaller pipes.

C. Exposed areas inside a building shall be furnished with factory applied "FLAME SAFE" All-Purpose Vapor barrier jacket.

D. All piping in concealed areas inside a building shall be provided with factory applied "FLAME SAFE" VB (Vapor Barrier Jacket or All-Purpose Jacket).

E. All piping that is located outside and directly or indirectly exposed to the weather and is insulated, shall be totally enclosed and wrapped with a PVC pre-formed jacket.

F. Fittings, valve bodies and flanges for pipe size 4" and smaller shall be provided with PVC jackets over fiberglass inserts.

G. Armstrong (Rubatex, Halstead) Armaflex II flame retardant elastomeric thermal insulation, installed according to manufacturer’s recommendations and as allowed by Local Codes, shall be suitable for pipe temperatures between -40° and 220°.

Part 3. - EXECUTION

3.1 GENERAL

A. All piping and ductwork shall be thoroughly cleaned and dry prior to the application of insulation.

B. Provide continuous vapor barrier over all seams.

3.2 DUCTWORK

A. Apply insulation in thickness and type as follows or per applicable state energy code, whichever is greater.

B. OUTSIDE AIR DUCTWORK: The outside air ductwork to furnaces and Magic-Paks shall be insulated with 2” external foil faced rigid board fiberglass (or wrap for round duct) insulation or thermal resistance of R-8, whichever is greater (this includes the mixing box and/or sections of mixed air duct). 2” thickness glass fiber blanket may be used in lieu of board in concealed locations. Duct lining is not acceptable for outside air

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

ductwork. Contractor shall coordinate the routing of all fresh air duct to maintain a minimum of 12" clearance from all domestic water and fire sprinkler piping.

C. RETURN AIR DUCTWORK: Return air ducts shall be insulated with ¾" thickness internal glass fiberboard for all return ductwork within furnace and mechanical rooms.

D. SUPPLY AIR DUCTWORK FOR DUCTED RETURNS: Supply air ducts shall be insulated with 1½" thickness glass fiberboards from air handling unit discharge up to runouts to each register/diffuser. 1½" thickness glass fiber blanket may be used in lieu of board in concealed locations.

E. SUPPLY AIR DUCTWORK FOR PACKAGED HEATING/COOLING UNITS (MP): Supply air discharge duct plenum within MP closet shall be insulated with 1½" thickness glass fiber blanket wrap completely from the mechanical unit to the point at which the duct enters the soffit.

F. All exhaust run outs shall be insulated with 1" wrapped insulation. Sidewall duct penetrations within floor/ceiling assemblies shall be insulated with 2" fiberglass wrap and/or a thermal resistance of R-8, whichever is greater.

G. DUCTWORK IN ATTIC SPACES: All ductwork in attic shall be insulated with 2" foil faced rigid board or wrap fiberglass insulation or thermal resistance of R-8, whichever is greater.

H. All dryer, exhaust and outside air ducts within a floor/ceiling or ceiling/roof assembly that cannot maintain 12" clearance from sprinkler piping shall be insulated with 2" fiberglass wrap insulation.

3.3 PIPING:

A. Refrigerant suction piping shall be insulated with 1" Armaflex. All outside insulation shall be wrapped with Venture Tape 1507 black line set tape.

B. For piping exposed to outdoor air, see insulation thicknesses for specific piping types below. Increase insulation thickness listed by ½".

C. Plastic sealed combustion appliance vent piping shall be insulated in attic spaces with 1" Armaflex foam insulation.

3.4 JACKETS

A. Foil and Paper Jackets: Install jackets drawn tight. Install lap or butt strips at joints with material same as jacket. Secure with adhesive. Install jackets with 1 1/2" laps at longitudinal joints and 3-inch-wide butt strips at end joints.

1. Seal openings, punctures and breaks in vapor barrier jackets and exposed insulation with vapor barrier compound.
2. Install PVC fitting covers over insulated flanges, fittings and valves.

B. Exterior Exposed Insulation: Install continuous PVC jackets and seal all joints and seams with waterproof sealant.

C. Install the PVC jacket with 1" overlap at longitudinal and butt joints and seal with adhesive.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. All piping materials and methods of construction and workmanship shall be provided as per the requirements of local codes and regulations.

1. All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.
2. All castings used for coupling housings, fittings, valve bodies, etc., shall be date stamped for quality assurance and traceability.

B. Lead pipe, solders, flux, etc., are not allowed. All piping and valves associated with the potable water system shall not exceed the 0.25% maximum lead content per U.S senate Bill No. S.3874 and NSF/ANSI 372.

C. The contractor is responsible for verifying all invert elevations with respect to building finished floor elevations and site provisions.

Part 2. - PRODUCTS

2.1 PIPING

A. Condensate Water Piping:

1. Type “M” seamless copper hard and soft temper ANSI-H23.1 with wrought copper fittings using 95/5 solder or brazing. Type “M” shall not be used on domestic hot water circulating systems.
2. PVC Schedule 40 unthreaded or PVC Schedule 80 threaded. Pipe and corresponding fittings installed per Code limitations.

Part 3. - EXECUTION

3.1 GENERAL

A. Condensate Drains:

1. Provide a deep seal "P" trap at condensate drain beneath each water heater, and extend piping to nearest floor drain, service sink or as shown on drawings.
2. Effective water seal of "P" trap shall be minimum of two times negative static pressure in fan plenum for draw-through fan unit, but not less than 3 inch. Depth of trap shall be minimum of one-half the plenum maximum negative static pressure.
3. Traps for roof mounted equipment shall be constructed of rubber; drain piping shall be PVC, ABS plastic, or Type "M" copper with soldered joints.
4. When code allows and when routing condensate to local lavs, provide tailpiece for branch connection. Coordinate unit requiring tailpiece with HVAC Contractor.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Manufacturer shall have in town local representation and service of the equipment provided.

1.2 WARRANTY

A. Temperature Control: Contractor shall be responsible for defects which develop in any part of the system caused by faulty workmanship, material or equipment and shall replace any such faulty workmanship, material or equipment during a period of 1 year from date of substantial completion. Instruments shall be calibrated to sense, activate and display information specified.

Part 2. - PRODUCTS

2.1 GENERAL

A. Contractor shall provide a complete automatic temperature control system as specified. Contractor shall provide all 120/240 volt circuits as required to power all low voltage control devices or line voltage devices such as 120 volt damper motor etc. All wiring shall be provided by this contractor. Electrical Division shall provide all 120/240, 1 phase, line voltage, direct control devices and wiring such as line voltage thermostats, time clocks and switches unless specifically noted to be supplied by this contractor and installed by the Electrical Division or remotely controlled and monitored by a Building Automation system.

B. Acceptable Manufacturers: Honeywell, Johnson, Trane, Carrier, Alerton, Invensys, Delta.

C. Provide a carbon monoxide CO monitoring system (ACME, Macurco, ToxAlert, Honeywell, CET) for controlling the garage exhaust and make-up air. System shall be a CET GEM-II single channel CO sensor. Provide additional sensors and control panels if required for appropriate coverage. Vendor shall provide quarterly calibration for the first year of operation. Provide line voltage as required to power controller(s).

D. Space Thermostats:

1. Thermostats shall be of one type for like systems.
2. Thermostats shall have lockout and upper/lower limit temperature setpoint capability.
3. Standalone heat/cool device thermostats shall be Emerson (White Rodgers) model 1F95EZ series capable of auto or manual heat/cool changeover. Thermostats shall have large easy to read digital display with push pad adjustment controls.
4. Common Spaces: Provide electronic programmable thermostats shall be Emerson (White Rodgers) model 1F95 series capable of auto or manual heat/cool changeover. Thermostats shall have digital readout with push pad adjustment controls.

Part 3. - EXECUTION

3.1 GENERAL

A. Coordinate exact location of control power transformers and control panels with the Architect/Engineer.

B. Thermostat located in public areas shall be provided with clear lockable covers unless noted otherwise.

C. Thermostats shall have 50°-90° F temperature scale.

D. Coordinate required mounting height of thermostats with Architect.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

E. Provide sensors and support brackets constructed of stainless steel, copper, brass, cast zinc or glass. Covers shall be galvanized steel painted with manufacturer's standard paint and color.

3.2 CONTROL SEQUENCES

A. Garage Ventilation: Intake motorized damper/MUA and garage exhaust fan(s) shall be interlocked and turned on upon signal from any CO sensor. Provide a programmable time clock and reverse-acting thermostat to override CO control. Provide manual system start/stop capability (via HOA switch) at each exhaust fan such that the entire system shall be activated when any one exhaust fan is in the 'On' position. Provide all power wiring connections to CO controller and equipment interlocks.

Provide MUA and EF VFD's that shall be controlled together at the same speed based on quantity of CO sensors alarmed according to the following (minimum frequency shall be coordinated with minimum recommended MUA fan speed):

VFD HZ	QuantityCO Alarmed
30	1
40	2
60	3

B. Transfer Fan (TF-1)

1. Provide reverse-acting thermostat. Thermostat to start fan when temperature is above 80°F (adjustable).

C. Furnace (FURN-1):

1. Provide programmable thermostat with fan/off/auto switch and heating/cooling settings. The space thermostat shall cycle the condensing unit or burner with fan to maintain setpoint. Interlock motorized outside air damper with furnace fan.

D. Furnaces (FURN-2, 3 and 4)

1. Provide programmable thermostat with fan/off/auto switch and heating/cooling settings. The space thermostat shall cycle the condensing unit or burner to maintain setpoint. Fan shall run continuously.

E. Furnace (FURN-5):

1. Provide programmable thermostat with fan/off/auto switch and heating/cooling settings. The space thermostat shall cycle the condensing unit or burner with fan to maintain setpoint. Interlock exhaust fan EF-4 with furnace fan.
2. Exhaust fan EF-5 shall operate independently of FURN-5, operated from a switch labled "Ventilation". When exhaust fan EF-5 runs, FURN-5 will provide 390 CFM of make-up air. When E-5 is off, FURN-5 will provide approximately 150 CFM.

F. Gas-fired Unit Heaters:

1. Thermostat to cycle burner and fan to maintain 50°F space temperature.

G. Through-the-wall heat/cool units:

1. Provide programmable thermostat with fan/off/auto switch and heating/cooling settings. The space thermostat shall cycle the compressor/condensing section or burner to maintain setpoint.

H. Pump, CP-1: Provide a 120 volt aquastat at the recirc water piping to control pump. Installation and 120 volt wiring by this contractor.

I. Exhaust fans: Refer to 2.1.A for control.

J. Ductless Split System (AC): Provide programmable thermostat with fan/off/auto switch and heating/cooling settings. The space thermostat shall cycle the compressor/condensing section to maintain setpoint.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.3 START-UP AND COMMISSIONING

A. Following substantial completion, this contractor shall return to the site on a quarterly basis including four (4) balancing/commissioning sessions. Commissioning shall consist of rebalancing both air and water side systems to the extent required to verify proper operation of all system components and controls. Temperature Control contractor shall coordinate with all trades including balancing contractor to make required adjustments.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. All above ground ductwork material and construction shall be galvanized steel, installed in accordance with the Standards described in the latest edition of the ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Guide and Data Book, SMACNA (Sheet Metal and Air Conditioning Contractor's National Association) and Local governing mechanical codes.

B. Changes in direction, elevation or shape shall be made by gradual methods such as radiused elbows of diverging or converging reducing fittings. Changes in dimension shall not exceed 20° diverging angle. Elbow radii shall be at least equal to the width of the duct in the plane of the bend.

Part 2. - PRODUCTS

2.1 APPROVED MANUFACTURERS

A. Registers, Grilles and Diffusers and Terminal Air Devices: Titus, Price, J & J, Krueger, Tuttle and Bailey, Carnes, Nailor, Metalaire, Reliable Metal.

B. Louvers: Cesco, Air Balance, Arrow United, Louvers & Dampers, Inc., Safe-Air, Pottorff, Greenheck.

C. Fire and Smoke Dampers: Prefco, Ruskin, Greenheck, Cesco, United Air, American Warming, Safe-Air, Nailor, Acme, Pottorff.

2.2 REGISTERS, GRILLES AND DIFFUSERS

A. Unless indicated, otherwise wall and ceiling R, G, D's shall be white; floor registers shall have plain aluminum finish. Color finishes shall be approved by the Architect.

TYPE	TITUS MODEL NO.	DESCRIPTION
B	TMS[A]	Adjustable steel square diffuser for lay-in ceiling. Provide D-75 opposed blade neck mounted damper in non-accessible ceilings.
E	300RL	Double deflection steel supply register. Provide type 1 border. Provide sheet rock frame in sheet rock ceilings.
P	355RL	Steel return/exhaust register. Provide type 1 border. Provide sheet rock frame in sheet rock ceilings.

2.3 DRYER/VENTS

A. Provide aluminum ductwork properly sealed and insulated. Provide gooseneck, relief hood or wall cap with backdraft damper as required. Insulate per discharge ducts in Section 23 07 00.

B. Provide aluminum roof vent caps and sidewall vent louvers for toilet and dryer exhausts with backdraft dampers. Provide bird screens for unit toilet exhausts only.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.4 RELIEF/EXHAUST WALL AND ROOF VENTS

A. Wall Caps: Coordinate with Architect finishes for specific color requirements:

1. Dryer Wall Caps: Lambro 224 - Series, Primex DV4 - Series. No birdscreen. Gravity backdraft damper. Minimum free area of 12.5 square inches.
2. 4”-8” Exhaust Wall Caps: Primex WC-Series. Provide with birdscreen. Provide with backdraft damper where integral backdraft damper not supplied with exhaust fan.

B. Roof Jack (Pitched Roof): Provide Cook Gemini RJR Series corrosion resistant galvanized steel with black enamel finish, ½” birdscreen. Provide 6” (0-130 cfm) or 8” (131-220 cfm) duct adapter integral back draft damper. Coordinate with Architect finishes for specific color requirements.

1. Roof Jack for Dryers: In-O-Vate Dryer-Jack Model 486.

C. Roof Cap (Flat Roof): Provide Cook Gemini PRF Series all aluminum construction with integral back draft damper and birdscreen.

Size	CFM Range
8	150-300
12	300-800
16	800-1200

2.5 LOUVERS

A. Provide Ruskin GFL800 extruded aluminum louvers. Frame shall be 4" (0.081” wall thickness (2), with 6063T5 blades (0.063 wall thickness), J style blades, 45° angle, 5" center to center, 3/4' aluminum bird screen in removable frame.

B. Provide Ruskin ELF extruded aluminum louvers. Frame shall be 4" (0.080 wall thickness (2), with 6063T5 blades (0.081” wall thickness), J style blades, 45° angle, 5" center to center, 3/4' aluminum bird screen in removable frame.

C. Provide Ruskin model BV100 brick vent for sidewall venting of range hoods. Frame shall be extruded aluminum alloy 6063-T5, 0.100 inch nominal wall thickness.

1. Frame Construction: 4 inches (102 mm) frame depth with three 1/8 inch (3 mm) mortar ribs at perimeter.

D. Louvers for sidewall range exhausts shall be Ruskin Model ELF15J, extruded 6063T5 aluminum alloy construction.

1. Frame: 11/2" (38) deep .063" (1.6) wall thickness. Blades: .063" (1.6) nominal wall thickness. Blades are positioned at 45° angle and spaced at approximately 1-7/8" center to center. Bird screen: 3/4" x .051" expanded, flattened aluminum in removable frame. Finish: Select finish specification from Ruskin Finishes Brochure.
2. Straight blades shall be formed aluminum alloy 6063-T5, 0.100 inch nominal thickness, 48 degree angle, 39% nominal free area. Bird screen. Apply alkyd prime coat following chemical cleaning and pretreatment for field painting. Factory assembled vent components. Mechanically fastened construction.

2.6 DAMPERS

A. Where dampers separate outdoors from indoors, they shall meet the following standards: Use no damper blade that is wider than 6 inches. Construct damper frames from at least 16 gauge, hot dipped galvanized steel. Fit each blade with double sided, inflatable, field replaceable, extruded vinyl edge seals that lock into slots in the blade. Size each blade to fit tightly between flexible, compressible, metal jamb seals. Set nylon bearings in stainless steel sleeves. Use hexagonal shafts for positive blade control. Conceal damper linkage

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

inside the frames and out of the air stream. The entire assembly shall not rattle or vibrate. A closed damper shall not leak more than 4 SCFM per square foot of face area at 1 inches of water column pressure when tested in accordance with AMCA Standard 500D.

2.7 FIRE DAMPERS

A. Provide fire dampers where shown on drawings and in all code required places even if not shown on the drawings. Fire dampers and frames shall be UL classified 555C and shall be complete with elevated 212 °F fusible links. The entire assembly and installation shall comply with the requirements of NFPA #90A and authorities having jurisdiction. For wood, combustible wood truss frame construction damper shall be UL 263 approved.

B. Mount dampers in UL263 rated assembly per manufacturer's instruction. Coordinate damper type with floor-ceiling assembly type.

C. Dampers shall be Greenheck CRD-Series butterfly type. Dampers shall allow for nominal 100% free area when in the open position. Coordinate locations of access panel so as to permit replacement of fusible links.

2.8 CEILING RADIATION DAMPER (CRD)

A. Provide fire dampers where shown on drawings and in all code required places even if not shown on the drawings. Fire dampers and frames shall be UL classified 555 and shall be complete with elevated 212 °F fusible links. The entire assembly and installation shall comply with the requirements of NFPA #90A and authorities having jurisdiction. For wood, combustible wood truss frame construction damper shall be UL 263 approved.

B. Mount dampers within factory furnished sleeves, which are to be held in place with retaining angles. Frame thickness shall be coordinated with wall thickness.

C. Dampers shall Greenheck CRD Series type, rated for a minimum of 1 1/2 hour protection. Dampers shall allow for nominal 100% free area when in the open position. Coordinate locations of access panel so as to permit replacement of fusible links.

2.9 COMBINATION SMOKE/FIRE DAMPERS

A. Provide 18 gauge galvanized steel damper blades. Use no damper blade that is wider than 6 inches. Construct damper frames from at least 16 gauge, hot dipped galvanized steel. Fit each blade with silicone rubber edge seals rated to withstand 450°F. for smoke control and with galvanized steel mating edges for fire control to 1900°F. after the rubber seals have failed. Size each blade to fit tightly between flexible, compressible, metal jamb seals. Set bearings in stainless steel sleeves and use hexagonal shafts for positive blade control. Use only dampers rated UL-555, UL-555S, Leakage Class I and NFPA 90A certified for a 1-1/2 hour fire rating. (The UL Class I rating is for 4 SCFM per square foot leakage at 1 inch water column.)

B. Provide each combination smoke/fire damper with an electric, 120 VAC, two-position operator able to withstand 350°F. The operator shall control the damper unless the fusible link releases it. If the fusible link releases the damper, it shall remain closed until the fusible link can be replaced. The damper shall be normally closed in the event of a power failure.

C. Provide adequately sized rated access panel for actuator and electrical. Coordinate access requirements with the General Contractor.

D. Dampers with in-airstream actuators are allowed however equivalent free area shall be maintained.

E. Dampers installed immediately behind registers shall be UL listed for use out of the wall with internally mounted actuators, Nailer 1221-OW.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.10 FLEXIBLE DUCTWORK

A. The flexible duct shall be of semi-rigid construction capable of maintaining the shaping required by job conditions without subsequent sagging or droop. Duct connections to equipment outlet collars shall be made in accordance with the duct manufacturer's recommendations. Maximum flexible air duct length not to exceed 6'-0".

B. Flexible air duct shall be externally insulated with 1/2" thick 3/4 lb. density fiberglass wrapped around twice to 1" thick complete with non-combustible vapor barrier and UL listed.

C. Ductwork and insulation shall be UL listed as Flexible Air Ducts Connection Class I, and meet all NFPA 90A and 90B requirements.

D. Insulated flexible duct shall be Thermaflex M-KE.

E. No flexible ductwork connections shall be allowed in exposed ceiling areas

2.11 ACCESS DOORS

A. Where motorized dampers, fire dampers, control equipment are installed in ductwork, provide suitable sized, gasketed doors in ducts. Doors shall be provided with Ventlok #220 door pull and #90 sash type latches. Use sponge rubber to felt gasketing material on door openings. Access doors in insulated ductwork shall be double wall construction with 1" insulation between wall

2.12 AIR CONTROL DEVICES

A. Provide splitter dampers on all main ducts and where shown on the drawings. Provide Ventlok #690, self-locking splitter assembly on each damper.

B. Provide Clevepak, Type DESC damper extractor with spin-collar at all branch take offs.

C. Provide manual balancing damper at each main branch take-off as well as to each diffuser.

D. In all inaccessible areas, provide balancing damper within reach at each diffuser or register.

E. Provide turning vanes per SMACNA Standards in all square elbows.

Part 3. - EXECUTION

3.1 GENERAL

A. Ductwork behind registers and grilles shall be painted out flat black.

B. Duct sizes shown are free area. Increase duct as a required to accommodate internal insulation.

C. Provide a minimum of 2" wide flexible connectors to all ducted equipment less than 2000 CFM and 4" wide on 2000 CFM and greater.

D. Support all suspended motor and/or fan driven equipment on vibration isolators.

E. All duct runout shall be equal to the grille or diffuser neck size unless indicated otherwise.

3.2 COORDINATION

A. Contractor shall coordinate the routing of all sprinkler piping to maintain 8” minimum clearance from outside air ductwork and ducts or vents that communicate directly with the outdoors within a twenty foot distance from the outside wall penetration**.**

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Contractor shall thoroughly review the manufacturer's installation instructions prior to installing any piece of equipment or its associated service, (gas, hot or chilled water piping, flues, etc.). Any conflicts between the manufacturer's installation instructions and the plans or specification shall be brought to the engineer at once for clarification. Contractor will not receive additional money for installations requiring modifications due to these conflicts.

Part 2. – PRODUCTS

2.1 GENERAL

A. Approved Manufacturers: Listed acceptable manufacturers shall be subject to compliance with specified requirements.

1. Supply and Exhaust Fans: Cook, Barry Blower, Penn, Greenheck, Carnes, ACME, Nutone, Broan, S&P (Soler & Palau), Twin City Fan.
2. Furnaces/Condensing units: Carrier, Lennox, Bryant, Trane, Reznor, York, Tempmaster, Comfortmaker, Frigidaire, Luxaire, Gibson.
3. Gas Terminal Heat: Trane, Modine, Reznor, Roberts Gorden, Co Ray Vac, Sterling.
4. Packaged Through-the-wall gas/electric unit: Magic-Pak, Comfort-Pack. (Alternates from schedule must be pre-approved by Architect).
5. Packaged Terminal Air Conditioner (Amana, GE, Frederich, Trane).
6. Ductless Mini-Split Air Conditioners: Daikin, Mitsubishi, Carrier.

B. Condensate:

1. Provide condensate piping from each cooling coil condensate pan to nearest floor drain or common drain riser.
2. Provide an auxiliary drain pan beneath each cooling coil in which condensate will occur.
3. Provide condensate overflow safety switch Little Giant Model ACS-2, 3 or as option Diversitech SOS-1.
4. Wire to shut off the unit served prior to overflow of the pan or sensing water build-up in the condensate piping. Piping shall be sized per Code and manufacturers recommendations with a minimum of ¾".

C. Furnace Unit (FURN-2, 3 and 4):

1. Provide a fixed capacity, condensing gas as scheduled. The unit shall have 92% AFUE, hot surface ignition, aluminized steel heat exchanger, intelligent control board, integral circuit board for control of ignition, inducer and blower, upflow encased in a galvanized steel cabinet with a painted coating. The unit has a draft safeguard switch, shall be UL listed and AGA certified and shall be shipped as a complete functional unit. Provide a seven day programmable thermostat with temperature scheduling capabilities and fan on/off/auto and cooling/heating switches. Provide filter assembly.
2. The blower motor shall be of the ECM type and shall be permanently lubricated, rated for continuous operation, with adjustable speed settings.
3. Unit to have a 20 year warranty on the heat exchanger.
4. Provide a 3 row, insulated coil section with nominal capacities as scheduled.
5. Provide 2 pipe venting through roof unless noted otherwise. Concentric vent and combustion kits are not acceptable.
6. For roof vent installation provide flashing and penetration detail per manufacturer's recommendations. Extend vent to a minimum of 2 feet above nearest point within 10 feet.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

7. Provide 3/4" condensate drain from each evaporator drain pan. Route to nearest floor drain or to the exterior 12" above finished grade.
8. Unit to have a maximum leakage of 2% of design airflow when tested according to ASHRAE 193.

D. Furnace Unit (FURN-5):

1. Provide a fixed capacity condensing furnace as scheduled. The unit shall have 95% AFUE, hot surface ignition, aluminized steel heat exchanger, intelligent control board, cabinet encased in a galvanized steel with clear coating. The unit has a draft safeguard switch, shall be UL listed and AGA certified and shall be shipped as a complete functional unit. Provide a 7-day programmable thermostat.
2. The contractor is responsible for wiring the combustion air damper and the thermostat and any other miscellaneous wiring requirements.
3. Provide PSC motor.
4. Unit to have a 20-year warranty on the heat exchanger.
5. Provide a 3 row, insulated coil section with normal capacities as scheduled.
6. Provide 2 pipe venting through roof unless noted otherwise. Concentric vent and combustion kits are not acceptable.
7. Provide ¾" condensate drain from each evaporator drain pan. Route to nearest floor drain or to the exterior 12" above finished grade.
8. Unit to have a maximum leakage of 2% of design airflow when tested according to ASHRAE 193.

E. Furnace Unit (FURN-1) (Variable Speed):

1. Provide a variable speed, 2-stage condensing gas furnace as scheduled.

    a. The unit shall be designed, tested and constructed to the current ANSI Z21 standard for gas-fired furnaces. Unit shall be certified for capacity and efficiency and listed in latest GAMA directory.
    b. Unit shall be encased in a galvanized steel cabinet with a painted coating and shall be shipped as a complete functional unit.
    c. Unit to have a maximum leakage of 2% design airflow when tested according to ASHRE 193.

2. Blower section:

    a. Galvanized blower wheel shall be centrifugal type, statically and dynamically balanced. The blower motor shall be of the ECM type and shall be permanently lubricated with sealed ball bearings, and have infinitely variable speed from 250 to 1300 RPM's operating only when 24 VAC motor inputs are provided. Blower motor shall be direct drive and soft mounted to the blower scroll to reduce vibration transmission.

3. Heating section:

    a. The unit shall be sealed combustion, 95% AFUE, with aluminized steel primary heat exchangers and secondary heat exchangers with interior laminate coating of polypropylene for greater corrosion resistance. Unit shall have hot surface ignition.
    b. The ECM Inducer motor shall be variable speed design, soft mounted to assembly to reduce vibration transmission.
    c. Provide combustion air and vent piping and termination per the manufacturer's installation instructions.

4. Controls:
    a. Controls shall include a micro processor based integrated electronic control board with service troubleshooting codes and self-test diagnostics that checks all major functions of the furnace.
    b. Control shall allow multiple operational settings, including separate blower speeds for low heat, medium heat, high heat, low cooling, high cooling and continuous fan. Continuous fan speed may be adjusted from the thermostat.

5. Accessories:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

a. Provide filter assembly.
b. Provide a seven-day programmable thermostat with temperature scheduling capabilities and fan on/off/auto and cooling/heating switches.
c. Provide 3/4" condensate drain from each evaporator drain pan. Route to nearest floor drain or to the exterior 12" above finished grade.

F. Condensing Unit (CU):

1. Provide a condensing unit as scheduled.
2. The unit shall be UL listed, high efficiency compressors, pre charged line sets, crankcase heaters, copper or aluminum tubed coil with aluminum fins, internal pressure relief valve, soft start, 5 year compressor warranty. Provide low-temp lockout control to prevent operation below 40° F (adj.) unless units are scheduled to be equipped with low-ambient controls.
3. Casing to be louvered and constructed of heavy gauge, galvanized steel and painted with a weather-resistant powder paint.
4. Provide matching insulated DX cooling coil assembly for each CU unit.
5. Provide concrete or fiberglass pad or rails for roof installation for each condensing unit.
6. Provide refrigerant piping for condensing units and size in accordance with manufacturer's recommendations. All refrigerant suction and liquid lines shall be strapped together whenever possible.

G. Packaged Through-the-wall Unit (MP):

1. Furnish and install a single package combination air to air DX mechanical cooling system and gas fired heating system, complete with automatic control Magic-Pak MGE series as scheduled. The unit shall be designed for through the wall application, and shall be factory wired, piped, assembled and ready for field installation.
2. Unit shall be AGA design certified and UL or ETL approved. All wiring shall be in compliance with NEC.
3. Unit shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.
4. Heating section shall consist of a tubular aluminized steel heat exchanger, aluminized steel in-shot burners, direct spark ignition system with flame sensor, roll-out switch, induced draft blower and 100% safety shut-off gas valve. The unit shall be sealed combustion, and a combustion air inlet shall be integral to the unit.
5. Cooling section shall be a completely self contained mechanical refrigeration system, and capable of being removed from the unit cabinet for service. Coils shall be of non-ferrous construction with aluminum fins mechanically bonded to copper tubes. Coils shall be pressure and leak tested. Units shall have rotary or scroll compressors that are resiliently mounted, have overload protection and internal pressure relief. Units shall be ARI rated.
6. Centrifugal supply air blower shall be permanently lubricated and integral to the cooling chassis. Unit shall be capable of bringing return air in through the bottom of the unit, and discharging conditioned air through the top.
7. Unit shall have a factory installed, permanent washable filter.
8. Unit shall have direct drive propeller type condenser fan. Fan motor shall be permanently lubricated and inherently protected.
9. Cabinet shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Provisions for gas, line and low voltage connections shall be external to the unit. Unit shall have a factory installed outdoor grille.
10. **Provide unit manufacturer's optional decorative architectural extruded aluminum louvers, size and type as recommended by manufacturer to match installed thru-the-wall units. Louvers shall be factory finished with a custom color as selected by the Architect.**
11. All components, wiring and inspection areas shall be completely accessible through removable panels. The cooling chassis shall be removable from the unit without breaking any refrigeration connections, and shall have a modular wiring plug for electrical connections.
12. Furnish and install a factory supplied wall sleeve.
13. Execution:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

a. Inspect to make sure the gaskets attached to the sleeve are not damaged. Wall sleeve shall mate with the unit on all sides.
b. Assure that the unit is completely seated against the gaskets on the wall sleeve.
c. The unit shall be sealed to the wall sleeve for added protection against air infiltration. Completely fill the clearance space between the unit and the wall sleeve with a polyurethane foam sealant. Refer to Application Manual.
d. Seal the space between the wall sleeve and the building opening with a non-hardening caulking compound. The seal must be weather tight to prevent the entrance of moisture and water into the building.
e. Install the plastic drain tube from the 5/8" O.D. fitting welded to the center of the condensate pan to the open trap. Furnish removable hose clamps to fasten flexible drain tubing to any permanent drain tubing in the building in the event it becomes necessary to remove the cooling chassis assembly. Refer to Application Manual.
f. Condensate Drain: To be connected to a common drain riser which ensures the elimination of drips down the outside of the building.

H. Packaged Terminal Air Conditioner (PT-A):

1. Provide an air cooled through-the-wall packaged terminal air conditioner as scheduled.
2. Heating/Air Conditioners shall be certified under the ARI certification program and listed by Underwriters Laboratories.
3. Contractor shall provide all units as shown or indicated on the Mechanical drawings.
4. Compressor shall be hermetically sealed, internally isolated, rotary-type and permanently mounted on rubber isolators.
5. Evaporator and condenser fans shall be direct drive with permanent split capacitor two speed motors. Evaporator fan shall be cross flow (tangential) type. Condenser fan shall be propeller type with slinger ring to assist condensate removal. An aspirator shall be built into the outdoor fan shroud to remove accumulated condensate from basepan. Condensate shall be directed onto the condenser coil to aid in evaporation and removal.
6. Provide optional subbases. Unit shall be prewired to minimize on-site electrical connections and include 20 or 30 amp power cord and cap. Physical disconnect switch mounting, cartridge-style fuse holder locations and side skirts shall be provided.
7. Provide 3500 watt electric heater in all **Type 'A'** units unless noted or specified otherwise.
8. Warranty shall be a full one year on entire unit. Second year limited warranty on all electrical components, parts and labor. Second thru fifth year warranty on all sealed system components.
9. Units shall have two leveling screws for sleeves support and accurate unit leveling.
10. Type 'D' units shall be provided with power vent kit capable of 70 CFM outside air per unit and 5000 watt electric heater with 30 amp power cord and cap.

I. Ductless Split System (AC):

1. Provide a ductless split system heat pump as scheduled, consisting of an indoor high wall mounted or ceiling recessed or ceiling suspended evaporator/blower section and matching outdoor condensing section. Unit will include high efficiency rotary-type compressor, short cycle fire delay and automatic low ambient fan operation. Heat pump shall include an in-line muffler, microprocessor defrost control, self diagnostic service mode, crankcase heater indoor coil high temperature protection and automatic changeover. Provide programmable space thermostat. **[Provide with optional outside air connection and fresh air intake. Provide duct and wall cap with bird screen and balancing damper. Balance to cfm's shown on plans or as scheduled. Provide optional wireless remote control.]**
2. Provide 3/4" condensate drain from each evaporator drain pan. Route to nearest floor drain or to the exterior 12" above finished grade.

J. Supply Fans (SF):

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. Provide a supply fan Cook SW series as scheduled. Sidewall steel propeller fan complete with square venturi, stamped steel propeller, shutter assembly, motorized damper (factory wired interlocked with the fan), belt drive, AMCA rated. High efficiency motors, 100,000 hour sealed bearings.

K. Exhaust Fans (EF):

1. Provide Panasonic WhisperValue exhaust fan as scheduled and as shown on the drawings. The fan shall be of the wall mount and have a totally enclosed permanently lubricated condenser motor. The fan noise rating shall be 1 sones maximum @ 80 cfm. The fan housing shall be heavy-gauge zinc galvanized steel and painted to protect it from rust. Provide with detachable adaptors, firmly secured duct ends, adjustable mounting brackets (up to 26"), and plug-in fan/motor units that detach easily from the housing. Provide integral motor overload protection, disconnecting means and UL rating, Energy Star qualified and labeled accordingly. Provide ceiling radiation dampers where shown and scheduled.
2. Provide a ceiling in-line blower Cook Gemini Series as scheduled. In-line duct blower units shall be of the direct drive, forward curved centrifugal blower type. Motor and blower assembly shall be permanently lubricated. Motor shall be provided with means of disconnect. Unit shall come with a white ceiling grille. Unit shall be UL listed and AMCA rated.
3. Provide an in-line centrifugal fan Cook SQN Series as scheduled. Square 16 gauge housing, hinged access door, straightening vanes, all aluminum centrifugal backward inclined, non overloading blower wheel, bearings isolated from air stream, motor guard, permanently lubricated motors, vibration isolators, AMCA rated.
4. Provide a sidewall exhaust prop fan Cook X-Stream Series as scheduled. Steel, square venturi, stamped steel propeller fan, belt drive, AMCA rated. High efficiency motors, 100,000 hour sealed barrings. Provide optional OSHA wire guard and standard duty aluminum gravity shutter.

L. Transfer Fans (TF):

1. Provide a Greenheck MC series as scheduled with yoke. Provide motors with thermal overload protection. Unit shall be UL listed and ACMA rated.

M. Dryer Booster Fan:

1. Provide a Centrifugal, backward curved blower, in-line fan (Aldes). Steel housing shall be enamel painted. Motor shall be totally enclosed, permanent split capacitor, external rotor type, with Class B insulation, with automatic reset thermal protection, rated for use in air-streams up to 140°F, acceptable for continuous unattended operation. Fan shall be supplied with externally mounted electrical terminal box with pre-wired terminal strip connections. Capacitor shall be mounted in electrical junction box. Fan shall be mounted close to the exterior vent hood.
2. The fan must be mounted at least 15 feet from the dryer.
3. Positive pressure sensing switch shall be mounted on the fan and pre-wired to the terminal strip provided in the electrical junction box. Switch shall incorporate an off-delay operation cycle timer to maintain the operation for intervals of 10 minutes until drying cycle is completed.
4. Provide pressure timer switch to automatically turns fans on and off based on sensed pressure induct. Incorporate cycle timer to maintain dryer operation to intervals of 10 minutes until dryer cycle is completed.

N. Separated Combustion Unit Heaters (UH):

1. Provide separated combustion unit heater Reznor UDAS Series as scheduled.
2. High efficiency, separated combustion, gas fired unit heaters complete with factory installed power venter to draw combustion air from the outdoors. The combustion air supply pipe and flue exhaust pipe shall be run parallel to a factory supplied vertical vent terminal assembly. The vent terminal assembly shall be arranged to preheat the combustion air and allow a single roof penetration.
3. Unit heaters shall be equipped for natural gas.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

4. Electrical requirements shall be 120V/1Ph/60Hz, 4.4 A with 24 volt control voltage and the burner locked in the low stage. The contractor is responsible for all power and control wiring.
5. Heat exchanger shall be Thermocore design of aluminized steel and include flared ports and a stainless steel insert.
6. Units shall have propeller fan, open drip-proof fan motor with integral overloads and disconnect switch, and safety fan guard. Cabinet shall be constructed of zinc grip steel and finished with baked-on enamel.
7. Intermittent spark ignition, redundant single stage gas valve, single stage thermostat with summer/winter switch.
8. Provide mounting points for hanging unit heater from threaded hanger rods with vibration suspension.
9. Provide vent/combustion air piping, wall thimble and termination cap. Install the vent pipe and vertical venting kit in accordance with the manufacturer's recommendations.
10. Provide manual shut-off valve with union.

O. Flue Piping and Breeching:

1. Furnish and install pre-fabricated (Metalbestos, Duravent, Van Packer or Metal-Fab, Selkirk) double wall insulated class "A", "B" or AL29-4C stack of sizes shown. Flue shall carry a UL label. The installation shall be in compliance with all applicable codes. Provide wall, ceiling and roof penetrations where required. This includes guides, storm collar, tall cone flashing, counter flashing, roof support assembly, tee, tee cap, rain cap and all other components.
2. Contractor shall provide flues and vents where indicated or as required to vent all equipment supplied. Flue shall be rated negative, neutral or positive as required to serve load and per specific appliance manufacturer's recommendations.

P. Kitchen Hood (KH-1):

1. Hood shall be D1000 Series by DENLAR Fire Protection. See plans for model number.
2. Unit shall be wall mounted so that the bottom of the mounting bracket sits 24" to 36" above the cooktop.
3. Unit shall be of stainless steel construction (#18 & #20 GA, polished 304) w/ no sharp edges and brushed finish
4. Unit shall have fire suppression system factory installed.
5. Activation of the mechanical fire suppression system shall be by 212°F (30" wide hood) or 280 °F (36" wide hood) fusible link.
6. Provide wet chemical extinguishing agent: Low PH Amerex 660 (pressurized potassium citrate / potassium acetate mix)
7. Unit shall have centrifugal fan with air delivery of 150 CFM.
8. Unit shall be ETL listed, tested to UL300A standards, fan motor shall be permanently lubricated and meet UL507
9. Unit shall include a fuel shut-off device for gas & electric appliances, activated at suppression system discharge
10. Unit shall also automatically disconnect range element once a certain pre-set temperature in reached
11. Unit shall have multiple alarm contacts pre-installed (local, remote & trouble alarms) and an audible buzzer
12. Lighting shall be by 60w shatter-proof bulb.
13. Options: Manual pull station kit.

Part 3. - EXECUTION

3.1 GENERAL

A. Installation:

1. Equipment mounted on the roof shall be rigidly fastened with vibration isolators on curbs or rails that are flashed to the roof. Coordinate flashing with roofing contractor. Air cooled condensers and heat pumps of 5 ton capacity or less shall be rigidly fastened to a pre-cast mounting pad. Roof shall be

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

protected from concrete pad with 1" rigid foam insulation or etha foam. Roofing contractor shall approve method and product used.

2. Support all suspended and floor mounted, motor and/or compressor driven equipment on spring isolators.
3. All floor mounted equipment shall be set at 4" high concrete curbs extending 2" beyond the equipment footprint.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide electric space heating equipment wherever required by the Drawings and Specifications.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 22 00 10.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All electric space heating equipment shall be as follows:

1. Chromalux
2. Berko
3. Fasco
4. Indeeco
5. Markel
6. Qmark
7. Raywall

2.2 PRODUCT

A. Fan Forced Wall Heaters (Berko numbers are provided for cross referencing):

1. FF-X: Berko #FRC- Series, with integral tamper proof thermostat and disconnect. Voltage and heating capacity as scheduled.

B. Electric Horizontal Unit Heaters (Berko numbers are provided for cross referencing):

1. EUH-1: Berko HUHAA-Series, with integral thermostat and disconnect. Voltage and wattage as scheduled.

C. Cove Heaters (Berko numbers are provided for cross referencing):

1. ECH-X: Berko #CHC-Series. Length, voltage and wattage as scheduled.

D. Remote line voltage thermostat (Berko numbers are provided for cross referencing):

1. T-1: Thermostat with snap action, DPST, positive off, white. Berko #M602W.

Part 3. – EXECUTION

3.1 INSTALLATION

A. General Requirements: When shown on plan or specified, the Contractor shall provide a line voltage, remote thermostat for control of electric space heating equipment. Exact location shall be coordinated with Architect.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ELECTRICAL SPECIFICATION INDEX

SECTION 26 00 10	GENERAL CONDITIONS
SECTION 26 00 50	BASIC MATERIALS AND METHODS
SECTION 26 04 00	SITE
SECTION 26 04 30	CUTTING AND PATCHING
SECTION 26 05 10	ELECTRICAL CONNECTIONS
SECTION 26 05 19.10	WIRE AND CABLE
SECTION 26 05 19.11	NM & NMC CABLE
SECTION 26 05 26	GROUNDING SYSTEM
SECTION 26 05 33.10	CONDUITS AND FITTINGS
SECTION 26 05 33.11	OUTLET BOXES
SECTION 26 05 35	RACEWAY SYSTEMS
SECTION 26 05 74	OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY
SECTION 26 06 50.16	LIGHT FIXTURE SCHEDULE
SECTION 26 09 13	CONTROL DEVICES
SECTION 26 24 00	ELECTRIC SERVICE
SECTION 26 24 13	SERVICE ENTRANCE SWITCHBOARD
SECTION 26 24 16.10	PANELBOARDS
SECTION 26 24 16.11	LOAD CENTERS
SECTION 26 24 19	MOTOR CONTROLS
SECTION 26 27 13	METERING EQUIPMENT
SECTION 26 27 23	WIRING DEVICES
SECTION 26 28 13	FUSES
SECTION 26 28 16	SAFETY SWITCHES
SECTION 26 51 00	LIGHTING
SECTION 26 51 10	LIGHTING REBATES
SECTION 26 55 13.13	TELEPHONE AND VOICE/DATA SYSTEM
SECTION 26 55 16	STRUCTURED MEDIA SYSTEM
SECTION 26 55 43.43	CATV SYSTEM
SECTION 26 75 13.16	ACCESS CONTROL SYSTEM INTERCOM
SECTION 26 80 00	CCTV SYSTEM
SECTION 26 90 00.11	FIRE ALARM SYSTEM ADDRESSABLE

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. General and Supplementary conditions within Division 0 and 1 are hereby incorporated and become part of these Specifications, covering all work in Electrical Division.

B. Before submitting a proposal on the project, the Contractor shall visit the site and familiarize themselves with the conditions and limitations affecting Electrical Division work. No additional costs to the Owner shall be allowed for items verifiable during site visits.

C. Contractor shall provide sufficient workers and materials to keep pace with the construction schedule. Contractor shall place orders for equipment such that job progress is not slowed due to late delivery and shall confirm delivery dates with suppliers.

D. The Contractor shall provide office space and storage for materials and equipment supplied as required. Location shall be as directed by the General Contractor or the Architect/Engineer.

E. Upon completion of the work shown and specified under Electrical Division and prior to final close out of the Project, the Contractor shall verify in writing that all systems are 100% complete and operating properly. This notification shall include copies of all Subcontractor notifications. Any system not operating properly at final inspection shall be immediately repaired and demonstrated to the Engineer.

F. Rebates or credits provided by utility companies or equipment manufacturers shall be directly credited to the Owner.

1.2 ELECTRICAL PLANS

A. The Electrical Drawings and Specifications shall form a set of Plans for the electrical work. Neither the Drawings nor the Specifications shall be complete without the other. Any item shown on the Drawings or specified in the Specifications shall be considered as shown and specified on both.

B. Any questions regarding the intent of the Drawings or Specifications shall be brought to the Engineer's attention as soon as possible. If direction from the Engineer cannot be obtained due to time or communication limitations, the greater quantity, higher quality or condition most favorable to the Owner shall be assumed. Contractor shall provide all labor, materials, equipment, and miscellaneous items necessary for a complete and operational electrical installation, as shown on the Drawings and called for in these Specifications.

C. Drawings:

1. Contractor shall familiarize themselves with Architectural, Structural and Mechanical Drawings and Specifications. Coordinate all shafts, chases, furred spaces, suspended ceilings, locations of equipment, etc.
2. Electrical Contractor shall coordinate routing of all conduit and wire within soffits provided by the General Contractor. The Electrical Contractor shall provide all soffiting required to cover installations not coordinated or specifically approved by the Architect and Engineer.
3. Electrical Drawings are diagrammatic and are intended to show approximate location only. Placement of electrical equipment and devices shall not interfere with locations or clearances of other trades' materials or equipment.
4. Contractor shall verify locations with architectural elevations.
5. Dimensions given on the Drawings shall take precedence over scaled dimensions. Dimensions, whether given in figures or scaled, shall be verified in the field.
6. Contractor shall verify that the equipment to be furnished under Contract will fit within the available space.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

7. Notify the Architect or Engineer of any discrepancies between Electrical, Architectural and Mechanical Drawings.
8. Verify items such as door swings, window locations, casework, etc., before installing any electrical equipment or devices. All devices conflicting with other trades work due to lack of coordination shall be relocated at no additional cost to the Owner.

D. The following terms used in the Drawings and Specifications shall be defined as follows:

1. Contractor: Shall mean Electrical Contractor or any of their Subcontractors.
2. Work: Shall mean labor and/or materials of the Electrical Contractor or any of their Subcontractors.
3. Furnish: Shall mean purchase, submit for Engineer approval, coordinate with Contract Documents and deliver to site in a new, undamaged condition.
4. Connect: Shall mean to bring electrical service and/or control wiring to equipment, make all final connections, provide all necessary miscellaneous materials required and do final check out to ensure proper equipment connections.
5. Install: Shall mean to store as directed, protect from damage, set in place, connect, test as required and turn over to the Owner in full operating condition.
6. Provide: Shall mean furnish and install.

E. CAD and Drawing Files:

1. Electrical CAD drawings prepared by Steen Engineering, Inc. for this Project are instruments of Steen Engineering, Inc. for use solely with respect to this Project. During the course of the implementation of the Project, and with Steen Engineering, Inc. approval, copies may be obtained of CAD drawings for the preparation of Shop Drawings. These CAD drawings shall not be used on other projects, for additions to this Project, or for completion of this Project by others. Any revisions, additions and/or deletions to these CAD drawings, either intentional or unintentional, shall be made at the full risk of the person(s) making such revisions, additions and/or deletions. Such person(s) shall hold harmless and indemnify Steen Engineering, Inc. of any and all responsibilities and liabilities.
2. CAD drawings files of Architectural floor plans, elevations, sections, etc, shall be requested directly from the Architect.

1.3 COORDINATION OF DRAWINGS

A. For typical or repetetive HVAC unit installations, Electrical Contractor shall coordinate with Mechanical Contractor to schedule an inspection with local and/or state AHJ to review a complete mock-up example installation and receive approval prior to proceeding with additional installations. Installation shall meet all code and manufacturer's service clearance requirements. Contractor shall coordinate installation and subsequent inspection with general contractor and any related trades.

B. Contractor shall submit ¼-inch scale drawing to the Engineer indicating placement of all mechanical and electrical systems and equipment. Indicate proposed locations of all major equipment and materials, including but not limited to service equipment, exterior wall and foundation penetrations, fire-rated wall and floor penetrations, sizes and location of required concrete pads and bases, and mechanical/electrical equipment room layouts. This effort will require each trade to closely work together to produce a ¼-inch set of coordination drawings for each area of the building.

C. Coordinate scheduling and sequencing required for movement and positioning of large equipment into the building with all other Contractors to minimize impact on their work.

D. This Contractor shall provide any and all input required to complete these drawings.

1.4 MATERIALS AND EQUIPMENT

A. Materials:

1. All materials shall be new and of the type and quality specified herein.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2. Specific materials and equipment specified is intended to establish a minimum standard of required quality. Where specified materials and equipment fail to meet minimum standards of existing federal, state and local codes and ordinances, the governing codes and ordinances shall prevail.
3. The Contractor shall provide all minor miscellaneous materials necessary for the complete electrical installation.
4. For materials and equipment specified by description only, Contractor shall provide materials or equipment suitable for the purpose intended. These shall be in conformance with all governing codes, these Specifications and normal trade practice.
5. Supply materials and equipment to the site in original packages, containers or crates insofar as is practical. It shall be the Contractor's responsibility to schedule deliveries with other Contractors and the Engineer.
6. Provide for proper receipt, handling, storage and protection from the elements for all materials and equipment to be used on this Project so as to effectively prevent damage or deterioration. Materials or equipment sustaining damage or undue deterioration from any cause whatsoever shall be replaced or repaired by Contractor as required by Engineer.
7. The Contractor shall properly protect all equipment from damage during construction. Thoroughly clean all fixtures, equipment and other supplied materials. Make all necessary repairs and apply touch up paint as required prior to final inspection and contract close out.
8. All materials and equipment shall be listed by Underwriter's Laboratories, Inc. (UL). Materials and Equipment shall meet the UL requirements of each standard in every case where such a standard has been established for that particular type of material. Equipment shall be UL listed and labeled as an entire assembly or system.

B. Prior Approvals:

1. All requests for prior approvals must be received by the Engineer at least seven working days prior to bid date. Applications for prior approval shall be considered only from Contractors submitting bids on the Project. Contractors shall determine whether materials receiving prior approval are actually in accordance with details of the Specifications.
2. The Contractor shall be responsible for all deficiencies that may exist from the use of substituted products and equipment, including additional labor and materials required to complete the work. All dimensions and characteristics of substituted products shall be verified and coordinated with all affected trades and Subcontractors. Any required changes or modifications to the work of any other trade or Subcontractor incurred due to using accepted substituted products shall be coordinated and performed by this Contractor at no additional cost to Owner.

1.5 SUBMITTALS

A. Within fifteen days after the award of the Contract, the Electrical Contractor shall submit shop drawings on all major electrical equipment to the Architect for approval. Shop Drawings shall be submitted by the Electrical Contractor, not their Subcontractors. **Shop drawings shall be submitted separately per specification section. Multiple shop drawing sections received in a single submittal will be rejected.** These shop drawings shall cover such items as lighting fixtures, lamps, disconnects, fuses, starters, MCC sections, switchgear, devices, plates, panels, contactors, etc. The Contractor shall thoroughly review each item for compliance with these Specifications making any necessary corrections prior to submittal. Each shop drawing set shall be stamped, signed and dated indicating Contractor review. If the Contractor fails to properly review shop drawings, the Contractor shall reimburse the Engineer for all additional reviews on a time and material basis. No equipment shall be released for shipment or installed prior to final approval by the Engineer.

B. The Engineer will review all Shop Drawings submitted and will retain one copy for record file.

C. Approval Stamp: This review is to verify general conformance with the design concept of the Project and substantial compliance with the information provided in the Contract Documents. This review does not in any way relieve the Contractor or their suppliers of their responsibility to provide all materials and equipment as specified, in quantities, quality and dimensions required. Submittals will be reviewed with the following actions:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. "No Exception Taken" indicates that the Submittal appears to conform to the design concept of the Work and that the Contractor, at his discretion, may proceed with fabrication and/or procurement and installation.
2. "Make Noted Corrections" indicates that the Submittal, after noted corrections are made, appears to conform to the design concept of the Work and that the Contractor, at his discretion, may proceed with fabrication and/or procurement and installation, if the corrections are accepted by the Contractor without and increase in Contract Sum or Time.
3. "Revised and Resubmit" indicates that the noted revisions are such that a corrected copy of the Submittal is required for review to confirm that the noted revisions have been understood and made. The Contractor, at his discretion, may proceed with fabrication and/or procurement and installation after submitting a corrected copy and verifying with the reviewer that the corrected copy is acceptable, if the corrections are accepted by the Contractor without an increase in the Contract Sum or Time.
4. "Rejected" indicates that the Submittal does not appear to conform to the specifications, a resubmission is required and fabrication or procurement is not authorized.

D. If the Engineer rejects (Revised and Resubmit or Rejected) the same section two times the engineer shall be compensated for additional reviews. Compensation will be incorporated by Change Order and will be deducted from the Contractor's application for payment. Contractor is responsible for all delays caused by the resubmittal process.

E. Provide samples of materials or equipment proposed to be furnished, if requested. Samples shall become the property of the Architect/Engineer and will be returned only when accompanied by a written request to do so.

F. Record Drawings: The Contractor shall provide and maintain an "As Built" set of bluelines on site, neatly notating routing, location or other field changes to the Contract Documents. Upon Project completion and prior to final close out, turn the "As Built" drawings over to the Owner. Provide a detailed transmittal indicating each sheet and other information turned over to the Owner and acquire their representative's signature. This information shall be included at the project close out.

1.6 WORKMANSHIP AND CONSTRUCTION PROCEDURES

A. Installation of all materials specified herein shall be performed in a neat and workmanlike manner by workers experienced and skilled in the trade. Only the best quality workmanship will be accepted.

B. The Contractor shall regularly clean their work area of debris. Removal of all Contractor generated debris and rubbish caused by their work shall be at the Contractor's expense.

C. Contractor shall coordinate with the Owner any interruptions necessary to existing systems prior shut down.

D. Coordination:

1. Contractor shall give careful consideration to work of other Contractors on the Project and shall organize work as detailed in the Contractor's ¼" coordination drawings so as to not interfere with or delay the work of other trades.
2. The Electrical Contractor shall thoroughly review installation manuals for each piece of equipment requiring power and control connections. Obtain instruction manuals from the Mechanical Contractor, Plumbing Contractor or Owner prior to roughing in any feeders or control wiring. Notify the Engineer of any discrepancies between the electrical plans and specifications and the equipment installation manuals prior to any installation. If for any reason this Contractor fails to do so, any and all costs necessary to correct discrepancies shall be borne by the Electrical Contractor.
3. Contractor shall consult all Architectural, Structural and Mechanical Drawings and Specifications that apply for correlating information.
4. Conflicts or interference with work of other trades shall be brought to the attention of the Engineer, in writing, before installation.
5. Should the Electrical Contractor not follow above procedures and install work that interferes with work of other Contractors, the Electrical Contractor shall make all necessary changes as directed by Engineer to eliminate the interference or conflict at the Electrical Contractor's expense.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

E. Protection of Equipment:

1. Until final acceptance of the work by the Owner, the Contractor shall be responsible for the safety, good condition, and protection from damage of all materials and equipment installed.
2. If, during shipment or installation, the finish of equipment becomes chipped or scratched, the Contractor shall touch up or refinish surfaces to match original finish.
3. Switchboards, panelboards, transformers, bus ducts, motor starters and other electrical components stored or installed on-site shall be covered with plywood and polyethylene or an equivalent to protect them from any damage due to site conditions or from work by other trades.

F. The Contractor shall complete all safety forms required by General Contractor.

G. Live Work: All electrical equipment shall be de-energized prior to any work being performed. If it is necessary to work on any equipment live due to job conditions, precautions shall be taken to protect authorized personnel from accidentally coming in contact with live parts. Contractor shall have adequate personnel on site along with a back up plan to recover from an unscheduled outage.

1.7 LICENSES, CODES AND FEES

A. The Contractor shall be a licensed Contractor in the State where the project is being constructed. The Contractor shall employ all Licensed Professional Tradesmen required for each type of work covered under these drawings and specifications.

B. The Contractor shall procure all necessary certificates and permits and pay all required fees. The Contractor shall pay all fees and installation charges by the utility company for the permanent services.

C. Codes and Ordinances: All work and materials shall meet the requirements of national, state and local codes and ordinances, in every respect. This requirement shall not relieve the Contractor from meeting the requirements of Drawings and Specifications that may be in excess of all codes and ordinances and not contrary to them. Following is a partial list of governing codes and/or standards:

1. Occupational Safety & Health Act (OSHA)
2. Underwriters Laboratories (UL)
3. State and Local Building Codes
4. State Board of Health
5. State Industrial Commission
6. State and Local Fire Codes and Regulations
7. National Electric Code
8. State and Local Electrical Installation Codes
9. Local Power Company Regulations and Requirements

D. Inspections: Regular inspections shall be requested by the Electrical Contractor to meet all state and local requirements. Contractor shall furnish a certificate of final inspection and approval from all enforcement agencies to the Owner.

1.8 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall deliver two sets of Operation and Maintenance (O&M) manuals to the Owner prior to final close out. O&M manuals shall consist of approved shop drawings, manufacturer's bulletins, equipment manuals, a list of manufacturers with telephone numbers for all equipment that contains replaceable parts and all other data covering the care, maintenance and operation of each piece of furnished equipment. O&M manuals shall be neatly bound in a 3-ring binders, contain an index and section tabs and be labeled with the Project name.

B. Name, address, and telephone number of each Contractor installing equipment and systems, local representative for each item of equipment and each system. Table of contents shall correspond to the Specifications with the Section tab sheets placed before the respective Shop Drawings and operation and maintenance instructions. Warranties for more than 1 year shall be included in appropriate section.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1.9 OPERATING INSTRUCTIONS AND TESTING

A. The Contractor shall fully instruct the Owner in the operation of electrical equipment prior to final close out. Contractor shall provide, without additional expense to Owner, services of competent instructors who will give full instruction in the care, adjustment, operation, and maintenance of all electrical systems provided by this Contractor to Owner's permanent employees. Instructor shall be thoroughly familiar with all parts of the installation that they are to give instructions and shall be trained in operating theory, as well as in practical operation and maintenance work. Factory trained instructors shall be employed wherever they are available. Instruction shall be given during regular work week and at a time just prior to the time the equipment is accepted and turned over to Owner for regular operation.

B. The Contractor or his representative shall provide a minimum of five days instruction period for Owner's personnel.

C. Contractor shall test all equipment installed under this Specification and shall demonstrate its proper operation to the Engineer. No equipment shall be tested or operated for any purpose until it has been fully prepared, connected and made ready for normal operation. Damage to equipment due to improper or ill-timed operation or testing shall be repaired, at Contractor's expense, before final inspection and acceptance.

1.10 WARRANTY

A. The Contractor shall guarantee all materials and equipment to be free of defects that may develop in any part of their work, caused by faulty workmanship, material or equipment failures, for a minimum of one year from the date of final completion of the Project or for as long as normal equipment manufacturer warranties are in effect from the date of Owner acceptance of the Project, whichever is later.

B. During the warranty period, notification by letter, personal contact or telephone conversation of a problem with any electrical system, shall cause the Contractor to respond within one week, making repairs or corrections as necessary. After all repairs and corrections are complete, the Contractor shall notify the Engineer.

C. The Contractor shall agree to provide 24 hour service on call for emergency.

1.11 TEMPORARY POWER

A. The Contractor shall provide all necessary temporary power and lighting to allow other Contractors and Subcontractors to perform their work. Prior to submitting a bid for this Project, contact the General Contractor to determine the type of equipment to be used in the performance of the work. The Electrical Bid shall include all labor and materials required to provide and maintain a complete temporary power and lighting system throughout the course of the project.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. Unless noted otherwise in this Specification or on the Drawings, all materials shall be new and in their original packages. All materials shall comply with this Specification and at a minimum all applicable codes and standards as listed in Section 26 00 10.

B. Nameplates shall identify equipment by name. They shall be micarta plates, minimum of 1 1/4" x 3", or larger if necessary for wording with 3/8-inch high white lettering.

C. All distribution equipment, such as disconnects, starters, MCC's, panels and switchgear, shall be obtained from one manufacturer.

D. The Contractor shall be responsible for verifying locations of such things as piping, ductwork, equipment, door swings, heights of cabinets and counters, etc., prior to the installation of all electrical equipment. Installed electrical work that interferes with the work of other trades shall be relocated by the Electrical Contractor at no additional cost to the Owner.

E. Contractor shall paint all exposed electrical equipment, such as conduit/raceway, meter sockets and panels, to match adjacent finishes. Refer to Architectural Specifications for method to be used.

F. Switched receptacles, where shown, shall be modified and connected so that only the upper portion is switched.

G. Receptacles and outlets located on opposite sides of a common wall shall not be mounted in the same stud space. At least one stud shall separate devices. Where this requirement is not practical, such as in back to back floor plans where devices must be back to back, the use of 3M MPP-4S moldable Puddy Pad shall be used in sufficient thickness to match the hour rating of the wall.

H. All switches, receptacles and outlets installed within rated assemblies shall be firestopped to maintain rating of assemblies.

I. Circuit numbers shown are for reference only within noted panel. Contractor shall neatly identify correct circuit numbers on the as-built drawings.

J. Where required, the Contractor shall provide GFI devices or GFI breakers per the NEC.

K. Provide AFI breakers for all 125 volt, single phase branch circuits in all units, except for bathrooms, garages and unfinished basements.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Provide nameplates on all equipment such as disconnects, starters, MCC's, panels and switchgear.

B. Identify all pull and junction boxes with circuit or feeder numbers and source of power using black magic marker.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

C. Each panelboard shall be provided with a typed circuit directory. Clearly describe loads and areas served. Room names or Owner's room numbers shall be used. Handwritten directories will not be accepted.

D. The Contractor shall perform saw cutting, trenching, backfilling, compaction and patching required for underground raceway systems shown or specified.

E. The Contractor shall provide concrete pads for all floor mounted equipment. Pads shall be 4" thick and extend a minimum of 2" beyond equipment.

F. Contractor shall verify the location of all fixtures and devices with the Architect prior to installation.

G. Provide access panels where j-boxes or pull boxes are installed in inaccessible locations. All access panels shall be approved by the Engineer and Architect prior to installation.

H. Contractor shall provide matching cord and plug for all ranges and electric dryers, unless provided with equipment. Provide matching receptacles. Coordinate with equipment supplier.

I. In handicapped living areas, controls or switches for range hoods, disposals, undercabinet fixtures, etc. shall be installed in the kitchen cabinet face.

J. All receptacles and outlets located in block walls shall be mounted so that only one block is cut.

K. Contractor shall connect all exterior and vestibule lighting circuits through timeclock/lighting contactor for control.

L. Contractor shall submit all fire stopping methods to the local authorities for approval. Provide copies of all approved fire stopping methods to the Engineer. All fire stopping shall be reviewed and approved by Local Authorities prior to installation.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Section Includes: Excavating, backfilling and compaction of all earth required for proper installation of buried electrical material, wherever required by the Drawings and Specifications.

1.2 EXCAVATION AND BACKFILLING

A. General Requirements: Contractor shall perform excavation, backfilling, and compaction for installation of electrical work within earth, including conduit and direct burial cables, as well as ducts or manholes shown on Drawings, as follows:

1. All conduit and direct buried cable shall be installed a minimum of twenty-four inches below finished grade. Trench shall be graded level to provide uniform support for each section of conduit. Excess excavation below required level shall be backfilled and compacted to 98% prior to conduit or direct buried cable installation. All debris and water shall be removed from the trench prior to final installation of conduit or direct buried cable. Properly protect conduit or direct buried cable until backfilling can be performed.
2. After underground lines have been inspected and prior to backfilling, forms shall be removed and excavation shall be cleaned of trash, debris and water. Material for backfilling shall consist of excavation, or borrow of sand, gravel or other materials approved by Engineer, and shall be free of trash, lumber or other debris. Place backfill in horizontal layers, not exceeding six inches in thickness, and properly moisten to approximate optimum requirements. Each layer shall be compacted down by hand or machine tampers, or by other suitable equipment, to a density that will prevent excessive settlement or shrinkage. Backfill shall be brought to a suitable elevation above grade to provide for anticipated settlement and shrinkage.
3. Underground electrical lines exterior to building are to be marked by installation of a continuous identifying tape buried in trench above line. Bury tape six inches below finished grade. Tape shall be made of inert plastic, six inches wide, yellow or orange colored with the words “Caution Buried Electric Line Below” repeatedly printed along length of tape. Type shall be Griffolyn Company, “Terratape”.

B. Inspection of all installations by local inspection authorities shall be completed prior to backfilling. Restore surface to its original condition, ie grass, concrete, blacktop, etc.

C. Areas on Owner’s property backfilled by electric utility, for electric services to building, shall be compacted and brought up to suitable grade by Contractor.

D. Areas directly under sidewalks and roadways shall be compacted to a dry density no less than 95% of ASTM D1557 moisture density relationship. Contractor shall pay costs for testing of compacted backfill by an approved testing laboratory when tests are requested by Architect/Engineer.

E. Dewatering:

1. General: Maintain excavated areas in a dry condition during excavation, compaction and backfilling operations. Under no circumstances shall concrete be poured under water. Perform excavation in a manner to prevent surface water and subsurface or groundwater from flowing into excavations. Do not allow water to accumulate in excavations.
2. Method: Remove water from excavations using dewatering methods to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations. Convey water removed from excavations and rain water to collecting or run-off areas. Provide and maintain temporary drainage

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

ditches or other diversions outside excavation limits. Do not use trench excavations for site utilities as temporary drainage ditches.

1.3 EQUIPMENT PADS

A. Contractor shall provide equipment pads for all exterior electrical components furnished under this contract and for the electrical utility transformer(s). Pads shall extend a minimum of six inches beyond the physical dimensions of the equipment and shall be a minimum of six inches deep. Provide all excavation, soil removal from site, compaction, forms and forming reinforcing steel, 3000 psi concrete and finishing, minor concrete touch up, removal of forms and backfilling as required to properly support equipment. Construct utility transformer pads per utility company requirements including all steel or PVC stubouts for primary and secondary conductors' installation. Provide grounding system as required.

1.4 POLE BASES

A. Contractor shall provide all excavation, soil removal from site, forms and forming, reinforcing steel 4000 psi concrete, and finishing, anchor bolts, conduit stubouts, minor concrete touch up removal of forms and backfilling as required for a complete support base as required for all exterior fixtures as shown or specified. Bases shall be sized as called for on the details. Any question as to the size, depth or finished elevation of any bases shall be brought to the Engineer prior to setting any forms or pouring any concrete.

Part 2. – PRODUCTS

N/A

Part 3. – EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 GENERAL REQUIREMENTS

A. The Contractor shall be responsible for all cutting, drilling, removal, patching and refinishing of walls, ceilings, roofs and floors as required to provide a complete electrical system as shown on the Drawings and as called for in these Specifications.

B. All cutting and patching shall be done with the prior approval of the Architect/Engineer. Patching to match existing finishes shall be performed by the proper trades such as concrete finishers, sheetrockers, tapers, painters, etc.

C. No welding or use of a cutting torch shall be permitted without the specific prior approval of the Engineer.

Part 2. - PRODUCTS

N/A

Part 3. – EXECUTION

3.1 CUTTING, DRILLING AND PATCHING

A. All holes in masonry or concrete shall be drilled by use of a core drill.

B. Cutting: Chases and trenches required for the installation of electrical raceways and/or other electrical apparatus shall be saw cut prior to removal of existing materials. All cutting shall be straight and level.

C. Drilling: Impact rotary hammers shall not be used. Approval shall be obtained from the Architect and Structural Engineer prior to performing any core drilling. Upon completion of installation, seal excess openings with non-shrinking grout or compound.

D. Sleeves: Wall and floor sleeves required for electrical work shall be provided by this Contractor. Adequate fastening arrangements shall be employed in setting sleeves and checked during pours to ensure proper positioning. Floor sleeves shall project a minimum of 1-inch above the floor surface. Upon completion of the installation, Contractor shall provide a fire rated material to maintain fire rating of wall or floor.

E. Patching: All surfaces disturbed during installation of the electrical system shall be fully restored to their original condition. Patching shall be performed by workers experienced, skilled, and licensed for that particular type of work involved. Inferior work will not be accepted. Roof patching shall be weather tight.

F. Grouting: Contractor shall be responsible for grouting airtight, openings adjacent to raceways and other electrical openings to seal against passage of air, smoke, or vapors. Openings around raceways through floors shall be sealed watertight. Maintain ratings of fire rated partitions.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide circuits, including final connections unless noted otherwise, to each item of electrically powered equipment wherever required by the Drawings and Specifications.

1.2 SUBMITTALS

N/A

1.3 CONNECTIONS

A. Connect all equipment per instruction manuals provided by the Mechanical Contractor, Plumbing Contractor or Owner as specified in Section 26 00 10.

B. Connect all equipment as indicated in the Mechanical and Electrical Equipment Schedule and as specified in Section 26 24 19.

C. Do not scale Electrical Drawings for rough-in dimensions.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide and connect 600 volt and below wire and cable.

B. Wiring Sizing**:** Wire sizes indicated on Drawings are for copper conductors. Conductor sizes are specified by American Wire Gage (AWG) numbers, except where conductor cross sections in Kcmil is indicated. Unless noted otherwise conductors smaller than 12 AWG shall not be used for branch circuits.

C. In Conduit**:** Unless otherwise noted on Drawings, electric system conductors shall be installed in conduit. Conduit fill requirements of the National Electric Code (NEC) shall not be exceeded.

D. MC Cable: MC Cable may be used where permitted by Code.

1.2 QUALITY ASSURANCE

A. Underwriters' Laboratories (UL): Devices shall be in accordance with Section 26 00 10.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1.4 CONDUCTORS FOR COMMUNICATION AND OTHER SYSTEMS

A. General Requirements: Refer to specific communication system Sections for conductor requirements.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All wire and cable and accessories shall be as follows:

1. Building Wire/Cable: Recognized manufactures of electrical building wire.
2. Plastic Tape: AMP, Eagle or 3M.
3. Spring Wire Connectors: Heyco, Ideal, 3M or T&B.
4. Split-Bolt Connectors: Burndy, O-Z/Gedney, Square D, or T&B.
5. Solderless Crimp Pressure Connectors: Burndy, Ideal T&B or 3M.
6. Twist-on Wire Connectors: Buchanan, Ideal or 3M.
7. Vinyl Electric Insulation Tape: Permacel, Tomic or 3M.

2.2 CONDUCTORS

A. Copper Conductors: Conductors shall be soft, annealed 98% copper, electrically continuous and free from short circuits or grounds.

B. Aluminum Conductors: Aluminum conductors may be substituted for No. 2 AWG or larger copper conductors where both conductors and conduit sizes are increased over those shown on Drawings as required to provide equal or greater ampacities in accordance with the NEC. No aluminum conductors shall be directly buried in earth. The use of all aluminum conductors shall be approved by the Local Code Authorities.

C. The Electrical Contractor shall thoroughly review installation manuals for each piece of equipment containing

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

VFDs. Obtain instruction manuals from the Mechanical Contractor, Plumbing Contractor or Owner prior to roughing in any feeders. Notify Engineer of any discrepancies between the electrical plans and specifications and the equipment installation manuals prior to any installation. If for any reason this Contractor fails to do so, any and all costs necessary to correct discrepancies shall be borne by the Electrical Contractor.

D. Aluminum conductors shall not be used in lieu of copper for elevator feeders.

E. Aluminum conductors shall not be used in lieu of copper for VFD feeders.

F. Aluminum four conductor, SER cable may be used in lieu of copper for feeders to Unit Load Centers. Aluminum SER cable ampacity must be equal to ampacity of copper feeders specified.

G. Aluminum four conductor, #6 SER cable may be used in lieu of copper for electric range and dryer feeders.

2.3 SOLID AND STRANDED

A. General Requirements:

1. Wires shall be solid or stranded for sizes 10 AWG and smaller.
2. Wires shall be stranded for sizes 8 AWG and larger.

2.4 INSULATION

A. Voltage Class: Insulation, unless otherwise noted, shall be 600 volt.

B. Insulation Type: Conductor insulation shall be as follows:

1. Service, Feeder, and Branch Circuit Conductors: Type THHN/THWN with a temperature rating of 75° C.
2. Direct Burial Conductors: As noted on Drawings. Type USE or UF cross-linked polyethylene.

C. Color Code: Wire and cable color shall be in accordance with the latest edition of the NEC. On larger cables, only where factory coloring is not available, marking tape shall be used to identify each phase and neutral conductors. A minimum length of six inches shall be color coded at each end.

2.5 CONNECTORS AND TERMINATIONS

A. Conductors 8 AWG and Smaller**:** Use solderless crimp or indent type pressure connectors with insulating covers for copper wire splices and taps for 8 AWG. For 10 AWG and smaller, use insulated spring wire connectors with plastic caps. Strictly comply with the number, size and combination of conductors as listed on manufacturer's packaging.

B. Conductors 6 AWG and Larger**:** Use split bolt connectors for copper wire splices and taps, 6 AWG and larger. Tape uninsulated conductors and connectors with electrical tape.

2.6 CONTROL WIRING

A. General Requirements:

1. Control conductors shall be 14 AWG or larger.
2. Conductors shall be sized large enough so that voltage drop under in-rush conditions will not adversely affect operation of controls.

Part 3. - EXECUTION

3.1 GENERAL WIRING METHODS

A. General Requirements:

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. Provide 14 AWG or larger conductors for power and lighting circuits and no wire smaller than 14 AWG for control wiring.
2. Provide 10 AWG conductors for 20 ampere, 120 volt branch circuit runs longer than 75 feet and for 20 ampere, 277 volt branch circuit runs longer than 150 feet.
3. Place an equal number of conductors for each phase of a circuit in same raceway or cable.
4. Conductors shall be tested to be continuous and free from shorts and grounds.
5. Neatly train and lace wiring inside boxes, equipment, and panelboards.
6. Conductor lengths for parallel circuits shall be equal.
7. Provide a minimum of twelve inches of slack conductor at each outlet.
8. Cables shall not come into direct contact with any mechanical systems, such as sprinkler piping, plumbing piping, ductwork, etc.

3.2 WIRING INSTALLATION IN RACEWAYS

A. General Requirements:

1. Pull all conductors into a raceway at the same time. Use Underwriters' Laboratories (UL) listed wire pulling lubricant for pulling No. 4 AWG and larger wires.
2. Completely and thoroughly swab raceway system before installing conductors.
3. Control and communication conductors shall be installed in separate, dedicated raceway systems.

B. SER Cable

1. SER cable shall not be installed exposed in unfinished areas. Provide fire rated enclosure.
2. In areas where SER cable is permitted by Code to be exposed in unfinished areas, provide cable tray or wire support assemblies.

    a. Provide sufficient support so that cables do not sag or droop.
    b. Route cables parallel with beams and structural numbers. Do not run diagonally.

3. Installation of exposed SER cable shall be approved by the AHJ prior to installation.

3.3 INSTALLATION OF ALUMINUM CONDUCTORS

A. When Permitted: Contractor shall substitute aluminum conductors for copper, only when permitted in Article 2.2 of this Section and only in sizes specified.

B. Installation: Aluminum conductors shall be installed in accordance with Aluminum Building Wire Installation Manual and Design Guide as published by Aluminum Association.

C. Vibration Precaution: No aluminum conductors shall be connected directly to motors, air conditioners or any equipment that vibrates. At these locations, aluminum conductors shall terminate in safety switches or junction boxes near units with copper conductors extended, in flexible conduit, directly to motors.

3.4 WIRING CONNECTIONS AND TERMINATIONS

A. General Requirements:

1. Splices shall only occur in accessible junction boxes. Splices in conductors installed below grade are not permitted.
2. Wires shall be thoroughly cleaned prior to installing lugs and connectors.
3. Splices, taps and terminations shall be made to carry full ampacity of conductors without perceptible temperature rise.
4. Spare conductors shall be terminated with electrical tape.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. NM & NMC cable may be used in lieu of conduit and wire where allowed by the National Electric Code (NEC) and/or approved by state codes, local codes and ordinances.

B. Conductors shall be a minimum of #14 AWG with a maximum of #2 AWG. All conductors shall be 98% copper, with one bare conductor for grounding purposes only. Grounding conductor shall conform to Article 250 of the National Electric Code.

C. All NM and NMC cable shall be manufactured with a distinctive marking on the exterior for its entire length. This marking shall clearly specify the cable type.

D. NM and NMC cable shall be installed through or parallel to studs, joists and rafters. Holes shall be drilled in the center of studs or joists wherever possible. Where not possible to drill in the center of studs or joists, a protective plate, such as Noer's "Safety Plate", shall be installed to protect the cable from nails or screws. These holes shall be considered as cable supports.

E. A minimum of 6" of wire shall be exposed beyond the face of each device or j-box for terminations and/or device installation.

F. Provide boxes that are approved by the NEC for use with NM & NMC cable.

G. Where required, cable or box connectors shall be two screw, strap type, specifically manufactured for connection NM or NMC cable to panels, cabinets or j-boxes.

1.2 SUBMITTALS

A. Shop Drawings: Provide shop drawings in accordance with Section 26 00 10.

Part 2. - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Approved Manufacturers: All NM & NMC cable shall be of one manufacturer as follows:

1. Bristol
2. Colonial
3. Encore
4. Excel
5. General
6. Southwire

Part 3. - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Provide MC cable in lieu of NM and NMC cable in all plenum areas. These areas include plenums above rooms containing mechanical air handling equipment, plenums between stud spaces, plenums used for return air, etc. All penetrations shall be fire stopped. Coordinate with Mechanical Division.

B. Cable shall not be installed within the air space between studs in demising walls. Install cable on stud side served.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Support all cables with straps, cable ties or staples specifically designed for this purpose. Installation shall not cut or damage cable in any way. All damaged cable shall be immediately removed and replaced with new. Cable shall be supported within 12" of each box, cabinet or fitting at intervals of 4 1/2 feet.

D. Splice all ground wires per NEC.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide labor, materials, equipment and accessories for the following Work:

1. Electric Service Ground: Provide grounding of secondary service neutrals at the supply side of the service disconnecting means in accordance with the National Electric Code (NEC).

    a. Provide grounding of the metallic conduit system, cabinets, non-current carrying parts of equipment and neutral service conductor at the service entrance.

2. Equipment Ground: Provide solid interconnections to form a continuous permanent and effective equipment grounding medium between the entire conduit system, switch boxes, cabinets, motor frames and other permanently installed electrical equipment:

    a. Feeder and Branch Circuits: Provide an insulated grounding conductor, sized per the NEC.

        1) All EMT conduits 1 1/2 inches and larger
        2) All PVC conduits
        3) All flexible metal conduits

    b. Switchboard Grounding: Terminate conduits entering the switchboard in grounding bushings bonded to switchboard ground bus.

3. Metal Piping: Bond interior metal piping systems to the services equipment enclosure, the grounded conductor at the service or to the grounding electrode conductor.
4. Communication System Grounding: Provide grounding for each communication system.
5. Concrete Encased Electrode: Provide 20’ grounding electrode conductor connected to bar or rod, encased in concrete, per NEC 250. Coordinate with structural.
6. Gas Meters: Provide continuous ground conductor between each metallic pipe connection to building service ground rod per NEC 250. Refer to detail.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: Provide grounding systems to comply with the requirements of the NEC. Coordinate with the local electrical inspector.

B. Tests: Measure ground grid resistance with earth test megger. Provide additional ground rods and conductors as required until resistance to ground meets NEC and local code requirements.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

Part 2. - PRODUCTS

2.1 MATERIALS

A. Grounding System: Except as otherwise indicated, provide electrical grounding systems with assembly of materials including, but not limited to, cables/wires, connectors, terminals, grounding rods/electrodes, bonding jumpers, and additional accessories needed for complete installation. Where materials or components are not indicated, provide products meeting the requirements of NEC, UL, IEEE, and established industry standards for applications indicated.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

1. Conductors: Copper cable, stranded of size per the NEC unless otherwise noted on Drawings.
2. Bonding Jumper Braid: Copper braided tape, constructed of 30 gauge bare copper wires and properly sized for indicated applications.
3. Connectors, Terminals, and Clamps: Burdy, Kearney, T & B, Penn-Union.
4. Ground Rods: Copper clad steel, ¾-inch diameter, a minimum 10 feet in length.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements: Grounding and bonding shall comply with the requirements of the NEC and shall be coordinated with the local electrical inspector. This, however, shall not be construed as relieving the Contractor from meeting any requirements of the Drawings and Specifications that may exceed code requirements.

3.2 GROUNDING ELECTRODE

A. General Requirements: Grounding electrode shall be the metal water piping system of the building. Water piping system electrode shall be supplemented by the following additional electrodes:

1. Metal Frame of Building: Metal frame of building in those buildings with a metal frame system.
2. Made Electrode: Provide at least 20 feet of bare copper conductor not smaller than No. 4 AWG or at least 20 feet of one or more steel reinforcing rods encased by at least 2 inches of concrete located within or near bottom of a concrete foundation or footing that is in direct contact with earth. A ground rod electrode system may be provided in lieu of foundation electrode where approved by the local electrical inspector.

3.3 GROUNDING ELECTRODE CONDUCTOR

A. Service Grounding: Grounding electrode conductor, from service entrance to grounding electrode, shall be an exposed insulated copper conductor run. Where NEC or the local electrical inspector requires grounding electrode conductor run in conduit, provide rigid non-metallic type, conduit.

1. Connection of ground electrode conductor shall be made at the point water piping system enters building. Connection to piping system may be permitted at locations other than entry to building, provided Contractor coordinates location with the local electrical inspector and provides bonding jumpers around meters, insulating joints, and other electrical components. Connections of ground electrode conductor to water main or other large members shall be made by means of approved pressure clamps.

3.4 MAIN BONDING JUMPER

A. General Requirements: Connect secondary service neutral and grounding electrode conductor to equipment grounding bus in service equipment.

3.5 FEEDER AND BRANCH CIRCUITS

A. General Requirements: Provide an insulated grounding conductor, sized in accordance with the NEC, within all PVC conduits, within all flexible metallic conduits and within all EMT conduits 1 1/2 inches in diameter or larger.

3.6 CONDUITS, BOXES, CABINETS AND PANELBOARDS

A. General Requirements:

1. Ground all metallic conduit systems. Establish ground continuity by providing standard couplings, connectors, fittings and jumpers at all grounding type wiring devices, motor and ground terminals.
2. Ground wires shall be grounded to each pull box, junction box, outlet box, cabinets and other enclosures through which the ground wires pass, except for special isolated grounding systems.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

3. Provide lugs in each box and enclosure for ground wire termination where required.

3.7 MISCELLANEOUS EQUIPMENT

A. Motors and Starters: Provide lugs in motor terminal boxes and starter housings for ground wire termination and provide interconnecting ground wire.

B. Receptacles: Provide a ground wire from receptacle green ground terminals to outlet box ground screws.

C. Lighting Fixtures: Provide grounding through conduit systems. Provide a green ground wire with power wires from fixture through flexible conduit to first outlet box for all fixtures connected with flexible conduit.

D. Electrical Equipment: Provide a ground lug for termination of green ground conductor for all fixed electrical equipment.

3.8 COMMUNICATION GROUNDING

A. General Requirements:

1. Provide grounding at telephone and CATV backboards.

a. Data Communication System(s)
b. Fire Alarm Control Panel
c. Intercommunication
e. Telephone System
f. Television Distribution System

3.9 LIGHT POLE GROUNDING

A. General Requirements: Provide an equipment grounding conductor, with green insulation, with circuit conductors to each pole. Connect grounding conductor to ground lug at pole.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide conduits wherever required by the Drawings and Specifications.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 0010.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Steel Conduit and Fittings: Galvanized steel by recognized manufacturers of conduit systems of type and sizes required.

B. Non-Metallic Conduit: High impact PVC (Polyvinyl Chloride) heavy wall, Schedule 40 rated for 90° C wire, Underwriters' Laboratories (UL) listed in accordance with Article 347 of the National Electric Code (NEC) for underground and exposed use. PVC conduit shall be Schedule 80 for under roadway or vehicle crossing area.

C. Acceptable Manufacturers: All conduit shall be of one manufacturer as follows:

1. Alfex
2. Allied
3. Carlon
4. Republic
5. Sealtight
6. Triangle
7. VAW of America
8. Youngstown

D. Acceptable Manufacturers: All conduit shall be of one manufacturer as follows:

1. Appleton
2. CH
3. Kellems
4. OZ Red Dot
5. T&B

2.2 CONDUITS

A. Minimum Size: Conduit shall be sized according to the Drawings, with no conduit smaller than ½-inch trade size. If not sized on the Drawings, the NEC shall be used to determine the size based on the number and size of conductors required. The Engineer shall approve all calculated conduit sizes and method of installation prior to installation.

B. Type: Conduit shall be rigid galvanized steel. In lieu of rigid galvanized steel the following conduits may be used only as specified herein:

1. Intermediate Steel Conduit may be used in all locations.
2. Electric Metallic Tubing (EMT): May be used in dry locations for wiring below 600 volts in all interior spaces not in direct contact with earth or where exposed to weather using steel watertight

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

compression fittings and backstraps. EMT shall not be installed in the following areas:

a. Concrete slabs on grade or in soil.
b. Unprotected within five feet of finished floor.
c. Conduit drops in shop areas.
d. Conduit stub-ups to equipment or machinery.
e. Hazardous areas.

3. Flexible Metal Conduit: Flexible metal conduit or liquid tight flexible metal conduit shall be permitted only in the following locations:

a. Flexible metal conduit or liquid tight flexible metal conduit shall be used for final connections to equipment such as motors, fixed equipment, electric heating equipment, ect. Trade sizes ½-inch through 1 ½-inch shall be used in lengths no longer than twenty-four inches, 2-inches through 3-inches no longer than thirty-six inches, 3 ½-inch through 4-inch no longer than forty-eight inches.
b. Fittings shall be steel set screw type for smaller sizes and steel clamp type for larger sizes.
c. For light fixture connections, where conduit is concealed above ceilings, lengths shall not exceed six feet (3/8-inch diameter size may be used above concealed ceilings to connect light fixtures).
d. Concealed within equipment cabinets if approved by Architect/Engineer.

4. Rigid Non-Metallic Conduit: May be used only where run in soil or in concrete slabs on grade unless otherwise noted on Drawings or specified herein.

a. Conduit entries into pole bases or concrete pads shall be rigid galvanized steel. Conduits emerging out of floor slab-on-grade shall be rigid galvanized steel.
b. All non-metallic conduits shall have a grounding conductor sized in accordance with Table 250-95 of the NEC. Contractor shall increase conduit size to accommodate the grounding conductor.

5. Rigid Aluminum Conduit: May be used in lieu of rigid galvanized steel with approval of Engineer.

2.3 CONDUIT FITTINGS

A. Rigid Galvanized Steel Conduit and Intermediate Metal Conduit:

1. Couplings, locknuts and bushings shall be threaded type. Threadless couplings shall not be used without prior approval of Engineer.
2. Locknuts shall be of the conduit type.
3. Bushings shall consist of an insulating insert molded or locked into metallic body fitting. Bushings made entirely of metal or non-metallic material are not permitted.
4. Where conduit is installed in concrete, Erickson-type and set-screw couplings may be used to complete a conduit run. Set-screw fittings shall be approved for concrete installation and shall be case-hardened steel with hex head and cup point to firmly set in conduit wall for positive ground.
5. Threaded cast iron type sealing fittings shall be used. Fittings used to prevent passage of water vapor shall be continuous drain type. Fittings in concealed work shall be installed in a flush steel box with blank coverplate having the same finish as that of other electrical plates in room.

B. EMT:

1. For conduit 2-inch and smaller, fittings shall be concrete tight compression gland type only, with threaded outer nut or set-screw type. Fittings shall be malleable steel type, not cast.
2. For conduit over 2-inch, connectors shall be set-screw type with two screws each and couplings shall be set-screw type with four screws each. Set-screws shall be case-hardened steel with hex head and cup point to firmly set in wall of conduit for positive ground.
3. Indent type connectors shall not be permitted.
4. Fittings made of pot metal Die cast or pressure-cast zinc alloy shall not be permitted.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Flexible Metal: Multiple point type threading into internal wall of conduit convolutions or set-screw type. Material shall be only steel or malleable iron.

D. Liquid-Tight Flexible Metal: Type incorporating a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats. Material shall be only steel or malleable iron.

E. Direct Burial Rigid Non-Metallic Conduit: Fittings as recommended by conduit manufacturer for bonding with solvent cement. Provide PVC-40 in all landscape areas and PVC-80 under all covered areas where vehicles travel.

F. Expansion Fittings: Use expansion fittings in conduits installed in concrete slabs or in soil under slabs at the point where conduits cross expansion joints. Verify expansion joint locations with concrete installer. Expansion fittings shall be O.Z. Type AX for rigid conduit, O.Z. Gedney Type TX for EMT conduit and Carlon Type E945 for rigid non-metallic conduit. All rigid non-metallic conduits installed at a temperature of 25° F above or below the final conduit temperature, as well as all rigid non-metallic conduits installed in temperatures below 50° F, shall require expansion fittings. Where temperature conditions require the use of rigid non-metallic expansion fittings, provide one expansion fitting for each conduit run up to one-hundred feet long. Runs over one-hundred feet in length require one expansion fitting for each one-hundred feet or portion thereof.

2.4 FIRE STOPS

A. General Requirements: Conduits and conduit sleeves that penetrate fire rated walls or partitions shall be sealed with Hevi-Duty/Nelson, Type CLK, non-sagging adhesive sealant. Basis of design is Hevi-Duty/Nelson, Type CLK. Additional approved manufactures are 3M and Specified Technologies Inc. All firestopping products shall be installed by experienced workers, familiar with the proper application and installation of appropriate U.L fire stopping design rating systems. Prior to installation, the Contractor shall submit fire stopping manufacturer's appropriate conduit and conduit sleeve penetration system design criteria and UL approved number for each type of UL fire stopping design rating system used on the project.

Part 3. - EXECUTION

3.1 CONDUIT ARRANGEMENT AND SUPPORT

A. General Requirements:

1. Conduits shall be concealed within floor, ceiling or wall building construction, unless specifically noted or otherwise specified. Conduits shall only be installed exposed in boiler rooms, mechanical rooms and electric rooms and for connections at motors and surface cabinets.
2. Conduit systems shall be complete with fittings and accessories to make system complete and electrically continuous from outlet to outlet and to cabinets and junction boxes. Conduits shall form a neat appearing, mechanically firm assembly, adhering to NECA standards of installation and good electrical practice. Conduit ends shall be reamed before installation and shall be capped during construction period. Route exposed conduits and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping with elbows, offsets, and bends uniform and symmetrical.
3. Conduits shall not obstruct head room, walkways or doorways.
4. Conduits shall be secured to cabinets, junctions boxes, pull boxes and outlet boxes by bonding type locknuts. Rigid and IMC conduit installations shall have a locknut on outside of enclosure and locknut and bushing on inside of enclosure. EMT installations may have a single locknut on inside of enclosure, wrench tight. Conduit connections shall not be made to junction box covers.
5. Provide a pull wire in empty conduits, consisting of one No. 12 steel or copper wire or heavy duty nylon cord for small conduits and nylon rope for large conduits.
6. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Conduit shall be fastened using straps or clamps, lay-in adjustable hangers, clevis hangers or bolted split galvanized hangers secured to structure with machine screws, expansion sleeves or lead anchors. Spring steel type supports or fasteners shall be permitted for concealed 1/2-inch EMT only. Chain, wire or perforated straps shall not be used to support or fasten conduit.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

7. Conduit support spacing shall be provided as required by the NEC, but in no case shall the maximum spacing of supports exceed six feet for conduits smaller than 1-inch trade size and 10 feet for conduits 1-inch trade size and larger.
8. Group conduits in parallel runs where practical using conduit racks constructed of steel channel with conduit straps/clamps or trapeze hangers with U-bolts or other approved fasteners.
9. Conduits that are direct buried in the same trench shall be group in parallel runs where practical. The conduits shall be installed using racks or supports to maintain air separation between all conduits as per NEC at a minimum.
10. Fasteners shall be sized and designed for intended use. Fasteners, in solid masonry or concrete, shall be steel or malleable iron concrete inserts, 1/4-inch minimum diameter steel expansion anchors embedded not less than 1 1/8-inches or 1/4-inch minimum diameter power set fasteners with depth of penetration at least three inches. Hollow masonry anchors shall be toggle bolts, hollow wall fasteners, or concrete block anchors. Sheetmetal screws shall be used on metal studs and wood screws used on wood construction. Attachment by wood plugs or wood blocking is not permitted.
11. Support vertical conduit runs at each floor slab with approved hangers.

3.2 CONDUIT INSTALLATION

A. General Requirements: All conduits shall be installed in accordance with the NECA Standard of Installation:

1. Cut conduit square using a saw or pipecutter; de-burr cut ends.
2. Bring conduit to shoulder of fittings and couplings and fasten securely.
3. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes and for fastening conduit to sheetmetal boxes in damp or wet locations.
4. Install no more than equivalent of four 90-degree bends between boxes for power circuits and two 90-degree bends for low voltage and communications circuits.
5. Avoid moisture traps where possible. Where unavoidable, provide junction box with drain fitting at conduit low point. Outdoor conduits shall be graded a minimum of six inches per one-hundred feet with no traps and shall be pitched to drain into manholes, pull boxes or suitable located drain tees.
6. Coordinate all conduits with other trades. Consult with Mechanical Contractor before installing conduits for electrical feeders so that conflicts between locations of conduit runs, piping, and ductwork will be adjusted prior to installation. In general, large pipe mains and air ducts shall be given priority in available space. Conduit runs shall be installed so as to maintain, wherever practical, a minimum separation of three inches from water and waste piping and six inches from steam piping.
7. Provide sealing fittings, to prevent passage of water vapor, where conduits pass from warm to cold locations.

B. Conduits in Soil or Slabs on Grade: Metallic conduit shall have a factory coating of 20 mil bonded PVC or shall be field coated on outside with asphaltum before installation. Couplings and damaged areas of coating shall be completely coated after installation. Conduits shall be at least eight inches below bottom of slabs on grade.

C. Conduits in Slabs Not On Grade: Conduits shall occupy the middle third when practical and have at least 1 1/4-inch concrete cover. Consult with the General Contractor to determine minimum allowable horizontal spacing between conduits to maintain structural integrity of floor slab. Conduits shall be tied to reinforcing rods to prevent movement or sagging during pour.

D. Conduits in Concrete Joists and Columns: No conduits shall be run in steel reinforced concrete joists, beams or columns without approval of Architect/Engineer; except for conduit runs to switches and receptacles specifically shown in columns.

E. Conduits in New Masonry Walls: Conduits shall be installed during wall construction or "fished in". No conduit shall be channeled in without special permission of Architect.

F. Horizontal Runs in Walls: No conduit shall run horizontally in concrete block or brick walls without approval of Architect/Engineer. Horizontal runs shall be made in floor or ceiling construction.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

G. Conduits on Equipment: Conduits shall not be mounted on ductwork, boilers, ventilation units or other such mechanical equipment, except where necessary to make connections to electrical devices that are part of or mounted on such equipment. Where conduits must be run on equipment, care shall be taken not to cover access doors, controls, removable panels, etc., or otherwise hinder the normal maintenance and repair of the equipment.

H. Conduits Under Boilers: No conduit shall be run under boiler.

I. Demising Walls: No conduit shall be installed within the air space between studs. Conduit shall be run on the stud side served.

J. Conduit Through Roofs: Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof jack with pitch pocket.

K. Expansion Fittings: Install expansion fittings where conduits in concrete slabs or in soil under slabs cross building expansion joints. Conduits installed in suspended ceiling spaces shall have offsets or bends adjacent to building expansion joints.

L. Conduits in Demountable Partitions: Conduit shall enter partitions from ceiling to facilitate future partition removal. No conduits shall enter from floors. A junction box shall be provided above ceiling at the point where conduit enters partition.

M. Conduits Through Exterior Walls: Where conduit systems pass through exterior walls or footings below grade, entrance shall be made watertight by providing pipe sleeves in wall with 1/2-inch minimum clearance around conduit and caulking with oakum or an approved non-hardening type caulking compound. Alternate acceptable method is by means of a conduit entrance seal, O.Z./Gedney Company, Type "FSK" or as approved by Engineer. Seal conduit stubs as described above. In addition, inside of conduit shall be sealed watertight with an approved non-hardening low to no VOC emitting type caulking compound packed around wires.

N. Conduits Above Furred or Suspended Ceilings: Branch circuit conduits and conduits feeding ceiling lighting shall not be supported by suspended ceiling lighting fixtures, mechanical piping or air conditioning ducts. Branch circuit conduits may be fastened to ceiling support members with fasteners designed for that purpose.

O. Conduit Sleeves: Same material as conduits required in the area. Both ends of sleeves shall have bushings.

3.3 GROUTING AND FIRE STOPS

A. General Requirements:

1. Contractor shall be responsible for grouting airtight any openings adjacent to conduits and other openings to seal against passage of air, smoke or vapors. Openings around conduits through floors shall be sealed watertight.
2. Contractor shall seal around each conduit or conduit sleeve penetrating fire rated walls or partitions with sealant specified. Interior conduit sleeves in walls or partitions shall be sealed to provide a complete fire rated installation in accordance with sealant manufacturer's instructions.
3. All firestopping products shall be installed by experienced workers, familiar with the proper application and installation of appropriate UL fire stopping design rating systems. Contractor shall submit fire stopping manufacturer's appropriate conduit and conduit sleeve penetration system design criteria and UL approved number for each type of UL fire stopping design rating system used on the project prior to installation.

3.4 CONDUIT STUB-UPS

A. Stubbed Up Through Floor Slabs: Where conduit is called to be stubbed up at an exposed location, a rigid conduit threaded coupling shall be installed flush with finish floor. Provide a recessed pipe plug, flush with floor, in each stub-up.

3.5 EMPTY CONDUITS

A. Identification: Empty conduits installed for future use or for use by others shall have markers and identification

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

at terminations. Empty boxes shall be marked with the system named in a visible place on the exposed coverplate.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide outlet boxes of heavy gauge galvanized steel, of knockout type, wherever required by the Drawings and Specifications.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Recognized Manufacturers of electric outlet boxes, manufactured in accordance with the latest edition of the National Electric Code (NEC) and industry standards.

2.2 MATERIALS

A. Ceiling Boxes: 4-inch octagonal ceiling boxes shall be used, except as otherwise specified. For additional wire space 4 11/16–inch square boxes may be used. Outlet boxes for fixtures shall be complete with fixture studs.

B. Wall Boxes: 4-inch square wall boxes shall be used with one or two device raised cover. Raised covers or tile rings shall be flush with finished walls.

1. Boxes in plastered walls shall be standard 4 inch square boxes with appropriate plaster rings.
2. Boxes in brick, exposed concrete block, glazed tile and wood paneled walls shall be 4-inch square having a raised cover with straight sides not less than 1-inch. 4 11/16- inch square box may be used for additional wire space. Where thickness of masonry or more than two gangs are required 3 ¾-inch high masonry boxes may be used.
3. Switch boxes in door frames shall be Raco No. 426 with Sierra narrow plates.
4. Boxes that are surface mounted shall be 4-inch square with pressed steel plates. Where mounted within six inches of a floor, box type shall be “FS” or “FD”.
5. Straight through and sectional switch boxes shall not be used.
6. Flanged airtight boxes shall be NuTek Airtight #FWSW series.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Boxes shall not be recessed back-to-back on opposite sides of wall, offset a minimum of six inches. Through wall boxes shall not be used.
2. Boxes shall be roughed-in to provide a neat appearance. Centerlines of boxes shall be aligned vertically and horizontally. Boxes shall be symmetrically located with the major architectural features when they occur between doors and windows and in wood panels.
3. Adjust horizontal position of boxes such that bottom of box is located on top of masonry coarse and vertical centerline is either on a masonry course or centered on a masonry unit. Contractor shall coordinate with other trades so boxes are installed with no unsightly joints around them.
4. Boxes shall be installed such that the front of box is flush with finished wall, boxes more than ¼ inch back from finished wall shall not be acceptable.
5. Boxes used for narrow fluorescent fixtures shall have openings of such a size that they will be completely covered by fixtures.
6. Boxes in finished ceiling construction shall be supported by structural building members or when necessary to bar hangers or steel channels supported by either structural building members or ceiling

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

framing channels. Exposed boxes shall be secured to structure by toggle bolts, wood screws or lead anchors.

7. Provide acoustically rated, flanged, airtight boxes in all corridor walls, all top floor ceilings, unit corridor walls, unit party walls, unit exterior walls and unit floor/ceiling assemblies. Drop ceiling boxes as required to make proper air-tight seal with gypboard ceiling.
8. Within demising walls, offset boxes as required per National, State and Local Codes.
9. Contractor shall coordinate height and location of boxes with Architectural elevations and other trades so as not to conflict with other work or equipment. Boxes shall not interfere with door trim. It shall be the Electrical Contractor's responsibility to move boxes that conflict with others at no additional cost to Owner.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Unless specifically noted or specified otherwise, install all electrical wiring in an enclosed raceway system. Raceway materials shall be as specified in Section 26 05 33.10.

1.2 DESIGN REQUIREMENTS

A. Raceway Size: Raceways should be sized to meet the minimum requirements of the latest edition of the National Electrical Code (NEC) and all state and local codes and ordinances. Where raceway sizes are indicated, provide raceways shown.

B. Conduit Fill: Conduit fill shall be based on THWN conductors, at 75° C, as listed in the latest edition of the NEC. Derating shall be considered when sizing conduits. Provide increased conduit size where required.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

3.1 INSTALLATION

A. Concealed: Raceways shall be installed concealed, unless specifically noted or otherwise specified. Generally, raceways shall be installed exposed only on walls and ceilings of unfinished rooms, equipment rooms or where indicated on Drawings.

B. Continuous System: Raceway systems shall be complete from outlet to outlet and from cabinets and junction boxes. Raceway systems shall enter and be secured to boxes and cabinets in such a manner that the system shall be electrically continuous from point of origin to outlets.

C. Mounting: Raceways shall not be mounted on boiler, ventilation units or other such mechanical equipment, except where necessary to make connections to electrical devices that are part of or mounted on such equipment.

D. Interference: Coordinate with the Mechanical Contractor prior to installing conduit or pull boxes for electrical feeders to avoid conflicts with locations of raceway runs and mechanical equipment. Revisions to the raceway system made to avoid conflicts shall be at no additional cost to the Owner.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SCOPE

A. Where required by Code or at the request of a local Authority Having Jurisdiction, the Contractor shall provide an engineering analysis and coordination study for the new electrical distribution system. The basic analysis shall include a short-circuit analysis with protective device evaluation and a protective device coordination study.

B. The Study shall begin at the point of utility service for the building and continue down through the system to all downstream distribution and branch panelboards, motor control centers and significant motor locations.

C. The study shall include any new generators and any associated emergency power distribution equipment, including automatic transfer switches and generator ground fault protection.

D. The Contractor shall verify the level of selection coordination required by the Local Authority Having Jurisdiction (total, 0.01 seconds, 0.1 second or other).

1.2 RELATED DOCUMENTS

A. Single line diagrams.

B. Specification Sections 26 00 10, 26 00 50, 26 24 13, 26 24 16.10, 26 24 16.11, 26 27 13 and 26 28 13 and all references continued therein.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

B. **Shop drawings for equipment effected by the Study will not be reviewed/released until the Study has been submitted and approved.**

C. The final report shall be bound in a three-ring binder.

D. Shop Drawings shall contain the following.

1. Six copies of the protection coordination study.
2. A one-line diagram of the system.
3. Individual, tabbed sections for each section. Each tabbed section shall contain the information as outlined in Part 2 of this document.

1.4 RELATED STANDARDS

A. All studies shall be performed in accordance with the latest applicable IEEE and ANSI standards.

1.5 QUALITY ASSURANCE

A. The Study shall be prepared in accordance with the latest edition of NETA Std. ATS, NFPA 70B, the “National Electrical Code”, ANSI C2” National Electrical Safety Code”, and ANSI/IEEE Guidelines, as well as manufacturer’s recommendations.

B. Short-Circuit Analysis and Coordination Study shall be performed by a registered Professional Engineer. Study shall be signed and sealed by the Engineer. The Engineer shall have a minimum of eight years experience in the analysis, evaluation and coordination of electrical distribution systems.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

Part 2. - PRODUCTS

2.1 MANUFACTURER

A. The Study shall be performed by the manufacturer(s) providing the electrical distribution equipment.

2.2 SHORT-CIRCUIT ANALYSIS WITH PROTECTIVE DEVICE EVALUATION

A. Systematically calculate fault currents based on the available fault current at the facility service entrance. Study preparer shall obtain the available fault current from the local utility.

B. Short-circuit calculations shall be prepared by means of a digital computer utilizing a commercially available software package. Major motor contributions shall be incorporated in determining fault levels. Results of short-circuit calculations shall be presented in tabular form and shall include momentary and interrupting fault values for three-phase and phase-to-ground faults.

C. Analyze the short-circuit currents by preparing a tabulation comparing the fault levels to the device interrupting ratings. Indicate areas in which integrated/series ratings are utilized. The following information shall be included in the tabulation:

1. Equipment identification number.
2. Location identification.
3. Voltage
4. Manufacturer and type of equipment.
5. Device rating.
6. Calculated short-circuit current.

2.3 PROTECTIVE DEVICE COORDINATION STUDY

A. Prepare coordination time-current characteristic curves to determine the required settings/sizes of the protective devices to maximize selectivity. The utility upstream protective device feeding the facility shall be maintained as the upper limit for coordination. These settings shall be obtained by the preparer, along with any other protective device setting requirements. The coordination curves shall be prepared on log-log paper and illustrate adequate clearing times between series devices. The curves shall be created through the use of the study software package, but must reflect actual protective devices to be installed. Adequate time-current curves shall be generated to depict coordination. In addition, protective device characteristics shall be suitably determined to reflect calculated short-circuit levels at the location.

B. A narrative analysis shall accompany each coordination curve sheet and describe the coordination and protection in explicit detail. All curve sheets shall be multi-color for improved clarity. Areas lacking complete coordination shall be highlighted and reasons provided for allowing condition to remain or provide solution to resolve situation. System coordination, recommended ratings, and setting of protective devices shall be accomplished by a registered professional electrical engineer with a minimum of eight years of current experience in the coordination of electrical power systems.

C. The following information shall be provided on all curve sheets.

1. Device identification and associated settings/size.
2. Voltage at which curves are plotted.
3. Current multiplier.
4. ANSI frequent fault damage curve.
5. Cable insulation damage curves.
6. Transformer inrush point.
7. Single-line for the portion of the system.
8. Motor starting profiles (where applicable).

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.4 SINGLE-LINE DIAGRAM

A. The final report shall include a multi-color single-line diagram of the electrical distribution system within the scope of the project. The single-line shall include:

1. Transformer rating, voltage ratio, impedance and winding connection.
2. Feeder cable phase, neutral and ground sizes, length of cable, conductor material and conduit size and type.
3. Switchgear, switchboards, panelboards, MCC's, fuses, circuit breakers, ATS's and switches continuous current ratings.
4. Protective relays with appropriate equipment numbers, including CT's and PT's with associated ratios.
5. Detailed legend indicating equipment type identification and other significant details.

Part 3. - EXECUTION

3.1 SUMMARY

A. The results of the system studies shall be summarized in a final report.

B. Where required, copies of the final report shall be submitted to Code Authorities for their review and approval. Approved copies of the report shall be included with the Operation and Maintenance Manuals.

C. The Study Preparer shall modify the final report and include additional information required to obtain Code Authority final approval.

D. The Contractor shall assist the Study Preparer in obtaining existing equipment information required for calculations and final Code Authority approval.

3.2 FIELD SETTINGS

A. The Contractor shall engage the manufacturer's service group or alternately a qualified independent testing firm to perform field adjustments of the protective devices as required for placing the equipment in final operating condition. The settings shall be in accordance with the approved short circuit study and protective device evaluation / coordination study.

B. Necessary field settings of devices and adjustments and minor modifications to equipment to accomplish conformance with the approved short-circuit and protective device coordination study, shall be carried out by manufacturer's service group.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. The schedule identified below is included as part of these Specifications.

B. Schedule:

1. Light Fixture Schedule.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

N/A

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

LIGHT FIXTURE SCHEDULE

IDENT	FIXTURE TYPE	FLUOR	INC	OTHER	MOUNTING	LAMPS	LENS, LOUVER, ETC.	MANUFACTURER'S CATALOG NUMBER	NOTES
A	KITCHEN/LAUNDRY UNIT	X			SURFACE CEILING	(3) 32W T8 FO32/835	WHITE FINISH & ACRYLIC DIFFUSER	SIMKAR #CRWNW184 332B113L120 SEA GULL, PROGRESS	
B	UNDERCABINET UNIT	X			SURFACE CABINET	(1) 8W T5 F8T5/82/835	WHITE FINISH & ACRYLIC DIFFUSER	AMBIANCE #4975BLE-15 PROGRESS, NUVO	
B1	UNDERCABINET UNIT	X			SURFACE CABINET	(2) 13W T5 F13T5/82/835	WHITE FINISH & ACRYLIC DIFFUSER	AMBIANCE #4978BLE-15 PROGRESS, NUVO	
C	BATHROOM UNIT	X			SURFACE WALL	(3) 13W GU24	BRUSHED NICKEL FINISH & GLASS SHADES	SEA GULL #49852BLE-965 PROGRESS, NUVO	3
C1	BATHROOM UNIT	X			SURFACE WALL	(4) 13W T4 GU24	BRUSHED NICKEL FINISH & GLASS SHAPE	SEA GULL #49853BLE-965 PROGRESS, NUVO	3
D	HALLWAY/ TOILET UNIT	X			SURFACE CEILING	(2) 13W GU24	WHITE FINISH & ACRYLIC DIFFUSER	SEA GULL #5902BLE-15 PROGRESS, NUVO	
E	EXIT-LED SINGLE FACE SELF POWERED			X	UNIVERSAL	LED INCLUDED	WHITE FINISH RED LETTERS	EMERGI-LITE #ELXN400 DUAL-LITE, SURE-LITES	9,17
E1	EXIT-LED DOUBLE FACE SELF POWERED			X	UNIVERSAL	LED INCLUDED	WHITE FINISH RED LETTERS	EMERGI-LITE #ELXH400 DUAL-LITE, SURE-LITES	9,17
F	EMERGENCY EGRESS		X		SURFACE WALL	(2) 6V, 12W HAL INCLUDED	WHITE FINISH	EMERGI-LITE #BECX2HD DUAL-LITE, SURE-LITES	8, 9, 10,17
F1	EMERGENCY EGRESS BASE UNIT		X		SURFACE WALL	(0) HEADS	WHITE FINISH	EMERGI-LITE #12LSE72 DUAL-LITE, SURE-LITES	8,9, 10,15
F2	EMERGENCY EGRESS REMOTE HEAD			X	ADJUSTABLE KNUCKLE	(2) 35W MR11 PER LOCATION	DARK BRONZE CAST ALUMINUM WITH DUAL MOUNT BOX COVER	HYDREL #ASPENAM3512 NFLFLCKM HADCO, LIGHTOLIER	16
F3	GARAGE EMERGENCY EGRESS		X		SURFACE COLUMN OR WALL	(2) 12V, 12W INCLUDED	GRAY FINISH	EMERGI-LITE #12KSE27 DUAL-LITE, SURE-LITES	8,10
G	BEDROOM UNIT	X			SURFACE CEILING	(3) 13W GU24	WHITE FINISH & ACRYLIC DIFFUSER	SEA GULL #7543503BLE-962 PROGRESS, NUVO	
H	STRIP (4 FOOT)	X			SURFACE CEILING	(2) 32W T8 FO32/835	WHITE FINISH	LITHONIA #C232MV SIMKAR, LIGHTOLIER	
H1	(2) STRIPS (4 FOOT)	X			SURFACE CEILING	(2) 32W T8 FO32/835 PER 4 FT.	WHITE FINISH WIRE GUARD	LITHONIA #TC232MV-WG SIMKAR, LIGHTOLIER	
I	NOT USED								
J	WALL WASH	X			RECESSED CEILING	(2) 26W T4 CF26DD/E/835	CLEAR ALZAK REFLECTOR WHITE TRIM	MAXILUME #HW6PL2X26S MARK71206555CLW PRESCOLITE, LIGHTOLIER	1,12

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

LIGHT FIXTURE SCHEDULE

IDENT	FIXTURE TYPE	FLUOR	INC	OTHER	MOUNTING	LAMPS	LENS, LOUVER, ETC.	MANUFACTURER'S CATALOG NUMBER	NOTES
K	DOWNLIGHT	X			RECESSED CEILING	(2) 26W T4 CF26TT/835	CLEAR ALZAK SEMI-DIFFUSE REFLECTOR, WHITE TRIM	MAXILUME #HH6PL2X26S MARK712006501CLW PRESCOLITE, LIGHTOLIER	12
K1	DOWNLIGHT	X			RECESSED CEILING	(1) 26W T4 CF26TT/835	CLEAR ALZAK SEMI-DIFFUSE REFLECTOR, WHITE TRIM	MAXILUME #HH6PL1X26S 12006501CLW PRESCOLITE,LIGHTOLIER	
K2	J-BOX DOWNLIGHT			X	SURFACE CEILING	16.4W 1032 LUM 3000K	WHITE TRIM POLYCARBONATE DIFFUSER	PRESCOLITE #LBSLEDA 10L35K8WH OR EQUAL	
L	DECORATIVE ROUND		X		SURFACE CEILING	(3) 13W GU24	BRUSHED NICKEL, WHITE GLASS DIFFUSER	SEA GULL #75662BLE-962 PROGRESS, NUVO	
L1	DECORATIVE ROUND		X		PENDANT CEILING	(4) 13W T4 GU24	BRUSHED NICKEL, WHITE GLASS DIFFUSER	SEA GULL #65662BLE-962 PROGRESS, NUVO	5
M	STAIR	X			SURFACE WALL	(2) 32W T8 (1) 17W T8 FO/835	WHITE HOUSING & ACRYLIC DIFFUSER	COLUMBIA #BIL4232117 EPUFO835 LITHONIA, LIGHTOLIER	13
M1	1 X 4 WRAPAROUND	X			SURFACE CEILING	(2) 32W T8 FO32/835	ACRYLIC PRISMATIC DIFFUSER & WHITE FINISH	COLUMBIA #AWW4232EPU LITHONIA, LIGHTOLIER	
N	ELEVATOR PIT & WET STALL & TRASH	X			SURFACE WALL	(2) 32W T8 FO32/835	FIBERGLASS HOUSING, HIGH IMPACT POLYCARBONATE LENS	COLUMBIA #XEP4232DFA EP120 LITHONIA, LIGHTOLIER	
O	NOT USED								
P	DECORATIVE SHADE	X			PENDANT CEILING	(1) 13W GU24	BRUSH STAINLESS STEEL, WHITE GLASS SHADE, RIGID PENDANT	SEA GULL #69459BLE-962 PROGRESS, NUVO	5
P1	DECORATIVE SHADE	X			PENDANT CEILING	(1) 13W GU24	BRUSH NICKEL FINISH & GLASS SHADE	SEA GULL #69034BLE-962 PROGRESS, NUVO	5
Q	2 X 4 LENSED	X			RECESSED LAY-IN	(3) 32W T8 FO32/835	0.125 #12 ACRYLIC DIFFUSER	COLUMBIA #4PS24332MF5 A12EPU LIGHTOLIER, WILLIAMS	
R	LIVING ROOM	X			PENDANT CEILING	(3) 13W GU24	BRUSHED NICKEL FINISH & GLASS SHADE	SEA GULL #79661BLE-962 PROGRESS, NUVO	
S	SCONCE	X			SURFACE WALL	(1) 18W T4 GU24	BRUSHED NICKEL FINISH, WHITE ACRYLIC DIFFUSER	SEA GULL #49340BLE-962 PROGRESS, NUVO	4
T	ATTIC LIGHT	X			SURFACE STRUCTURE	(1) 26W T4 GU24	WHITE FINISH & DIFFUSER 0 DEGREES BALLAST	RAB #VBF26CPW STONECO, LITHONIA	

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

LIGHT FIXTURE SCHEDULE

IDENT	FIXTURE TYPE	FLUOR	INC	OTHER	MOUNTING	LAMPS	LENS, LOUVER, ETC.	MANUFACTURER'S CATALOG NUMBER	NOTES
U THRU Z	NOT USED								
AA	SITE POLE SINGLE HEAD TYPE 3			X	16' HEIGHT W/POLE AND BASE	135W 10000 LUMENS MIN.	GLASS DIFFUSER, BRONZE FINISH SQ. STRAIGHT STEEL POLE	SPAULDING #CL1A60LU 34KDBBC LITHONIA, LSI	1,2,7 11,10
BB	SITE POLE SINGLE HEAD TYPE 2			X	16' HEIGHT W/POLE AND BASE	142W 7900 LUMENS MIN.	GLASS DIFFUSER, BRONZE FINISH SQ. STRAIGHT STEEL POLE	SPAULDING #CL1A60LU 24KDBBC LITHONIA, LSI	1,7, 10
CC	SITE POLE SINGLE HEAD TYPE 4			X	16' HEIGHT W/POLE AND BASE	142W 10,400 LUMENS MIN.	GLASS DIFFUSER, BRONZE FINISH SQ. STRAIGHT STEEL POLE	SPAULDING #CL1A60L 44KDBBC LITHONIA, LSI	1,6, 10
DD	CANOPY			X	RECESSED CEILING	39W 2400 LUMENS MIN.	CLEAR ALZAK REFLECTOR, WHITE FLANGE	PRESCOLITE #LF6LED 1208G440KWT GOTHAM, LIGHTOLIER	1,7, 10
EE	GARAGE DOOR TYPE4			X	SURFACE WALL	73W 5400 LUMENS MIN.	TEMPERED GLASS LENS, BRONZE FINISH	SPAULDING #LMC30L 14K41 LITHONIA, LIGHTOLIER	7,10, 14
EE1	EXTERIOR DOOR			X	SURFACE WALL	22W 1771 LUM MIN.	TEMPERED GLASS LENS, BRONZE FINISH	HUBBELL #LNC9LU4K41 LITHONIA, LIGHTOLIER	
FF	UNIT DECK		X		SURFACE WALL	12W 829 LUMENS MIN.	BRONZE FINISH, ACRYLIC WHITE DIFFUSER	STONCO#LWLLED1C 5K120BZ RAB, HUBBELL	7,10, 14
GG	SIGN FLOOD			X	ADJUSTABLE KNUCKEL ON STATION & CONCRETE BASE	52W 4119LUM 4000K	BRONZE FINISH, CLEAR GLASS LENS	SPAULDING #ARF2K20L4K 070RMUDB OR EQUAL	7,10, 14
GG1	FLAG POLE FLOOD			X	ADJUSTABLE KNUCKEL ON STATION & CONCRETE BASE	53W 4285 LUM 4000K	BRONZE FINISH, CLEAR GLASS LENS	HUBBELL #FML14LED OR EQUAL	
HH	SCONCES			X	SURFACE COLUMN	9.5W 800 LUM 2700K	BRONZE FINISH OPAIC DIFFUSERS	PROGRESS #P5607-2 OR EQUAL	

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

LIGHT FIXTURE SCHEDULE

IDENT	FIXTURE TYPE	FLUOR	INC	OTHER	MOUNTING	LAMPS	LENS, LOUVER, ETC.	MANUFACTURER'S CATALOG NUMBER	NOTES

GENERAL NOTES:

A. **PROVIDE EQUAL LIGHTING FIXTURES SHALL BE ENERGY STAR RATED AND LABELED.**

SPECIFIC NOTES:

1. **EQUAL FIXTURES SHALL HAVE SIMILAR PHOTOMETRIC COVERAGE.**
2. **PROVIDE IN-LINE FUSES.**
3. **MOUNT FIXTURE ABOVE MIRROR.**
4. **MOUNT TOP OF FIXTURE 6'-6" AFF.**
5. **VERIFY PENDANT LENGTH WITH ARCHITECT PRIOR TO ORDERING.**
6. **PROVIDE DAMP LOCATION RATED FIXTURE.**
7. **WET LOCATION RATED FIXTURE.**
8. **BOTTOM OF FIXTURE SHALL BE MOUNTED 80" AFF MINIMUM.**
9. **CONNECT TO NON-SWITCHED LIGHTING CIRCUIT SERVING NORMAL LIGHTING IN AREA.**
10. **PROVIDE EQUAL FIXTURE AND LAMP PHOTOMETRICS SHALL MATCH SPECIFIED.**
11. **POLE LENGTH AND BASE HEIGHT SHALL EQUAL MOUNTING HEIGHT. FIELD COORDINATE PRIOR TO ORDERING.**
12. **PROVIDE WITH DIMMING BALLAST.**
13. **PROVIDE FIXTURE WITH INTEGRAL OCCUPANCY SENSOR.**
14. **PROVIDE COLD WEATHER -20 DEGREE BALLAST.**
15. **PROVIDE ASSEMBLY TO MATCH EXISTING.**
16. **CONNECT REMOTE HEAD TO BASE UNIT.**
17. **PROVIDE MINIMUM 1.5 HOUR OPERATION FOR TOTAL WATTS CONNECTED.**

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide an electric service as shown on Drawings.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1.3 SYSTEM DESCRIPTION

A. Primary Service: Primary service conductors, pad mounted transformer and pad grounding system shall be by the local power company. Contractor shall make all arrangements with the power company required for the primary cable and transformer pad installation. Contractor shall verify service locations, charges and miscellaneous requirements and shall include all costs in their bid.

B. Secondary Service: Service shall be provided by Contractor from pad transformer to service equipment within building. Contractor shall provide service connection cabinets, wiring gutters and bussing required at transformer for secondary service conductors. Coordinate connection requirements with Power Company to provide a complete installation.

C. Concrete Pad: Provide concrete pad for local power company per their requirements. Contractor shall include all costs in their Bid.

D. Fees and Charges: Pay all required fees to the local power company for the electric service.

E. Common Area Metering: Metering shall be as described in Section 26 27 13.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Service connections shall be installed in strict accordance with the rules of the local power company. Initiate and take responsible charge for negotiations with the local power company with regard to service connections and initiate necessary requests for work which will be performed by them.
2. Perform work required by the local power company to facilitate their complete installation. No extras will be allowed because of failure to contact the local power company to determine requirements for completing the service installation.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide and connect switchboard(s) wherever required by the Drawings and Specifications.

1.2 SYSTEM DESCRIPTION

A. Design Requirements: Design tests shall have been performed on a type or style of switchboard similar to that being furnished for this Project. Perform production tests dielectric tests, mechanical operation, grounding of instrument transformer cases, electrical operation and control wiring, and ground fault sensing equipment tests on switchboard(s) provided for this Project. Tests shall be in accordance with NEMA PB2 and UL 891.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10. Shop Drawings submitted for approval shall contain the following minimum information:

1. Sufficient information to determine if design meets the requirements of the Drawings and Specifications.
2. Electrical ratings, dimensions, material, required clearances, terminations, weight, plan, front, side and rear elevations, buswork, fused switch frame and rating accessories and device nameplate data.
3. Size, ampere rating, number of bars per phase and neutral in each horizontal and vertical bus run, bus spacing, equipment ground bus and bus material.
4. Provide arc flash warning labels and calculated values.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Switchboard(s) shall be in accordance with NEMA, National Electric Code (NEC) and ANSI and as shown on Drawings.
2. Underwriters' Laboratories (UL): Switchboards shall be in accordance with Section 26 00 10.
3. Switchboard(s) used for service entrance shall be furnished with a UL service entrance label.

1.5 FUSES

A. General Requirements: Provide fuses in main switch and distribution switches as specified in Section 26 28 13. Refer to the Drawings and/or the Panel Schedule for fuse sizes and quantities.

1.6 CONCRETE PAD

A. General Requirements: Provide a 4-inch high concrete pad for mounting of switchboards.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Switchboard Manufacturers: Except for bolted pressure switches and digital metering, all switchboards shall be as follows:

1. Cutler-Hammer
2. EMI or AMP with Cutler-Hammer Distribution Switches
3. General Electric

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

4. Siemens-I.T.E
5. States Manufacturing Company
6. Square D

B. Acceptable Bolted Pressure Switch Manufacturers: As follows:

1. Bolt-Loc
2. Boltswitch
3. Pringle

C. Acceptable Digital Meter Manufacturers: As follows:

1. Power Measurement LTD
2. Siemens (using PM-LTD devices.

2.2 CONSTRUCTION

A. General Requirements:

1. Switchboards shall be totally enclosed, dead front, free standing type, front connected and front accessible.
2. Interior metering equipment shall be NEMA 1 general purpose and shall be surface mounted. Exterior metering equipment shall be NEMA 3R weatherproof and shall be surface mounted.
3. Switchboard(s) shall be shipped in sections and assembled on site. Contractor shall arrange with General Contractor to maintain or provide adequate openings in building until equipment has been set in place.
4. Switchboard(s) shall not exceed ninety inches high (nominal).
5. Switchboards shall consist of the required number of vertical sections bolted together to form a rigid assembly. Each sections structure to be constructed of die formed vertical posts and base members made from galvanized 12 gauge steel that form rigid self supporting structures to support the bussing and over current devices. The sides and rear shall be covered with removable bolt-on 14 gauge covers. All edges of all covers or hinged front panels shall be pan formed. Provide adequate ventilation within the enclosure.
6. All covers shall be designed with interlocking overlapping covers to inhibit water from entering the enclosure.
7. All metal parts of enclosure shall be bonderized and given a rust inhibiting prime coat. Interior of panel shall be factory finished prime coat. Exterior of panel shall be factory finished light gray or blue enamel.
8. Switchboard(s) shall be designed to allow feeder conductors to enter in accordance with Contractor requirements.
9. Provide barriers to isolate service bus bars and terminals from remainder of switchboard.
10. Assembly shall be rated to withstand a fault current of 85,000 amps symmetrical, minimum, at rated voltage.

2.3 BUSES

A. General Requirements:

1. Buses shall be arranged for phase and wire distribution as indicated on the Drawings and/or the Panel Schedule:

   a. Horizontal main phase buses and neutral bus shall be full capacity the entire length of switchboard. All phases shall be arranged in the same vertical. Provide for future extensions by means of bolt holes.
   b. Vertical branch bussing shall be sized equal to total of frame or switch rating of all individual devices served. Branch bussing shall extend full usable height of each section to receive future overcurrent devices. Where "provision for", "future", or "space" are noted on Drawings, space shall be equipped with bus connections to future overcurrent device. Provide buses for ampere rating as shown for future device.
   c. Provide an uninsulated copper equipment ground bus bar the length of switchboard and secure at

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

each section. Ground bus bar shall be not less than 25 percent of main bus rating.

2. Buses and connections shall be hard drawn copper of 98% conductivity or high strength tin plated aluminum. Bus temperature rise shall not exceed 65°C. Current density shall not exceed 1,200 amperes per square inch for copper or 750 amperes per square inch for aluminum.
3. All contact surfaces of copper or aluminum shall be plated. Provide a minimum of two plated bolts per splice. Where physical bus size permits only one bolt, provide a means other than friction to prevent turning, twisting or bending. Make connections for aluminum bus with plated nuts and bolts with a flat plated steel washer against the bus and a bellville washer between the flat washer and nut. Torque bolts to manufacturer's recommended values.
4. Neutral bus shall be bare, mounted on insulated bus supports and shall have a bolted disconnect link to permit isolation of neutral bus from the common ground bus and service entrance conductors. Neutral bus shall be full capacity.
5. Connect an uninsulated 1/4-inch by 2-inch copper bus between neutral and ground buses to establish system common ground point.

2.4 RATINGS

A. General Requirements:

1. Switchboard(s) shall have main bus bars sized as indicated on the Drawings and/or Panel Schedule.
2. Switchboard(s) shall be rated as indicated on the Drawings and/or Panel Schedule.
3. Switchboard(s) and main bus shall be braced for short circuits as indicated on the Drawings and/or Panel Schedule.

2.5 SIZE LIMITATION

A. General Requirements: To fit into designated location, switchboards shall not exceed the length indicated on the Drawings.

2.6 ENTRANCE, SERVICE AND DISTRIBUTION SECTIONS

A. Entrance Section: Full height auxiliary entrance section, if required, to accept incoming service.

B. Service Sections:

1. Main Switch: Provide a Main Disconnect Switch as indicated on the Drawings and/or the Panel Schedule.

   a. Switch shall be stored energy electric trip, bolted pressure, fused.
   b. In order to provide for easy operation and ensure charge before close action, manual closing shall be accomplished by a 2-stroke sequence whereby opening spring is charged and latched before and independent of compression of closing spring. Opening of switch shall be accomplished manually. Operating handle shall be mechanically interlocked with fuse access door and have provisions for padlocking in open position.
   c. Main switches rated 1200 amps and above shall be fused bolted pressure type. Bolted pressure switches shall have fuse door interlocks.

C. Distribution Sections:

1. Fusible Switches:

   a. 1200 Amperes and Larger: Bolted pressure contact switches.
   b. Smaller than 1200 Amperes: Fusible, quick-make, quick-break switches.
   c. Provide up to 200A switches in twin configuration.

2. Provide number of switchboard sections as required to contain all of switches, as indicated on the Drawings and/or the Distribution Schedule.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.7 SWITCHBOARD PULL BOXES

1. General Requirements: Contractor shall provide any pull boxes, below or above switchboard, deemed necessary to provide room to run conduits to switchboard. Pull boxes shall be non-bussed type with a grounding bushing on each conduit connected to ground bus of switchboard.

2.8 NAMEPLATES

A. General Requirements: Provide laminated phenolic resin nameplates on each distribution switch to indicate panel or equipment served.

B. Provide laminated phenolic resin nameplate on each switchboard identifying each switchboard supplying building and its location.

2.9 ARC FLASH WARNING LABEL

A. Provide arc flash warning label per Code.

B. Label shall include calculated arc fault current.

C. Labeling and calculated values shall be included with shop drawing submittals.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Provide switchboards in accordance with NEC and as recommended by the manufacturer. Refer to the Drawings and/or the Panel Schedule.
2. Provide raised concrete bases for all floor mounted switchboards. Bases shall be four inches high where possible, but at least two inches minimum. Pad sizes shall be based on exact equipment size as determined from Shop Drawings. Provide concrete pads as described above, unless they are shown or specified to be provided by General Contractor.
3. Verify proper voltage rating for switchboard assembly and for unit switches and circuit breakers.
4. Furnish service of a competent instructor for one 2-hour period of instructing personnel in the operation of GFI and metering equipment.

3.2 IDENTIFICATION

A. Panel Identification: Equipment shall be labeled per Section 26 00 50. Where equipment is located in mechanical spaces or in storage rooms, provide identification plates on front exterior.

B. Circuit Identification:

1. Circuit Breaker Panelboards: Provide typed directories identifying all circuits with clear plastic cover mounted in a card holder. Room numbers or names used for circuit identification shall correspond to nameplates installed on room doors by General Contractor or as selected by Owner and shall be verified as these may not be the same as room titles on Drawings.
2. Fused Panelboards With Doors: Provide typed directories identifying all circuits with clear plastic cover mounted in a card holder.
3. Switchboards and Fused Panelboards Without Doors: Panelboards shall have micarta plates with 3/8-inch high white cut letters identifying each circuit or component

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide panelboards wherever required by the Drawings and Specifications.

1.2 SYSTEM DESCRIPTION

A. Circuit Numbers: Circuit numbers shown on Drawings shall be used for reference only. Actual connections shall be in accordance with phasing of cabinet, load balance and common neutral requirements.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Construct panelboards to NEMA.

B. Underwriters' Laboratories (UL): Equipment shall be in accordance with Section 26 00 10.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All panelboards shall be as follows:

1. AMP (Cutler-Hammer Components)
2. Cutler-Hammer
3. EMI (Cutler-Hammer Components)
4. General Electric
5. Siemens-ITE
6. Square D
7. States Electric

2.2 COMPONENTS

A. General Requirements: Panelboards shall be dead front safety type and shall be UL listed.

B. Enclosures: Enclosures shall be constructed of code grade steel with concealed trim clamps and hinges. Panel front shall be lockable with all panels throughout the Project keyed alike. Provide two keys for each panel.

C. Lugs: Solderless lugs only shall be provided in mains, unless otherwise noted on the Drawings and/or the Panelboard Schedule. Main lugs shall be suitable for both 60° C and 75° conductors. Main and neutral lugs shall be compression type. Provide sufficient number of lugs to individually terminate each conductor.

D. Buses: Provide buses made from 98% electrolytic copper or 55% conductivity aluminum and independently supported without dependence upon circuit breakers.

E. Gutters: Provide oversized gutters for feed through, where indicated or required. Where double lugs are not permitted by local code authorities, provide suitable pull box or gutter adjacent to panels for connections. Feeder wiring shall be capable of accepting a clamp-on ammeter.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

F. Molded Case Circuit Breakers: Provide circuit breakers as follows:

1. Bolt-in type.
2. Multi-pole breakers shall be common trip and reset, with one handle.
3. Rated for 10,000 amperes for 120/208 volt systems and shall be rated for 14,000 amperes for 277/480 volt systems, minimum, in lighting and appliance panelboards. Rated for 22,000 amperes, minimum, for all distribution panelboards.
4. Contain HACR label when feeding heating, air conditioning or refrigeration loads.
5. Contain HID label when feed high-intensity discharge loads.

G. Fusible Switches: Provide quick-made, quick break fusible switches.

H. Special Panelboard Requirements:

1. The following shall be provided as specified:

a. Panelboards with wireways above or below the panelboard shall have conduit enclosures of the same size and finish as the panelboards with removable, screw attached, front covers.
b. Panelboards with double tubs shall have separate individualized fronts for each tub.
c. Provide lock-offs over required breaker handles as noted.
d. Provide GFI and AFI breakers as noted.

I. For circuits within dwelling units, provide AFI breakers for all 125 volt, single phase branch circuits in all rooms, except for bathrooms, garages and unfinished basements.

2.3 ARC FLASH WARNING LABEL

A. Provide arc flash warning label per Code.

B. Label shall include calculated arc fault current.

C. Labeling and calculated values shall be included with shop drawing submittals.

2.4 SPARES/SPACES

A. At project turnover, panelboards shall contain, at a minimum, spaces for 20% additional single pole breaker.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Feeder and branch circuit conduits shall meet the cabinet squarely and shall be arranged to facilitate training of conductors to their respective terminals.
2. Top of panelboard tubs shall be mounted no more than 6 feet above finished floor.

3.2 SPARE CONDUITS

A. General Requirements: Provide three 3/4-inch empty conduits from each flush mounted panelboard to accessible ceiling space or area above panelboard for future panel connections. Empty conduits shall be capped.

3.3 IDENTIFICATION

A. Panel Identification: Equipment shall be labeled per Section 26 00 50. Where equipment is located are in mechanical spaces or in storage rooms, provide identification plates on front exterior.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Circuit Identification:

1. Circuit Breaker Panelboards: Provide typed directories identifying all circuits with clear plastic cover mounted in a card holder. Room numbers or names used for circuit identification shall correspond to nameplates installed on room doors by General Contractor or as selected by Owner and shall be verified as these may not be the same as room titles on Drawings.
2. Fused Panelboards With Doors: Provide typed directories identifying all circuits with clear plastic cover mounted in a card holder.
3. Switchboards and Fused Panelboards Without Doors: Panelboards shall have micarta plates with 3/8-inch high white cut letters identifying each circuit or component.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide load centers wherever required by the Drawings and Specifications.

1.2 SYSTEM DESCRIPTION

A. Circuit Numbers: Circuit numbers shown on Drawings shall be used for reference only. Actual connections shall be in accordance with phasing of cabinet, load balance and common neutral requirements.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1.4 QUALITY ASSURANCE

A. Underwriters' Laboratories (UL): Equipment shall be in accordance with Section 26 00 10.

1. UL 67 – Standards for Panelboards.
2. UL 50 – Standards for Cabinets and boxes.
3. UL 489 – Standards for Molded Case Circuit Breakers.

B. Regulatory Requirements:

1. Federal Spec Classifications W-C 375.

C. All equipment shall conform to the latest edition of the National Electrical Code (NEC) and all local codes.

D. Load centers shall be labeled with an UL short circuit rating.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All panelboards shall be as follows:

1. AMP (Cutler-Hammer Components)
2. Challenger
3. Cutler-Hammer
4. EMI (Cutler-Hammer Components)
5. General Electric
6. Siemens-ITE
7. Square D
8. States Electric

2.2 COMPONENTS

A. Load centers shall be rated for 240 volts AC and shall have short circuit ratings as indicted in the Panel Schedule, but not less than 10,000 amprerees RMS symmetrical.

B. All breakers shall take up the same pole spacing.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Provide AFI breakers for all 125 volt, single phase branch circuits in all rooms, except for bathrooms, garages and unfinished basements.

D. All interiors, with the exception of the branch circuit breakers shall be factory assembled with main breakers or main lugs.

E. Interiors shall be so designed that circuit breakers can be replaced without disturbing adjacent units and without removing the main bus connectors and shall be so designed that circuits may be changed without machining, drilling or tapping.

F. Physical means must be provided to prevent the installation of more over-current devices than that number for which the enclosure was designed. Full size breakers are required.

G. Bus bars for the main and cross connectors shall be of copper or aluminum construction in accordance with UL standards. Bussing shall be braced throughout to conform to industry standard practice governing short-circuit stresses in load centers.

H. Neutral bussing shall have a suitable lug for each outgoing feeder requiring a neutral connection of the same ampacity as branch bussing.

I. All wire connectors and terminals shall be of the anti-turn, solderless type and suitable for copper or aluminum wire of the sizes indicated. All connectors shall meet the "requirements for Wire Connectors and Soldering Lugs" UL 486B.

J. All load centers shall be suitable for use with 60/75°C rated wire.

K. Circuit breakers shall be molded case type, 1 inch wide per pole. Multi-pole circuit breakers shall be of a stack pole design to provide electrical phase isolation and shall have an internal common trip.

L. Each pole of the circuit breaker shall have inverse time delay overload and instantaneous short circuit protection by means of both thermal and magnetic sensors.

M. The circuit breaker calibration shall not be affected by environmental changes in relative humidity.

N. All circuit breakers shall be operated by a toggle-type handle and multi-pole circuit breakers shall have an internal common trip mechanism. The circuit breakers shall incorporate trip mechanisms that are mechanically trip-free from the handle. The handle position shall provide good visual trip indication.

O. All circuit breakers shall be molded case, thermal-magnetic, quick-make quick-break, over toggle type. Load centers shall be suitable for use in systems having a short circuit capacity of 10K, 25K, 42K, and 65K RMS amps at the load center location as indicated in the Distribution or Panel Schedule.

P. Branch breakers shall be full-size and have a range of 15 amps through 125 amps. It is also required that a plug-in surge arrestor be available for single phase applications as well as the availability of 5 MA ground fault breakers for personnel protection through 60 amp 2 pole.

Q. All terminals shall be listed for use with copper or aluminum conductors. Terminals shall be of the box lug design. The terminals shall meet UL 486B requirements and shall be suitable for use with either 60°C or 75° C wire.

R. Breakers shall be SWD/HACR rated as required.

S. Load centers shall have NEMA 1 general purpose or NEMA 3R rainproof enclosures as indicated on the drawings and shall be surface or recessed mounted as required. Provide hinged front trims with flush type lock/handle assemblies.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

T. Boxes shall be made from cold rolled code gauge sheet steel having multiple knockouts except where noted. Rain tight boxes shall use galvanized steel or an approved coating system that meets or exceeds standards for outdoor type 3R enclosures. Boxes shall be of sufficient size to provide at least a minimum code gutter space on all sides.

U. The cover shall have an easy adjustment feature for flush applications.

V. Boxes shall be factory assembled into a single rigid structure.

W. Provide typed circuit breaker marking labels and typed directories.

X. Boxes and trims shall be finished with a high scratch resistant, aesthetically pleasing finish. The finish paint shall be of a type to which field applied paint will adhere.

2.3 ARC FLASH WARNING LABEL

A. Provide arc flash warning label per Code.

B. Label shall include calculated arc fault current.

C. Labeling and calculated values shall be included with shop drawing submittals.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Feeder and branch circuit conduits shall meet the cabinet squarely and shall be arranged to facilitate training of conductors to their respective terminals.
2. Provide load centers in dwelling units only.

B. Mounting Heights:

1. The top most circuit breaker shall not be mounted higher than 46” above finished floor.

3.2 IDENTIFICATION

A. Panel Identification: Load centers shall be labeled per Section 26 00 10.

B. Circuit Identification: Provide typed directories identifying all circuits with clear plastic cover mounted in a card holder.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes:

1. In general, all motors indicated in the Mechanical and Electrical Equipment Schedule or as shown on the Drawings are furnished, set in place and mounted by others. Motor locations and mounting heights are approximate and shall be verified with the motor installer.
2. Provide a feeder from a panelboard through a disconnecting switch and starter to each motor. Provide final connections to each motor and check each motor for proper rotation.
3. Provide all disconnects and starters, unless specifically noted as "Furnished By Others", in which case install disconnects and starters as required for a complete system.
4. Refer to the Electrical Equipment Schedule Notes for additional control requirements.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All motor control devices shall be of the same manufacturer as follows (Square D catalog numbers are used to specify required type):

1. Allen-Bradley
2. Cutler-Hammer/Eaton
3. Furnas
4. General Electric
5. Siemens
6. Square D

2.2 COMBINATION UNITS

A. General Requirements: Provide combination devices where a disconnect switch is indicated at the same location as a magnetic starter.

2.3 DISCONNECTING MEANS

A. General Requirements: Provide all disconnect switches, except where specifically noted as "Furnished By Others", in which case install switches as required for a complete system.

B. Type: Disconnect switches shall be as follows:

1. Heavy duty type, fusible, unless noted.
2. NEMA 1 enclosure, except NEMA 3R where installed outside or on roof.
3. Motor rated for proper horsepower.
4. Proper voltage rating.
5. Fuses shall be sized as specified in Section 26 28 13.
6. Electrical interlock to disconnect all separately derived control circuits or interlock wiring.
7. Terminals suitable for both 60°C and 75°C conductors.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

2.4 MAGNETIC STARTERS

A. General Requirements: Provide all magnetic starters, except where specifically noted as "Furnished By Others", in which case install magnetic starters as required for a complete system.

B. Type: Magnetic starters shall be non-reversing type (Square D, Clas 8536). Each starters shall be complete with all of the following features:

1. Full voltage, across-the-line, horsepower rated. Terminals suitable for both 60°C and 75°C conductors.
2. Surface mounted NEMA 1 enclosures, except NEMA 3R where installed outside or on roof.
3. Motor running over-current protection in each ungrounded conductor. Electrical Contractor shall verify actual name plate current ratings of each motor prior to installation over-current protection.
4. Low voltage release.
5. Holding coil of proper voltage.
6. Control Transformer: Provide a transformer of the same voltage as the holding coil, within each magnetic starter. Transformer shall be complete with both primary and secondary fusing.
7. Hand-Off-Auto Selector Switch: Switch shall be mounted on starter cover and connected in circuit such that protective devices remain in circuit in both auto and hand positions ((Square D, Class 9999).
8. Pilot Light: Pilot light shall be mounted on starter cover and shall be complete with red lens and lamp (Square D, Class 9999).
9. Auxiliary Contacts: Provide a minimum of four auxiliary contacts per starter.

2.5 MANUAL STARTERS

A. General Requirements: Provide all manual starters indicated, except where specifically noted as "Furnished By Others", in which case install manual starters as required for a complete system.

B. Type: Manual starters shall be as follows:

1. Full voltage, across-the-line, horsepower rated.
2. One motor running over-current protector in each ungrounded conductor.
3. In finished areas, all manual starters shall be flush mounted in plates to match device plates sized to fit standard outlet boxes (Square D, Class 2510). Manufacturer’s direction plate for resetting overloads shall be installed on flush plates. Plates shall be engraved as noted in the Mechanical and Electrical Equipment Schedule.
4. Where exposed conduit is permitted, manual starters (Square D, Class 2510) shall be in surface boxes.
5. Pilot lights with manual starters shall be red neon jewel type. Pilot lights shall be connected to conductors at actual motor location in order to indicate that motor is running.

2.6 CONTROL STATIONS

A. General Requirements: Provide all control devices. In finished areas, all control stations shall be flush mounted in plates to match device plates and of a size to fit standard outlet boxes.

B. Type: Control stations shall be as follows:

1. Start-Stop Maintained Stations:, Maintained contact type for 2-wire control of magnetic starters. Actuator buttons shall be engraved start-stop (Square D, Class 9001).
2. Start-Stop Momentary Stations: For 3-wire control of magnetic starters or relays. Engrave actuator buttons “start-stop” (Square D, Class 9001).
3. Toggle Switch Stations: Provide standard toggle switches as specified under Section 26 27 23.
4. Pilot Lights: Pilot lights at start-stop stations shall be incandescent type with red lens. Pilot lights at the toggle switches shall be neon type mounted in separate gangs of device plates. Pilot lights shall be connected to conductors on load side of disconnect at motor in order to indicate that motor is running.
5. Float Switches, Pressure Switches, P.E. Switches, and E.P. Switches: Device shall be furnished and installed by others, but connected by Electrical Contractor. Verify location of such equipment with the installer.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

6. Special Key Switches: Each key switch, including special wall outlet boxes and engraved plates shall be furnished by others but installed by Electrical Contractor.
7. Limit Switches: Switches shall be furnished and set in place by others, but installed by Electrical Contractor. The number of limit switches and function shall be coordinated with equipment suppliers' Shop Drawings.
8. Snap Switch: Control motor with switch on the Drawings.
9. Duct Heat or Smoke Fire Detectors: Refer to Fire Alarm and Detection Specifications.
10. Engraving: Provide engraving of remote motor control stations to properly identify station.

Part 3. - EXECUTION

3.1 INSTALLATION OF DISCONNECTS AND STARTERS

A. General Requirements: Provide disconnecting switches and starters. If not specifically noted otherwise, provide all disconnect switches and starters as required for a complete system.

B. Starters and Disconnect Locations: Locations shown on Drawings are approximate and shall be coordinated on site to clear other equipment, provide proper accessibility and provide ease of maintenance. Starters and disconnects shall be installed with clearances as required by the NEC. Starters and disconnects shall be installed in locations that do not provide required clearances only with the prior approval of both the Electrical Inspector and Architect/Engineer. In general, starters and disconnects shall be located near the motors, wall mounted not more than 6 feet above the floor or mounted on equipment where readily accessible from the floors and shall not be mounted over live or moving parts. When indicated to be installed above finished ceilings, starters and disconnects shall be located within 24 inches of ceiling for ease of maintenance and accessibility.

C. Elevator: Shunt-trip circuit breaker(s) (STB) or fused disconnects shall be located in elevator equipment room immediately next to knob side of equipment room entrance door. Coordinate exact location with elevator inspector.

D. Starter Overloads: Provide running current protection in each starter based on actual motor nameplate readings and overload manufacturer's selection tables.

3.2 INSTALLATION OF CONTROLS

A. General Requirements: Provide all control wiring. Provide adequate auxiliary contacts and relays to accomplish interlocks and subsidiary control connections. Coordinate all work with Mechanical and Temperature Control Contractors, such that operation of mechanical equipment will be as described in Mechanical Specifications.

B. Hand-Off-Auto Operation: Where equipment does not have automatic control, connect the hand-off-auto selector switch for manual operation with automatic position available for future use. Connections to selector switch shall be such that only normal automatic regulatory control devices will be bypassed when switch is in manual position; safety control devices, such as low- or high-pressure cutouts, high temperature cutouts and motor overload protective devices, shall be connected in motor-control circuit in both manual and automatic positions of the selector switch.

3.3 MOTOR CONNECTIONS

A. General Requirements: Provide feeders from panelboards, through disconnecting switches and starters, to all motors. Flexible metal conduit shall be used for final connections to motors and shall not be less than 12 inches nor more than 24 inches in length. Flexible metal conduit in boiler rooms, kitchens and mechanical rooms shall be liquid tight type. Provide a separate grounding conductor within flexible conduit, bonded to conduit system, for motors.

B. Connections to Roof Mounted Motors: Provide weatherproof connections to all roof mounted motors.

C. Connections to Wall Hung Water Coolers: Install in accordance with cooler manufacturer's requirements. Conceal receptacle behind cooler enclosure at all devices where possible.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

D. The Electrical Contractor shall thoroughly review installation manuals for each piece of equipment requiring power and control connections. Obtain instruction manuals from the Mechanical Contractor, Plumbing Contractor or Owner prior to roughing in any feeders or control wiring. Notify the Engineer of any discrepancies between the electrical plans and specifications and the equipment installation manuals prior to any installation. If for any reason this Contractor fails to do so, any and all costs necessary to correct discrepancies shall be borne by the Electrical Contractor.

3.4 LABELING AND ENGRAVING

A. Labeling: Provide labels inscribed with both the motor name and number attached to each motor disconnect and to each motor starter or combination switch-starter. Each motor name shall be as indicated in the Mechanical and Electrical Equipment Schedule. On projects where no Equipment Schedule is provided, motor names shall be as directed by Engineer. Labels shall be black micarta plastic laminate plates with 1/4-inch high white cut letters.

B. Engraving: Provide identification on remote motor control pushbutton stations, momentary contact stations and hand-off-auto stations. Flush plates shall be engraved with Sierra permanent type filled letters. Surface mounted control stations shall have 1/4-inch high white cut letters on black micarta plates.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide and connect metering equipment wherever required by the Drawings and Specifications.

1.2 SYSTEM DESCRIPTION

A. Interior metering equipment shall be NEMA 1 general purpose and shall be surface mounted. Exterior metering equipment shall be NEMA 3R weatherproof and shall be surface mounted. All metering equipment shall be rated for intended voltage and shall be in accordance with the Underwriters' Laboratories, Inc. (UL) "Standard for Panelboards" UL67; File E8741 and E11713.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10. Shop Drawings submitted for approval shall contain the following minimum information:

1. Sufficient information to determine if design meets the requirements of the Drawings and Specifications.
2. Electrical ratings, dimensions, material, required clearances, terminations, weight, plan, front, side and rear elevations, buswork, fused switch frame and rating accessories and device nameplate data.
3. Size, ampere rating, number of bars per phase and neutral in each horizontal and vertical bus run, bus spacing, equipment ground bus and bus material.
4. Provide arc flash warning labels and calculated values.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Underwriters' Laboratories (UL): Equipment shall be in accordance with Section 26 00 10.
2. All metering equipment employing a main disconnect ahead of the meter units, or using a maximum of six meter positions (total) must be listed as suitable for use as service Equipment when installed in accordance with NEC-230-70 (a)-(c), and "Requirements for Service Equipment", UL 869.
3. Metering equipment shall meet UL enclosure requirements and be furnished with a UL switchboard label.
4. Metering equipment used for service entrance shall be furnished with a UL service entrance label.

Part 2. – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Metering Equipment Manufacturers:

1. AMP with Cutler-Hammer Distribution Switches
2. Cutler-Hammer
3. EMI with Cutler-Hammer Distribution Switches

2.2 CONSTRUCTION

A. Boxes and trims shall be bonderized and finished with light gray ASA61 enamel. The finish paint shall be a type to which field applied paint will adhere.

B. All interior, with the exception of the branch circuit breakers, shall be factory assembled with main lugs, neutral

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

wire connectors, bus bars, etc.

C. All wire connections and terminals shall be of the anti-turn solderless type and all shall be suitable for copper or aluminum wire of the sizes indicated and must meet the "Requirements for Wire Connectors and Soldering Lugs: UL486B.

D. Interiors shall be so designed that branch circuit breakers and metering units can be replaced without disturbing adjacent units and without removing the main bus connectors. Socket jaws must be front removable through meter opening without removing steel cover. Meter sockets shall be equipped with a fully rated, 200 amp lever by-pass that shall also provide clamping pressure and meter blades.

E. Meter sockets shall be located in the meter center such that the center of the utility provided meter when installed shall not be higher or lower than that specified by the utility.

F. Bus bars for the mains and cross connectors shall be of copper or tin plated aluminum in accordance with UL standards. Bussing shall be braced throughout to conform to industry standard practice governing short circuit stresses in meter centers.

G. Cross-bussing, accessible for installation purposes must be used on modular meter centers. Belleville-type spring washers are required for all bus bar connections. Tight barrier construction is required to isolate customer load compartment from incoming service connections.

H. Main horizontal bus bars shall be mounted with all phases arranged in the same vertical.

I. Main lug provision must accept top or bottom feed on all meter center units. All Branch Circuits for indoor units must be able to exit from top or bottom of unit.

J. Provide full capacity neutral bus. Neutral bussing shall have a suitable lug for each out-going feeder requiring a neutral connection of same ampacity as branch.

K. The assembly shall be rated to withstand a fault current of 85,000 amps symmetrical, minimum, at rated voltage.

L. Branch circuit breakers shall have AIC ratings based upon the tap box or main breaker rating as listed below:

Tap Box/Main Breaker Rating	AIC Rating
0-600 amps	10,000 amps
601-1200 amps	22,000 amps
1201-1600 amps	42,000 amps

M. Meter center shall consist of the required number of vertical sections bolted together to form a continuous assembly. Each sections box shall be constructed of die formed galvanized 14 gauge steel that form rigid self supporting structures to support the bussing and over current devices. The meter center front and side gutters shall be covered with removable bolt-on 14 gauge covers. All edges of all covers or hinged front panels shall be pan formed. Provide adequate ventilation within the enclosure.

N. Boxes shall be constructed with mounting provisions for grounding bars to be installed where necessary.

O. Unless otherwise noted on the drawings, hinged covers protecting all circuit breaker handles shall be included in all trims for NEMA 3R units. Hinged covers shall not uncover any live parts in making the circuit breaker handles accessible. All covers shall be designed with interlocking overlapping covers to inhibit water from entering the enclosure.

P. Individual meter covers must be supplied and available in both ring and ringless versions. Contractor shall coordinate with the Local Utility prior to Bid.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

2.3 PULL BOXES

A. General Requirements: Contractor shall provide any pull boxes, below or above metering equipment, deemed necessary to provide room to run conduits to panels or equipment. Pull boxes shall be non-bussed type with a grounding bushing on each conduit connected to ground bus of metering equipment.

2.4 NAMEPLATES

A. General Requirements: Provide laminated phenolic resin nameplates on each meter to indicate room served.

2.5 ARC FLASH WARNING LABEL

A. Provide arc flash warning label per Code.

B. Label shall include calculated arc fault current and calculated arc flash rating (cal/cm).

C. Labeling and calculated values shall be included with shop drawing submittals.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Provide metering equipment in accordance with NEC and as recommended by the manufacturer. Refer to the Drawings and/or the Distribution Schedule.
2. Provide raised concrete bases for metering equipment. Bases shall be four inches high where possible, but at least two inches minimum. Pad sizes shall be based on exact equipment size as determined from Shop Drawings. Provide concrete pads as described above, unless they are shown or specified to be provided by General Contractor.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide all labor, materials and accessories as required to install and connect wiring devices wherever required by Drawings and Specifications.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All wiring devices shall be of the same manufacturer as follows (Leviton and Hubbell catalog numbers are used to specify required type and quality):

1. Cooper
2. General Electric
3. Hubbell
4. Leviton
5. Pass & Seymour
6. Slater
7. Sierra

B. Acceptable Manufacturers: All wiring devices shall be of the same manufacturer as follows:

1. Cooper
2. Leviton
3. Sierra
4. Slater

2.2 DEVICE COLOR

A. General Requirements: Unless noted otherwise, all wiring devices and wall plates shall be coordinated with the Architect. Submit samples to Architect for review and approval.

2.3 SWITCHES

A. General Requirements: Switches for lighting loads shall be 15 amp or 20 amp, 120 volt, quiet toggle type and side wired.

B. Switches shall be the following:

1.	15 amp, 120 volt, single pole	Leviton #1451-X
2.	20 amp, 120 volt, single pole	Leviton #54521-2X
3.	15 amp, 120 volt, 3-way	Leviton #1453-X
4.	20 amp, 120 volt, 3-way	Leviton #54523-2X
5.	15 amp, 120 volt, 4-way	Leviton #2654-X
6.	20 amp, 120 volt, 4-way	Leviton #54529-2X
7.	20 amp, 120 volt, 2-pole	Leviton #54522-2X
8.	24 volt, momentary contact, SPDT center off	Leviton #1081

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

C. Door frame switches shall be Pass & Seymour No. ACD-201 or ACD-203 as required, complete with mounting straps and stainless steel plates.

D. Timer switches shall be Leviton LTB30-1L, electronic with four presets, up to 30 minutes, rated for 1000 watts/1hp motor.

2.4 CONVENIENCE OUTLETS

A. General Requirements: Duplex receptacles shall be 15 amp or 20 amp, 125 volt, 3-wire, grounding type, quickwire push-in and side or back and side wired. Install 20 amp rated duplex receptacles in all common areas. All receptacles shall be installed with the ground slot down. Provide GFI receptacles where shown or required by the National Electrical Code (NEC) and install with ground slot down.

B. Receptacles, common areas, shall be the following:

1.	15 amp, 125 volt	Leviton #5320-X
2.	15 amp, 125 volt, GFI	Leviton #7599-X
3.	15 amp, 125 volt, controlled	Leviton #16252-1PX
4.	20 amp, 125 volt	Leviton #BR20-X
5.	20 amp, 125 volt, GFI	Leviton #7899-X
6.	20 amp, 125 volt, controlled	Leviton #16352-1PX

C. Receptacles, dwelling units and hotel guest rooms, shall be the following (tamper-resistant):

1.	15 amp, 125 volt	Leviton #T5320-X
2.	15 amp, 125 volt, GFI	Leviton #T7599-X
3.	20 amp, 125 volt	Leviton #TBR20-X
4.	20 amp, 125 volt, GFI	Leviton #T7899-X

D. Special receptacles shall be the following:

1.	20 amp, 250 volt	Leviton #5821-X
2.	30 amp, 125/250 volt, 3-pole, 4-wire, grounding	Leviton #278
3.	50 amp, 125/250 volt, 3-pole, 4-wire, grounding	Leviton #279

E. Television box for flat screen wall mounted televisions shall be three gang, recessed, with surge protective duplex, voice/data outlet and CATV outlet. Pass and Seymour #TV3WTVSSLA. Verify color with Architect

F. Exterior receptacles shall be low profile, recessed, weatherproof (WP) with cord openings and solid cover. Arlington IN BOX.

G. For flush, wood deck installations, provide weatherproof enclosure with cover and flexible, outdoor rated, 3-foot long cord whip. Red Dot #DKG-PRO.

2.5 DIMMERS

A. General Requirements: Provide all dimmers as shown on the Drawings.

B. Dimmers shall be as follows:

1.	600 watt, 120 volt, incandescent	Lutron #NT-600
2.	1000 watt, 120 volt, incandescent	Lutron #NT-1000
3.	1,500 watt, 120 volt, incandescent	Lutron #NT-1500
4.	16 or 8 amp, 120/277 volt, fluorescent	Lutron #NTF Series

C. Provide dimmer rated 0-10volt with on/off function for all LED dimmed lighting.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.6 DEVICE PLATES

A. General Requirements: Device plates shall be provided for all devices shown on the Drawings or called for in the specifications. Device plates in finished and unfinished areas shall be plastic, unless noted otherwise. Multiple device plates shall be constructed of a single plate. No sectional plates will be accepted.

B. Special Screws: Where so indicated, device plates shall be complete with special tamperproof spanner oval head screw. Furnish Owner with three special screw drivers for the spanner head screws.

C. Engraved Plates: Engraved plates shall have letters as required, 1/8-inch minimum letter height and black filling. Printed tape or glued on plates are not acceptable. The following plates shall be engraved:

1. Wall plates so indicated on Drawings.
2. Switch wall plates controlling any lights which are out of sight of switches.
3. Switch wall plates controlling motors.

D. Commercial Kitchen Device Coverplates: Provide 302 stainless steel plates for all devices indicated.

Part 3. – EXECUTION

3.1 INSTALLATION OF DEVICES

A. General Requirements: Device height shall be as follows, except where noted otherwise on the Drawings:

1. Normal Areas and Rooms, Unfinished Areas: Switches, receptacles and outlets shall be mounted at the following heights, measured from device center to floor, unless noted otherwise.

a.	Receptacle	18”
b.	Telephone outlet	18”
c.	Telephone outlet, wall	46”
d.	TV outlet	18”
e.	Switch	46” top of device
f.	Devices above counter without backsplash	8” above counter
g.	Devices above counter with backsplash	4” above backsplash

2. Handicapped and Adaptable Areas and Rooms: Switches, receptacles and outlets shall be mounted at the following heights, measured from device center to floor, unless noted otherwise.

a.	Receptacle	24”
b.	Telephone outlet	24”
c.	Telephone outlet, wall	44” top of device
d.	TV outlet	24”
e.	Switch	46” top of device
f.	Devices above counter without backsplash	44” top of device
g.	Devices above counter with backsplash	44” top of device

B. The Contractor shall coordinate the mounting height of all special receptacles with the Architect, Owner, Mechanical Contractor and equipment suppliers.

C. Where locations shown or mounting heights specified for devices conflict with other trades or building finishers, the Contractor shall coordinate exact requirements prior to installation and install only after the approval of all involved.

D. Provide spacers as required between outlet boxes and devices so that each device is flush with the finished wall. Plate screws shall not be used to stabilize device.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

E. Location:

1. Receptacles along side of switches in janitor closets, storage rooms and mechanical spaces shall be in 2-gang boxes, with switch in first gang and receptacle in second gang.
2. Switches near doors shall be located on side opposite the hinges (verify door swings with Architectural Drawings before installation) and close to door trim. Edge of switch plate shall be within four inches of door frame.
3. Devices located at counters shall be mounted eight inches from device center to top of counter, unless noted otherwise.
4. Switches controlling range hood fan and lights, garbage disposals, undercabinet lighting, etc., in handicapped units shall be installed in the cabinet front. Coordinate the exact available location with the Architect.

F. Provide dedicated neutral and ground wire to each dimmer or timer switch.

G. Controlled Receptacles:

1. Receptacles shall be half-controlled.
2. Controlled portion shall be labeled with NEMA approved marking on receptacle face.
3. Connect switched portion to room lighting control system. Refer to Plans.

H. Verify exact locations of television boxes with Television Equipment Provider and Architect prior to rough-in.

I. For flush, wood deck installations, mount weatherproof device within enclosure. Provide j-box mounted on joist below deck and make hardwire connection to enclosure cord whip.

3.2 MOVING DEVICES

A. The Owner, through the Architect/Engineer, reserves the right to move any device a distance of ten feet in any direction from the location shown on the Drawings without an increase in Contract amount. This requirement shall only apply to devices before installation.

B. In the event that an outlet shown on the Drawings will not be able to serve the specified piece of equipment, the outlet shall be relocated as required, with no increase in contract amount.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Provide all labor, materials, and accessories as required to protect feeders and branch circuits for panels, motors, and electrical appliances wherever required by the Drawings and Specifications or by applicable provisions of the National Electric Code (NEC).

Part 2. – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All fuses shall be of one manufacturer as follows:

1. Bussman
2. Littelfuse
3. Shawmut

2.2 FUSE TYPES

A. 600 Ampere and Below (Bussman model numbers used to set the minimum standard for material and equipment):

1. All fuses shall have 200,000 amperes RMS interrupting rating.
2. Fuses shall be Underwriters' Laboratories Class J current limiting, dual element time delay, rejection type.
3. Fuses shall be Bussmann LPJ_SP.

B. 601 Ampere and Above (Bussman model numbers used to set the minimum standard for material and equipment):

1. All fuses shall have 200,000 amperes RMS interrupting rating.
2. Fuses shall be Underwriter' Laboratories Class L current limiting, time delay, pure silver link type.
3. Fuses shall be Bussmann KRP-C_SP.

C. Individual Motor Circuits (Bussman model numbers used to set the minimum standard for material and equipment):

1. Fuses shall be Underwriter' Laboratories Class R, current limiting, dual element time delay.
2. For fuses rated at 250 volt, provide Bussman LPN-RK_SP.
3. For fuses rated at 600 volt, provide Bussman LPS-RK_SP.

Part 3. – EXECUTION

3.1 FUSE INSTALLATION

A. General Requirements:

1. Provide fuses in all fusible switches, except switches identified as "spare or future".
2. Provide all fuses of ampere ratings required by the NEC to protect feeders and equipment.

3.2 FUSE CABINET

A. General Requirements: Provide a storage cabinet to house spare fuses, similar to Bussmann SFC and mount adjacent to service entrance equipment. Fuse cabinet shall be wall mounted with hinged lockable door.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

Cabinet shall be finished to match main switchboard. Sufficient storage capacity shall be provided to accommodate six fuses of each type. Label "FUSE CABINET" with black micarta plate and white cut letters.

3.3 SPARE FUSES

A. General Requirements:

1. Fuses 100 amps and smaller: Provide one standard size package of each size, type and amperage installed.
2. Fuses over 100 amps: Provide three spare fuses of each size, type and amperage installed.

B. Turn over spare fuses to the Owner prior to final closeout of the Project.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide safety switches wherever required by the Drawings and Specifications.

1. Every effort has been expended to provide an accurate list of equipment, however, the Contractor shall verify motor nameplate on site before installing switches or selecting fuses.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All safety switches shall be of one manufacturer as follows.

1. Cutler-Hammer
2. General Electric
3. I.T.E. (Siemens)
4. Square D

2.2 MATERIALS

A. Type:

1. Safety switches shall be fused. Non-fusible switches may be used in lieu of fusible where allowed by the National Electrical Code (NEC).
2. Safety switches shall be NEMA HD (heavy duty) type, horsepower rated, and of ampere sizes shown on Drawings or as required by the NEC. Safety switches shall have NEMA 1 enclosures, except in wet locations or where indicated as weatherproof, in which case a NEMA 3R enclosure shall be used. Locations on roof or outside shall be considered wet locations.
3. Fusible safety switches shall contain Class R fuse provisions to reject fuses, except Class R type.
4. Safety switches shall contain padlocking provisions and defeater screw mechanisms. Provide interlock contacts where so specified.
5. Safety switches shall be rated 240 volts where used on 120/208 volt or 120/240 volt systems.
6. Safety switches shall be rated 600 volts where used on 277/480 volt systems.
7. Switches rated 30 amperes through 100 amperes shall have lugs listed for 60° C or 75° C conductors. Switches rated over 100 amperes shall have lugs listed for 75° C.

B. Special Requirements For Elevator Installations:

1. Safety switches installed in elevator machine rooms for elevator power shall be shunt trip breakers or fused disconnects, refer to Drawings.
2. Safety switches used for elevator power shall be provided with auxiliary contacts (one N.O. and one N.C.) controlled by the switch. The Contractor shall provide required conductors through the auxiliary contacts to the elevator controller.

2.3 ARC FLASH WARNING LABEL

A. Provide arc flash warning label per Code.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Label shall include calculated arc fault current.

C. Labeling and calculated values shall be included with shop drawing submittals.

Part 3. - EXECUTION

3.1 SUMMARY

A. This contractor shall review all Mechanical Equipment Schedule and plans and provide disconnects and fuses as required by Code.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide fixtures shown on Drawings complete with lamps as indicated in Light Fixture Schedule.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10. Shop Drawings submitted for approval shall contain the following minimum information:

1. Manufacturer and type of ballast for fluorescent and HID fixtures.

1. 3 QUALITY ASSURANCE

A. Underwriters' Laboratories (UL): Devices shall be in accordance with Section 26 00 10.

1. Exterior fixtures shall bear the UL label for wet or damp locations as required for the use intended.

Part 2. - PRODUCTS

2.1 FLUORESCENT FIXTURES

A. General Requirements: Metal parts shall be steel, with end plates connected to body with fasteners or by welding, with all essential components required for a complete installation.

2.2 BALLASTS

A. Fluorescent, Electronic: Wherever noted in the Light Fixture Schedule, fluorescent ballasts shall be as follows:

1. High frequency, premium grade, class “P” rated, programmed start.
2. 60 Hz rated for the voltage noted.
3. Voltage regulation and light regulation of +/- 10%.
4. 90 percent or higher ballast-factor for two-lamp and three-lamp ballasts, greater than 85% for four-lamp ballasts.
5. "A" or better sound rating.
6. Meet FCC rules for EMI and RFI interference.
7. Total Harmonic Distortion (THD) of less than 10%.
8. Lamp Crest Factor of less than 1.7.
9. Interior mounted fixture ballasts shall have a 50° F minimum starting temperature and exterior mounted fixture ballasts shall have a -20° F minimum starting temperature.
10. Each ballast to have 3-year warranty with a minimum $10.00 labor reimbursement.
11. Power factor of 90% minimum.
12. Acceptable manufacturers: All electronic fluorescent ballasts shall be as follows:

    a. Magnetek
    b. Motorola
    c. Osram/Sylvania

B. Compact Lamp: All compact lamp ballasts shall be as noted in the Light Fixture Schedule.

1. Compact fluorescent ballasts shall contain an end-of-life shut off circuit.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.3 LED'S AND DRIVERS, GENERAL REQUIREMENTS

A. General

1. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.
2. Drivers shall be compatible with a variety of lighting control systems.
3. LED shall have a lumens/watt efficacy value which will meet the current State Energy Codes.
4. Provide 0-10 volt rated dimmer with on/off function for LED dimming control.

B. Approved Driver Manufactures:

1. Albeo
2. CREE
3. GE
4. Hubbel
5. Lithonia
6. Phillips

C. Interior Lighting

1. All LEDs shall have a color temperature as scheduled, minimum 85 CRI and a minimum life expectancy of 50,000 hours.

D. Exterior Lighting

1. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction. Luminaires shall be RoHS (restriction of Hazardous Substances) compliant.
2. Must be rigid structure with weather resistant and water tight enclosures.
3. All LEDs shall have a color temperature as scheduled, minimum 85 CRI and a minimum life expectancy of 50,000 hours.

2.4 EMERGENCY BATTERY UNIT

A. General Requirements: Wherever noted in the Light Fixture Schedule or Drawings emergency lighting units shall be as follows:

1. A self-contained storage battery used as a second source of power.
2. Shall supply and maintain the total output for a period of 1½ hours minimum, without the voltage applied to the load failing below 87½% of normal light output.

2.5 INCANDESCENT FIXTURES

A. General Requirements: Lamps shall be 130 volt unless noted otherwise.

2.6 LENSES

A. General Requirements: Provide pure virgin acrylic 0.125 plastic lenses unless noted otherwise.

2.7 RECESSED FIXTURES

A. General Requirements:

1. Provide recessed fixtures with frames appropriate for the type of ceiling mounting.
2. Provide suitable plaster frames where installed in plaster ceilings.
3. Provide fixtures that have wiring, ballasts and relamping access from below the ceiling unless otherwise indicated.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

4. Provide UL listed and labeled enclosure for all fixtures that penetrate rated fire assemblies or that penetrate into unheated areas, such as soffits and attics. Install enclosure, seal all openings with caulking and duct tape and provide plastic cover over enclosure (also caulked and taped) to restrict air infiltration prior to installation of insulation. UL listed enclosure shall be E.Z. Barrier (952-985-8851) or Tenmat Firedome. If enclosure will not maintain proper clearances around fixture per manufacturer's recommendations, provide sheetrock boxout if allowed by Local Code Authority. Otherwise provide UL listed fixture.
5. Incandescent and HID fixtures shall be UL listed and labeled for thermal protection.

2.8 FIXTURE SCHEDULE

A. General Requirements:

1. Manufacturer's catalog number indicates type, quality and style, but may not cover ballast, lamp or special details required. Contractor shall provide the lighting fixtures with special features noted.
2. Provide fixtures complete with lamps.
3. Coordinate light fixtures with latest Architectural Reflected Ceiling Plans prior to release of fixture order.
4. Adjust mounting to match ceiling type at no additional cost to Owner.
5. Unless noted otherwise, CRI and color temperatures of lamps shall match. Contractor shall replace pre-installed lamps as required to match specified building lamps. Refer to Light Fixture Schedule.

B. Acceptable Manufacturers: All incandescent fluorescent, LED and HID lamps shall be:

1. General Electric
2. Osram/Sylvania
3. Phillips

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Remove manufacturer's labels from exterior of fixtures.
2. Install fixtures when the work of other trades in the area is substantially complete, to avoid damage or defacement after installation. Fixtures shall not be installed on ceilings until ceiling finishes are complete, except fixtures may be installed on exposed T-bar ceilings after T-bars are installed and before tile installation.
3. Coordinate fixture locations with the ceiling installation and install fixtures in a uniform pattern to tiles or exposed grids. Fixtures shall be symmetrically spaced with rows in alignment and parallel with the building features. Measurements shall be taken from the Architectural Drawings.
4. Install 2x2 fixtures and compact fluorescent downlights with lamps perpendicular to corridor.
5. Where floodlighting has been indicated, provide for adjusting during evening hours to Engineer's satisfaction.
6. Directional fixtures shall be properly aimed and aligned as directed by the Owner's representative.
7. Provide concrete bases for all exterior pole mounted fixtures. Refer to the Drawings for base detail.

3.2 FIXTURE MOUNTING

A. General Requirements:

1. Surface fixtures, other than fluorescent type, shall be securely fastened to outlet box.
2. Recessed fixtures, except those installed within an exposed grid type ceiling, shall be supported from building structural members or from concealed steel framing channels 1-1/2 inches or larger. No recessed fixtures shall be supported from ceiling tiles.
3. Individually mounted fluorescent fixtures shall be supported within 12 inches of each end of fixture.
4. Continuous row fluorescent fixtures shall be supported within 12 inches of end of each row and at intervals

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

not to exceed 48 inches along entire row.

5. Chain hung fixtures shall be permitted only where specifically noted. Chains shall be spaced the same as supports described under this Section. Chains shall be heavy duty, nickel or cadmium plated, suitable for weight of specific fixture. Jack chain shall not be used. Unless otherwise indicated, chain hung fixtures shall be provided with a grounded receptacle and grounded portable cords and plugs to feed individual units or continuous rows as required. Chain hung fixtures shall be located on site to clear mechanical ducts and equipment.

3.3 SUPPORTS AND FASTENING

A. For Fixtures Not In Exposed T-Bar Grid Ceilings: Fixture supports, or outlet boxes used to support fixtures, shall be securely fastened to building structural members or to concealed steel ceiling framing channels 1-1/2 inches or larger. Fixture hanging rods shall be of adequate dimensions to support fixture and shall be not less than 3/8 inch diameter. Fixture supports shall be fastened to structure as follows:

1. To concrete with steel or lead expandable concrete anchors set into a minimum of 1-1/2 inches of concrete or with 3/8 inch minimum diameter toggle bolts through concrete.
2. To wood with lag screws a minimum 1/4 inch diameter entering wood structural members a minimum of 2 inches.
3. To 16 gauge steel channels where used to span building bar joists, structural members or ceiling 1-1/2 inch minimum framing channels. Provide Steel City, No. 6029 steel channels or Thomas & Betts.

B. For Fixtures in Exposed T-Bar Grid Ceilings: Fixtures shall be supported as follows:

1. Recessed fixtures designed expressly for lay-in mounting and under 50 lbs. shall be installed in that manner. Grid system shall be supported from structure as required by ceiling system installer.
2. Recessed fixtures <u>not</u> designed for lay-in mounting or over 50 lbs. shall be installed per the manufacturer's requirements. Contractor shall provide all mounting hardware required. Contractor shall also coordinate with the ceiling system installer and the Architect.
3. Provide flexible metal conduit connections for all recessed type fixtures in lay-in ceilings permitting fixture to be lifted out. Maximum flexible conduit shall not exceed six feet. One to four fixtures may be served by a single common outlet box, securely fastened to structure or ceiling support members and within 30 inches of ceiling tile.
4. Provide fixture retainers or clips for each fixture installed in exposed grid suspended ceilings in accordance with UBC and state building codes.
5. Recessed fixtures, not designed to lay-in directly on grids, shall be centered on ceiling tiles and shall be supported with 16 gauge steel channels used to span over T-bar grids. No fixture shall be supported by ceiling tiles.
6. Surface mounted fixtures to be centered directly on a T-bar grid shall be secured to that grid with hanger clamps, clips or other approved fasteners designed for the purpose. Unless otherwise noted, ceiling T-bar grid system shall be supported from structure by ceiling system installer.
7. Surface mounted fixtures to be centered between T-bar grids shall be secured to a 16 gauge steel channel installed by this Contractor to span over top of main T-bar grids. Steel channels shall be Steel City, No. 6029 or Thomas & Betts. Non-main T-bar grids shall not be used to support steel channels. Unless otherwise noted, ceiling T-bar grid system shall be supported from structure by ceiling system installer.

3.4 SPECIAL FIXTURE COORDINATION

A. Storage and Mechanical/Electrical Rooms: Contractor shall verify actual fixture locations with Architect. Fixture locations shall be revised as required to clear all equipment, ducts, and piping.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. – GENERAL

1.1 SUMMARY

A. Section Includes: Provide one copy of quantity invoices required by the local power company to allow Owner to receive Energy Rebates for the use of energy saving ballasts and/or energy saving lamps.

Part 2. – PRODUCTS

N/A

Part 3. – EXECUTION

3.1 GENERAL REQUIREMENTS

A. Contractor shall complete and submit all form/applications required by the Utility Company or Energy/Environmental Firm(s).

B. All rebates shall be made directly to Owner.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. The complete installation shall conform to local codes and the National Electrical Code (NEC). All wiring shall be installed according to the local Utility's recommendations.

B. Telephone and Voice/Data cables shall be 4-pair, 24 AWG, CAT 5e. All cable installed within plenum spaces shall be teflon coated.

C. The Owner shall provide a telephone switching system near the main entrance backboard. Contractor shall coordinate routing of cables and placement of all termination blocks to properly connect to the telephone switch.

D. System shall be interconnected with the Access/Entry Control System as required to provide a "no phone bill" entry system. Refer to Section 26 75 43.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

Part 2. - PRODUCTS

N/A

Part 3. - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Contractor shall provide a complete and fully functional interior telephone backbone system, including all required wiring, punchdown blocks, patch panels, backboxes, mudrings, outlets and jacks.

B. Contractor shall provide a ¾" plywood backboard of sufficient size for Contractor and utility use. Contractor shall paint the backboard with a grey, fire retardant paint prior to all equipment installation.

C. Contractor shall provide an exterior weatherproof, lockable enclosure of sufficient size for Contractor and utility use.

D. Contractor shall provide separate 4'x8'x3/4" plywood backboards in all remote Voice/Data rooms for Contractor and utility use. Contractor shall paint backboard with a grey, fire retardant paint prior to all equipment installation.

E. Provide **66 (CAT-5)** style punchdown blocks with style brackets. Route cables under bracket to punchdown area. All conductors shall be terminated. Insulation shall not be stripped back further than needed.

F. Contractor shall provide one RJ45 jack for all telephone outlets.

G. Contractor shall provide two RJ45 jacks for voice/data outlets, one for voice and one for data.

H. Contractor shall provide coverplates to match wiring devices for all telephone and voice/data outlets.

I. The local Utility shall provide system entrance telephone cable to a main entrance backboard provided by the Contractor as specified in this section.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

J. Contractor shall provide cable connection between the main entrance backboard and each remote Voice/Data room.

K. Contractor shall provide two telephone cable from a telephone backboard to the structured media center within each unit. Provide separate dedicated cables from the structured media center to each telephone outlet within unit.

L. Contractor shall provide one telephone cable from a telephone backboard to each telephone outlet located within common areas.

M. Contractor shall provide two telephone cables from a telephone backboard to each voice/data outlet located within common areas.

N. Contractor shall provide signal boosters for voice/data cable runs that exceed 250 feet. Provide receptacle adjacent to booster, obtain power from nearby 120 volt receptacle circuit. Coordinate booster location with Architect prior to rough-in.

O. Contractor shall make final terminations at punchdown blocks, patch panels and jacks with permanent label at each end of individual conductors.

P. Sufficient length shall be provided at both ends of each telephone cable to allow for outlet installation and termination by Contractor.

Q. Contractor shall test each cable and certify. Provide 3-ring binder with certification documentation to the Owner prior to installation of Owner's equipment.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. The complete installation shall conform to local codes and the National Electric Code (NEC).

B. All wiring shall be installed according to the manufacturer's recommendations.

C. Wiring shall be checked to ensure that it is free from shorts and grounds.

D. The following devices shall be provided (Leviton model numbers are provided for cross referencing):

1. Structured Media Center. Leviton #47605-14W.
2. Basic Telephone and Video Panel. Leviton #47606-BTV.
3. Cat 5e Connectors. Leviton #5G108-R5.
4. Cable, satellite, HDTV and DVD F-Type connectors. Leviton #41084.
5. Surge protected AC power receptacle. Leviton #47605-ACS.

E. Provide Telephone and Voice/Data connections in accordance with Section 26 55 13.13.

F. Provide CATV connections in accordance with Section 26 55 43.43.

1.2 QUALITY ASSURANCE

A. Underwriters' Laboratories (UL): System shall be in accordance with Section 26 00 10.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1. Shop drawings submitted for approval shall contain the following minimum information:

a. Complete descriptive data indicating UL listings for all system components.
b. Complete system wiring diagrams.

Part 2. - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Acceptable Manufacturers: All structured media equipment shall be of one manufacturer as follows:

1. Leviton
2. OnQ Technologies
3. ICC

Part 3. - EXECUTION

3.1 GENERAL REQUIREMENTS

A. The Contractor shall provide a complete and fully functional structured media system, consisting of equipment from one manufacturer and including all required installation components.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

B. The Contractor shall fully test the completed structured media system in the presence of the Owner's representative. The Contractor shall certify the completion of a successful test in writing to the Owner and the General Contractor.

C. The Contractor shall instruct the Owner's representative in the correct operation of the structured media system.

D. The Contractor shall warrant the completed structured media system wiring and equipment to be free from mechanical and electrical defects for a period of one year from date of turnover.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. The complete installation shall conform to local codes and the National Electrical Code (NEC).

B. All wiring shall be installed according to the local Utility's recommendations. The Contractor shall provide RG6 coax cable. All coax installed within plenum spaces shall be teflon coated.

C. The Owner shall provide a CATV switching system near the main entrance backboard. The Contractor shall coordinate routing of cables and placement of all termination blocks to properly connect to the CATV switch.

1.2 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

Part 2. – PRODUCTS

N/A

Part 3. - EXECUTION

3.1 GENERAL REQUIREMENTS

A. The Electrical Contractor shall provide a complete and fully functional interior CATV system, including all required wiring, splitters, termination blocks, backboxes, mudrings, outlets and jacks.

B. The Contractor shall provide a 3/4" plywood backboard of sufficient size for Contractor and Utility use. Contractor shall paint the backboard with a grey, fire retardant paint prior to all equipment installation.

C. Contractor shall provide an exterior, weatherproof, lockable enclosure of sufficient size for Contractor and utility use.

D. The Contractor shall provide separate 4'x8'x3/4" plywood backboards in all remote Voice/Data rooms for Contractor and Utility use. Contractor shall paint backboard with a grey, fire retardant paint prior to all equipment installation.

E. CATV outlets shall be supported by a single gang mudring nailed to a wall stud surface.

F. The local Utility shall provide system entrance CATV cable to a main entrance backboard provided by the Contractor as specified in this Section.

G. Contractor shall provide cable connections between the main entrance backboard and each remote Voice/Data room.

H. Contractor shall provide jacks for all CATV outlets.

I. Contractor shall provide coverplates to match wiring device plates for all CATV outlets.

J. The Contractor shall provide two CATV cables from a backboard to the structured media center within each unit. Provide separate dedicated cables from the structured media center to each CATV outlet within unit.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

K. The Contractor shall provide one CATV cable from a CATV backboard to each CATV outlet located within common areas.

L. The Electrical Contractor shall make final terminations at blocks and jacks.

M. Sufficient lengths shall be provided at both ends of each CATV cable to allow for outlet installation and termination by the Contractor.

N. Contractor shall test each cable and certify. Provide 3-ring binder with certification to the Owner prior to installation of Owner's equipment.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. The complete installation shall conform to local codes and the National Electric Code (NEC). Each item of the system shall bear the UL label.

B. Provide a complete and fully functional access control system intercom, consisting of equipment from one manufacturer cabling and all required installations and components.

C. Contractor shall provide all cables required for a complete and functional system.

D. All electric strike or door contact power shall be 24 volt dc.

E. All wiring shall be installed according to the manufacturer's recommendations.

F. Wiring shall be checked to insure that it is free from shorts and grounds. All wiring shall be copper. Minimum wiring size shall be #22 gauge. Wire shall be UL type CL2, approved for access control system installation.

G. Provide surge protection on power, LAN and RS485 serving entry unit. Protection shall meet manufacturer recommendations.

H. Provide postal lock option to allow for mail delivery.

1.2 QUALITY ASSURANCE

A. Underwriters' Laboratories (UL): System shall be in accordance with Section 26 00 10.

1.3 SUBMITTALS

A. Shop Drawings: Provide shop drawings in accordance with Section 26 00 10.

1. Shop Drawings submitted for approval shall contain the following minimum information:

   a. Complete sequence of operations for the system.
   b. Complete system wiring diagrams.
   c. Data cut sheet for each item of equipment.

Part 2. - PRODUCTS

2.1 PRODUCTS

A. The following components shall be provided where shown on the Drawings (Jeron model numbers are used to set the minimum standard of material and equipment).

1. Lobby backbox. Jeron #3160.
2. Lobby flush-mounted frame. Jeron #3150.
3. Lobby speaker pushbutton panel. Jeron #3003.
4. Lobby directory panel. Jeron #3018.
5. Lobby door release mechanism. Jeron #8109.
6. System control amplifier. Jeron #5025.
7. System power transformer. Jeron #8011.
8. Apartment panel. Jeron #2001.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

B. Individual apartment panels shall be white in color with talk-listen-door pushbuttons. Lobby entrance equipment shall be medium bronze anodized aluminum with sufficient solid metal pushbuttons for all individual apartment connections.

C. Acceptable Manufacturers:

1. Aiphone
2. Couch
3. Jeron
4. Florence

Part 3. - EXECUTION

3.1 INSTALLATION

A. All wiring shall be installed according to the manufacturer's recommendations.

B. Wiring shall be checked to insure that it is free from shorts and grounds. All wiring shall be copper. Minimum wiring size shall be #22 gauge. Wire shall be UL type CL2, approved for access control system installation. All wire size shall be adjusted for volt drop based on field routing.

C. Apartment panels shall be mounted 44" from top panel A.F.F.

3.2 TESTING

A. The contractor shall fully test the completed access control system in the presence of the Owner's representative. The Contractor shall certify the completion of a successful test in writing to the Owner and the General Contractor.

3.3 WARRANTY

A. The Contractor shall warranty the completed access control system wiring and equipment to be free from mechanical and electrical defects for a period of one year from the date of turn over.

3.4 TRAINING

A. The Contractor shall instruct the Owner's personnel in the correct operation of the access control system.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 GENERAL REQUIREMENTS

A. The complete installation shall conform to local codes and the National Electric Code (NEC).

B. The following devices shall be provided (model numbers are provided for cross referencing):

1. Interior mini dome camera, color. TV1-HD Mega Pixel Varifocal Lens. Avycon VA92VLT.
2. Exterior weatherproof "bullet style" camera. Day/Night Varifocal lens. Panasonic WV-CW314L
3. CCTV power supply, 24 vac, 8 or 16 individually fused outputs, 300 watt (8 camera) 600 watt (16 camera) Altronix #TV248-300 or #TV2416-600.
4. DVR, MPEG-4 or H.264 compression, D1 resolution capable. Panasonic HD Series
5. VGA monitor, 1024x768 resolution. Viewz VZ185LEDE.
6. UPS, 300 watt. Minuteman EN-600.

C. All wiring shall be installed according to the manufacturer's recommendations.

D. Wiring shall be checked to insure that it is free from shorts and grounds.

1.2 QUALITY ASSURANCE

A. Underwriters' Laboratories (UL): System shall be in accordance with Section 26 00 10.

1.3 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1. Shop Drawings submitted for approval shall contain the following minimum information:

a. Complete descriptive data indicating UL listings for all system components.
b. Complete sequence of operations for the system.
c. Complete system wiring diagrams.

1.4 SYSTEM OPERATION

A. The digital recorder shall record all cameras in a combination of time lapse and motion triggered recording.

B. Provide setup and training.

C. Digital Video Management System requires 30 days of recording at 7.5 frames per second (minimum of 1 TB).

D. The following display features of the digital video management system shall be operable from the main screen.

1. Lights shall indicate unit operation.
2. Screen controls shall select individual cameras for viewing.
3. A screen control shall select the alarm review function.
4. A screen control shall control playback direction and speed.
5. A Go To playback control shall permit selection of any point in a video segment.
6. Screen controls shall select the display format of one, four, nine or 16 cameras.
7. A screen control shall display device status information.
8. A screen control shall display cameras sequentially.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

E. The system equipment and installation shall comply with all provisions and requirements of this specification as well as any and all applicable national, state and local codes and standards.

1.5 QUALITY ASSURANCE

A. Installer's qualifications: Firms experienced in installation or application of similar systems, including the following:

1. Licensed by specified manufacturer.
2. Not less than three years' experience with installation of identical or similar product.

B. All equipment shall be new, in current production and the standard products of one acceptable manufacturer.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Panasonic
B. Nuvico
C. See Fire Alarm Specification.

2.2 SYSTEM CAMERA DESCRIPTION

A. Interior Cameras:

1. The camera shall incorporate 1920Hx1080V pixels effective. The camera shall display 1080P lines of horizontal resolution in Color and Black White Mode, and a S/N ratio of 52dB with AGC off condition.
2. The camera shall feature Adaptive Black Stretch to transform shadows and dark areas into natural and crisp images in real time.
3. The cameras shall feature 3.6x variable focal lens with a focal length of 2.8-12mm built in Varifocal auto iris lens. The cameras shall have following a view angle.

B. Exterior Cameras

1. The Weather Resistant Day/Night Fixed Camera with IR LED shall be a fixed color camera, 568,000 [1920 (H) x 1080 (V)] pixels effective, displaying outstanding 650 TV lines (typ.) horizontal resolution and S/N ratio of 52dB.
2. The camera shall have day/night (IR) function.
3. The camera shall feature digital back light compensation (BLC).
4. The camera shall feature adjustment of ALC/ALC+ELC and Auto Gain Control (AGC).
5. The camera shall feature ABS (Adaptive Black Stretch) to enhance visibility of dark area without degrading image quality in bright area.
6. The camera shall feature ABF (Auto Back Focus) to ensure easy installation.
7. The camera shall feature 2.8 ~ 12 mm Varifocal Auto Iris lens.
8. The camera shall feature lens distortion correction.
9. The camera shall have image transmission distance 1200m over coaxial cable (5C-2V or equivalent) with matrix switcher Model WJ-SX650, Model WJ-SX850 or data multiplex unit Model WJ-MP204C.
10. The camera shall feature water and dust resistance of IP66 (IEC60529 measuring standard compatible).

2.3 16 CHANNEL DIGITAL VIDEO RECORDER (DIGITAL DISK RECORDER)

A. Include a 4-16 channel triplex video multiplexer capable of performing encoding, recording and multi-screen viewing modes simultaneously. Provide 4-16 channels of live, simultaneous video images in which all 16 channels are refreshed at 240 images per second.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

B. Each of the Security System PCs shall include direct access to each Digital Video Recorders via Microsoft Internet Explorer Web Browser. All necessary descriptive bookmarks and shortcuts shall be prepared on each workstation to allow this direct access. All functions shall be accessible through html commands from a user's web browser interface. Pictures shall be available for attachment via a user-provided SMTP-based email transport system, and include capability for 8 users.

C. The unit shall be controlled with a mouse. All DVR settings and camera settings which are connected to DVR are controlled via a mouse port which is located in the front panel.

D. If there is any alteration to images copied from DVR to Personal Computer, the downloadable viewer software shall provide detection.

E. Playback of recorded audio information over a maximum of four channels shall be available using the downloadable viewer software.

F. Include 1920(H) x 1080(V) (Pixel Memory) sampling and 3D scan conversion to enable jitter-free stabilized pictures in a single frame. Include minimum M1TG memory.

G. Compression shall be provided at Extra Fine, Super Fine, Fine, Normal and Extended modes.

H. Each camera shall support individual Recording Rate and Image Quality settings for each of Emergency, Event, Schedule and Manual Recording Modes. This array of Camera Recording Rate and Image Quality settings by the Recording Modes shall form one of Program Actions. The Program Action shall be assignable to a Time Table to form one of Independent Recording Profiles. Each Recording Profile shall be able to be manually activated, activated via RS-232C interface, automatically activated by Time Table, or activated by separate alarm or emergency inputs.

I. 4X digital zoom features shall also be included with the digital video recorder.

J. The digital video recorder shall feature dynamic alarm recording.

K. The following recording modes shall be available.

1. Emergency recording mode: Recording that is performed manually using an external switch, etc. when an emergency occurs
2. Manual rec. operation mode: Recording that is started and stopped manually.
3. Schedule recording mode: Recording that is automatically performed at the designated time range on the designated day(s) of the week.
4. Event recording mode: Recording that is automatically performed at an event occurrence (by motion).

L. The following Search Filter shall be available

1. Time & date: Search for images recorded in a time range designated by selecting the start time and the end time.
2. Event: Search for images recorded by the selected recording mode only.

   · Recording mode/Event: Manual, Schedule, Emergency, Video Loss, Terminal, Command, VMD, Site alarm.

3. Camera: Search for images recorded using the selected camera channels only.

M. Permit direct camera selection for recording playback of any of 16 video sources at the same time as multi-screen viewing and multiplexed camera encoding.

N. Built-in programmable switcher with dwell time and camera order programming.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

O. The unit shall automatically switch multiple camera images to enable sequential spot monitoring and simultaneous field recording.

P. The unit shall have HDMI output (x2) and shall offer 1920 x 1080/06i output which can provide 1, 4, 7, 8, 9, 12 and 16 multi-screen monitoring modes.

Q. The unit shall offer full screen, 4, 7, 8, 9, 10, 12 and 16 multi-screen monitoring modes via HDMI and BNC output.

R. Camera functions and control shall be accessible for sixteen (16) cameras on the Model WJ-HD616 itself without optional equipment. The multiplexer shall furnish access to all camera control, set-up and alarm functions, including preset sort and sequence, Super Dynamic activation, digital motion detector mask set, electronic sensitivity up and back light compensation set-up. Controllable camera functions shall be accessible via front panel controls or the optional system controller.

S. Cameras connected to the digital video recorder shall feature cable compensation up to 3000' with no loss of video or control signal degradation when using RG59U cable, Belden 9259 or equivalent.

T. Furnish 16 looping outputs for connection of all video sources to external monitoring systems.

U. Mounting: unit to be rack-mountable with included hardware and shall occupy (3) EIA rack height units per module. DVR Main and expansion modules shall occupy the same rack height.

END

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

Part 1. - GENERAL

1.1 SUMMARY

A. Section Includes: Provide an electrically double supervised closed circuit, temporal code sounding fire alarm system wherever required by the Drawings and Specifications.

1. Provide a complete and fully functional addressable fire detection and alarm system, consisting of equipment from one manufacturer and including all required wiring, conduit, j-boxes and outlet boxes. Equipment shall consist of factory assembled components, with warranties and guarantees as specified.
2. Fire alarm system shall be an addressable operation/analog detection type, electrically supervised, temporal code sounding with individual devices. Devices shall include but not be limited to alarm initiating devices, alarm notification devices, control panels, auxiliary control devices (including sprinkler zones) and power supplies.

1.2 PERMITS AND FEES

A. General Requirements: All permits, fees, bonds and drawings required by local and/or state fire marshal or Code Authorities shall be the responsibility of this Contractor and included as a part of this Contract.

1.3 REFERENCES

A. General Requirements:

1. The complete installation shall conform to the applicable sections of the International Fire Code (IFC), NFPA-72, local codes and the National Electric Code (NEC). Each item of the system shall meet the UL label. All control equipment shall be listed under the UL category “UOJZ” as a single control unit; partial listings will not be accepted. Smoke detector shall be approved under UL 268 and shall be UL listed for Power Limited Applications per NEC 760-23.
2. Control equipment shall contain transient protection devices in accordance with the UL864 requirements.

1.4 QUALITY ASSURANCE

A. Underwriters’ Laboratories (UL): Devices shall be in accordance with Section 26 00 10.

1.5 VENDOR QUALIFICATIONS

A. General Requirements: The Manufacturer shall have a minimum of ten years experience in fire detection systems and shall employ factory trained, NICET II certified technicians. Installation shall be supervised by an employee with a NICET Level III certification or better. Provide evidence of certification with submittals.

1.6 COMPATIBILITY OF EQUIPMENT

A. General Requirements: Contractor shall have full responsibility for component parts of fire alarm system to ensure that equipment will perform and operate in accordance with requirements of Specifications without excessive or unusual service or maintenance requirements. All equipment shall be the product of a single manufacturer.

1. It is Contractor's responsibility to determine that changes in physical dimensions, access for maintenance, and connections for substitute equipment are acceptable in space provided for equipment and that performance characteristics are at least equal to base specification for equipment utilized from substitutes listed.
2. Increased costs to provide additions or revisions to equipment required by substitute equipment shall be

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

sole responsibility of this Contractor.

1.7 SYSTEM FUNCTION

A. General Alarm: A general alarm in the building shall initiate the following:

1. Alarm all common area horns and strobes.
2. Alarm all residential unit horns and strobes.
3. Release all magnetic door holders.
4. Release all secured exit door locks to fail in the open position.
5. Release all fire shutters.

B. Air Handler Shutdown: Activation of a duct detector shall cause its associated air handler to shut down immediately. Detector reset shall allow motor to restart automatically.

C. Elevator Recall:

1. Activation of an elevator detector shall initiate the following:

   a. Base building general alarm.
   b. Signal elevator equipment for elevator recall.
   c. Release door holders at the elevator door in the immediate vicinity.
   d. Close smoke/fire dampers at elevator machine room (activated detector must be on same floor as machine room).

2. Activation of the elevator equipment room smoke detector shall signal elevator equipment for machine room fire annunciation.
3. Detectors shall only be reset by manual operation at the Main Control Panel.

D. Smoke and Smoke/Fire Damper**:**

1. Activation of any smoke or smoke/fire damper detector shall initiate the following:

   a. Base building general alarm.
   b. Close all smoke and smoke/fire dampers.
   c. Immediate shut down of associated air handling equipment.

2. System reset shall allow air handling equipment to restart automatically.

E. Carbon Monoxide Detector: Activation of detector shall initiate supervisory alarm at Control Panel.

F. Notification Appliances**:**

1. All audible notification devices shall sound a synchronous temporal tone until signal silence. All visible notification devices shall flash in a synchronous one Hz pattern until system is reset.
2. Provide strobes with sufficient light output (candela) as required by code. Contractor shall provide strobes as required for room size and spacing requirements to meet code.

G. Magnetic Door Holders: Magnetic door holders shall release upon the following condition:

1. Base building alarm.
2. Local smoke detector on either side of door in alarm.
3. Thirty seconds after loss of 120 volt power.

H. System Power: The Main Control Panel shall include standby batteries with charger, sufficient to power the system per NFPA-72 requirements. Provide 24-hour minimum backup.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

1.8 WIRING REQUIREMENTS

A. General Requirements:

1. Drawings indicate fire alarm devices required. Number and size of conductors shall be provided per the fire alarm system manufacturer's recommendations with a maximum loading of 70% of circuit capacity.
2. Horns/strobes and strobes shall be wired for synchronized temporal sounding Class B wiring. Wiring shall be tagged and checked to ensure that it is free from shorts and grounds. All wiring shall be solid copper. Minimum wire size shall be #18 AWG for IDC "Zones" (Initiating Device Circuits), #14 AWG for NAC (Notification Device Circuits) and control circuits. All 120 volt circuits shall be #12 AWG.
3. All wiring shall be concealed. Where required by Code, all wiring shall be installed in a separate conduit system.
4. Wires in junction boxes and cabinets shall be neatly trained, tagged, and identified. Cabinets shall have red painted exteriors and markings as "FIRE ALARM SYSTEM". All junction box covers shall be spray painted red and labeled "Fire Alarm". All wiring shall be UL classified, type FPL, or FPLP. All wiring installed within plenum spaces shall be teflon coated.
5. A color-coded wiring system shall be maintained throughout the installation.
6. Connections to devices provided by others shall be coordinated with the installing contractor.

1.9 SUBMITTALS

A. Shop Drawings: Provide Shop Drawings in accordance with Section 26 00 10.

1. Shop Drawings submitted for approval shall contain the following minimum information.

   a. Complete sequence of operations.
   b. Complete custom system wiring diagram, showing a riser diagram on the building floor plan backgrounds, including all components capable of being connected to the system and interfaces to equipment supplied by others. Indicate on plans all initiating device circuits and alarm indicating appliance circuits.
   c. Complete battery and signal load calculations.
   d. Copy of project supervisor's NICET III certification.

B. Shop Drawings shall be submitted to the Local Code Authority by the Contractor for review and approval prior to installation.

1.10 WARRANTY

A. The Contractor shall guarantee all materials and equipment to be free of defects that may develop in any part of their work, caused by faulty workmanship, material or equipment failures, for a minimum of one year from the date of final completion of the Project or for as long as normal equipment manufacturer warranties are in effect from the date of Owner acceptance of the Project, whichever is later.

B. During the warranty period, notification by letter, personal contact or telephone conversation of a problem with any electrical system, shall cause the Contractor to respond within one week, making repairs or corrections as necessary. After all repairs and corrections are complete, the Contractor shall notify the Engineer.

C. The Contractor shall agree to provide 24 hour service on call for emergency during warranty period.

1.11 MAINTENANCE CONTRACT

A. Maintenance Contract: The equipment manufacturer shall provide the Owner with a three year service contract to provide a minimum of two inspections and tests per year in compliance with NFPA-72 testing requirements, as well as all repairs not due to damage caused by vandalism or Acts of God. This contract shall commence upon expiration of the warranty.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

1.12 TRAINING

A. Training: The equipment manufacturer shall provide the Owner with a minimum of two hours system operation training. The time and date of training shall be determined by the Owner.

1.13 MONITORING

A. General Requirements: Provide first year of Central Station Monitoring during warranty period at no additional cost to Owner. Owner shall provide for Central Station Monitoring after warranty period. Include all costs to install the Serial Digital Alarm Communication Transmitter (SDACT) including programming and initial test.

Part 2. - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: All equipment shall be as follows (Mircom catalog numbers are used to set the minimum standard for material and equipment):

1. EST, #i064
2. Gamewell/FCI, #FCI E3
3. Mircom, #FX-2000/FX-351
4. Notifier, #NFS2-640
5. Siemens
6. Simplex

2.2 CONTROL/POWER EQUIPMENT

A. General Requirements**:** The following devices shall be provided where shown on the Drawings or as required.

1. Main Control Panel, with SDACT. Mircom FX-351 series.
2. Remote LCD Annunciator, recessed. Mircom Ram-300 Series.
3. Remote Signal Power Supply. Mircom BPS-802 Series.
4. IAM Module. Microm Addressable input Module MIX-100P Series.
5. IAM Module. Microm Addressable output Module MIX-100 Series.

2.3 DETECTION EQUIPMENT

A. General Requirements**:** The following devices shall be provided where shown on the Drawings:

1. Manual Pull Station. Mircom MS-701 Series..
2. Smoke Detector, common areas. Mircom MIX-3100 Series.
3. Smoke Detector, duct. Microm DH-3000 Series.
4. Residential Smoke Detector with integral piezo horn (photoelectric/ionic, 120 volt, 9 volt dc battery backup). Kiddie #PI2010.
5. Residential Smoke Detector, handicapped and hearing impaired units with integral 177cd strobe and piezo horn (photoelectric, 120 volt, 9 volt dc battery backup, auxiliary form-A relay, auxiliary form-C relay, remote strobe capability). Gentex #7109CSX.
6. Residential Combination Smoke/Carbon Monoxide Detector (photoelectric/ionic, 9 volt dc battery back up, auxiliary form-A relay, auxiliary form-C relay). Gentex #GN-503F.
7. Residential Carbon Monoxide Detector with integral piezo horn (9 volt dc battery backup, auxiliary Form-A relay, auxiliary form-C relay). Gentex #CO1209F.
8. Heat Detector, common areas (135°F FT, programmable from 135°F to 155°F). Mircom MIX-3300 Series.
9. Heat Detector, elevator shunt trip (135° F FT). Mircom MIX-3300 Series.
10. Carbon monoxide detector. Mircom PRO-2000 Series

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

2.4 NOTIFICATION EQUIPMENT

A. General Requirements**:** The following devices shall be provided where shown on Drawings.

1. Horn/Strobe, common areas. Gentex GEC 3 Series synchronous flash (15/30/75/110cd).
2. Low frequency Sounder/Strobe, sleeping areas. System Sensor #P2WH-LF synchronous flash (135/177/185cd).
3. Strobe, common areas. Gentex GES 3 Series synchronous flash (135/177/185cd).
4. Strobe, sleeping rooms. Gentex GES 3 Series synchronous flash (135/177/185cd).
5. Residential Remote Strobe, 120 volt. Gentex #GXS-120177.
6. Horn common areas. Gentex GEH Series.
7. Horn, sleeping areas. Gentex GEH Series.
8. Low frequency Sounder, sleeping areas. Gentex GHLFW.
9. Sounder Base. Mircom B200SR Series.
10. Carbon monoxide detector base, with sounder base. Mircom PRO-2000 Series.
11. Weatherproof Horn/Strobe. Gentex WGEC Series.
12. Pull Station Local Alarm/Cover. Safety Technology International #STI-1100.

B. Audio and audio/visual devices located in finished areas shall be white.

2.5 DOOR HOLDERS

A. General Requirements**:** The following devices shall be provided where shown on the Drawings.

1. Magnetic Door Holder (24VDC). Mircom DH24120 Series.

2.6 SMOKE AND SMOKE/FIRE DAMPERS

A. General Requirements**:** The following devices and connections shall be provided where shown on the Drawings.

1. Provide smoke detectors and/or relays as required to close smoke and smoke/fire dampers in accordance with one or more of the applicable methods listed in the International Building Code (IBC). Methods used shall be approved by the Local Code Authorities prior to installation.
2. Provide 120 volt circuit(s) to smoke and smoke/fire damper(s) from dedicated 20/1 breaker(s) in the mechanical/electrical room panel. Provide locking device on breaker(s).

2.7 ELEVATOR STATUS AND ALARM

A. Elevator Status and Alarm:

1. Provide monitoring relay on the feeder to the shunt trip breaker or fused disconnect. Connect to the Main Control Panel for a trouble alarm upon loss of power.
2. Provide an annunciator zone to monitor the elevator equipment room and elevator pit smoke and/or heat detectors. Connect to elevator controller per manufacturer's requirements.

2.8 DUCT SMOKE DETECTORS

A. Duct Smoke Detectors:

1. All roof mounted HVAC equipment containing duct smoke detectors shall be marked with signage that is plainly legible and easily read from the roof access point. Signage shall be a unit number identification that is included on zone maps. The HVAC equipment access doors shall also be signed to indicate the location of the duct smoke detector. Zone map shall show location of HVAC equipment, corresponding unit number, location of duct detector and location of remote indicator.
2. Provide remote indicators for duct smoke detectors located above ceiling tile, out of sight or in areas requiring special means of access. Remote indicators shall be located directly below the HVAC equipment location, within five feet horizontally.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

3. Duct smoke detectors shall report as a trouble signal and shall be resettable at the Main Control Panel.
4. Provide manufacturer's specification sheet showing that detector is listed for ambient temperatures associated with mounting and sensing location.

2.9 REMOTE SIGNAL POWER SUPPLY EQUIPMENT

A. General Requirements: Provide remote signal power supplies as required. These power supplies shall be connected to a 120 volt unswitched power circuit and be complete with standby batteries and battery charger. Power supplies shall be located throughout building as required to properly power system. Coordinate exact locations with Architect prior to installation.

Part 3. - EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Provide all wiring, conduit, junction boxes and outlet boxes required for installation of a complete system.
2. Each alarm initiating device shall be a separate alarm point on the system. In an alarm condition, the alarming device shall be indicated on an alpha-numeric display at the Main Control Panel and the Remote Annunciator.
3. Provide all wiring, conduit, junction boxes and outlet boxes required for installation of a complete system.
4. Smoke detectors shall be installed at least 3 feet beyond the edge of all ceiling fans.
5. Interconnect all residential smoke detectors within a unit in tandem, so that all detectors alarm whenever one detector alarms.
6. Provide residential smoke detectors with integral 177cd strobes in all handicapped and hearing impaired units. Refer to Architectural Plans for location and quantities of all handicapped units and hearing impaired units, with locations selected by Architect prior to construction. For bidding purposes, assume hearing impaired units are located at the furthest distance from the Main Control Panel.
7. Provide equipment and connections required to monitor all flow switches, tamper switches and air pressure switches, provided by the Sprinkler Contractor. Coordination Note.
8. Provide 24 volt DC connection from the Main Control Panel to the domestic water service solenoid valve. Valve shall close upon sprinkler system water flow.
9. Provide heat detector(s) within 24 inches of sprinkler head(s) located within elevator pit(s), if sprinklered. Connect to shunt trip breaker.
10. Provide heat detector(s) within elevator equipment room(s). Connect to shunt trip breaker.
11. Provide smoke detectors within five feet of all elevator doors and in elevator equipment rooms for elevator recall.
12. Smoke detectors shall be located a minimum of 36" from the outside edge of mechanical diffusers. Coordinate with Mechanical Contractor. Provide additional detectors as required to maintain Code required coverage between detectors.
13. Provide control for each elevator relief damper. Control shall consist of a switch, keyed to the local fire department's master key, located adjacent to the main level elevator door that opens the damper when turned. Provide an amber lamp adjacent to switch those lights when damper is open. Contractor shall provide 120 volt power to the damper release mechanism and end switch.
14. Provide two RJ-31X telephone jacks adjacent to the Main Control Panel for connection to the SDACT. Provide ¾-inch conduit with dual telephone lines between the Main Control Panel and telephone backboard for Central Station interconnection.
15. Devices shall be mounted at the following heights, unless noted otherwise. Distances shall be measure to center of devices from finished floor.

    a. Detectors ceiling
    b. Horn/Strobes 84"
    c. Pull Station 42"

16. Main Control Panel and Remote Annunciator(s) shall be flush mounted at a location approved by the Local Fire Marshal.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.
DATE: 06/28/18
BLD #: BLD17-00688

17. Circuits used for life-safety systems shall be provided with tamper devices (circuit breaker lock).
18. Contractor shall review Architectural Drawings prior to bid and include connection and control of additional door holders not shown on the Electrical Drawings.
19. At exit doors, interconnect electric strikes and magnetic locks to release upon alarm.

3.2 TESTS AND INSPECTION

A. General Requirements: As a part of this Contract, provide periodic system testing to NFPA and local authority requirements, including all documentation. Within one week of the end of the warranty period, perform an additional annual test and replace all equipment not meeting acceptance criteria. Replaced elements shall be documented and documentation shall be provided to Owner.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 32 23 - SEGMENTAL RETAINING WALLS

PART 1 - GENERAL

1.01 Section Includes:

A. Work includes designing, furnishing and installing concrete modular block retaining wall units to the lines and grades designated on the Construction Drawings and as specified herein. The retaining walls are to be designed and certified by a registered engineer in Kansas.

1.02 Applicable Sections of Related Work

A. Section 02 20 00 - Earthwork

1.03 Reference Standards

A. ASTM C90-75 (1981 rev) - Hollow Load Bearing Masonry Units

B. ASTM C140-75 (1981 rev) - Sampling and Testing Concrete Masonry Units

C. ASTM C145-75 (1981 rev) - Solid Load Bearing Concrete Masonry Units

1.04 Delivery, Storage, and Handling

A. Contractor shall check the materials upon delivery to assure that proper material has been received.

B. Contractor shall prevent excessive mud, wet cement, epoxy, and like materials which may affix themselves, from coming in contact with the materials.

C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated into the retaining wall system.

1.05 Submittals

A. Samples of all products used in the work of this Section.

PART 2 - PRODUCTS

2.01 Concrete Units

A. High strength density concrete units, freeze-thaw resistant with rear alignment flange providing a 1-1/8” setback from plane with each course, Anchor Diamond Pro Straight Face Retaining Wall Units as manufactured by Anchor Wall Systems; Versa-Lok solid retaining wall system with interlocking pins, Rockwood Classic 8, Keystone Retaining Wall Systems, Allan Block AB Classic, or prior approved substitution.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Concrete Units (continued)

B. Concrete wall units shall have a minimum 28 day compressive strength of 3,000 psi in accordance with ASTM C-90. The concrete shall have adequate freeze/thaw protection with a maximum moisture absorption rate of 6%.

C. Retaining wall units shall provide a minimum of 100 psf of wall face area. Fill, which is contained within the dimensions of the units may be considered as 80% effective weight.

D. Exterior face shall be split face or rock face. Color as selected required by the Owner.

E. The units shall be positively interlocked.

2.02 Base Material

A. Material for footing shall consist of compacted sands, gravel and/or concrete as shown on the Construction Drawings. A minimum of 6" of compacted base is required.

2.03 Unit Fill

A. Fill between units shall consist of free-draining, granular fill. Gradation shall include material with fines limited to 5% passing the #200 sieve and less than 50% passing the #40 sieve.

B. A minimum of 6" of drainage fill must extend behind the wall to within 1' of final grade. Cap backfill with impervious material.

2.04 Backfill

A. Material shall be native material unless otherwise specified in the Drawings. Unsuitable soils for backfill shall not be used within the reinforced soil mass when using geogrid for tiebacks.

B. Where additional fill is required, Contractor shall submit sample and Specifications to the Engineer to determine if acceptable.

PART 3 - EXECUTION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the Construction Drawings. Over-excavation shall not be paid for and replacement with compacted fill and/or wall system components will be required at the Contractor's expense. Contractor shall be careful not to disturb base beyond the lines shown.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 32 23 - SEGMENTAL RETAINING WALLS

3.02 Foundation Soil Preparation

A. Foundation soil shall be excavated as required for footing or base dimensions shown on the Construction Drawings, or as directed by the Engineer.

B. Foundation soil shall be examined by the Engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable material.

C. Over-excavated areas shall be filled with compacted backfill material.

3.03 Base

A. Base shall be placed as shown on the Construction Drawings with a minimum thickness of 6".

B. Base materials shall be installed upon undisturbed native soils.

C. Material shall be compacted so as to provide a level, hard surface on which to place the first course of units. Compaction will be with mechanical plate compactors to 95% of standard proctor.

D. Base shall be prepared to ensure complete contact of retaining wall unit with base. Gaps shall not be allowed.

E. Base materials shall be to the depths and widths shown. Contractor may opt for using reduced depth of sands and gravel and a 1" to 2" concrete topping. Concrete shall be lean, un-reinforced and a maximum of 2" thick. Where a reinforced footing is required, place below frost line.

3.04 Unit Installation

A. First course of concrete wall units shall be placed on the prepared base. The units shall be checked for level and alignment. The first course is the most important to ensure accurate and acceptable results.

B. Ensure that units are in full contact with base.

C. Units are placed end to end for full length of wall alignment. Alignment shall be done by using a string line or offset from a base line. Contractor shall follow manufacturer's installation instructions when making radius curves.

D. Compact fill.

E. Sweep all excess material from the top of the units and install next course. Fill all voids.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 32 23 - SEGMENTAL RETAINING WALLS

3.04 Unit Installation (continued)

F. Lay up each course making sure that the lip of the unit is placed against the back of the succeeding course. Pull unit forward as far as possible. Backfill and compact soil behind the units. Repeat procedure to the extent of wall height.

G. Geogrid - If geogrid is to be installed as tiebacks, follow the additional requirements of Section 02 20 00 - Soil Stabilization.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 80 00 - IRRIGATION

PART 1 - GENERAL

1.01 Scope of Work

A. The Work contemplated by these specifications consists of the provision of labor, materials, equipment, and supplies necessary for and reasonably incidental to the construction of an irrigation system for all sod, seed, and landscaped areas. Refer to Mechanical Drawings and Specifications for additional requirements.

1.02 Submittals

A. Submit Shop Drawings, manufacturer's technical data, and installation instructions for the irrigation system.

B. Submit reference list of similar systems installed in the metro area by the Contractor bidding.

1.03 Site Location

A. The site is located at Johnston, Iowa.

1.04 Examination of the Site

A. The Contractor acknowledges that he has examined the site, and the submission of his proposal shall be considered evidence that the examination has been made.

1.05 Quality Assurance

A. Applicable requirements of respective standards and codes specified herein apply to work.

1. American Society for Testing and Materials (ASTM).
2. National Electrical Code (NEC).
3. National Sanitary Foundation (NSF).

1.06 Conduct of Work

A. The Contractor shall maintain skilled journeymen on the job during progress, together with a competent superintendent who has the authority to act in all matters pertaining to the Work.

B. The Contractor shall coordinate his Work with the other trades, in particular landscape construction.

C. The Contractor shall confine his operations to the areas allotted him for materials and equipment storage.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 80 00 - IRRIGATION

1.07 Contractor's Responsibility

A. The Contractor shall be responsible for his Work and every part thereof and for all materials, tools, and property of every description used in connection therewith. The Contractor shall protect the Owner against all liabilities, claims, or demands for injuries or damages to any persons or property growing out of the performance of the Work under this Contract, except such liability, claims, or demands for injuries or damages resulting from acts or failure to act by the Owner.

1.08 Codes and Inspections

A. The entire installation shall fully comply with all local and state laws and ordinances, and with all the established codes applicable thereto. The Contractor shall take out all required permits, arrange for all necessary inspections and shall pay any fees and expenses in conjunction with the same as part of the Work under this Contract.

1.09 Cleaning Premises

A. The Contractor shall at all times keep the premises on which the Work is being done, and the adjoining premises, clean of rubbish caused by his Work.

B. Upon completion of the job, the Contractor shall clean up all debris caused by his Work and leave the job in a neat and clean condition. All debris will be removed from the site by the Contractor.

PART 2 - MATERIALS

2.01 Pipe

A. All pipe 2" diameter or larger and all pipe under constant pressure shall be virgin, high impact, polyvinyl chloride (PVC) pipe having a Minimum 160 PSI Working Pressure Rating. The PVC pipe shall conform to ASTM Standards D2241 and D2672 or the latest revisions. All PVC pipe shall be continuously and permanently marked with the manufacturer's name, material, size and schedule.

B. PVC pipe fittings shall be constructed of Schedule 40 PVC and it shall be joined to the pipe by solvent welding.

C. All pipe 1½" diameter or smaller and all pipe used for lateral lines not under constant pressure shall be flexible, non-toxic, 100% virgin polyethylene pipe material meeting NSF Standards for use in pressure potable water applications. All sizes shall have a Minimum 100 PSI Working Pressure Rating. The polyethylene pipe shall conform to ASTM Standards D2239 and D1248 or the latest revisions. All polyethylene pipe shall be continuously and permanently marked with the manufacturer's name, material, size, and schedule.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Pipe (continued)

D. Polyethylene pipe fittings shall be plastic type PVC or nylon insert fittings and/or brass saddle tees. All joints shall be clamped with all stainless steel clamps. All 1 3" and larger joints shall be double clamped.

2.02 Automatic Controller - located in Mechanical Room at lower level.

A. Manufacturer - Toro, Rainbird, Weathermatic.

B. Provide a controller that will take a 120 volt AC input and transform it to a 24 volt AC output to the remote control valves.

C. The controller shall have a locking cover with an enclosure complying with NFPA 70.

D. The controller shall operate automatically, semi-automatically or manually at the discrett ion of the operator. It shall have independently controlled station timing for 0-60 minutes. It shall have a 14 day water cycle.

E. The controller shall have a circuit breaker and a master on-off switch, with a battery back-up for all computer programmed models.

2.03 Remote Control Valves

A. Manufacturer: Toro, Rainbird, Weathermatic.

B. The remote control valves shall have a globe or angle configuration controlled by a 24 volt solenoid. It shall be an electric normally closed model with manual control operation at the valve.

2.04 Sprinkler Heads

A. Manufacturer: Toro, Rainbird, Weathermatic, or Hunter.

B. Manufacturer's standard unit designed to provide uniform coverage over entire area to be irrigated.

C. Bubbler: Fixed pattern with screw-type flow adjustment and serviceable filter screen.

D. Pop-up Spray: Fixed pattern with screw-type flow adjustment, stainless steel retraction spring, and serviceable filter screen. The head shall have a minimum 4" pop-up height and a radius of 12'-15'.

E. Pop-up Rotary Spray: Gear drive or impact drive with single or multiple stream operation. To have stainless steel retraction spring, serviceable filter screen, and adjustment for arc covered and distance of throw. The head shall have a minimum 2" pop-up height, and a radius of 21' to 42'. The head shall either be full circle or adjustable part circle type.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.05 Backflow Preventer

A. Manufacturer's standards made of bronze and corrosion resistant material. A pressure-type vacuum breaker is to be mounted 12" above the highest point of the irrigation system. A reduced pressure type backflow preventer may be mounted at any height, even below grade.

2.06 Valve Boxes

A. All remote control valves shall be placed in valve boxes for location purposes and easy access. The valve boxes shall be plastic with latching covers. The valve boxes shall be Ametek Economy, 10" round, 12" rectangular, or jumbo size, or approved equal. The valve boxes shall be of a size that provides adequate space for repairs.

2.07 Communication Circuitry

A. Electric control lines from controller to an automatic control valve shall be U.L. approved direct burial wire. Minimum size - #14 gauge.

PART 3 - EXECUTION

3.01 Permits, Licenses, and Certificates

A. The Contractor shall procure all permits and licenses except as otherwise indicated, pay all charges and fees and give all notices necessary and incidental to the proper and lawful prosecution of the Work. He shall also obtain and supply the Owner all certificates required to show that the Work has been performed in accordance with the building, plumbing, electrical, or other codes, rules and regulations of local or other authorities as the Specifications may require directly or by implication.

B. When the Work performed affects the property or facilities of public utility or other corporations or of private persons, the Contractor shall obtain and supply from such corporation or person if required, statements that the Work has been performed satisfactorily and that all claims therefore have been settled by the Contractor.

C. Design shall insure that the following minimum pressures are available at the base of the furthest head of each type from the source:

1. Rotors - 40 psi
2. Sprays

D. Maximum spacing of all heads shall not exceed 50% of the diameter of throw.

E. Minimum precipitation rate for each type of head shall be as follows:

1. 1.5"/hour - sprays
2. .45"/hour - rotors

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.01 Permits, Licenses, and Certificates (continued)

F. All nozzles shall provide matched precipitation within zones for full half and quarter circle arcs.

G. The system shall be capable of watering a complete cycle within a 10 hour time period.

3.02 Rights-of-Way

A. The Owner will furnish the necessary rights-of-way for the Contract Work. Also all lawful authority that may be necessary for approved crossings or occupation of any roads, streets or alleys upon which the Contract Work will be done.

3.03 Underground Structures

A. The Contractor shall have all public underground structures and utilities located an marked by the proper authority.

B. The Owner shall make available to the Contractor all necessary information regarding the exact location of privately owned underground structures and utilities and shall mark their location at the site.

C. The Contractor shall be liable for only the damage to and the cost of repairing or replacing any buried conduit, cables, or piping encountered during the installation that were marked or that he had been previously informed of. The Contractor shall immediately have the incurred damage repaired at his own expense under that circumstance.

3.04 Rock Excavation

A. If a rock is encountered in the alignment and depth of the installed system, the alignment and/or depth shall be adjusted to avoid its excavation if possible. If alignment and depth adjustment cannot be made and it becomes necessary to remove the rock, the Contractor shall be paid for additional cost incurred in the handling of it.

3.05 Water Supply

A. Water for the system shall be taken from the appropriate locations shown on the Drawings. Copper pipe is to be used until the pipe gets into the ground, at which point it will be adapted to PVC pipe. At wall penetration pack the opening around the pipe with non-shrink grout both inside and outside.

3.06 Excavation and Backfilling

A. Contractor shall do all necessary excavation required for the proper installation of his Work.

B. When backfilling, all backfill material shall be free from rock, large stone, or other unsuitable substances to prevent damage to the pipe.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.06 Excavation and Backfilling (continued)

C. Backfilling of trenches containing plastic piping shall be done when pipe is cool to avoid excessive contraction.

D. All backfill material will be compacted in 6" layers as it's brought up to grade so as to insure that no settling results.

3.07 Installation of Piping

A. All main line pipe which is under constant pressure shall be installed with a minimum depth of 12" to 18". All other pipe shall be installed with a minimum depth of 8" to 12".

B. All pipe shall be installed by either the open trenching method or by pulling the pipe in with a vibratory plow. All pipe shall be installed in accordance with the manufacturer's recommendation.

C. Piping shall be securely capped at the end of each day's work to prevent entrance of foreign material.

3.08 Installation of Wire

A. Wire shall be installed with main line piping in the same trench. At each connection to the valve, sufficient slack shall be provided to facilitate future service.

B. All underground splices shall be waterproofed with the wire connectors and direct burial splice kit manufactured by the 3M Company.

3.09 Sleeving

A. Pipe and wire shall be enclosed in Schedule 40 PVC sleeves under each sidewalk and driveway crossing. Where possible, the PVC sleeve shall be installed before the sidewalk and driveway is poured.

B. Where the sidewalk and driveway has been poured before the PVC sleeve is installed, the sleeve shall be installed by boring a hole under the sidewalk and/or driveway so as not to disturb the surface.

3.10 Controller Installation

A. The Contractor shall wall mount the controller in the mechanical rooms indicated on the Drawing. The controller shall be installed in accordance with the manufacturer's recommendations

3.11 Electrical Work

A. The Owner will provide a 120 volt single phase outlet in the mechanical room for the Contractor to connect to get power to the controller.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.11 Electrical Work (continued)

B. The Contractor shall do all 24 volt wiring from the controller to the remote control valves in the field.

3.12 Automatic Control Valve Installation

A. The Contractor shall install all remote control valves on the main line plumb and straight and inside valve boxes.

B. The automatic remote control valves shall be manifolded together wherever possible. The control valve manifolds shall be constructed with a wide enough gap between valves to allow the valve to be screwed out of the manifold tee without having to first remove the top bonnet.

C. The valve boxes shall be located on the edges of the area, in as inconspicuous a spot as possible. The valve boxes shall be set plumb and square with the top even with grade and with blocking under the corners to help it remain square.

3.13 Sprinkler Head Installation

A. Mount the sprinkler heads on the pipe with cut-off risers. The heads should be set perpendicular with grade and top of the head flush with the finish grade before sod is installed.

B. Locate part-circle heads a minimum distance of 4" from walls and 2" from other boundaries.

C. The water shall be turned on to flush out the pipes in the system before the heads are mounted on the pipe.

3.14 Improperly Operating or Located Equipment

A. Any equipment which fails to operate properly and/or is located incorrectly shall be promptly relocated and/or removed at the direction of the Architect and at the Contractor's expense. Before any piping or equipment is located other than shown on the Plans, permission to do so shall be obtained from the Architect by the Contractor.

3.15 Testing

A. After completion, testing of the system will be carried out in the presence of the Owner and the Architect. A hydrostatic pressure test of the main line at a pressure of 100 psi for 30 minutes shall be performed. If leaks are detected, they shall be repaired and the line retested until satisfactory. The Contractor will demonstrate that all parts of the irrigation system are working properly and that the areas have proper coverage.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.16 Instruction

A. After testing of the system, the Contractor will instruct the Owner's personnel in the proper operation and maintenance of the system.

B. The Contractor shall collect catalog data, including instruction for installation, operation, spare parts lists, and maintenance of equipment for all pieces of equipment furnished under this Contract. This data shall be bound together and handed over to the Owner upon conclusion of the Work.

3.17 As-Built Plan

A. After completion of the installation, the Contractor shall furnish an "as-built" Drawing showing all sprinkler heads, remote control valves, controller, and pipe lines to scale with dimensions where required. The "as-built" Drawing will be turned into the Owner before the final payment is made.

3.18 Seasonal Drainage

A. Winter drainage shall be accomplished by replacing the water in the system with compressed air. Compressed air connector shall be located in the hook-up copper after the vacuum breaker. Either a quick coupler valve or a capped tee in the line may be used.

3.19 Guarantee

A. For a period of one year from date of final acceptance of the Work performed under this Contract, the Contractor shall promptly furnish, without cost to the Owner, any and all parts which prove defective in material and workmanship. In the fall following the installation, the Contractor shall drain the system for winter and the following spring shall put the system back into operation without cost to the Owner.

END OF SECTION

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 92 00 - LANDSCAPING

PART 1 - GENERAL

1.01 Work Includes

A. Provide all materials, labor, services and incidentals necessary for the completion of this Section of the Work.

B. Include restoration of any planted areas, lawns damaged as a result of completing work on this project.

1.02 Related Work

A. Section 02 20 00 - Earthwork, stripping and stockpiling of existing topsoil.

1.03 Protection

A. Protect adjoining pavements, walks and structures from dirt and staining during completion of Work.

1.04 Analysis and Standards

A. Standard products: Manufacturer's analysis will be acceptable.

B. Non-standard products: Provide analysis by a recognized independent laboratory.

C. Analysis: Conform to current procedures of the Association of Official Agricultural Chemists.

D. Nursery stock: Meet the requirements of the American Standard Association of Nurserymen as to grading and quality.

1.05 Plant and Materials List (Refer to Section 01 33 00)

A. Submit to the Architect a complete list of plants and planting materials to be provided for the Project within 60 days after commencement of the Project construction. Furnish list in triplicate and include the following:

1. List of plants identified in the same way as on the Planting Schedule on the Project Drawings.
2. Schedule of planting time and delivery dates of plants to Project Site.
3. List of planting materials identified by brand name and description of each item.

B. Do not order materials nor proceed with any planting work until the Plant and Materials Lists are approve by the Architect.

1.06 Product Delivery, Storage and Handling

A. Deliver packaged materials in container showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 92 00 - LANDSCAPING

1.06 Product Delivery, Storage and Handling

B. Sod: Time delivery so that sod will be placed within 24 hours after stripping. Protect sod against drying and breaking of rolled strips.

C. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not use trees or shrubs which have been in cold storage or heeled-in. Do not prune prior to delivery. Do not bend or bind-tie trees of shrubs in such manner as to damage bark, break branches or destroy natural shape. Protective covering during delivery.

D. Deliver trees and shrubs only after preparations for planting have been completed and plant immediately. If unforeseen weather conditions delay planting more than six hours after delivery, place trees and shrubs in shade, protect from weather and mechanical damage and keep roots moist until plant operations are continued. Continue plant operations immediately upon cessation of adverse weather conditions.

E. The Architect will not certify payment for planted materials delivered prior to the completion of preparations for planting as stated.

F. Do not remove container grown stock from containers until planting time.

G. Label at least one tree and one shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.

1.07 Time of Planting

A. Conduct planting operations during the following defined seasons, if favorable weather conditions prevail (these dates may be changed only with Architect's approval):

B. Plants, shrubs, trees: April 15 to June 15 and September 30 to November 15.

C. Sodding: April 15 to November 15.

D. Growing season is defined as the period from June 1 to September 30. Planting operations conducted under unseasonable conditions are at the option and full responsibility of the Contractor.

PART 2 - PRODUCTS

2.01 Materials

A. Topsoil:

1. Free of any admixture of subsoil, stones, lumps, clods of hard earth, plants, roots, sticks and other extraneous materials.
2. Black, fertile and native to the area.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

B. Fertilizers:

1. Commercial fertilizer: Complete fertilizer partially derived from organic sources and containing nitrogen, phosphoric acid, potash in varying percentage amounts by weight as specified.

Lawns	10% of Nitrogen 10% of Phosphoric Acid 10% of Potash
Planting Beds	5% of Nitrogen 10% of Phosphoric Acid 5% of Potash

2. Fertilizer shall be delivered mixed as specified in standard size bags, showing weights, analysis and name of manufacturer. Keep stored in dry and weather proof area in such a manner that it will be kept dry and its effectiveness in not limited.

D. Sod:

1. Fertile, friable loam containing no subsoil, stones, plants, toxic substances or other foreign material and with full growth of vigorous, well rooted, healthy nursery grown Kentucky Blue Grass or other blade grass as approved by the Architect.
2. Uniform thickness, not less than 1" nor more than 1-1/2".

E. Water: Clean, free from deleterious substances.

F. Anti-Desiccant:

1. Emulsion which provides film over plant surfaces, permeable enough to permit transpiration.
2. "Wilt-proof", Nursery Specialty Products, Groton Falls, NY, or equal.

G. Stakes, Guys, Wrappings:

1. Stakes: 2" square by length required, cedar, with portion in ground treated with creosote or approved wood preservative.
2. Guys: 12 gauge, pliable, galvanized steel wire with new or used two-ply reinforced rubber garden hose.

H. Wrapping material: Standard burlap, heavy crepe paper or other suitable material in strips 4" to 10" wide.

I. Flags: 1/4” x 3" x 6" solid tempered presswood, painted white and securely fastened to guys (one per guy wire).

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

2.01 Materials (continued)

J. Rock Mulch:

1. Washed, river rock.
2. 100% passing 2" sieve, 100% retained on 3/4" sieve.

K. Weed Barrier:

1. Woven black polypropylene fabric minimum 3.0 oz. per sq. yd.

L. Landscape Timbers: 6x6 treated landscape timbers with spikes as required.

M. Edging: 5" x ¼" steel edging between sod and landscape rock areas.

N. Plant Materials:

1. Refer to Plant Schedule on Project Drawings.
2. Nursery stock, grown in accordance with good horticulture practices under climatic conditions similar to those in locality or Project for at least two years.
3. Transplanted or root pruned.

O. Peat:

1. Local peat moss of partially decomposed vegetable matter of natural occurrence.
2. Brown, clean, low in content of mineral and woody material, mildly acid, granulated or shredded.

PART 3 - EXECUTION

3.01 General

A. Sod and plant entire area within Contract limits shown on Project Drawings.

B. Restore areas outside Contract limits disturbed by Work of the Project to original conditions. Plant trees and shrubs after final grades are established and prior to placing sod. If planting of trees and shrubs occurs after sodding work, protect sod areas and promptly repair damage to sod resulting from planting operations.

C. Perform Work as rapidly as portions of the site become available, consistent with seasonal limitations.

D. Any conditions existing at the time work of this Section commences which will adversely affect the proper execution of Work shall be immediately brought to the attention of the Architect.

E. Start of Work implies acceptance of preceding Work as satisfactory to execution of this Section of Work.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

SECTION 32 92 00 - LANDSCAPING

3.02 Topsoil

A. Provide topsoil meeting specified requirements as necessary to complete the Work.

B. Do not place topsoil while in frozen or muddy condition.

C. Scarify subsoil, which has become densely packed during construction, to a full depth of 6" prior to placement of topsoil required.

D. Place topsoil and spread over all lawn areas which have been cut or filled, to a depth sufficiently greater than 4" so that natural settlement and light rolling, the completed work will provide 4" of topsoil conforming to the lines, grades and elevation shown. Where plant beds and tree pits are indicated, planting pits of prepared topsoil shall be made as specified to depth sufficient to bring topsoil up to finish grades.

E. Provide topsoil planting pits of prepared topsoil for plant beds, tree pits of sizes shown with sufficient topsoil to bring surface to finish grade.

F. Excavate pits with vertical sides large enough to allow 12" around balled plants, trees in all directions and of sufficient depth to provide 12" of topsoil under balled trees, plants when set at proper elevation.

G. Remove all debris and scarify to depth of 5".

H. Rake until surface is friable, smooth and of uniformly fine texture immediately prior to sodding and seeding.

I. Correct all soft spots and irregularities in grade.

J. Spread and rake 10-10-10 commercial fertilizer into topsoil at rate of 15 lbs. per 1,000 sq. ft.

3.03 Sodding

A. Lay to tight joints with no voids.

B. Tamp and roll to smooth, uniform surface.

C. Water thoroughly as often as required to firmly establish.

D. On slopes exceeding 3 to 1, hold sod in place with wood pins, 1" square x 6" long, driven through sod into soil flush with top of sod.

E. Sod all areas as indicated or disturbed by construction operations.

3.04 Planting

A. Prepare pits to sizes indicated.

B. Shrubs: Three parts topsoil to one part peat plus 5-10-5 fertilizer.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.04 Planting (continued)

C. Set plants in centers of pits, plumb and straight, at proper level with the crown of the plant 2" below finish grade and forming a shallow trough over ball, slightly smaller than pit to facilitate watering.

D. Space all shrubs, plants, as shown.

E. Balled and burlapped (BB) trees and shrubs having a frozen or hardened outer crust shall, after setting have outer crust lightly broken through on sides with hand tools. Avoid damage to roots.

F. After BB plants are set, compact topsoil around base or ball to fill all voids. Do not pull burlap from under balls.

G. Backfill pits approximately two-thirds of depth, water thoroughly, then fill with soil to top of pit. Avoid air pockets.

3.05 Pruning, Mulching and Spraying

A. Prune plants only at a time of planting to preserve natural character of plant.

B. Remove all dead wood, suckers and broken or badly bruised branches. Use clean, sharp tools.

C. Paint cuts, over ¾" diameter, with an approved tree paint covering all exposed living tissue.

D. Guy and stake all trees so that plants shall stand plumb after guying and in accordance with the detailed Drawings if any are shown on Drawings.

E. After planting and guying, spray all plant material with anti-dessicant to a uniform film over trunks, branches and foliage.

F. After planting is complete, cover all tree and shrub pits and beds with 2" layer of manure or peat.

3.06 River Rock Beds

A. Place polyethylene liner on subgrade to depth shown. Lap joints 2". Puncture at approximately 6" centers both directions, holes not to exceed 1/8" diameter.

B. Place river rock to uniform depth indicated.

3.07 Maintenance

A. Commence immediately after each portion of lawn, planting is completed.

B. Water, mow and replant lawns to establish uniform turf until acceptance.

Plans Reviewed and Approved for Construction with Notations
Plan review notes may not reflect all code deficiencies.
Failure to identify a code deficiency during a review of plans
Does not alleviate any obligation to comply with all applicable
code provisions.

DATE: 06/28/18

BLD #: BLD17-00688

3.07 Maintenance (continued)

C. Maintain lawns until completion of project or a minimum of 30 days after completion of all Work, whichever is latest.

D. Scattered bare spots in lawn no larger than 1 sq. ft. each will be acceptable up to 3% of lawn area.

E. Maintain new planting until all planting is completed, inspection made and planting is accepted, but in no case less than 30 days.

F. Include watering, weeding, cultivating, mulching, tightening and repairing of guys, removal of dead material and resetting plants to proper grade for all plants and trees.

G. Protect completed lawn areas during operations. Repair any damage resulting from planting operations.

3.08 Inspection

A. Notify Architect at completion of planting operations and 10 days prior to end of 30 day minimum maintenance period.

B. Inspection will be held and Contractor notified of acceptance, exclusive of replacements required during guarantee period, subject to completion of any deficiencies noted.

3.09 Guarantee and Replacement

A. Guarantee:

1. Plants set during Spring planting season, (April 15 to June 15) shall be guaranteed through a full growing season.
2. Plants set in Fall planting season (September 30 to November 15) shall be guaranteed through the full growing season of the following year.
3. Growing season: June 1 to September 30.

B. Replacement:

1. Notify Architect 10 days prior to end of growing season in time to schedule inspection.
2. Remove and replace any plant or lawn that is found dead or not in satisfactory growth.
3. Replacement plants shall be same kind and size as specified for original plants.
4. Cost of replacements shall be at expense of Contractor, except replacement required due to loss or damage due to occupancy of the project, vandalism or acts of neglect in the part of others during the guarantee period after acceptance.

END OF SECTION