

Project Manual for:

**EDISON ELEMENTARY SCHOOL
OFFICE RELOCATION**

**1328 East 22nd Avenue
Eugene, OR 97403**

**Eugene School District 4J
CIP No. 420.170.003**

17 April 2014

PROJECT TITLE PAGE

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EDISON ELEMENTARY SCHOOL - OFFICE RELOCATION

1328 East 22nd Avenue

Eugene, OR 97403

CIP No. 420.170.003

OWNER:

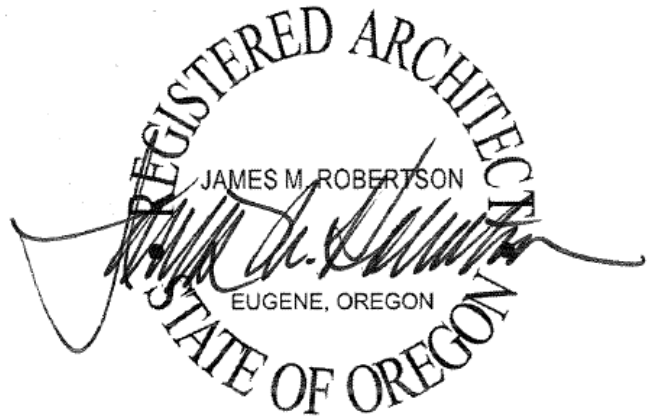
EUGENE SCHOOL DISTRICT 4J

715 West 4th Street

Eugene, Oregon 97402

Tel (541) 790-7428

Contact: Larry Massey, Project Manager



ARCHITECTS:

ROBERTSON/SHERWOOD/ARCHITECTS PC

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Tel (541) 342-8077

Contact: Randy Nishimura, AIA

MECHANICAL ENGINEERS:

PAE CONSULTING ENGINEERS

1158 High Street

Eugene, OR 97401

Tel (503) 502-7068

Contact: Jack Yousey, PE

ELECTRICAL ENGINEERS:

PARADIGM ENGINEERING

85193 Appletree Drive

Eugene, OR 97405

Tel (541) 285-1680

Contact: Jim Krumsick, PE

STRUCTURAL ENGINEERS:

METZLER ENGINEERING GROUP

220 East 11th Ave,

Eugene, OR 97401

Tel (541) 344-2040

Fax (541) 344-1821

Contact Scott Metzler, PE

DATE:

17 APRIL 2014

END OF PROJECT TITLE PAGE

TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS

Division 00 -- Procurement and Contracting Requirements

- 00 01 01 - Project Title Page
- 00 01 10 - Table of Contents
- 00 01 15 - List of Drawing Sheets
- 00 11 13 - Invitation to Bid
- 00 21 13 - Instructions to Bidders
- 00 22 13 - Supplementary Instructions to Bidders
- 00 31 00 - Available Project Information
- 00 31 01 - Lead Analysis
- 00 41 13 - Bid Form
- 00 45 22 - First-Tier Subcontractor Disclosure Form
- 00 52 13 - Agreement Form
- 00 72 13 - General Conditions
- 00 73 00 - Supplementary Conditions
- 00 73 43 - Prevailing Wage Rates

SPECIFICATIONS

Division 01 -- General Requirements

- 01 11 00 - Summary of Work
- 01 25 00 - Contract Modification Procedures
- 01 29 00 - Payment Procedures
- 01 31 00 - Project Management and Coordination
- 01 32 00 - Construction Progress Documentation
- 01 33 00 - Submittals Procedures
- 01 40 00 - Quality Requirements
- 01 50 00 - Temporary Facilities and Controls
- 01 60 00 - Product Requirements
- 01 73 00 - Execution Requirements
- 01 73 29 - Cutting and Patching
- 01 77 00 - Closeout Procedures
- 01 78 23 - Operation and Maintenance Data
- 01 78 39 - Project Record Documents

Division 02 -- Existing Conditions

- 02 41 00 - Demolition

Division 05 -- Metals

05 12 00 - Structural Steel Framing

Division 06 -- Wood, Plastics, and Composites

06 10 00 - Rough Carpentry

06 20 00 - Finish Carpentry

06 41 00 - Architectural Wood Casework

Division 07 -- Thermal and Moisture Protection

07 62 00 - Sheet Metal Flashing and Trim

07 84 00 - Firestopping

07 90 05 - Joint Sealers

Division 08 -- Openings

08 12 13 - Hollow Metal Frames

08 14 16 - Flush Wood Doors

08 42 29 - Automatic Entrances

08 71 00 - Door Hardware

08 80 00 - Glazing

Division 09 -- Finishes

09 22 16 - Non-Structural Metal Framing

09 26 13 - Gypsum Veneer Plastering

09 51 53 - Direct-Applied Acoustical Ceilings

09 65 00 - Resilient Flooring

09 68 13 - Tile Carpeting

09 90 00 - Painting and Coating

Division 10 -- Specialties

10 11 01 - Visual Display Boards

10 28 00 - Toilet, Bath, and Laundry Accessories

Division 12 -- Furnishings

12 21 13 - Horizontal Louver Blinds

Division 21 -- Fire Suppression

21 05 00 - Common Work Results for Fire Suppression

21 10 00 - Water Based Fire Suppression

Division 22 -- Plumbing

22 05 00 - Common Work Results for Plumbing

22 05 23 - General Duty Valves and Specialty Plumbing

22 05 29 - Hangers, Supports and Anchors for Plumbing

22 05 53 - Identification for Plumbing Piping and Equipment

22 07 00 - Insulation for Plumbing

22 21 13 - Pipe and Pipe Fittings Plumbing

22 40 00 - Plumbing Fixtures

Division 23 -- Heating, Ventilating, and Air-Conditioning (HVAC)

23 05 00 - Common Work Results for HVAC

23 05 23 - General Duty Valves and Specialties for HVAC

23 05 29 - Hangers, Supports and Anchors for HVAC

23 05 53 - Identification for HVAC Piping and Equipment

23 05 93 - Testing, Adjusting, and Balancing

23 07 00 - Insulation for HVAC

23 21 13 - Pipe and Pipe Fittings HVAC

23 22 15 - Steam and Condensate Specialties

23 31 01 - HVAC Ducts and Casing-Low Pressure

23 33 00 - Air Ductwork Accessories

23 37 00 - Air Outlets and Inlets

23 72 00 - Air to Air Energy Recovery Units

23 82 00 - Convection Heating and Cooling Units

23 84 10 - Electric Heating Equipment

Division 26 -- Electrical

26 01 00 - General Electrical Provisions

26 01 60 - Minor Electrical Demolition

26 05 19 - Wire and Cable

26 05 29 - Supporting Devices

26 05 30 - Conduit

26 05 31 - Surface Raceways

26 05 32 - Outlet, Pull and Junction Boxes

26 05 33 - Electrical Identification

26 27 26 - Wiring Devices

26 50 00 - Light Fixtures

Division 27 -- Communications

27 10 00 - Communication Raceway System

27 51 13 - Clock and Intercom System

Division 28 -- Electronic Safety and Security

28 23 30 - Fire Alarm System

END OF TABLE OF CONTENTS

LIST OF DRAWING SHEETS

GENERAL

G1.0 PROJECT INFORMATION

ARCHITECTURAL

A1.1 DEMOLITION PLANS

A1.2 FLOOR PLAN

A1.3 REFLECTED CEILING PLAN

A2.1 INTERIOR ELEVATIONS

A4.1 SCHEDULES, DOOR AND WINDOW DETAILS

A5.1 CASEWORK DETAILS

STRUCTURAL

S0.1 STRUCTURAL PLAN, DETAILS & NOTES

MECHANICAL

M0.1 LEGENDS, SYMBOLS & ABBREVIATIONS - MECHANICAL

M0.2 EQUIPMENT SCHEDULES - MECHANICAL

M1.1 MECHANICAL DEMOLITION PLAN - LOWER LEVEL

M1.2 MECHANICAL DEMOLITION PLAN - UPPER LEVEL

M2.1 MECHANICAL FLOOR PLAN - LOWER LEVEL

M2.2 MECHANICAL FLOOR PLAN - UPPER LEVEL

M5.1 MECHANICAL DETAILS

ELECTRICAL

E1.1 ELECTRICAL DEMOLITION PLAN

E2.1 FLOOR PLAN - POWER & SIGNAL

E1.3 LIGHTING PLAN

E1.4 PANEL SCHEDULE AND ONE LINE DIAGRAM

END OF SECTION

INVITATION TO BID

Sealed bids will be received by Kathi Hernandez, Facilities Management Assistant, for the Edison Elementary School – Office Relocation project on Thursday, May 8, 2014 until the Deadline for Bid Submission at 2:00 pm local time at the Eugene School District 4J Facilities Management Office, 715 West Fourth Avenue, Eugene, Oregon 97402. The Bids will be opened publicly and read aloud immediately after the deadline for submission of bids. Late Bids will not be considered.

Briefly, the work is described as interior renovations work associated with the relocation of the main office at Edison Elementary School located at 1328 East 22nd Avenue, Eugene, Oregon.

Beginning April 17, 2014, Prime Bidders, Sub-bidders, and Suppliers may obtain bidding documents at the following hyperlink: <http://4j.lane.edu/bids>. Hard copies are not provided by the School District.

Bidding Documents may be examined at the following locations:

Eugene Builder's Exchange, 2460 W. 11th, Eugene, OR 97402

Central Oregon Builders Exchange, 1902 NE 4th Street, Bend, OR 97701

McGraw Hill Construction, 3461 NW Yeon Ave, Portland, OR 97210

Daily Journal of Commerce Plan Center, 921 SW Washington St., Ste 210, Portland, OR 97205-2810

Douglas County Plan Center, 3076 NE Diamond Lake Blvd, Roseburg, OR 97470

Oregon Contractor Plan Center, 5468 SE International Way, Milwaukie, OR 97222

Reed Construction Data, 30 Technology Parkway South, Ste 500, Norcross, GA 90092

Salem Contractor's Exchange, 2256 Judson Street SE, Salem, OR 97309

Willamette Valley Bid Center, 32054 Old Hwy 34, Tangent, OR 97389

Or, the office of Robertson Sherwood Architects, 132 E. Broadway, Suite 540, Eugene, OR 97401

A MANDATORY pre-bid conference and walk-through has been scheduled for Tuesday, April 29, 2014, beginning at 3:30 PM at the project site. Pre-qualification of Bidders is not required.

Each Bid must be submitted on the prescribed form and accompanied by a Surety Bond, Cashiers Check, or Certified Check, executed in favor of Eugene School District 4J, in the amount not less than ten percent (10%) of the total bid, based upon the total bid amount for those items bid upon.

Either with the Bid or within two working hours of the Deadline for Submission of Bids, bidders shall submit, on the form provided, information for first-tier subcontractors furnishing labor or labor and materials, as provided in ORS 279C.370. Bids for which disclosure forms are required, but not submitted, will be rejected.

No bid for a construction contract will be received or considered unless the Bidder is registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board at the time the Bid is made, as required by OAR 137-049-0230.

For every bid \$100,000 or greater, all Contractors and Subcontractors shall have a public works bond, in the amount of \$30,000, filed with the Construction Contractors' Board (CCB), before starting work on the project, unless exempt.

Each Bid shall contain a statement indicating whether the Bidder is a "resident bidder", as defined in ORS 279A.120.

Each Bid shall contain a statement that the "Contractor agrees to be bound by and will comply with the provisions of ORS 279C.800 through 279C.870 regarding payment of Prevailing Wages", in particular ORS 279C.838 and 279C.840 as this is a federally funded project. See Document 00 73 43.

Contractor shall certify nondiscrimination in obtaining required subcontractors, in accordance with ORS 279A.110(4).

School District 4J reserves the right to (1) reject any or all Bids not in compliance with all public bidding procedures and requirements, (2) postpone award of the Contract for a period not to exceed sixty (60)

days from the date of bid opening, (3) waive informalities in the Bids, and (4) select the Bid which appears to be in the best interest of the District.

Date: April 17, 2014
By: Kathi Hernandez, Facilities Management Assistant
Published: Register Guard, Daily Journal of Commerce, ORPIN (Oregon Procurement Information Network)
Posted: School District 4J Administration Office
200 North Monroe
Eugene, OR 97402

END OF INVITATION TO BID

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 STANDARD FORM

- A. Instructions to Bidders, AIA Document A701, 1997 Edition, immediately following are part of this Project Manual.

END OF SECTION



AIA[®] Document A701[™] – 1997

Instructions to Bidders

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

—

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

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**

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.

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.

§ 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.

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.

§ 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.

§ 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.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

The following Supplementary Instructions to Bidders modify, change from, or add to AIA Document A701 Instruction To Bidders, 1997 Edition. Where any Article of the Instructions to Bidders is modified or any paragraph, subparagraph, or clause thereof is modified or deleted by these Supplementary Instructions to Bidders, the unaltered provisions of that Article, paragraph, subparagraph, or clause shall remain in effect.

1.1 ARTICLE 2 BIDDER’S REPRESENTATIONS

A. Add the following subparagraphs to 2.1.3:

2.1.3.1 Bidders are required to attend any mandatory pre-bid conferences or tours as stated in the Advertisement for Bids. Bidders not attending this pre-bid conference and tour shall be disqualified from bidding. Bidders will be required to sign in at the project site prior to the conference or tour.

2.1.3.2 Bidders are encouraged to visit the site(s) to become familiar with existing conditions. The Owner is not responsible and shall not bear financial burden for oversights made by the Bidder for failure to inspect sites prior to submitting a bid.

2.1.3.3 In all cases, persons wishing to examine the area of work must sign in at the school office prior to visiting the work area. Prior to leaving the school, sign-out at the office is required.

2.1.3.4 If access is required at times when the school office is not staffed, contact the Facilities Office, 687-3259, for assistance.

B. Add the following paragraph 2.1.5:

2.1.5 The Bidder certifies by signing the Bid that the Bidder has a drug-testing program in place for its employees that includes, at a minimum, the following:

- .1 A written employee drug-testing program,
- .2 Required drug testing for all new Subject Employees, or alternatively, requiring testing of Subject Employees every six months on a random selection basis,
- .3 Required testing of a Subject Employee when the Contractor has reasonable cause to believe the Subject Employee is under the influence of drugs, and
- .4 Required testing of a Subject Employee when the Subject Employee is involved in: (I) an incident causing an injury requiring treatment by a physician, or (ii) an incident resulting in damage to property or equipment.

A drug-testing program that meets the above requirements will be deemed a “Qualifying Employee Drug-testing Program”. For purposes of this rule an employee is a “Subject Employee” only if that employee will be working on the Project job site; and

That if awarded the Public Improvement Contract, the Bidder will execute a contract in which the Contractor shall represent and warrant to the District that the Qualifying Employee Drug-testing Program is in place at the time of contract execution and will continue in full force and effect for the duration of the Public Improvement Contract; and that the Contract will condition the Agency’s performance obligation upon the Contractor’s compliance with this representation and warranty; and

That the Public Improvement Contract shall contain Contractor’s covenant requiring each subcontractor providing labor for the Project to:

- .1 Demonstrate to the Contractor that it has a Qualifying Employee Drug-testing Program for the subcontractor’s Subject Employees, and represent and warrant to the Contractor that the Qualifying Employee Drug-testing Program is in place at the time of subcontract execution and will continue in full force and effect for the duration of the subcontract; or
- .2 Require the subcontractor’s Subject Employees to participate in the Contractor’s Qualifying

Employee Drug-testing Program for the duration of the subcontract.

1.2 ARTICLE 3 BIDDING DOCUMENTS

A. 3.3 SUBSTITUTIONS

1. Add the following:

3.3.2.1 All requests for approval must be submitted in duplicate on "Substitution Request Form". Include a self-addressed stamped envelope. Requests received by Architect less than six (6) days prior to bid will not be considered.

B. 3.4 ADDENDA

1. Delete paragraph 3.4.1 and substitute the following:

3.4.1 Addenda will be issued by electronic email to plan centers listed in the Advertisement for Bids and all firms listed on the Planholder List.

1.3 ARTICLE 4 BIDDING PROCEDURES

A. 4.1 PREPARATION OF BIDS

1. Add the following Paragraphs:

4.1.8 Bidders shall certify to non-collusion practices on the form included as part of the Bid Form, to be submitted with the Bid Form.

- .1 A Non-Collusion Affidavit is required for any contract awarded pursuant to the bid. According to the Oregon Public Contracts and Purchasing Laws, a public contracting agency may reject any or all bids upon a finding of the agency that it is in the public interest to do so (ORS 279C.395). This agency finds that it is in the public interest to require the completion of this affidavit by potential contractors.
- .2 The Non-Collusion Affidavit must be executed by the member, officer or employee of the bidder who makes the final decision on prices and the amount quoted in the bid.
- .3 Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation approval or submission of the bid.
- .4 In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.
- .5 The term "complementary bid" as used in the Affidavit has the meaning commonly associated with the term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any other form of bid submitted for the purpose of giving a false appearance of competition.
- .6 Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

4.1.9 Bidders shall certify to non-discrimination in employment practices on the form, included as part of the Bid Form, to be submitted with the Bid Form. By submitting its bid, the Bidder certifies conformance to the applicable federal acts, executive orders, and Oregon statutes and regulations concerning affirmative action toward equal employment opportunities. All information and reports required by the federal or Oregon state governments having responsibility for the enforcement of such laws shall be supplied to the Owner in compliance with such acts, regulation, and orders.

4.1.10 Bidder shall indicate, on the Bid Form where provided, the bidder's status as a "resident" or "non-resident" in accordance with ORS 279C.365 and ORS 279A.120.

4.1.11 First-Tier Subcontractor Disclosure:

.1 Within two working hours after the date and time of the deadline when the bids are due, a Bidder shall submit to the District a disclosure of the first-tier subcontractors that will be furnishing labor or will be furnishing labor and materials in connection with the public improvement; and will have a contract value that is equal to or greater than 5% of the project bid or \$15,000, whichever is greater, or \$350,000, regardless of the percentage of the total project bid.

.2 The disclosure of first-tier subcontractors shall include the name of each subcontractor, the category of work that the subcontractor would be performing, and the dollar value of each subcontract.

.3 The first-tier subcontractor disclosure applies only to public improvements with a contract value of more than \$100,000.

.4 The District will consider the bid of any contractor that does not submit a required subcontractor disclosure to the District to be a non-responsive bid. A non-responsive Bid will not be considered for Award.

.5 Contractor shall certify that all subcontractors performing Work are registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board in accordance with ORS 701.035 to 701.055 before the subcontractors commence work under the Contract.

B. 4.2 BID SECURITY

1. Delete paragraphs 4.2.2 and 4.2.3 and substitute the following:

4.2.2 Each Bid shall be accompanied by a surety bond, cashiers check, or certified check, executed in favor of Eugene School District 4J, in the amount not less than ten percent (10%) of the total bid, based upon the total bid amount for those items bid upon. Should the Bidder refuse to enter into such Contract or fail to furnish Performance and Labor and Materials Payment Bonds and Certificates of Insurance as required by the Supplementary Conditions within ten (10) working days after contract forms are provided to the Bidder, the amount of the Bid Security may be forfeited to the Owner as liquidated damages, not as a penalty.

.1 The Surety Bond shall be written by a Bonding Company authorized and licensed by the Oregon Insurance Commissioner. The bonding company must be listed on the most current US Government Treasury List, Department Circular 570, or approved PRIOR TO BID SUBMISSION by the Eugene School District 4J's Risk Manager. The Bond shall be on a AIA Document A310, most current edition. The Attorney-in-Fact who executes the Bond on behalf of the Surety shall affix to the Bond, a certified copy of a power of attorney.

.2 The Owner will have the right to retain the Bid Security of Bidders until either; a) the Contract has been executed and Bonds have been furnished, or b) the specified time has elapsed so that Bids may be withdrawn, or c) all Bids have been rejected.

C. 4.4 MODIFICATION OR WITHDRAWAL OF BID

1. Delete paragraph 4.4.1 and substitute the following:

4.4.1 A Bid may not be withdrawn or canceled by the Bidder following the time and date designated for the receipt of bids to the expiration of a 60 day period. The Bid for that sixty days is irrevocable and each Bidder so agrees in submitting a Bid.

1.4 ARTICLE 6 POST-BID INFORMATION

A. Delete Paragraph 6.1.

B. Modify paragraph 6.3.1 as follows:

In the first sentence delete the phrase "as soon as practicable" and add "within 48 hours."

C. Add the following:

6.3.1.4 Where asbestos abatement is required, Contractor or appropriate subcontractor shall be

licensed by the Department of Environmental Quality to perform "asbestos abatement work", per OAR 340-248-0120, Adopted 1/25/90, and meet requirements of AHERA as specified in the Federal Register, 40 CFR part 763. Bidder shall submit evidence of licensing to Owner.

1.5 ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

A. 7.1 BOND REQUIREMENTS

1. Delete paragraphs 7.1.1, 7.1.2 and 7.1.3 and add the following:

7.1.1 Unless otherwise stated in the solicitation document, the successful Bidder shall be required to provide the Owner with a Performance Bond and Labor and Material Payment Bond, **each** in an amount equal to one hundred (100%) of the contract sum. The Surety Company shall meet requirements as specified in the Supplementary Conditions.

7.1.2 The Labor and Material Payment Bond shall contain a clause specifically guaranteeing payment of all sums of money withheld from employees and payable to the Internal Revenue Service; and all contributions or amounts due to the State of Oregon from the General Contractor or subcontractor incurred in the performance of this contract.

7.1.3 The Bond shall be fully executed, payable to the Owner.

7.1.4 The cost of these bonds shall be included in the Bid.

1.6 7.2 TIME OF DELIVERY AND FORM OF BONDS

A. Delete paragraph 7.2.1 and substitute the following:

7.2.1 The successful Bidder will be provided with contract forms through the Architect. These forms shall be executed and delivered to the Owner, along with Performance Bond and Labor and Material Payment Bond, within ten (10) days after receiving forms.

B. Add the following article:

ARTICLE 9 MISCELLANEOUS PROVISIONS

9.1 ADMINISTRATIVE RULES

All bidders are required to comply with the provisions of Oregon Revised Statutes and 4J Board Policy. Attention is directed to ORS 244, Government Ethics; ORS 279A and 279C, Public Contracting Code; Oregon Administrative Rules, Chapter 137, Divisions 46, 48 and 49; and 4J Board Policy DJC.

9.2 PROTEST OF BID

Protests of bid specifications or contract terms shall be presented to the Owner in writing five (5) calendar days prior to bid opening. Such protest or request for change shall include the reason for protest or request, and any proposed changes to specifications or terms. No protest against award because of the content of bid specifications or contract terms shall be considered after the deadline established for submitting such protest.

9.3 PROTEST OF AWARD

Any actual bidder or proposer who is adversely affected by the Owner's notice of award of the contract to another bidder or proposer on the same solicitation shall have seventy two (72) hours from the notice of award to submit to the Owner, a written protest of the notice of award. In order to be an adversely affected or aggrieved bidder or proposer with a right to submit a written protest, a bidder or proposer must itself claim to be eligible for award of the contract as the lowest responsible bidder or best proposer and must be next in line for award.

9.4 FINAL AWARD

The written notice of award of the contract shall constitute a final decision of the Owner to award the contract if no written protest of the notice of award is filed with the Owner within the designated time.

END OF DOCUMENT

AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITIONS

- A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of the Contract Documents.
- B. Materials Analysis: Entitled "Metals Analysis; NVL Batch #1403574.00"; prepared by NVL Labs Industrial Hygiene Services, 4708 Aurora Ave N, Seattle, WA 98103.
 - 1. These surveys identify the presence of lead in the existing paint finishes on walls, doors and trim.
 - 2. Contractor to follow OSHA Lead in Construction Standard 29CFR1926.62.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF AVAILABLE PROJECT INFORMATION

<u>Code</u>	<u>Material</u>	<u>Analysis</u>	<u>Location</u>	<u>Lab</u>
PAINT				
LB52057.002-1001	Paint, White	910 ppm 0.0910%	Main Entrance, West Wall	NVL Labs, Inc.
LB52057.002-1002	Paint, White/Green	740 ppm 0.0740%	Main Office, Northeast Office, Door Trim	NVL Labs, Inc.
LB52057.002-1003	Paint, White/Yellow	1800 ppm 0.1800%	Room 15, West Wall	NVL Labs, Inc.

March 3, 2014



Laboratory | Management | Training

Jack Burgess
PBS Environmental (Eugene)
2645 Willamette Street Suite A
Eugene, OR 97405

RE: Metals Analysis; NVL Batch # 1403574.00

Dear Mr. Burgess,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846-3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm), Percent (%) or mg/cm² by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft². TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m³. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested. Lead test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. If you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nick Ly".

Nick Ly, Technical Director

Enclosure:



LAB # 101281

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.

4708 Aurora Ave. N., Seattle, WA 98103
Tel: 206.547.0100, Fax: 206.634.1936
www.nvllabs.com

Analysis Report

AIHA - IH # 101861
WA - DOE # C1765



Total Lead (Pb)

Client: PBS Environmental (Eugene)
Address: 2645 Willamette Street Suite A
Eugene, OR 97405

Batch #: 1403574.00

Matrix: Paint Chips

Method: EPA 7000B

Client Project #: 52057.002

Date Received: 3/3/2014

Samples Received: 3

Samples Analyzed: 3

Attention: Mr. Jack Burgess

Project Location: Edison Elem. School Office Rm. 15

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
14023251	52057.002-1001	0.2480	37.0	910.0	0.0910
14023252	52057.002-1002	0.2379	39.0	740.0	0.0740
14023253	52057.002-1003	0.2095	44.0	1800.0	0.1800

Sampled by: Client

Analyzed by: Shalini Patel

Reviewed by: Nick Ly

Date Analyzed: 03/03/2014

Date Issued: 03/03/2014

A handwritten signature in black ink, appearing to read "Nick Ly".

Nick Ly, Technical Director

mg/ Kg =Milligrams per kilogram

Percent = Milligrams per kilogram / 10000

Note : Method QC results are acceptable unless stated otherwise.

Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit

'<' = Below the reporting Limit



METALS CHAIN OF CUSTODY

NVL Batch ID
1403574

Turn Around Time
 2 Hour 4 Hours 24 Hours
 2 Days 3 Days 4 Days
 5 Days 6-10 Days
 Please call for TAT less than 24 Hours

Laboratory | Management | Training

Company PBS Engineering + Environmental
 Address 2645 Willamette St., Ste. A
Eugene, Oregon 97405
 Phone 541-686-8684

Project Manager Jack Burgess
 Cell (541) 913 - 9469
 Email jack.burgess@pbsenv.com
 Fax () -

Project Name/Number 52057.002 Project Location Edison Elem. School - Office/Rm. 15

- | | | | | | | | | |
|---------------------------------------|---|---|---|-------------------------------|-----------------------------------|-----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> Total Metals | <input checked="" type="checkbox"/> PAA (ppm) | <input type="checkbox"/> Air Filter | <input checked="" type="checkbox"/> Paint Chips (%) | <input type="checkbox"/> Soil | RCRA 8 | RCRA 11 | | |
| <input type="checkbox"/> TCLP | <input type="checkbox"/> ICP (PPM) | <input type="checkbox"/> Paint Chips (cm) | <input type="checkbox"/> Dust Wipes | | <input type="checkbox"/> Barium | <input type="checkbox"/> Chromium | <input type="checkbox"/> Silver | <input type="checkbox"/> Copper |
| | <input type="checkbox"/> GFAA (ppb) | <input type="checkbox"/> Drinking Water | <input type="checkbox"/> Waste Water | | <input type="checkbox"/> Arsenic | <input type="checkbox"/> Mercury | <input checked="" type="checkbox"/> Lead | <input type="checkbox"/> Zinc |
| | <input type="checkbox"/> CVAA (ppb) | <input type="checkbox"/> Other _____ | | | <input type="checkbox"/> Selenium | <input type="checkbox"/> Cadmium | | <input type="checkbox"/> Other _____ |

Reporting Instructions _____
 Call () - Fax () - Email jack.burgess@pbsenv.com

Total Number of Samples 3

Sample ID	Description	A/R
1	52057.002-1001	
2	52057.002-1002	
3	52057.002-1003	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

	Print Name	Signature	Company	Date	Time
Sampled by	JACK BURGESS	<i>Jack Burgess</i>	PBS ENV.	2/28/14	1700
Relinquish by	JACK BURGESS	<i>Jack Burgess</i>	PBS ENV.	2/28/14	1700

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Max R	<i>[Signature]</i>	NVL	3/3/14	10:15 PM
Analyzed by	Shalini Patel	<i>[Signature]</i>	NVL	3/3/14	1345
Called by					
Faxed/Email by					

BID FORM

BID FOR: Edison ES – Office Relocation CIP Number: 420.170.003

Submitted to: Facilities Management Bid Deadline: 2:00 PM
 Eugene School District 4J May 8, 2014
 715 West Fourth Avenue3
 Eugene, Oregon 97402

Submitted by: _____
 (Company Name)

BASE BID

The undersigned proposes to furnish all material, equipment, and labor required for the complete project, and to perform all work in strict accordance with the Contract Documents for the lump sum prices indicated below with completion occurring on or prior to the dates indicated:

BASE BID:

Bid: _____ \$ _____
 (Words) (Figures)

The undersigned agrees, if awarded the Contract, to substantially complete all Base Bid work on or before the dates specified in Section 01 11 00.

BID SECURITY

Accompanying herewith is Bid Security, which is not less than ten percent (10%) of the total amount of the Base Bid.

STIPULATIONS

The undersigned acknowledges the liquidated damages provision included in the Supplementary Conditions.

The undersigned agrees, if awarded the contract, to comply with the provisions of Oregon Revised Statutes 279C.800 through 279C.870 pertaining to the payment of prevailing rates of wage, in particular ORS 279C.838 and 279C.840 as this is a federally funded project. See Document 00 73 43.

The undersigned agrees, if awarded the Contract, to execute and deliver to the Owner within ten (10) working days after receiving contract forms, an Agreement and a satisfactory Performance Bond and Payment Bond each in an amount equal to 100 percent (100%) of the Contract Sum.

For every bid \$100,000 or greater, all Contractors and Subcontractors shall have a public works bond, in the amount of \$30,000, filed with the Construction Contractors’ Board (CCB), before starting work on the project, unless exempt.

The undersigned agrees that the Bid Security accompanying this proposal is the measure of liquidated damages which the Owner will sustain by the failure of the undersigned to execute and deliver the above named agreement and bonds; and that if the undersigned defaults in executing that agreement within ten (10) days after forms are provided or providing the bonds, then the Bid Security shall become the property of the Owner; but if this proposal is not accepted within sixty (60) days of the time set for the opening of bids, or if the undersigned executes and delivers said agreement and bonds, the Bid Security shall be returned.

By submitting this Bid, the Bidder certifies that the Bidder:

- a) has available the appropriate financial, material, equipment, facility and personnel resources and expertise, or the ability to obtain the resources and expertise, necessary to meet all contractual responsibilities;
- b) has a satisfactory record of past performance;
- c) has a satisfactory record of integrity, and is not disqualified under ORS 279C.440;
- d) is qualified legally to contract with the Owner; and
- e) will promptly supply all necessary information in connection with any inquiry the Owner may make concerning the responsibility of the Bidder.

Prior to award of a Contract, the Bidder shall submit appropriate documentation to allow the Owner to determine whether or not the Bidder is “responsible” according to the above criteria.

The contractor agrees with the provisions of Oregon Revised Statutes 279C.505, which requires that the contractor shall demonstrate it has established a drug-testing program for employees and will require each subcontractor providing labor for the Project to do the same.

The undersigned has received addenda numbers _____ to _____ inclusive and has included their provisions in the above Bid amounts.

The undersigned has visited the site to become familiar with 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.

The undersigned certifies that the Bidder is a _____ Bidder under ORS. ("Resident" or "Non-resident", to be filled in by Bidder)

Names of Firm: _____

Street Address: _____
(City) (State) (Zip)

Telephone Number: _____ FAX Number: _____

Email Address: _____

Signed By: _____ Printed Name: _____
(Signature of Authorized Official. If bid is from a partnership, one of the partners must sign bid).

Date Signed: _____

Official Capacity: _____

If corporation, attest: _____ Date: _____
(Secretary of Corporation)

SEAL (If Corporate) _____ Corporation
_____ Partnership
_____ Individual

Enclosed: Bid Security, Non-Discrimination Requirement, Non-Collusion Affidavit, First-Tier Subcontractor Disclosure Form

NON-DISCRIMINATION REQUIREMENT

Contractor certifies that the Contractor has not discriminated against minorities, women or emerging small business enterprises in obtaining any required subcontracts.

The Contractor agrees not to discriminate against any client, employee, or applicant for employment or for services, because of race, color, religion, sex, national origin, physical or mental handicap, sexual orientation or age, unless based upon bona fide occupational qualifications, and that they are otherwise in compliance with all federal, state and local laws prohibiting discrimination, with regard to, but not limited to, the following: Employment upgrading, demotion or transfer; Recruitment or recruitment advertising; Layoffs or termination; Rates of pay or other forms of compensation; Selection for training; Rendition of services. It is further understood that any vendor who is in violation of this clause shall be barred forthwith from receiving awards of any purchase order from the School District, unless a satisfactory showing is made that discriminatory practices have terminated and that a recurrence of such acts is unlikely.

FIRM NAME _____

ADDRESS _____

TELEPHONE _____

BY _____
(Company or Firm Officer)

BY _____
(Type or Print Name)

NON-COLLUSION AFFIDAVIT

STATE OF _____)

County of _____)

I state that I am _____ of _____
(Title) (Name of Firm)

and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

(1) The price(s) and amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder, except as disclosed on the attached appendix.

(2) That neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.

(3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.

(4) The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or noncompetitive bid.

(5) _____, its affiliates, subsidiaries, officers, directors and
(Name of my Firm)
employees are not currently under investigation by any governmental agency and have not in the last four years been convicted of or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as described on the attached appendix.

I state that _____ understands and acknowledges that the above representations
(Name of my Firm)
are material and important, and will be relied on by School District 4J in awarding the contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from School District 4J of the true facts relating to the submission of bids for this contract.

(Authorized Signature)

Sworn to and subscribed before me this ____ day of _____, 20

(Notary Public for Oregon)

My Commission Expires: _____

END OF BID FORM

FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM

PROJECT: Edison ES – Office Relocation

CIP NUMBER: 420.170.003

TO: Kathi Hernandez, Facilities Management Assistant
Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97402

BID SUBMISSION DEADLINE: Date: May 8, 2014

Time: 2:00 PM

SUBMITTAL REQUIREMENTS

Subcontractor disclosure is required on all public improvement contracts greater than \$100,000.

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two working hours after the advertised bid closing time.

List below the name of each subcontractor that will be furnishing labor or labor and materials, and that is required to be disclosed, the category of work that the subcontractor will be performing, and the dollar value of the subcontract. Enter "NONE" if there are no subcontractors that need to be disclosed. (ATTACH ADDITIONAL SHEETS IF NEEDED.)

SUBCONTRACTOR	DOLLAR VALUE	CATEGORY OF WORK
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The above listed first- tier subcontractor(s) are providing labor, or labor and material, with a Dollar Value equal to or greater than:

- a) 5% of the total Contract Price, but at least \$15,000. [If the Dollar Value is less than \$15,000 do not list the subcontractor above.]
- b) \$350,000 regardless of the percentage of the total Contract Price

Failure to submit this form by the disclosure deadline will result in a non-responsive bid. A non-responsive bid will not be considered for award.

Form submitted by (Bidder Name): _____

Contact Name: _____ **Phone:** _____

Signature: _____

END OF DOCUMENT

**SECTION 00 52 13
FORM OF AGREEMENT**

PART 1 GENERAL

1.01 STANDARD FORM

- A. The form of Agreement will be executed on AIA Form A 101, Standard Form of Agreement Between Owner and Contractor, 2007 Edition, a copy of which is included by reference. Copies are available for review at the office of Facilities Management, School District 4J.

END OF DOCUMENT

GENERAL CONDITIONS

PART 1 GENERAL

1.01 STANDARD FORM

- A. “General Conditions of the Contract for Construction” AIA Document A-201, 2007 Edition, immediately following, are part of these specifications.
- B. The Contractor and all Subcontractors shall read and be governed by them.

1.02 CONFLICTS

- A. In the case of conflicts between the “General Conditions” and these Specifications, the Specifications govern.

END OF DOCUMENT

AIA[®] Document A201[™] – 2007

General Conditions of the Contract for Construction

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

–

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

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.

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User Notes:

(2020364912)

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, 13.4.2, 13.7, 14.1, 15.2

Addenda

1.1.1, 3.11

Additional Costs, Claims for

3.7.4, 3.7.5, 6.1.1, 7.3.7.5, 10.3, 15.1.4

Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, **13.5**

Additional Insured

11.1.4

Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.5**

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, 7.3.8

All-risk Insurance

11.3.1, 11.3.1.1

Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.6.3, 9.7, 9.10, 11.1.3

Approvals

2.1.1, 2.2.2, 2.4, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10, 4.2.7, 9.3.2, 13.5.1

Arbitration

8.3.1, 11.3.10, 13.1, 15.3.2, **15.4**

ARCHITECT

4

Architect, Definition of

4.1.1

Architect, Extent of Authority

2.4, 3.12.7, 4.1, 4.2, 5.2, 6.3, 7.1.2, 7.3.7, 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, 13.5.1, 13.5.2, 14.2.2, 14.2.4, 15.1.3, 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, 9.5.3, 9.6.4, 15.1.3, 15.2

Architect's Additional Services and Expenses

2.4, 11.3.1.1, 12.2.1, 13.5.2, 13.5.3, 14.2.4

Architect's Administration of the Contract

3.1.3, 4.2, 3.7.4, 15.2, 9.4.1, 9.5

Architect's Approvals

2.4, 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, 7.3.7, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.5.2, 15.2, 15.3

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.5

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.5.2

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, 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, 4.1.3, 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, 11.3.7, 12, 13.4.2, 13.5, 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, 11.3.7

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, 13.5

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 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, 5.2.1, 11.4.1

Binding Dispute Resolution

9.7, 11.3.9, 11.3.10, 13.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.4.1

Boiler and Machinery Insurance

11.3.2

Bonds, Lien

7.3.7.4, 9.10.2, 9.10.3

Bonds, Performance, and Payment

7.3.7.4, 9.6.7, 9.10.3, 11.3.9, 11.4

Int.

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User Notes:

(2020364912)

Building Permit
 3.7.1
Capitalization
 1.3
 Certificate of Substantial Completion
 9.8.3, 9.8.4, 9.8.5
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, 15.1.3
 Certificates of Inspection, Testing or Approval
 13.5.4
 Certificates of Insurance
 9.10.2, 11.1.3
Change Orders
 1.1.1, 2.4, 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, 7.3.6, 7.3.9, 7.3.10,
 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.3.1.2, 11.3.4, 11.3.9,
 12.1.2, 15.1.3
 Change Orders, Definition of
 7.2.1
CHANGES IN THE WORK
 2.2.1, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1,
 11.3.9
 Claims, Definition of
 15.1.1
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, 3.7.4, 6.1.1, 7.3.9, 10.3.2, 15.1.4
 Claims for Additional Time
 3.2.4, 3.7.4, 6.1.1, 8.3.2, 10.3.2, 15.1.5
 Concealed or Unknown Conditions, Claims for
 3.7.4
 Claims for Damages
 3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.1.1,
 11.3.5, 11.3.7, 14.1.3, 14.2.4, 15.1.6
 Claims Subject to Arbitration
 15.3.1, 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, 11.3.1, 11.3.6, 11.4.1,
 15.1.4
 Commencement of the Work, Definition of
 8.1.2
Communications Facilitating Contract
Administration
 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, 13.7, 14.1.2
COMPLETION, PAYMENTS AND
9
 Completion, Substantial
 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, 13.7
 Compliance with Laws
 1.6, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 10.2.2,
 11.1, 11.3, 13.1, 13.4, 13.5.1, 13.5.2, 13.6, 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, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.8.5, 9.9.1,
 9.10.2, 9.10.3, 11.3.1, 13.2, 13.4.2, 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, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, 7.3,
 9.3.1.1
 Construction Schedules, Contractor's
 3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2
Contingent Assignment of Subcontracts
 5.4, 14.2.2.2
Continuing Contract Performance
 15.1.3
 Contract, Definition of
 1.1.2
CONTRACT, TERMINATION OR
SUSPENSION OF THE
 5.4.1.1, 11.3.9, 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, 11.1.3, 11.3.6, 11.4.1
 Contract Documents, Copies Furnished and Use of
 1.5.2, 2.2.5, 5.3
 Contract Documents, Definition of
 1.1.1
 Contract Sum
 3.7.4, 3.8, 5.2.3, 7.2, 7.3, 7.4, 9.1, 9.4.2, 9.5.1.4,
 9.6.7, 9.7, 10.3.2, 11.3.1, 14.2.4, 14.3.2, 15.1.4,
 15.2.5
 Contract Sum, Definition of
 9.1
 Contract Time
 3.7.4, 3.7.5, 3.10.2, 5.2.3, 7.2.1.3, 7.3.1, 7.3.5, 7.4,
 8.1.1, 8.2.1, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 14.3.2,
 15.1.5.1, 15.2.5
 Contract Time, Definition of
 8.1.1

CONTRACTOR

3

Contractor, Definition of

3.1, 6.1.2

Contractor's Construction Schedules

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

Contractor's Employees

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.1.1, 11.3.7, 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, 11.3.7, 12.1.2, 12.2.4

Contractor's Relationship with Subcontractors

1.2.2, 3.3.2, 3.18.1, 3.18.2, 5, 9.6.2, 9.6.7, 9.10.2, 11.3.1.2, 11.3.7, 11.3.8

Contractor's Relationship with the Architect

1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.3, 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, 11.3.7, 12, 13.5, 15.1.2, 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

9.7

Contractor's Right to Terminate the Contract

14.1, 15.1.6

Contractor's Submittals

3.10, 3.11, 3.12.4, 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, 11.1.3, 11.4.2

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, 7.3.5, 7.3.7, 8.2, 10, 12, 14, 15.1.3

Contractual Liability Insurance

11.1.1.8, 11.2

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, 2.2.5, 3.11

Copyrights

1.5, 3.17

Correction of Work

2.3, 2.4, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2

Correlation and Intent of the Contract Documents

1.2

Cost, Definition of

7.3.7

Costs

2.4, 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, 7.3.7, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.3, 12.1.2, 12.2.1, 12.2.4, 13.5, 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, 11.1.1, 11.3, 12.2.4

Damage to the Work

3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 11.3.1, 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, 11.1.1, 11.3.5, 11.3.7, 14.1.3, 14.2.4, 15.1.6

Damages for Delay

6.1.1, 8.3.3, 9.5.1.6, 9.7, 10.3.2

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, 15.2, 6.3, 7.3.7, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.5.2, 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

2.3, 2.4, 3.5, 4.2.6, 6.2.5, 9.5.1, 9.5.2, 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, 15.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1

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, 15.1.5, 15.2.5

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, 11.1.2

Emergencies

10.4, 14.1.1.2, 15.1.4

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, 11.1.1, 11.3.7, 14.1, 14.2.1.1

Int.

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Equipment, Labor, Materials or
 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, 7.3.7, 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, 2.2.3, 2.2.5, 3.1, 3.3.1, 3.4.1, 3.5,
 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.5, 8.2,
 9.5.1, 9.9.1, 10.2, 10.3, 12.2, 14.2, 14.3.1, 15.1.3
 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, 15.1.5, 15.2.5
 Failure of Payment
 9.5.1.3, 9.7, 9.10.2, 13.6, 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, 11.1.2, 11.1.3, 11.3.1, 11.3.5,
 12.3, 14.2.4, 14.4.3
 Financial Arrangements, Owner's
 2.2.1, 13.2.2, 14.1.1.4
 Fire and Extended Coverage Insurance
 11.3.1.1
GENERAL PROVISIONS
1
 Governing Law
13.1
 Guarantees (See Warranty)
 Hazardous Materials
 10.2.4, 10.3
 Identification of Subcontractors and Suppliers
 5.2.1
 Indemnification
 3.17, 3.18, 9.10.2, 10.3.3, 10.3.5, 10.3.6, 11.3.1.2,
 11.3.7
 Information and Services Required of the Owner
 2.1.2, 2.2, 3.2.2, 3.12.4, 3.12.10, 6.1.3, 6.1.4, 6.2.5,
 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 11.4, 13.5.1,
 13.5.2, 14.1.1.4, 14.1.4, 15.1.3
 Initial Decision
15.2
 Initial Decision Maker, Definition of
 1.1.8
 Initial Decision Maker, Decisions
 14.2.2, 14.2.4, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
 Initial Decision Maker, Extent of Authority
 14.2.2, 14.2.4, 15.1.3, 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, 13.5
 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, 13.5.2

Instruments of Service, Definition of
1.1.7
 Insurance
 3.18.1, 6.1.1, 7.3.7, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 11
Insurance, Boiler and Machinery
11.3.2
Insurance, Contractor's Liability
11.1
 Insurance, Effective Date of
 8.2.2, 11.1.2
Insurance, Loss of Use
11.3.3
Insurance, Owner's Liability
11.2
Insurance, Property
 10.2.5, 11.3
 Insurance, Stored Materials
 9.3.2
INSURANCE AND BONDS
11
 Insurance Companies, Consent to Partial Occupancy
 9.9.1
 Intent of the Contract Documents
 1.2.1, 4.2.7, 4.2.12, 4.2.13, 7.4
Interest
13.6
Interpretation
 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1
 Interpretations, Written
 4.2.11, 4.2.12, 15.1.4
 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,
 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 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, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 9.9.1,
 10.2.2, 11.1.1, 11.3, 13.1, 13.4, 13.5.1, 13.5.2, 13.6,
 14, 15.2.8, 15.4
 Liens
 2.1.2, 9.3.3, 9.10.2, 9.10.4, 15.2.8
 Limitations, Statutes of
 12.2.5, 13.7, 15.4.1.1
 Limitations of Liability
 2.3, 3.2.2, 3.5, 3.12.10, 3.17, 3.18.1, 4.2.6, 4.2.7,
 4.2.12, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 10.2.5, 10.3.3,
 11.1.2, 11.2, 11.3.7, 12.2.5, 13.4.2
 Limitations of Time
 2.1.2, 2.2, 2.4, 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, 11.1.3, 11.3.1.5,
 11.3.6, 11.3.10, 12.2, 13.5, 13.7, 14, 15
Loss of Use Insurance
11.3.3

Material Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.6, 9.10.5

Materials, Hazardous
10.2.4, 10.3

Materials, Labor, Equipment and
1.1.3, 1.1.6, 1.5.1, 3.4.1, 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, 7.3.7, 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, 15.2.8

Mediation
8.3.1, 10.3.5, 10.3.6, 15.2.1, 15.2.5, 15.2.6, 15.3,
15.4.1

Minor Changes in the Work
1.1.1, 3.12.8, 4.2.8, 7.1, 7.4

MISCELLANEOUS PROVISIONS
13

Modifications, Definition of
1.1.1

Modifications to the Contract
1.1.1, 1.1.2, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,
10.3.2, 11.3.1

Mutual Responsibility
6.2

Nonconforming Work, Acceptance of
9.6.6, 9.9.3, 12.3

Nonconforming Work, Rejection and Correction of
2.3, 2.4, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,
12.2.1

Notice
2.2.1, 2.3, 2.4, 3.2.4, 3.3.1, 3.7.2, 3.12.9, 5.2.1, 9.7,
9.10, 10.2.2, 11.1.3, 12.2.2.1, 13.3, 13.5.1, 13.5.2,
14.1, 14.2, 15.2.8, 15.4.1

Notice, Written
2.3, 2.4, 3.3.1, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 9.7, 9.10,
10.2.2, 10.3, 11.1.3, 11.3.6, 12.2.2.1, 13.3, 14, 15.2.8,
15.4.1

Notice of Claims
3.7.4, 10.2.8, 15.1.2, 15.4

Notice of Testing and Inspections
13.5.1, 13.5.2

Observations, Contractor's
3.2, 3.7.4

Occupancy
2.2.2, 9.6.6, 9.8, 11.3.1.5

Orders, Written
1.1.1, 2.3, 3.9.2, 7, 8.2.2, 11.3.9, 12.1, 12.2.2.1,
13.5.2, 14.3.1

OWNER
2

Owner, Definition of
2.1.1

Owner, Information and Services Required of the
2.1.2, 2.2, 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, 11.3, 13.5.1,
13.5.2, 14.1.1.4, 14.1.4, 15.1.3

Owner's Authority
1.5, 2.1.1, 2.3, 2.4, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2,
4.1.3, 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, 9.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1,
9.10.2, 10.3.2, 11.1.3, 11.3.3, 11.3.10, 12.2.2, 12.3,
13.2.2, 14.3, 14.4, 15.2.7

Owner's Financial Capability
2.2.1, 13.2.2, 14.1.1.4

Owner's Liability 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
2.4, 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
2.3

Owner's Right to Suspend the Work
14.3

Owner's Right to Terminate the Contract
14.2

**Ownership and Use of Drawings, Specifications
and Other Instruments of Service**
1.1.1, 1.1.6, 1.1.7, 1.5, 2.2.5, 3.2.2, 3.11, 3.17, 4.2.12,
5.3

Partial Occupancy or Use
9.6.6, 9.9, 11.3.1.5

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, 13.7, 14.1.1.3, 14.2.4

Payment, Failure of
9.5.1.3, 9.7, 9.10.2, 13.6, 14.1.1.3, 14.2.1.2

Payment, Final
4.2.1, 4.2.9, 9.8.2, 9.10, 11.1.2, 11.1.3, 11.4.1, 12.3,
13.7, 14.2.4, 14.4.3

Payment Bond, Performance Bond and
7.3.7.4, 9.6.7, 9.10.3, 11.4

Payments, Progress
9.3, 9.6, 9.8.5, 9.10.3, 13.6, 14.2.3, 15.1.3

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
 7.3.7.4, 9.6.7, 9.10.3, 11.4
Permits, Fees, Notices and Compliance with Laws
 2.2.2, 3.7, 3.13, 7.3.7.4, 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, 15.1.3
Progress Payments
 9.3, 9.6, 9.8.5, 9.10.3, 13.6, 14.2.3, 15.1.3
Project, Definition of
 1.1.4
Project Representatives
 4.2.10
Property Insurance
 10.2.5, 11.3
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
 1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 9.9.1,
 10.2.2, 11.1, 11.4, 13.1, 13.4, 13.5.1, 13.5.2, 13.6, 14,
 15.2.8, 15.4
Rejection of Work
 3.5, 4.2.6, 12.2.1
Releases and Waivers of Liens
 9.10.2
Representations
 3.2.1, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.4.2, 9.5.1,
 9.8.2, 9.10.1
Representatives
 2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.1, 4.2.2, 4.2.10, 5.1.1,
 5.1.2, 13.2.1
Responsibility for Those Performing the Work
 3.3.2, 3.18, 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, 2.3, 2.4, 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, 12.2.2, 12.2.4,
 13.4, 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, 15.1.5.2
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
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, 9.4.2, 9.10.1, 13.5
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, 13.5
Special Inspections and Testing
 4.2.6, 12.2.1, 13.5
Specifications, Definition of
 1.1.6
Specifications
 1.1.1, 1.1.6, 1.2.2, 1.5, 3.11, 3.12.10, 3.17, 4.2.14
Statute of Limitations
 13.7, 15.4.1.1
Stopping the Work
 2.3, 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, 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, 7.3.7, 9.2, 9.3,
 9.8, 9.9.1, 9.10.2, 9.10.3, 11.1.3
 Submittal Schedule
 3.10.2, 3.12.5, 4.2.7
 Subrogation, Waivers of
 6.1.1, 11.3.7
 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, 13.7
 Substantial Completion, Definition of
 9.8.1
 Substitution of Subcontractors
 5.2.3, 5.2.4
 Substitution of Architect
 4.1.3
 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
 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, 7.3.7, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.3
 Surety
 5.4.1.2, 9.8.5, 9.10.2, 9.10.3, 14.2.2, 15.2.7
 Surety, Consent of
 9.10.2, 9.10.3
 Surveys
 2.2.3
 Suspension by the Owner for Convenience
 14.3
 Suspension of the Work
 5.4.2, 14.3
 Suspension or Termination of the Contract
 5.4.1.1, 14
 Taxes
 3.6, 3.8.2.1, 7.3.7.4
 Termination by the Contractor
 14.1, 15.1.6
 Termination by the Owner for Cause
 5.4.1.1, 14.2, 15.1.6
 Termination by the Owner for Convenience
 14.4
 Termination of the Architect
 4.1.3
 Termination of the Contractor
 14.2.2
**TERMINATION OR SUSPENSION OF THE
 CONTRACT**
 14

Tests and Inspections
 3.1.3, 3.3.3, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2,
 9.10.1, 10.3.2, 11.4.1, 12.2.1, 13.5
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, 15.1.5, 15.2.5
 Time Limits
 2.1.2, 2.2, 2.4, 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, 11.1.3, 12.2, 13.5,
 13.7, 14, 15.1.2, 15.4
Time Limits on Claims
 3.7.4, 10.2.8, 13.7, 15.1.2
 Title to Work
 9.3.2, 9.3.3
Transmission of Data in Digital Form
 1.6
**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, 7.3.4
 Use of Documents
 1.1.1, 1.5, 2.2.5, 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
 13.4.2
 Waiver of Claims by the Contractor
 9.10.5, 13.4.2, 15.1.6
 Waiver of Claims by the Owner
 9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.4.2, 14.2.4, 15.1.6
 Waiver of Consequential Damages
 14.2.4, 15.1.6
 Waiver of Liens
 9.10.2, 9.10.4
Waivers of Subrogation
 6.1.1, 11.3.7
Warranty
 3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.4, 12.2.2, 13.7
 Weather Delays
 15.1.5.2
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, 9.8.5,
 9.9.1, 9.10.2, 9.10.3, 11.4.1, 13.2, 13.4.2, 15.4.4.2
 Written Interpretations
 4.2.11, 4.2.12

Init.

Written Notice

2.3, 2.4, 3.3.1, 3.9, 3.12.9, 3.12.10, 5.2.1, 8.2.2, 9.7,
9.10, 10.2.2, 10.3, 11.1.3, 12.2.2, 12.2.4, 13.3, 14,
15.4.1

Written Orders

1.1.1, 2.3, 3.9, 7, 8.2.2, 12.1, 12.2, 13.5.2, 14.3.1,
15.1.2

Int.

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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 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 and certify termination of the Agreement under Section 14.2.2.

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

§ 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 will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment 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 this 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 material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them 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 material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

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 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

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

§ 2.2.3 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.

§ 2.2.4 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.

§ 2.2.5 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.

§ 2.3 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.

§ 2.4 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 written 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 deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor 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. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

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 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.

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§ 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 2.2.3, 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 make 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 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and 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 written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required 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

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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.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 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

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.

§ 3.6 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 21 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 an equitable adjustment 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 in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 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

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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 furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply 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 SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be 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, the 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.

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§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be 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 the way by which 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 requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing 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.

§ 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 written 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

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required to provide professional services in violation of applicable law. 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 cause such services or certifications to be provided by a properly 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, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, 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. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 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, and 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 and patching shall be restored to the condition existing prior to the cutting, fitting and 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 such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's 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 or 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 Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect 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 such 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 the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such 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 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.

§ 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.

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

§ 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, except as provided in Section 3.3.1.

§ 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 report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) 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.

Init.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 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 13.5.2 and 13.5.3, whether or not such 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, material and equipment 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, unless otherwise specifically stated by the Architect, 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 authorize 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 duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 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 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.

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§ 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 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 or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply 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 previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, 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, which the Contractor, by these 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, 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

Init.

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 in writing; 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 such 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 Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 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 other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the 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, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor 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, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that

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the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 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 the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors 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, and the Contractor shall proceed promptly, 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:

- .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

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.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 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.

§ 7.3.6 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.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and 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 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .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 related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 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 has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

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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, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 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 an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order 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

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.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's 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. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material 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 material 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, material suppliers, or other persons or entities making a claim by reason of having 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 issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part 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 comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. 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. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. 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 material 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.

§ 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;

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- .3 failure of the Contractor to make payments properly to Subcontractors or 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 the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 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 material or equipment suppliers 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 Architect will reflect such payment on the next Certificate 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 material and equipment 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 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, except as may otherwise be required by law.

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

§ 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 and 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, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 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' written 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 shut-down, 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, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall 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 such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such 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.

§ 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 as required under Section 11.3.1.5 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 written 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 and, when the

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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 terms and conditions of 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 and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial 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 and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, 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. If such lien 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 such lien, 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 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 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.

§ 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; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material 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 or the Contractor's Subcontractors or Sub-subcontractors; 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 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 owners and users of adjacent sites and utilities.

§ 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, except damage or loss 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.

§ 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, written notice of such 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

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. 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 report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written 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 such material or substance or who are to perform the task of removal or safe containment of such 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 in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

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§ 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 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 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 indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance 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 indemnify 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.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction

Init.

of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or

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otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 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, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

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, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, 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 covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance 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 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the

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Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 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.

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, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after 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 an 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 written 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 2.4.

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§ 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, whether completed or partially completed, of the Owner or separate contractors 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 except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 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 such 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 such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 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.

§ 13.4.2 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 there under, except as may be specifically agreed in writing.

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§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 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 (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 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 13.5.1, 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 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 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.

§ 13.5.4 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.

§ 13.5.5 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.

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

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may 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.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time 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 13.7.

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 or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, 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 promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, 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' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor 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' written 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 for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .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 above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, 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' written 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, 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.

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§ 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 as described in 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 written 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 Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

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, 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.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written 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 must 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.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

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. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

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

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein 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.

§ 15.1.5.2 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.

§ 15.1.6 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 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, 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 arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no 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 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 such 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 an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, 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 15.1.6 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 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. 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 Either party, at its sole discretion, 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 Either party, at its sole discretion, 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

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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 the Owner and Contractor under this Agreement.

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**DOCUMENT 00 73 00
SUPPLEMENTARY CONDITIONS
FOR GENERAL CONDITIONS FOR THE CONTRACT FOR CONSTRUCTION**

PART 1 GENERAL

The following supplements modify, change, delete from or add to AIA Document A201, General Conditions of the Contract for Construction 2007 Edition. Where any part of the AIA General Conditions is amended, voided, or superseded by the Supplementary Conditions, the unaltered provisions shall remain in effect.

1.1 ARTICLE 1 GENERAL PROVISIONS

A. BASIC DEFINITIONS

1. Add the following Subparagraphs:

1.1.9 ARCHITECT/ENGINEER

Where the term ARCHITECT is used in the Bidding documents, Contract documents, Addenda, Change Orders or other documents related to this contract it shall be defined as either "Architect" or "Engineer" depending upon which design professional has prepared the document in question. When the project has been designed and initiated under the direction of a licensed engineer, the term ENGINEER shall be substituted for the term "Architect" throughout all documents.

1.1.10 MISCELLANEOUS DEFINITIONS

.1 "Provide:" Furnish and install, or furnish labor and materials required for installation, ready for use and in accordance with the Contract Documents.

.2 "As shown:" As indicated, as detailed, as noted, or words of similar import refer to Contract Documents.

.3 "Selected:" As selected by the Architect.

.4 "Approved:" Approved by Architect.

.5 "For Approval:" For the Architect's approval.

B. CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1. Add the following to Subparagraph 1.2.1:

1.2.1.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities.

1. The Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Division 1 of the Specifications.
6. Drawings and Divisions 2- 49 of the Specifications.

In the case of conflicts or discrepancies between Drawings and Divisions 2- 49 of the Specifications or within either Document not clarified by Addendum, the Architect will determine which takes precedence in accordance with Subparagraph 4.2.11.

2. Add the following Subparagraphs:

1.2.4 If work is required in such a manner to make it impossible to produce first class work or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, the Contractor will thereafter

be expected to carry out work in satisfactory manner.

1.2.5 Reference to codes, standard specifications, or other standards means and intends latest edition of such documents and/or adopted as of bid date. Where brand name products are specified and no installation instructions given herein, install product in accordance with the manufacturer's specifications and instructions, latest edition.

1.2.6 No provision of any reference standard specification, manual or code shall change the privileges or responsibilities of Owner, Architect, or Contractor, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Architect, or any of Architect's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provision of the Contract Documents.

1.2.7 Sections of Division 1, General Requirements govern the execution of all sections of the specifications.

1.2 ARTICLE 2 OWNER

A. 2.1 GENERAL

1. Add the following Subparagraph:

2.1.3 The Owner is the Eugene School District 4J, 200 North Monroe Street, Eugene, Oregon 97402, (541) 790-7417.

The Owner's representative is Larry Massey, 715 West Fourth Avenue, Eugene, OR 97402.

B. INFORMATION AND SERVICES REQUIRED OF THE OWNER

1. Delete Subparagraph 2.2.5 and substitute the following:

2.2.5 The Contractor will be furnished free of charge up to 10 copies of the Contract Documents. The Owner will furnish additional copies requested by the Contractor at the cost of reproduction, postage and handling.

1.3 ARTICLE 3 CONTRACTOR

A. 3.1 GENERAL

1. Delete the second sentence to Subparagraph 3.1.1, and add the following:

The Contractor and each subcontractor shall maintain for the duration of the Project a registration with the Oregon State Construction Contractor's Board.

2. Add the following Subparagraph 3.1.4

3.1.4 The Contractor is required to demonstrate that an employee drug testing program is in place.

3. Add the following Subparagraph 3.1.5

3.1.5 The Contractor certifies that the Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in this Contract by any Federal department or agency. If requested by the Eugene 4J School District, the Contractor shall complete a Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion form. Any such form completed by the Contractor for this Contract shall be incorporated into this Contract by reference.

B. 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

1. Delete the last sentence to Subparagraph 3.2.4, and add the following:

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, unless the Contractor recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect.

C. 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

1. Add the following Subparagraphs:

3.3.4 The Contractor shall review with all Subcontractors, construction means, methods and materials to be used to verify their compliance with all safety standards and laws and be responsible for compliance with same to insure safe, hazard free conditions for all persons visiting or working on the entire project.

3.3.5 The Contractor shall comply with the provisions of Oregon Revised Statutes and 4J Board Policy. Attention is directed to ORS 279A and 279C, Public Contracting Code.

D. 3.4 LABOR AND MATERIALS

1. Add the following Subparagraphs:

3.4.4 PAYMENT OF LABORERS AND MATERIALMEN, CONTRIBUTIONS TO INDUSTRIAL ACCIDENT FUND, LIENS AND WITHHOLDING TAXES: The Contractor shall: (1) Make payment promptly, as due, to all persons supplying to such contractor labor or material for the prosecution of the Work provided for in such contract. (2) Pay all contributions or amounts due the Industrial Accident Fund from such Contractor or subcontractor incurred in the performance of the contract. (3) Not permit any lien or claim to be filed or prosecuted against the state, county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished. (4) Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

3.4.5 HOURS OF LABOR: No person shall be employed for more than ten hours in any one day, or 40 hours in any one week, except in the cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases the person so employed shall be paid at least time and a half of the regular pay for all time worked.

.1 For all overtime in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or

.2 For all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and

.3 For all work performed on Saturday and on any legal holiday specified in ORS 279C.540.

.4 Worker claims for overtime, in order to be considered, must be filed with the Contractor within 90 days from the completion of the contract, in accordance with ORS 279C.545.

The Contractor shall give notice to employees who work on a public contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week the employees may be required to work.

3.4.6 PAYMENT FOR MEDICAL CARE AND PROVIDING WORKERS' COMPENSATION: The Contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service. All employers working under this contract are subject employers and must comply with ORS 656.017.

3.4.7 PREVAILING WAGE RATES: When the total price of the Project is \$50,000 or more, each worker in each trade or occupation employed in the performance of this Contract either by the contractor, subcontractor or other person doing or contracting to do contracting for the whole or any part of the Work on the Contract shall be paid not less than the applicable state prevailing rate of wage. This provision applies to all contracts, regardless of the price of the

individual contract, as long as the combined price of all contracts awarded on the Project is \$50,000 or more.

- a. The existing Oregon prevailing rate of wage in effect at the time the specifications are first advertised for bid solicitations is the applicable rate.
- b. The Owner will pay the public works fee to Oregon Bureau of Labor and Industries.
- c. Certification of rate or wage by Contractor or Subcontractor (ORS 279C.845):
 - .1 The contractor or the contractor's surety and every subcontractor or the subcontractor's surety shall file certified statements with the public agency in writing, on a form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker whom the contractor or the subcontractor has employed upon the public works, and further certifying that no worker employed upon the public works has been paid less than the higher of the applicable state or federal prevailing rate of wage or less than the minimum hourly rate of wage specified in the contract. The certificate and statement shall be verified by the oath of the contractor or the contractor's surety or subcontractor or the subcontractor's surety that the contractor or subcontractor has read the statement and certificate and knows the contents thereof and that the same is true to the contractor or subcontractor's knowledge. The certified statements shall set out accurately and completely the payroll records for the prior week, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid.
 - .2 If the Contractor does not file certified payroll as required (at least once per month) the Owner will withhold 25% of the amounts due the Contractor, in addition to any other required retainage.
 - .3 If a first-tier Subcontractor does not file certified payroll reports as required, the prime Contractor shall withhold 25% of amounts due the first-tier Subcontractor.
 - .4 Each certified statement required by subsection (1) of this section shall be delivered or mailed by the contractor or subcontractor to the public contracting agency. Certified statements shall be submitted to the public contracting agency once a month by the fifth business day of the following month, for each week workers are employed. Information submitted on certified statements may be used only to ensure compliance with the provisions of ORS 279C.800 to 279C.870.
 - .5 Each contractor or subcontractor shall preserve the certified statements for a period of three years from the date of completion of the contract.
 - .6 Certified statements received by a public agency are public records subject to the provisions of ORS 192.410 to 192.505. As such, they must be made available upon request.

3.4.8 PAYMENT OF CLAIMS BY PUBLIC OFFICERS: If the Contractor fails, neglects or refuses to make prompt payment of any claims for labor or services furnished to the Contractor or a subcontractor by any person in connection with this Contract as such claim becomes due, the Owner may pay such claim and charge the amount of the payment against funds due or to become due the Contractor by reason of this Contract.

3.4.9 PAYMENT FOR MEDICAL CARE AND PROVIDING WORKERS' COMPENSATION: The Contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.

3.4.10 Any person owed for labor or material by a subcontractor or Contractor may file a complaint with the Construction Contractors Board in accordance with ORS 279C.515(3).

E. 3.7 PERMITS, FEES AND NOTICES

1. Delete Subparagraph 3.7.1, and substitute the following:

3.7.1 The OWNER will pay the plan check fee, building permit fee, and systems development charges directly to the authority having jurisdiction.

The CONTRACTOR shall pay for all other permits, fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded. The Contractor shall pick up permits and call for inspections through final inspection, as required by the City Building Department.

F. 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1. Add the following to Subparagraph 3.12.5:

Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action.

2. Add the following to Subparagraph 3.12.9:

Shop drawings that are submitted to the Architect for review do not constitute "in writing" unless it is brought to the attention of the Architect, in written form, that specific changes are being suggested. In any event, changes to the contract documents by means of shop drawings become the responsibility of the person initiating such changes.

G. 3.18 INDEMNIFICATION

1. Delete Subparagraph 3.18.1, and substitute the following:

13.18.1 To the fullest extent of the law, the Contractor will defend, indemnify, hold harmless and reimburse the Eugene School District 4J (including its officers, board members, agents, and employees) from all claims, demands, suits, actions, penalties, and damage expenses, for liability of any kind including attorney's fees. To the extent that death or bodily injury to persons or damage to property arises out of the fault of the Contractor, the Contractor's indemnity obligation exists only to the extent that the death or bodily injury to persons or damage to property arises out of the fault of the Contractor, or the fault of the Contractor's agents, representatives or subcontractors, contributed to or caused such damage, whether or not such incidents are contributed to or caused in any part by Eugene School District 4J.

1.4 ARTICLE 4 ARCHITECT

A. 4.1 GENERAL

1. Modify Paragraph 4.1.1

- a. In the first sentence delete "shall retain" and insert "may have retained" in it's place.
- b. Add sentence: "The term "Architect" means the Architect or the Architect's authorized representative."

2. Add the following to Subparagraph 4.1.2:

Written consent of the Contractor shall only apply to those items which directly or indirectly affect the work of the Contractor.

3. Add the following Subparagraph:

In the first sentence delete "shall" and insert "may" in its place.

4. Add the following Subparagraph:

4.1.4 The Architect is defined as:

Robertson Sherwood Architects pc, 132 E. Broadway – Suite 540, Eugene, Oregon, 541-2342-8077.

B. 4.2 ADMINISTRATION OF THE CONTRACT

1. Add the following sentence to 4.2.1:

The architect may be retained to administer the Contract through the specified period for correction of the Work described in Section 12.2

2. Add the following to Subparagraph 4.2.4:

4.2.4.1 The Owner may communicate directly with the Contractor when necessary or appropriate. The Owner may give direction to the Contractor in matters related to access to the site, coordination with Owner's occupancy and use by the public, use of parking and staging areas, use of potentially hazardous products, drug and alcohol policy, no smoking policy, appropriate dress and behavior, safety requirements and safe work practices, where appropriate. The Owner will advise the Architect regarding any communication with or direction given to the Contractor.

4.2.4.2 Representatives of the Owner, Contractor and Architect shall meet periodically at mutually agreed-upon intervals for the purpose of establishing procedures to facilitate cooperation, communication and timely responses among the participants. By participating in this arrangement, the parties do not intend to create additional contractual obligations or modify the legal relationships which may otherwise exist. Nothing in this agreement shall give the Architect the authority to make decisions or give direction without the Owner's concurrence.

3. Add the following to Subparagraph 4.2.9:

4.2.9.1 The Architect will make one inspection for the determination of Substantial Completion and one for determination of Final Acceptance. Such inspections will be made only after receipt of written notification of readiness for such inspections from Contractor.

4.2.9.2 Should additional inspections beyond those listed in 4.2.9.1 be required due to Contractor's failure to satisfactorily complete all work, the Contractor shall become responsible for all costs incurred by the Owner in conjunction with required re-inspections. A deductive Change Order shall be prepared using the following hourly rates as the basis for calculating the amounts to be deducted:

Architect/Engineer:	\$100 per hour
District 4J Personnel:	\$ 75 per hour

4.2.9.3 The amount to be deducted from the Contract shall be calculated by multiplying the hours expended in additional inspections and documentation by the hourly rates listed in 4.2.9.2.

4. Add the following sentence to Subparagraph 4.2.11:

The architect's response will be within 10 days of receipt of written requests from the Owner or Contractor.

5. Delete Subparagraph 4.2.13, and substitute the following:

4.2.13 Decisions on matters related to aesthetic effect will be made collaboratively between the Owner and the Architect. The final decision shall be the Owner's, if consistent with the intent expressed in the Contract Documents.

6. Add the following sentence to Subparagraph 4.2.14

The architect's response will be within 10 days of receipt of written requests from the Owner or Contractor.

1.5 ARTICLE 5 SUBCONTRACTORS

A. 5.3 SUBCONTRACTUAL RELATIONS

1. Add the following Subparagraphs:

5.3.1 The Contractor shall include in each subcontract for property or services entered into by the Contractor and a subcontractor, including a material supplier, for the purpose of performing a construction contract:

.1 A payment clause that obligates the Contractor to pay the subcontractor for satisfactory

performance under its subcontract within 10 days out of such amounts as are paid to the Contractor by the owner under such contract; and

- .2 An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty on amounts due in the case of each payment not made in accordance with the payment clause included in the subcontract pursuant to paragraph .1 of this section for the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; computed at the rate specified in ORS 279C.580.

5.3.2 The Contractor shall include in each of its subcontracts, for the purpose of performance of such contract condition, a provision requiring the subcontractor to include a payment clause and an interest penalty clause conforming to the requirements of Subparagraph 5.3.1 in each of its subcontracts and to require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

1.6 ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

No modifications.

1.7 ARTICLE 7 CHANGES IN THE WORK

A. 7.1 GENERAL

- 1. Paragraph 7.1.2, delete the following: “an order for minor changes in the Work can be issued by the Architect alone”.

- 2. Add the following Subparagraph 7.1.4 to Paragraph 7.1:

7.1.4 The combined overhead and profit included in the total cost or credit to the Owner of a change in the Work shall not exceed that stated in 7.1.4.4 below. In no case shall the Contractor's or Subcontractors individual overhead and profit request exceed the following schedule:

- .1 For the Contractor, for Work performed by the Contractor's own forces, 15 percent of the cost.

- .2 For the Contractor, for Work performed by the Contractor's Subcontractors, 10 percent of the amount due the Subcontractors.

- .3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, 10 percent of the cost.

- .4 The **Base Cost** to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.7., articles .1, .2, .3, .4, and .5. To this **Base Cost** is added the applicable overhead and profit. In no case shall the combined overhead and profit (including all Contractor and Subcontractor(s) overhead and profit) exceed 25 percent of this **Base Cost**.

- .5 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including those applicable costs from paragraph 7.3.7, .1 - .5, and Subcontractor and Contractor overhead and profit as applicable.

- .6 Cost of preparing change order shall not be included in cost of Change Order.

- 3. Add the following Subparagraph 7.1.5 to Paragraph 7.1:

7.1.5 A Change Order providing a CREDIT to the Owner shall include a credit for overhead and profit based on the following schedule:

- .1 For the Contractor, 5 percent of the Cost to be credited.

- .2 For each Subcontractor, 5 percent of the Cost to be credited.

- .3 For each Sub-subcontractor, 5 percent of the Cost to be credited.

- .4 All other provisions of Subparagraph 7.1.4 shall apply to Credit Change Orders.

B. 7.3 CONSTRUCTION CHANGE DIRECTIVES

1. Add the following to Subparagraph 7.3.1:

For the purposes of this Agreement, The Owner's "CHANGE REQUEST/PROCEED ORDER" may be substituted for and used interchangeably with "CONSTRUCTION CHANGE DIRECTIVE".

2. Modify Subparagraph 7.3.7 as follows:

In the first sentence, delete the words "a reasonable amount." and substitute "an amount for overhead and profit in accordance with Paragraph 7.1.4 or 7.1.5."

3. Delete Subparagraph 7.3.7.1 and substitute the following:

7.3.7.1 The maximum allowable hourly wage rate for Changes to the Work shall be the appropriate Base Wage Rate plus Fringe Rate as listed for each occupation in the Prevailing Wage Rate for Public Works Contracts in Oregon manual issued by the Oregon Bureau of Industries; multiplied by 1.20. An amount for Overhead and Profit may be added in accordance with Paragraph 7.1.4 or 7.1.5.

4. Delete 7.3.7.3, and substitute the following:

7.3.7.3 Rental costs of machinery and equipment, exclusive of hand tools and motor vehicles, when rented from the Contractor or others;

5. Change the first sentence of Subparagraph 7.3.8 to read as follows:

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, including overhead and profit according to the schedule in Subparagraph 7.1.5 above.

6. Change the first sentence of Subparagraph 7.3.9 to read as follows:

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 the Application for Payment accompanied by an executed Change Order indicating the parties' agreement with part or all of such costs.

1.8 ARTICLE 8 TIME

A. 8.2 PROGRESS AND COMPLETION

1. Add the following Subparagraph 8.2.4

8.2.4 The Contractor agrees that said work shall be executed regularly, diligently, at such a rate of progress as will insure Substantial Completion thereof within the time specified. It is expressly understood and agreed by and between the Contractor and the Owner that the time for the completion of the work described herein is reasonable taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

1.9 ARTICLE 9 PAYMENT AND COMPLETION

A. 9.2 SCHEDULE OF VALUES

1. Revise the first sentence of Subparagraph 9.2 to read as follows:

".... the Contractor shall submit to the Architect and the Owner,....."

2. Add the following sentence to Paragraph 9.2:

Submit on AIA Document A703, latest edition.

B. 9.3 APPLICATIONS FOR PAYMENT

1. Add the following sentence to Subparagraph 9.3.1:

The form of Application for Payment shall be a notarized AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet.

2. Delete Clause 9.3.1.1, and substitute the following:

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, accompanied by an executed Change Order.

C. 9.5 DECISIONS TO WITHHOLD CERTIFICATION

1. Delete Subparagraph 9.5.3.

D. 9.6 PROGRESS PAYMENTS

1. Add the following Clause to Subparagraph 9.6.1:

9.6.1.1 After the Architect has issued a certificate for payment and it has been approved by the Owner, the Owner will pay the Contractor 95 percent (95%) of the total value of material and labor incorporated into the project as indicated on the Application for Payment less the aggregate of previous payments. Progress schedule update shall accompany each payment request.

9.6.1.2 Payment will be made within fifteen (15) days of approval of the Application for Payment by School District 4J ("Progress Payment Due Date").

9.6.1.3 The first Application for Payment and each subsequent Application for Payment will not be considered complete unless it is accompanied by the certified payroll for the contractor and all subcontractors requesting payment.

2. Add the following Subparagraph to Paragraph 9.6:

9.6.8 In lieu of cash retainage to be held by the Owner, the Contractor may select one of the following options:

- .1 The Contractor may deposit bonds or securities with the Owner or in any bank or trust company to be held for the benefit of the Owner. In such event, the Owner shall reduce the retainage in an equal amount to the value of the bonds and securities.
- .2 Upon written request of the Contractor, the Owner will deposit any amounts withheld as retainage in an interest-bearing account in a bank, savings bank, trust company or savings association for the benefit of the Owner. Interest earned shall accrue to the Contractor.
- .3 If the Owner incurs additional costs as a result of the exercise of any of the options for retainage described herein, the Owner may recover such costs from the Contractor by reduction of final payment.

E. 9.8 SUBSTANTIAL COMPLETION

1. Delete Subparagraph 9.8.1 and substitute the following:

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 the Owner can fully occupy and fully utilize the Work for its intended use with only minor corrective work remaining which can be accomplished without disruption of the occupants.

2. Delete the last two sentences to Subparagraph 9.8.5 and add the following:

9.8.5 Upon Substantial Completion of the Work, the Contractor may submit an application for payment in accordance with Subparagraph 9.3.1 in an amount sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less such amounts as the Architect determines for incomplete Work or unsettled claims.

F. 9.10 FINAL COMPLETION AND FINAL PAYMENT

1. Add the following Subparagraph to Paragraph 9.10:

9.10.6 The Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished in connection with the Work.

G. Add the following Paragraphs to Article 9:

1. 9.11 LIQUIDATED DAMAGES

9.11.1 The Owner will suffer financial loss if the Work is not Substantially Complete, as defined in Article 9.8.1 above, on the dates specified in Section 01 11 00. The Contractor and the Contractor's surety shall be liable for and shall pay the Owner the sum hereinafter stipulated as fixed, agreed, and liquidated damages for each calendar day of delay until the date established in the Certificate of Substantial Completion.

The agreed amount of liquidated damages is five hundred dollars [\$500] per each calendar day. The amount of liquidated damages may be reduced in cases of partial occupancy, at the sole discretion of the Owner.

2. 9.12 AGENCY PAYMENT FOR UNPAID LABOR OR SUPPLIES

9.12.1 Contract incomplete. If the Contract is still in force, the Agency may, in accordance with ORS 279C.515, pay a valid claim to the Entity furnishing the labor or services, and charge the amount against payments due or to become due to the Contractor under the Contract. If an Agency chooses to make such a payment as provided in 279C.515, the Contractor and the Contractor's surety shall not be relieved from liability for unpaid claims.

9.12.2. Contract completed. If the Contract has been completed and all funds disbursed to the prime Contractor, all claims shall be referred to the Contractor's surety for resolution. The Agency shall not make payments to subcontractors or suppliers for Work already paid for by the Agency.

1.10 ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

A. 10.1 SAFETY PRECAUTIONS AND PROGRAMS

1. Add the following sentence to Article 10.1

Where asbestos abatement is part of the Work, the Contractor or appropriate subcontractor shall be licensed by the Department of Environmental Quality to perform "asbestos abatement work", OAR 340-248-0120, Adopted January 25, 1990, and meet requirements of AHERA, as specified in Federal Register 40CFR, Part 763.

B. 10.3 HAZARDOUS MATERIALS

1. Delete Subparagraph 10.3.3.

1.11 ARTICLE 11 INSURANCE AND BONDS

A. 11.1 CONTRACTOR'S LIABILITY INSURANCE

1. Modify the second sentence of Subparagraph 11.1.2 as follows:

a. Delete the following: "...and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of coverage as specified in the Contract Documents."

2. Add the following Clause to Subparagraph 11.1.2:

.1. The Contractor shall provide and maintain in force for the duration of this agreement, the following:

.1 General Insurance:

The Contractor shall maintain in force for the duration of this agreement a Umbrella Insurance Policy with the limits not less than \$5,000,000, a Commercial General Liability, Automobile Liability (owned, non-owned and hired) Insurance policy(s) written on an occurrence basis with limits not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregated naming the District, its employees, officials and agents as an additional insured as respects to work or services performed under this agreement. This insurance will be primary to any insurance the District may carry on its own. If the District requires Professional Liability coverage, the terms, conditions, and limits must be approved by the District's Risk Manager. (eff. 4/2/13)

.2 Workers' Compensation:

Contractor shall provide and maintain workers' compensation coverage for its employees, officers, agents, or partners, as required by applicable workers' compensation laws.

.3 Evidence of Coverage:

Evidence of the above coverages issued by a company satisfactory to the District shall be provided to the District by way of a certificate of insurance before any work or services commence. A 30-day notice of cancellation or material change in coverage clause shall be included. It is the Contractor's obligation to provide the 30 days notice if not done so by the Contractor's insurance company(s). Failure to maintain the proper insurance shall be grounds for immediate termination of this Agreement.

.4 Subcontractors:

The Contractor shall require all subcontractors to provide and maintain general liability, auto liability, professional liability (as applicable) and Workers' Compensation insurance with coverage's equivalent to those required of the General Contractor in this Agreement. The Contractor shall require certificates of insurance from all subcontractors as evidence of coverage.

.5 Exceptions or Waivers:

Any exception or waiver of these requirements shall be subject to review and written approval from the Eugene School District Risk Manager.

3. Delete the third sentence of Subparagraph 11.1.3

B. 11.3 PROPERTY INSURANCE

1. Modify the first sentence of Subparagraph 11.3.1 as follows:

- a. Delete "Unless otherwise provided, the Owner" and substitute "The Contractor".
- b. Modify the last sentence by adding "Architect," after the word "Owner".

2. Add the following to Clause 11.3.1.1:

The form of policy for this coverage shall be Completed Value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly attributed thereto.

3. Delete Clause 11.3.1.2.

4. Modify Clause 11.3.1.3 by substituting "Contractor" for "Owner".

5. Delete Clause 11.3.1.4.

6. Modify the first sentence of Subparagraph 11.3.2 to read: "The Owner, at the Owner's option, may purchase..."

7. Delete Subparagraph 11.3.4.

8. Delete Subparagraph 11.3.6, and substitute the following:

11.3.6 Evidence of the above coverages issued by a company satisfactory to the District shall be provided to the District by way of a certificate of insurance before any work or services commence. A 30-day notice of cancellation or material change in coverage clause shall be included. It is the Contractor's obligation to provide the 30 days notice if not done so by the Contractor's insurance company(s). Failure to maintain the proper insurance shall be grounds for immediate termination of this Agreement.

9. Modify 11.3.7 by substituting "Contractor" for "Owner" at the end of the first sentence.

10. Modify the first sentence of Subparagraph 11.3.8 to read as follows:

11.3.8 A loss insured under the Contractor's property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Contractor and Owner, as their interests may

appear, subject to requirements of any applicable mortgagee clause.

11. Delete Subparagraph 11.3.9.
12. Modify the first sentence of Subparagraph 11.3.10 by substituting "Contractor" for "Owner" the first two times it occurs. Modify the last sentence by substituting "Contractor" for "Owner" the second time it occurs.
13. Add the following Subparagraph:

11.3.11 EQUIPMENT AND MATERIAL:

The Contractor shall be responsible for any loss, damage, or destruction of Contractor's own property, equipment, and materials used in conjunction with the Work.

C. 11.4 PERFORMANCE BOND AND PAYMENT BOND

1. Delete 11.4.1 and 11.4.2 and substitute the following:

11.4.1 Unless otherwise stated in the solicitation document, prior to execution of the Agreement, the Bidder shall furnish separate bonds that in all respects conform to the requirements of ORS 279C.380 covering the faithful performance of the Contract, and the payment of all obligations arising thereunder, each in an amount equal to one hundred percent (100%) of the Contract sum. The duration of the performance bond shall match the length of the project warranty.

11.4.2 The surety issuing such bonds shall be duly authorized and licensed to issue bonds in the State of Oregon. The bonds shall be executed by an Attorney-in-fact, principal or other authorized representative for the surety company, showing the Oregon agent for service, and bears the seal of the surety company. Where the bond is executed by a person outside the state of Oregon, his authority to execute bond shall be shown.

11.4.3 Bonds are to be obtained through a company that is on the US Government Treasury list for approved sureties and/or approved by the Owner's Risk Manager.

11.4.4 Bonds shall be submitted on AIA Document A312, latest edition.

11.4.5 The cost of furnishing such bonds shall be included in the bid.

11.4.6 The Contractor shall deliver the required bonds to the Owner with the signed Agreement to:

Larry Massey
 Facilities Management Office
 Eugene Public School District 4J
 715 West Fourth
 Eugene, Oregon 97402

11.4.7 The Contractor 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 their power of attorney.

- D. Add the following Paragraphs to Article 11:

1. 11.5 PUBLIC WORKS BOND:

11.5.1 Pursuant to ORS 279C.836, for any contract awarded where the contract price is \$100,000 or greater, the Contractor and every subcontractor shall have a Public Works bond, in the amount of \$30,000 filed with the Construction Contractors Board (CCB) before starting work on the project unless exempt. This bond is in addition to performance bond and payment bond requirements. **A copy of the Contractor's State of Oregon Statutory Public Works Bond shall be provided with the executed contract documents.**

11.5.2 Contractor shall include in every subcontract a provision requiring their Subcontractors to have a public works bond filed with the CCB before starting work on the project, unless exempt. Contractors shall verify that all of their subcontractors have filed a public works bond with the CCB.

1.12 ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

A. 12.2 AFTER SUBSTANTIAL COMPLETION

1. Add the following sentence to Clause 12.2.2.1:

The correction period relating to faulty products and workmanship will begin on the date appearing on the Certificate of Substantial Completion, or if a Certificate of Substantial Completion is not issued, on the date appearing on the Final Certificate of Payment to the Contractor, whichever is earlier. The Owner's use of the project will not alter the warranty period herein defined.

2. Add the following sentence to Clause 12.2.2.2:

The correction periods specified are an extension of the one-year correction period called for in the General Conditions and are in addition to any guaranty bond called for elsewhere.

1.13 ARTICLE 13 MISCELLANEOUS PROVISIONS

A. 13.1 GOVERNING LAW

1. Change Paragraph 13.1 to read as follows:

13.1 The Contract shall be governed by the law of the place where the Project is located.

B. Add the following Subparagraph 13.1.1:

13.1.1 Contractor shall be in compliance with the Oregon Department of Revenue tax certification rules including OAR 150-305.385 (6)-A, (6)-B, (6)-C and (7).

C. Revise Subparagraph 13.2.1 as follows:

Delete last two sentences, and replace with:

Contractor shall not assign, sell, dispose of, or transfer rights, nor delegate duties under the contract, either in whole or in part, without the Contracting Agency's prior written consent. Unless otherwise agreed by the Contracting Agency in writing, such consent shall not relieve the Contractor of any obligations under the contract. Any assignee or transferee shall be considered the agent of the Contractor and be bound to abide by all provisions of the contract. If the Contracting Agency consents in writing to an assignment, sale, disposal or transfer of the Contractor's rights or delegation of Contractor's duties, the Contractor and its surety, if any, shall remain liable to the Contracting Agency for complete performance of the contract as if no such assignment, sale, disposal, transfer or delegation had occurred unless the Contracting Agency otherwise agrees in writing, in accordance with ORS 279A.065.

D. Delete Subparagraph 13.2.2

E. Add the following Paragraphs to Article 13:

1. 13.8 ENVIRONMENTAL AND NATURAL RESOURCES LAWS AND RULES

13.8.1 The Contractor and subcontractors shall comply with federal, state, and local ordinances and regulations dealing with prevention of pollution and preservation of natural resources that affect Work of this project.

13.8.2 Pursuant to ORS 279C.525, If the Contractor is delayed or must undertake additional work by reason of existing regulation or ordinances of agencies not cited in the Contract Documents or due to the enactment of new or the amendment of existing statutes, ordinances, or regulations relating to the prevention of environmental pollution and the preservation of natural resources occurring after the Bid Date, the Owner will grant a time extension and issue a change order setting forth the additional work that must be undertaken. The change order shall not invalidate the contract and there shall be, in addition to a reasonable extension of the Contract time, a reasonable adjustment in the Contract price to compensate the successful bidder for all costs and expenses incurred, including overhead and profits, as a result of such delay or additional work.

2. 13.9 FOREIGN CONTRACTORS

In the event this Contract is awarded to a Contractor not domiciled in or registered to do business in the State of Oregon and the contract price exceeds \$10,000, the Contractor shall promptly report to the Department of Revenue the total price, terms of payment, length of contract, and such other information as the Department of Revenue may require before final payment can be received on the public contract. The Owner will satisfy itself that the requirement of this subsection has been complied with before it issues a Final Payment.

3. 13.10 EQUAL OPPORTUNITY

13.10.1 The Contractor shall maintain policies of employment as follows:

13.10.1.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, national origin, physical or mental handicap, sexual orientation or age, unless based upon bona fide occupational qualifications; and that they are otherwise in compliance with all federal, state and local laws prohibiting discrimination. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. It is further understood that any vendor who is in violation of this clause shall be barred forthwith from receiving awards of any purchase order from the School District, unless a satisfactory showing is made that discriminatory practices have terminated and that a recurrence of such acts is unlikely. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of nondiscrimination.

13.10.1.2 The Contractor and the Contractor's subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

4. 13.11 DRUG-TESTING PROGRAM

13.11.1 The contractor agrees with the provisions of Oregon Revised Statutes 279C.505, which requires that the contractor shall demonstrate it has established a drug-testing program for employees and will require each subcontractor providing labor for the Project to do the same.

1.14 ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

No modifications.

1.15 ARTICLE 15 CLAIMS AND DISPUTES

A. 15 CLAIMS AND DISPUTES

1. Add the following to Clause 15.1.5.2

Abnormal weather conditions for the purposes of this agreement are defined as conditions more extreme than any conditions experienced within the general vicinity of the site for each project for a comparable period at any time within the past ten years.

2. Delete Subparagraph 15.1.6.

B. 15.2 INITIAL DECISION

1. Modify Subparagraph 15.2.1 as follows:

In the third sentence, change "30 days" to read "10 days" and add the following: The Initial Decision Maker shall review all submitted claims and render decisions as soon as possible.

2. Modify Clause 15.2.6.1 as follows:

In the first sentence, change the "30 days and "60 days" to read "10 days" and "30 days" respectively.

C. 15.3 MEDIATION

1. Delete Paragraph 15.3 MEDIATION, and substitute the following:

15.3 MEDIATION AND ARBITRATION

15.3.1 Parties shall attempt to resolve all disputes at the lowest possible level. Both parties to this Agreement agree to provide other resources and personnel to negotiate and find resolution to disputes that cannot be resolved at the Project Manager level. As a next step, claims, disputes or other matters in question between the parties to this Agreement arising out of or relating to this Agreement or breach thereof shall be determined by mediation, arbitration or litigation. Disputes shall be initially submitted to mediation by a mediator chosen by the parties. The cost of mediation shall be borne equally by the parties. If the parties are unable to agree upon a mediator within five days or if mediation fails to resolve the dispute, either party may request that the dispute be submitted to arbitration before a single arbitrator agreed to by the parties in an additional five days. If both parties agree to arbitration but are unable to agree upon an arbitrator, each party shall select an arbitrator, the arbitrators so chosen shall select a third, and the decision of a majority of the arbitrators shall be final, binding the parties, and any judgment may be entered thereon. Unless the parties mutually agree otherwise, any arbitration proceeding shall be conducted in accordance with the currently in effect Construction Industry Arbitration Rules of the American Arbitration Association.

Notwithstanding the above, the Owner may, at the Owner's sole discretion, elect to resolve disputes in excess of \$50,000 by litigation, if mediation is not successful.

15.3.2 In the event of arbitration or litigation arising out of the execution of this Agreement, the prevailing party shall be entitled to recover from the adverse party, reasonable attorney fees and costs for the arbitration proceedings, trial court or any appellate proceeding, in the amount determined by the arbitrator or the court, as appropriate.

For the purposes of the above provisions referring to attorney fees and related costs, the prevailing party in an arbitration proceeding or trial shall be a claimant who receives an award or damages in excess of the adverse party's pretrial or prehearing offer made at least 10 days before trial or hearing. If the claimant receives an award of damages no greater than the adverse party's pretrial or prehearing offer, the adverse party shall be deemed to be the prevailing party. In the event both sides are awarded damages, the prevailing party shall be the party who recovers the net award, provided the recovery exceeds the adverse party's pretrial or prehearing offer. If the claimant net recovery is no greater than the adverse party's pretrial or prehearing offer, the adverse party shall be deemed the prevailing party.

D. 15.4 ARBITRATION

1. Delete Paragraph 15.4 ARBITRATION.

END OF DOCUMENT

PREVAILING WAGE RATES

PART 1 GENERAL

1.1 PREVAILING WAGE RATES

The Prevailing Wage Rates dated January 1, 2014, including any subsequent corrections or amendments issued by the Oregon Bureau of Labor and Industries, are included as a portion of the Contract Documents by reference. Copies are available for review at the office of Facilities Management, School District 4J, and can be viewed on line at www.boli.state.or.us. Click on Prevailing Wages, then PWR Rate Publications, and then [Prevailing Wage Rates for Public Works Contracts in Oregon \(subject only to state law\)](#).

This Project is funded by the federally sponsored “Qualified School Construction Bond”, and subject to the provisions of the wage rates listed under the federal Davis-Bacon Act, OR the Oregon Bureau of Labor and Industries, whichever is greater. A link to the Davis-Bacon wage rates may be found on the same web site.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of interior renovations at Edison Elementary School located at 1328 East 22nd Avenue, Eugene, Oregon 97403.
- B. Owner Identification: Eugene School District 4J, 715 West Fourth Avenue, Eugene, OR 97402.
- C. Architect Identification: Robertson/Sherwood/Architects pc, 132 East Broadway - Suite 540, Eugene, OR 97401.
- D. Project Manager: Larry Massey has been appointed by Owner to serve as Project Coordinator.

1.3 CONTRACT

- A. Project will be constructed under a general construction contract.

1.4 WORK SEQUENCE

- A. Do not commence Work on site until after execution of Agreement and receipt of Notice-to-Proceed from Owner, nor before June 23, 2014.
- B. Perform work in order to achieve Substantial Completion by Monday, August 18, 2014.
- C. Achieve Final Completion within seven (7) calendar days following the date of Substantial Completion.

1.5 USE OF PREMISES

- A. Work Area Access: Buildings will be occupied during work. Access to the work area will be available on a week-day basis from approximately 7:00 am to 4:00 pm. Coordinate all other work hour schedules with Owner so as not to interfere with Owner's use of the building.
- B. Limit use of the premises to construction activities adjacent to areas of work. Allow for Owner occupancy and use by the public, subject to approval by a District Safety Specialist.
- C. Site Access: Maintain drives and building entrances and exits clear and protected at all times to Owner's, employees, and public access and for use by emergency personnel. Do not use these areas for parking or storage. Schedule deliveries to minimize space and time requirements for storage of materials at site.
- D. Parking: Contractor may use existing parking areas.
- E. Contractor Staging Areas: Limit staging to areas adjacent to Work or where indicated on Drawings.
- F. Construction Operations: Limited to areas indicated on Drawings.

1.6 FUTURE WORK

- A. None listed

1.7 PRODUCTS ORDERED IN ADVANCE

- A. None listed

1.8 OWNER-FURNISHED PRODUCTS

- A. Carpet Tile products for installation by Contractor.

1.9 MISCELLANEOUS PROVISIONS

- A. Drug and Alcohol Policy
 1. The possession, use, or distribution of illicit drugs and alcohol on school premises is prohibited. Prescription medications brought to the project site shall be in the original container bearing the name of the drug, the name of the physician and the prescribed dosage.
- B. Use of Tobacco Products
 1. Smoking and the other use of tobacco products is prohibited on all school district property pursuant to OAR 581-021-0110.
- C. Safety Requirements
 1. Safety must not be sacrificed for the sake of productivity or expedience. Safety of students, staff, and the public is critical. Take all reasonable precautions to prevent endangerment or injury. Advise and coordinate operations with the school office.
 2. All contractors who perform work on District property, and their employees, are expected to know the District's expectations for safe work and to adhere to those expectations.
 3. Contractors are to adhere to the regulations of Oregon OSHA for all projects within the School District.
- D. General Safe Work Practices
 1. Students, public and school staff shall not be put at risk by the activities of contractors or their employees.
 2. Safe vehicle operation rules are to be followed at all times. These include positioning vehicles to minimize the necessity of backing and providing a "spotter", someone who will make sure that people do not run into the path of a vehicle when driving on a playground or field that is occupied by students.
 3. Tools shall never be left out when an unsecured work area is vacated.
 4. Ladders and scaffolding will be taken down when an unsecured work area is vacated.
 5. Open holes and other tripping hazards shall be fenced or barricaded when an unsecured work area is vacated.
 6. Operations resulting in vapors, emissions or flying objects shall be conducted in such a way as to prevent exposure to any unprotected parties or property.
 7. "Secured Work Area" is defined as an area having a perimeter cyclone fence at least 6 feet in height, with gates which close and lock so that no casual entrance is possible by unauthorized adults or children.
 8. Contractor to follow all OR-OSHA rules for Confined Spaces, where applicable.
- E. Communications Regarding Unsafe Practices
 1. Upon perceiving a problem, the District will immediately communicate the concern to the Contractor or Contractor's representative on the work site.
 2. If agreement on correction of unsafe conditions cannot be reached, the concerns of the District shall prevail and safety concerns shall be addressed in accordance with the District requirements.

- F. Electrical Panels - Lockout/Tagout
1. Contractor shall implement a Lockout/Tag-out program for his employees who take equipment out of service or place equipment back into service. Contractor shall review the District's Energy Control Program prior to commencing work. Rules applying to this procedure are Oregon Occupational Safety and Health Code OAR 437, Division 2, Subdivision J, General Environmental Controls Lockout/Tag-out (1919.147), or latest edition.
- G. Arc Flash – Electrical Safety
1. Comply with NFPA 70E (Electrical Safety in the Workplace), current edition. Contractor shall comply with Oregon OSHA 1910.137 (Personal Protective Equipment). Review with the School District Project Manager the 'Eugene School District Electrical Safety Program' before any work commences. Comply with all 'Arc Flash' and 'Electrical Safety' protocols referenced in any and all NFPA, OSHA, OROSHA, NEC, NESC, UL, IBC, IFC and ANSI documents (current editions).
- H. Potentially Hazardous Products
1. The District attempts to maintain a safe and healthy environment for students and staff. The Contractor is therefore required to follow District guidelines controlling the use of potentially hazardous products and to use these products in a safe manner. Guidelines include the use of materials (adhesives, coatings, carpeting, etc.) which are known to emit little or no airborne pollutants.
 2. MSDS information is required for all potentially hazardous products. The Project Manager and a District Safety Specialist will review these and determine what, if any, mitigation procedures will be required.
 3. Contractor is to maintain and post copies of all MSDS information at the project site and adhere to the required controls.
 4. Contractor is to ensure that work area by students and teachers is restricted. The District will provide signage appropriate for this purpose. The Contractor is to construct and maintain appropriate barriers. This shall include provision of physical separation barriers between "construction" and "occupied" spaces.
 5. Contractor to adopt means of maintaining the construction space in negative air pressure in relation to occupied spaces.
 6. Where there is a new or existing ventilation system in an affected space, the system shall be adjusted to provide the maximum amount of outside air possible with the system.
 7. Efforts shall be made to install and operate new ventilation systems as soon in the construction process as practical.
- I. Asbestos Containing Materials Warning
1. Asbestos containing materials are known to exist in areas of the Work. The Contractor shall not, in any way, disturb materials which are known to contain asbestos, assumed to contain asbestos, or otherwise have not been tested and confirmed to be asbestos free.
 2. Where access to concealed spaces is required, or it is necessary to disturb building materials such as for drilling of holes, cutting, etc., notify the Owner so that proper investigation and/or removal procedures are followed.
 3. Prior to commencing Work, the Contractor shall meet with the District Safety Specialist and review the Owner's Asbestos Management Plan for the locations of asbestos-containing materials and/or materials assumed to contain asbestos. After reviewing the Owner's Asbestos Management Plan, the Contractor is required to sign Form 01 10 00A, Asbestos-containing Materials Notification Statement, provided at the end of this Section.
 4. Contractor must not install any asbestos-containing materials when performing the Work of this project. At the completion of the Work, Contractor will be required to furnish a statement stating that no asbestos-containing materials were installed during the course of the Work. Refer to Sample Form 01 10 00B at the end of this Section

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

Form 01 11 00 A

**ASBESTOS-CONTAINING MATERIALS NOTIFICATION STATEMENT
FOR CONTRACTORS**

This form must be completed and signed by the Contractor prior to beginning work in any Eugene School District 4J building.

The presence of known and assumed asbestos containing materials is documented in the AHERA Management Plan for each building. Copies of the AHERA Management Plan are available in the main office of each building and in the Facilities Management Office at 715 West Fourth Avenue, Eugene, Oregon. The District Asbestos Specialist must be informed of the Contractor's activities in each building prior to the start of work so that the Contractor can be informed on how to use the AHERA Management Plan and to determine if any asbestos-containing materials are likely to be impacted by the work of the Contractor.

The Contractor is responsible for notifying all employees and subcontractors of the presence of asbestos in the building. The Contractor shall not disturb known or assumed asbestos-containing materials. If the Contractor discovers suspected asbestos-containing materials that have not been identified, the Contractor must stop any work impacting the suspected materials and notify the District Asbestos Specialist so that the material can be sampled. Any asbestos-containing materials that must be removed to allow the Contractor to complete the Contractor's work will be removed by the District under separate contract. If the Contractor disturbs asbestos-containing materials, the Contractor will be responsible for the cost of the cleanup and decontamination..

I _____, Representing _____,
(Print Name of Representative) (Business Name)

have been notified of the location of the AHERA Management Plan and agree to avoid impacting all known or assumed asbestos-containing materials in the performance of the Work.

Signature of Representative

Date

Work Site

CIP #

Form 01 11 00 B

The Environmental Protection Agency (AHERA) rules require the School District obtain a signed statement from the Site Superintendent that, to the best of his/her knowledge, no asbestos-containing building materials were installed during the Work. Therefore, the following statement must be submitted on the Contractors letterhead prior to Project Closeout.

SAMPLE FORM

(To be submitted on the Contractor's letterhead)

ASBESTOS-CONTAINING MATERIALS STATEMENT

EUGENE SCHOOL DISTRICT 4J

(Name of Project and CIP Number)

We the undersigned, (Name of Company), hereby warrant that to the best of our knowledge all materials furnished for the above referenced project contain 0% asbestos.

(Name of Construction Company)

(Signature and Date)

Printed Name

Job Title

END OF SECTION

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. "Agreement" for monetary values of established Unit Prices and Alternates.
 - 2. "General Conditions" for additional requirements for Changes in the Work, Contract Sum, and Contract Time.
 - 3. Section 00 73 00 - Supplementary Conditions: Allowable percentages for Contractors' Overhead and Profit.
 - 4. Section 01 33 00 - Submittal Procedures: Schedule of Values requirements.
 - 5. Section 01 60 00 - Product Requirements: Administrative procedures for handling requests for substitutions made after Contract award.
 - 6. Division 01 Section 01 78 39 "Project Record Documents" documentation requirements.

1.3 MINOR CHANGES IN THE WORK

- A. Architect, with the concurrence of the Owner, will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 CHANGE REQUEST/PROCEED ORDER (CONSTRUCTION CHANGE DIRECTIVE)

- A. Architect or Owner may issue a Change Request/Proceed Order on form included at end of Part 3.
 - 1. Change Request contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
 - 2. Proceed Order, when signed by the Owner, instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Proceed Order.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
- C. Authorization Required: When a Change Request is approved and signed by the Owner, it becomes a Proceed Order authorizing the change requested. Do not proceed with any change without the Owner's signature on the Change Request/Proceed Order.
- D. Owner-Initiated Change Requests: Architect will issue a Change Request, which will include a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Change Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 2. Within time specified in Change Request after receipt of Change Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a complete cost breakdown including a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor, supervision, overhead, and profit directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- E. Contractor-Initiated Requests: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Architect.
1. Changes requested by the Contractor will be authorized only by signature of the Owner on the prescribed. Do not proceed with any changes without this authorization.
 2. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 3. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 5. Include costs of labor, supervision, overhead, and profit directly attributable to the change.
 6. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 7. Comply with requirements in Division 1 Section 01 60 00 "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- F. Change Request Form: Use forms provided by Owner. Sample copies are included at end of Section 3.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Change Request, and at intervals to be determined, Architect will collect Change Requests and issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

CHANGE REQUEST/PROCEED ORDER
Capital Improvement Program
Eugene School District 4J

.....
CHANGE REQUEST NOTICE No. _____ **Date:** _____

Project No.: _____ Contract No.: _____ Date: _____

Project Title: _____

Contractor: _____

1. REQUEST INFORMATION

Estimated \$ _____ Time _____ Days _____ Initiated by _____

Reason for change: _____

2. DESCRIPTION

Describe changes: _____

Describe affected work: _____

List plan and spec sections: _____

Describe impacted activities: _____

Comment: _____

3. DATES

Need for change first known _____ By whom _____

Contractor first notified _____ How _____

Owner first notified _____

Date approved or rejected _____ By whom _____

4. RECOMMENDATION (cost and time) _____

.....
PROCEED ORDER No.: _____ **Date:** _____

1. PAYMENT/COST

Actual amount of change \$ _____ The contract time will be:

Contractor amount \$ _____ () increased () decreased by ___ days

Subcontractor amount \$ _____ () will remain unchanged

Type of payment (LS/T&M) _____

2. MISCELLANEOUS

Subcontractors involved: _____

Major materials: _____

The cost is not to exceed \$ _____ Date: _____

3 CHANGE REQUEST ACCEPTED BY:

Contractor: _____ Date: _____

Architect: _____ Date: _____

4J CIP Project Manager: _____ Date: _____

4J CIP Program Manager: _____ Date: _____

4J Facilities Director: _____ Date: _____

Without the signature of Facilities Director, or the acting Director, this Proceed Order is neither accepted or authorized, except by written authorization of other specific delegation.

END OF SECTION

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Section 01 25 00 - Contract Modification Procedures: Administrative procedures for handling changes to the Contract.
 - 2. Section 01 32 00 - Construction Progress Documentation: Administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect and Owner at earliest possible date but no later than seven days before the date scheduled for submittal of initial Application for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Submit draft of AIA Document G703 Continuation Sheets.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders issued before last day of construction period covered by application.
 3. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours.
- D. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of Values (draft submitted previously).
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.

5. Schedule of unit prices.
 6. Submittals Schedule (based Architect's list or required submittals).
 7. List of Contractor's staff assignments.
 8. Initial progress report.
 9. Report of preconstruction conference.
- E. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- F. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements (See itemized list in Section 01 77 00 "Closeout Procedures").
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 4. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 5. AIA Document G707, "Consent of Surety to Final Payment."
 6. Evidence that claims have been settled.
 7. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Administrative and supervisory personnel.
 - 2. Project meetings.
- B. Related Sections include the following:
 - 1. Section 01 32 00 - Construction Progress Documentation: Contractor's Construction Schedule.
 - 2. Section 01 73 00 - Execution Requirements: Procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 01 77 00 - Closeout Procedures: Coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.

5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

A. Key Personnel Names: Within 15 days of Notice-to-Proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including pager, cell, and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Schedule meeting dates and times with Owner and Architect.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Architect will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, within three days of receiving them from the Architect.

B. Preconstruction Conference: Owner's Project Manager will schedule a preconstruction conference before starting construction, no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Owner's Project Manager, Architect, and their consultants, as required; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following (see sample agenda at the end of Part 3):
 - a. Introduction of persons present.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long-lead items.
 - e. Designation of key personnel and their duties.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for requests for interpretations (RFIs).
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Communications.
 - l. Role of District's Project Manager.

- m. Submittal procedures, including MSDS information.
 - n. Energy design requirements.
 - o. Preparation of Record Documents.
 - p. Use of the premises and existing building.
 - q. Work hours and restrictions.
 - r. Owner's occupancy requirements.
 - s. Responsibility for temporary facilities and controls.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Office, work, and storage areas.
 - w. Equipment deliveries and priorities.
 - x. Safety and first aid.
 - y. Security.
 - z. Progress cleaning.
- 3. Minutes: Architect will record and distribute meeting minutes.
 - 4. Statements made by the Contracting Agency's representative at the pre-construction conference are not binding upon the Contracting Agency unless confirmed by Written Addendum.
- C. Preinstallation Conferences: When required by individual specification sections, conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner's Project Manager a minimum of four days prior to scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract documents.
 - b. Related requests for interpretations (RFIs).
 - c. Related Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Submittals.
 - g. Possible conflicts.
 - h. Compatibility problems.
 - i. Time schedules.
 - j. Weather limitations.
 - k. Manufacturer's written recommendations.
 - l. Warranty requirements.
 - m. Compatibility of materials.
 - n. Acceptability of substrates.
 - o. Space and access limitations.
 - p. Regulations of authorities having jurisdiction.
 - q. Testing and inspecting requirements.
 - r. Installation procedures.
 - s. Coordination with other work.
 - t. Required performance results.
 - u. Protection of adjacent work.
 - 3. Contractor to record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Distribute minutes of the meeting to each party present and to parties who should have been present, within three working days.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to the Owner's Project Manager and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Requests for interpretations (RFIs).
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
 3. Minutes: Architect will record and distribute to Contractor the meeting minutes.
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**PRECONSTRUCTION CONFERENCE AGENDA (SAMPLE)
EUGENE SCHOOL DISTRICT 4J
EDISON ELEMENTARY SCHOOL – OFFICE RELOCATION**

1. () Introduction of Persons Present
 - () District 4J
 - () Consultants
 - () Contractor (including job foreman)
 - () Subcontractors

2. () Availability of Contract Documents

3. () Building Permit Status
 - () Plan check and Building Permit paid by District
 - () Pick up Permit at City of Eugene by Contractor
 - () Location of site stored approved contract documents
 - () Utility permits
 - () LRAPA Permit

4. () Prevailing Wage Requirements
 - () Submittal schedule
 - () Conformance with requirements

5. () Communications
 - () Notification of problems

6. () Role of District's representative
 - () Limits of authority
 - () Visitation schedules

7. () Work Description and Schedule
 - () General work description
 - () Proposed start date: _____
 - () Proposed completion date: _____
 - () Proposed project schedule and phasing
 - () Progress schedule updates
 - () Methods to be employed to maintain schedule
 - () Work requiring Shop Drawings or submittals shall not commence until review is complete.

8. () Submittals Required per Contract Documents
 - () MSDS Information
 - () Written proof of Asbestos Worker Certification
 - () Name, Experience and Qualifications of Asbestos Supervisor
 - () Copy of Contractor's Asbestos Abatement License
 - () Other information as required by Section 01 31 00.
 - () Schedule of values
 - () List of subcontractors including name of contact person, telephone number, and address

9. () Construction
 - () Working hours
 - () Use of premises/set up locations
 - () Protection of existing facilities
 - () Traffic and protection
 - () Excavation and clean-up
 - () Weather restrictions
 - () Deviation from details and/or specifications

- 10. () Correction of Defects
 - () Daily and/or as observed

- 11. () Weekly On-Site Progress Meetings
 - () Establish day and time: Day _____ Time _____
 - () Provide updated project schedules
 - () Discuss project progress, problems, etc.
 - () Review applications for payment
 - () Required attendance
 - () Observation report distribution

- 12. () Change Order Requests and Change Order Procedures
 - () Written Change Order requests required
 - () Supporting back-up will be required for all Change Orders
 - () Mark-up limitations on Change Orders
 - () Contractor - 15 percent
 - () Subcontractors - 10 percent
 - () Progressive requests and Change Orders
 - () Processing time required

- 13. () Applications for Payment
 - () Use AIA documents G702 and G703 latest edition
 - () Provide 5 signed and notarized copies
 - () Wage certifications to be attached

- 14. () Safety and Emergency Procedures

- 15. () Clean-up Daily
 - () Project completion

- 16. () Project Closeout
 - () Inspections for
 - () Air Clearance
 - () AHERA Close Out Requirements
 - () Substantial completion
 - () Contractor provided list of items to be completed
 - () Inspection with job foreman
 - () Final Acceptance
 - () Written notice from Contractor that all work is done and ready for inspection
 - () Inspection with job foreman
 - () Responsibility for cost of additional inspections
 - () Submittals for Closeout
 - () Final application for payment
 - () Final set of wage certifications
 - () Release of liens from all Subcontractors and general Contractor

- 17. () Tour of Project Sites to Examine and Document Existing Conditions

- 18. () Additional Comments

The undersigned acknowledges that the items listed above were discussed during this preconstruction conference and are fully understood.

A/E Firm:

Contractor:

Subcontractors:

END OF SECTION

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Submittals Schedule.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 29 00 "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 1 Section 01 31 00 "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 1 Section 01 33 00 "Submittal Procedures" for submitting schedules and reports.
 - 4. Division 1 Section 01 40 00 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 SUBMITTALS

- A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format.
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Initial Submittal: List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
- B. Activities: Treat each floor or separate area as a separately numbered activity for each principal element of the Work
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
- D. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section 01 11 00 "Summary of Work." Delivery dates indicated stipulate the earliest possible delivery date.
- E. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section 01 11 00 "Summary of Work." Delivery dates indicated stipulate the earliest possible delivery date.
- F. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- G. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE [SMALL PROJECTS]

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 10 days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect Owner's Project Manager, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, Information Submittals, Delegated Design and other submittals.
- B. Related Sections include the following:
 1. Section 01 29 00 - Payment Procedures: Applications for Payment and the Schedule of Values.
 2. Section 01 31 00 - Project Management and Coordination: Meeting and conference minutes and Coordination Drawings.
 3. Section 01 32 00 - Construction Progress Documentation: Schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 4. Section 01 40 00 - Quality Requirements: Test and inspection reports and for mockup requirements, if any.
 5. Section 01 77 00 - Closeout Procedures: Warranties.
 6. Section 01 78 23 - Operation and Maintenance Data: Operation and maintenance manuals.
 7. Section 01 78 39 - Project Record Documents: Record Drawings, Record Specifications, and Record Product Data.
 8. Divisions 02 through 49 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
- B. Submittals Schedule: Comply with requirements in Section 01 32 00 - Construction Progress Documentation, for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of

the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 14 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
- E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, if received from sources other than Contractor without prior consent.
1. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Submittal and transmittal distribution record.
 - k. Remarks.
 - l. Signature of transmitter.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "Approved" or "Approved as Corrected".
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating "Approved" or "Approved as Corrected" by Architect.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Compliance with specified referenced standards.
 - j. Testing by recognized testing agency.
 - k. Application of testing agency labels and seals.
 - l. Notation of coordination requirements.
 - m. MSDS information, where applicable.
 4. Submit Product Data before or concurrent with Samples.
 5. Number of Copies: Submit the number required by the Contractor plus four (4) copies of Product Data, unless otherwise indicated. Architect will return two copies to Contractor and one to Owner. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - d. Schedules.
 - e. Design calculations.
 - f. Compliance with specified standards.
 - g. Notation of coordination requirements.
 - h. Notation of dimensions established by field measurement.
 - i. Relationship to adjoining construction clearly indicated.
 - j. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
 3. Number of Copies: Submit four opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Architect will retain three copies, including one for the Owner's Project Manager; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
 - a. Single scanned copy of each submittal, except for samples, and related transmittal may be sent by email in lieu of transmitting physical copies.

- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 - c. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies:
 - a. Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
 - b. Submit one copy of each submittal if sent by email.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements specified in Section 01 40 00 - Quality Requirements.
- B. Coordination Drawings: Comply with requirements specified in Section 01 31 00 - Project Management and Coordination.
- C. Contractor's Construction Schedule: Comply with requirements specified in Section 01 32 00 - Construction Progress Documentation.
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Schedule of Tests and Inspections: Comply with requirements specified in Section 01 40 00 - Quality Requirements.
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 01 78 23 - Operation and Maintenance Data.
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

- T. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - 1. "Approved", "Approved as Corrected", or "Resubmit".
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Section 01 32 00 - Construction Progress Documentation: Schedule of required tests and inspections.
 - 2. Divisions 2 through 49 Sections for specific test and inspection requirements.

1.3 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.

5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made by Owner.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section 01 33 00 "Submittal Procedures."
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.6 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of the Owner, described below:
1. Epoxy anchors.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections.

- B. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 1. Section 01 11 00 - Summary of Work: Limitations on utility interruptions and other work restrictions.
 2. Section 01 33 00 - Submittal Procedures: Implementation and termination schedule and utility reports.
 3. Section 01 77 00 - Execution Requirements: Cleaning requirements.
 4. Divisions 02 through 49 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.

1.5 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.

2.2 TEMPORARY FACILITIES - CONTRACTOR OPTION

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage: Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- C. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
- D. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.
- E. Telephone Service: Provide superintendent with cellular telephone or portable two-way radio for use.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

B. Parking: Arrange for temporary parking areas for construction personnel.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Section 01 73 00 - Execution Requirements, for progress cleaning requirements.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 01 11 00 - Summary of Work.

B. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

C. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.

1. Construct with framing sufficient to support 6 mil clear plastic sheeting.
2. Provide walk-off mats to minimize the tracking of dust and dirt at each entrance through temporary partition.

D. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 1. Section 01 23 00 – Alternates: Description of Alternates.
 2. Section 01 77 00 - Closeout Procedures: Warranties for Contract closeout.
 3. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

- A. Substitution Requests: Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period, in compliance with this Section.
- B. After execution of Agreement, the Owner may, at the Owner's option, consider formal requests from the Contractor for substitution of products for those specified. One or more of the following conditions must be documented:
 1. Compliance with final interpretation of code requirements or insurance regulations which require that the use of a substituted Product.
 2. Unavailability of a specified Product through no fault of the Contractor.
 3. Inability of specified Product to perform properly of fit in designated place.
 4. Manufacturer's or Fabricator's refusal or inability to certify or guarantee performance of a specified Product in the application intended.
- C. A Substitution Request constitutes a representation that the Bidder/Contractor:
 1. Has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 2. Will provide the same warranty for the Substituted Product as for the specified Product.

3. Will coordinate installation and make changes to the Work which may be required for the Work to be completed with no additional cost to the Owner.
 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 5. Will reimburse the Owner for review or redesign services associated with re-approval by authorities.
- D. Substitutions will not be considered when they are indicated or implied on Shop Drawings or Product Data Submittals, without separate request on the form provided, or when acceptance will require revision to the Contract Documents.
- E. Submit three copies of each request for consideration. Limit each request to one proposed Substitution. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use form provided at end of this Section.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Provide MSDS information to confirm that the product is no more harmful than the products specified.
 - f. Samples, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - j. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.
 - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.
 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 4. Store cementitious products and materials on elevated platforms.
 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 7. Protect stored products from damage and liquids from freezing.
 8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.
 9. Provide bonded and insured off-site storage and protection when site does not permit on-site storage and protection.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Submittal Time: Comply with requirements in Section 01 77 00 - Closeout Procedures.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

SUBSTITUTION REQUEST FORM

TO: Robertson/Sherwood/Architects pc
 132 East Broadway - Suite 540
 Eugene, Oregon 97401:

Deadline for Requests: May 1, 2014

PROJECT: Edison Elementary School – Office Relocation
 CIP # 420.170.003
 Eugene School District 4J

SPECIFIED ITEM: _____
 Section No. Paragraph Description

The Undersigned requests consideration of the following substitution:

The Undersigned states that the following paragraphs are true, except where noted otherwise:

1. The function, appearance and quality of the proposed substitution are equivalent or superior to the specified item;
2. The proposed substitution does not affect dimensions shown on the Drawings;
3. The Undersigned will pay for changes to the building design, including engineering and design services, detailing and construction costs caused by the requested substitution;
4. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements;
5. Maintenance and service parts will be locally available for the proposed substitution;
6. The Undersigned has attached data concerning the proposed substitution, including: Manufacturers product description, specifications, drawings, photographs, performance and test data, adequate for evaluation of the request, with applicable portions of the data clearly indicated. Attachments also include description of changes to Contract Documents which the proposed substitution will require for its proper installation.

Submitted by: _____ Signature: _____ Firm: _____ Address: _____ _____ Date: _____ Tel: _____ Fax: _____ Attachments: _____	For use by Architect: <input type="checkbox"/> Approved <input type="checkbox"/> Approved as noted. <input type="checkbox"/> Not Approved <input type="checkbox"/> Received too late By: _____ Date: _____ _____ For use by 4J Project Manager: <input type="checkbox"/> Approved <input type="checkbox"/> Approved as noted. <input type="checkbox"/> Not Approved <input type="checkbox"/> Received too late By: _____ Date: _____
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END OF SECTION

EXECUTION REQUIREMENTS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 1. Construction layout.
 2. General installation of products.
 3. Progress cleaning.
 4. Starting and adjusting.
 5. Protection of installed construction.
 6. Correction of the Work.
- B. Related Sections include the following:
 1. Section 01 31 00 - Project Management and Coordination: Procedures for coordinating field engineering with other construction activities.
 2. Section 01 77 00 - Closeout Procedures: Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.

- d. Recommended corrections.
- 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
- 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
- 5. Proceed with installation only after unsatisfactory conditions have been corrected.
PROCEEDING WITH THE WORK INDICATES ACCEPTANCE OF SURFACES AND CONDITIONS.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of seven feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated. Bring any conflicts to the Architect for review.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints where possible. Obtain Architect and Owner's Project Manager approval for all questionable conditions.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to applicable regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for safety and proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.6 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 1. Section 02 41 00 - Demolition: Demolition of selected portions of the building.
 2. Divisions 2 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a written request describing procedures prior to the time cutting and patching will be performed, requesting approval to proceed, for cutting or alteration which affects:
 1. Structural integrity of any element of Project.
 2. Integrity of weather-exposed or moisture-resistant element.
 3. Efficiency, maintenance, or safety of any operational element.
 4. Visual qualities of site-exposed elements.
 5. Work of Owner or separate contractor.
- B. Include the following information:
 1. Identification of Project and CIP number
 2. Location and description of the affected Work.
 3. Necessity for cutting or alteration.
 4. Description of proposed Work and Products to be used.
 5. Alternatives to cutting and patching.
 6. Effect on work of Owner or separate contractor.
 7. Written permission of affected separate contractor, if any.
 8. Date and time work will be executed.

1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
 1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
 2. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, which results in

reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.

- B. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Ceilings: Patch, repair, or re-hang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
 2. Warranties.
 3. Final cleaning.
- B. Related Sections include the following:
1. Section 01 29 00 - Payment Procedures: Requirements for Applications for Payment for Substantial and Final Completion.
 2. Section 01 73 00 - Execution Requirements: Progress cleaning of Project site.
 3. Section 01 78 39 - Project Record Documents: Record Drawings, Record Specifications, and Record Product Data.
 4. Section 01 78 23 - Operation and Maintenance Data: Operation and maintenance manual requirements.
 5. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise Owner of pending insurance changeover requirements.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 8. Complete startup testing of systems.
 9. Submit test/adjust/balance records.
 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 11. Advise Owner of changeover in heat and other utilities.
 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 13. Complete final cleaning requirements, including touchup painting.

14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect and Owner's Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Section 01 29 00.
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit the following completed forms, items and documents:
 - a. AIA Document G706 Contractor's Affidavit of Payment of Debts and Claims.
 - b. AIA Document G706A Contractor's Affidavit of Release of Liens.
 - c. AIA Document G707 Consent of Surety Company to Final Payment.
 - d. Operation and Maintenance Manuals
 - e. Warranties and Bonds. Submit original documents, including Contractor's General Warranty,
 - f. Record Documents.
 - g. Keys.
 - h. Testing and Start-Up records.
 - i. Affidavit of Prevailing Wages paid.
 - j. Photographic verification of posted Davis-Bacon posters.
 - k. Complete list of Contractor and all Subcontractors with address, phone numbers, and work
 - l. Asbestos-Containing Materials Statement (Form 01100B).
 - m. Proof of final acceptance and compliance from governing authorities having jurisdiction.
 - n. Certificate of insurance evidencing continuation of liability coverage including coverage for completed operations until the expiration of the specified warranty periods.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect and Owner's Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Cost of additional re-inspections by Architect and Owner's Project manager will be deducted from Final Payment to the Contractor.

1.5 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 10 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Maintenance manuals for the care and maintenance of products, material, finishes, systems, and equipment.
- B. Related Sections include the following:
 - 1. Section 01 33 00 - Submittal Procedures: Submittals for operation and maintenance manuals.
 - 2. Section 01 77 00 - Closeout Procedures: Operation and maintenance manuals.
 - 3. Section 01 78 39 - Project Record Documents: Preparing Record Drawings for operation and maintenance manuals.
 - 4. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 SUBMITTALS

- A. Initial Submittal: Submit 2 draft copies of each manual at least 15 working days before requesting inspection for Final Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
- B. Final Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.4 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of all subcontractors and material suppliers, including names, addresses and phone numbers.

3. Table of contents.

B. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

2.2 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include a Table of Contents for each volume with a list of products and major components of equipment included in the section on the face of each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

- a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
- b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
 - 6. Contact information.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- D. Comply with Section 01 77 00 - Closeout Procedures, for schedule for submitting operation and maintenance documentation.

END OF SECTION

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections include the following:
 - 1. Section 01 77 00 - Closeout Procedures: General closeout procedures.
 - 2. Section 01 78 23 - Operation and Maintenance Data: Operation and maintenance manual requirements.
 - 3. Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Final Submittal: Submit one set of marked-up Record Prints (not “Job Shack” set).
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
 - 1. Submit as a tabbed section in the Operation and Maintenance Manual.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.
 - 2. Submit as a tabbed section in the Operation and Maintenance Manual.
- D. Submit completed documents to Architect for review and approval prior to submittal of final Application for Payment.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data,

whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

- a. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Changes made by Change Order.
 - d. Changes made following Architect's written orders.
 - e. Details not on the original Contract Drawings.
 - f. Field records for variable and concealed conditions.
 - g. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Note Alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets. Include the following information on the drawings cover page:
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect and Owner's Project Manager.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Include as a tabbed section in the Operation and Maintenance Manual.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's and Owner's Project Manager's reference during normal working hours.

END OF SECTION

DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

- A. Section 01 11 00 - Summary of Work: Limitations on Contractor's use of site and premises; asbestos abatement work by others.
- B. Section 01 73 00 - Execution Requirements.
- C. Section 01 73 29 - Cutting and Patching.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 PROJECT CONDITIONS

- A. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- B. Comply with other requirements specified in Section 01 73 00 and 01 73 29.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

- A. Remove portions of existing construction as indicated on Drawings and as needed to facilitate new work.
- B. Salvage the following to the Owner:
 - 1. Door hardware.
- C. Salvage the following for relocation and/or reinstallation:
 - 1. Casework at School Office Rooms 102 and 103 to allow abatement of asbestos floor tile and replacement of floor sheathing.
 - 2. As indicated on Drawings.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. The Owner has determined that there is lead in the existing paint finishes. Contractor must follow OSHA Lead in Construction Standard 29CFR1926.62.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Provide, erect, and maintain temporary barriers and security devices.
 - 2. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 3. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 4. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
- C. Do not begin removal until built elements to be salvaged or relocated have been removed.
- D. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.

2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
- E. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- F. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Dismantle existing construction and separate materials.
 2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
1. Verify that construction and utility arrangements are as shown.
 2. Report discrepancies to Architect before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
1. Remove items indicated on drawings.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 3. Verify that abandoned services serve only abandoned facilities before removal.
 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

- F. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; do not burn or bury.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

STRUCTURAL STEEL FRAMING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Structural steel framing members, support members.
- B. Base plates.

1.02 RELATED REQUIREMENTS

- A. Section 01 40 00 - Quality Requirements: Testing and Inspection Agency.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2011.
- B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2012.
- D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.
- E. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2011.
- F. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2012.
- G. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.
- H. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings:
 1. Indicate profiles, sizes, locations of structural members, attachments, and fasteners.
 2. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."
- B. Fabricator: Company specializing in performing the work of this section with minimum 5 years of documented experience.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Steel Plates: ASTM A 36/A 36M (unless noted otherwise on Structural Drawings).
- B. Steel W Shapes and Tees: ASTM A 992/A 992M, Grade 50.
- C. Cold-Formed Structural Tubing: ASTM A500, Grade B.
- D. Welding Materials: AWS D1.1; E70XX, type required for materials being welded. CVN 20 ft-lbs at -20 degrees F for welds at structural flange.
- E. Shop and Touch-Up Primer: SSPC-Paint 15.

2.02 FABRICATION - GENERAL

- A. Shop fabricate to greatest extent possible.
- B. Continuously seal joined members by continuous welds. Grind visually exposed welds smooth.

- C. Fabricate connections for bolt, nut, and washer connectors.

2.03 SHOP FINISH - NON-EXPOSED STEEL

- A. Surface Preparation: Clean surfaces in accordance with SSPC SP 1, Solvent Cleaning; prepare galvanized surfaces in accordance with primer manufacturer's instructions.
- B. Shop prime structural steel members. Do not prime surfaces that will be in contact with concrete.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Do not field cut or alter structural members without approval of Architect.
- D. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

3.03 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION

ROUGH CARPENTRY**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Structural dimension lumber framing.
- B. Non-structural dimension lumber framing.
- C. Preservative treated wood materials.
- D. Concealed wood blocking, nailers, and supports.
- E. Miscellaneous wood nailers, furring, and grounds.

1.02 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- B. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2012.
- C. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology, Department of Commerce; 2010.

1.03 QUALITY ASSURANCE

- A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
 - 1. Acceptable Lumber Inspection Agencies: Any agency with rules approved by American Lumber Standards Committee.
- B. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: 10 percent.
- C. Stud Framing (2 by 2 through 2 by 8); S4S:
 - 1. Species: Douglas Fir-Larch.
 - 2. Grade: No. 1 or Better.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.

- 2. Boards: Standard or No. 3.
- E. Miscellaneous Blocking, Furring, and Nailers:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.
- F. Lumber to Receive Preservative Pressure Treatment:
 - 1. Species: Hem-fir.
 - 2. Grade: No. 2.

2.03 CONSTRUCTION PANELS

- A. Underlayment: APA Underlayment; plywood, Exposure 2, 3/4 inch thick. Sanded face.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
- B. Subfloor Glue: Waterproof, water base, air cure type, cartridge dispensed.
- C. Acoustical Sealant: Specified in Section 07 90 05 - Joint Sealers.
- D. See Drawings for additional accessories.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
 - 1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - 2. Treat lumber in contact with concrete.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 FRAMING INSTALLATION

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength .
- D. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- E. Install structural members full length without splices unless otherwise specifically detailed.

- F. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes.
- G. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.03 ACOUSTICAL ACCESSORIES INSTALLATION

- A. Acoustical Insulation: Installed Under Section 09 26 13 - Gypsum Veneer Plastering.
- B. Acoustical Sealant: Install in accordance with manufacturer's instructions.
 1. Place two beads continuously on substrate before installing top and bottom plates.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- C. Specifically, provide the following non-structural framing and blocking:
 1. Cabinets and shelf supports.
 2. Wall brackets.
 3. Handrails.
 4. Grab bars.
 5. Towel and bath accessories.
 6. Wall-mounted door stops.
 7. Chalkboards and marker boards.

3.05 INSTALLATION OF CONSTRUCTION PANELS

- A. Underlayment: Secure to subflooring with nails and glue.
 1. At locations where resilient flooring will be installed, fill and sand splits, gaps, and rough areas.

3.06 CLEANING

- A. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- B. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

FINISH CARPENTRY**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Wood trim.
- C. Custom fabricated upholstered seats and beds.
- D. Hardware and attachment accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 09 90 00 - Painting and Coating: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.
- B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, accessories, to a minimum scale of 1-1/2 inch to 1 ft.
- C. Samples: Submit two samples of wood trim 6 inch long.
- D. Samples: Submit two samples of upholstery fabric, 12 x 12 inch size.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom grade.
- B. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

1.07 PROJECT CONDITIONS

- A. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

PART 2 PRODUCTS**2.01 FINISH CARPENTRY ITEMS**

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Custom Grade.
- B. Interior Woodwork Items:
 - 1. Interior Relite Frames: MDF; prepare for opaque finish.
 - 2. Trim, Moldings, and Window Sills: MDF; prepare for opaque finish.

2.02 WOOD-BASED COMPONENTS

- A. Composite wood products including, but not limited to, plywood, fiber board, particle board, and hardboard shall not contain any added urea-formaldehyde.

2.03 LUMBER MATERIALS

- A. Wood Trim: Medium density fiberboard; profiles as indicated on Drawings, maximum moisture content of 6 percent, of quality suitable for opaque finish.

2.04 SEATING AND BENCH COMPONENTS AND MATERIALS

- A. Cushion Padding: High resilient polyurethane foam, 2.5 lbs/cu.ft. Density; 2 and 3 inch thickness; Class A fire-retardant treated; ILD 35.
- B. Wrap: Dacron fabric separator, suitable for installation.
- C. Upholstery Fabric: Vinyl fabric with urethane top coat; 100 percent polyester Hi-Loft 2 backing, PermaBlok3 finish; fire-retardant; anti-bacterial; anti-fungal, anti-stain; color to match REF-7813 Wheat.
 1. Reflex by Spradling International: www.spradlingvinyl.com.
 2. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Zipper: Heavy-duty, non-corroding type.

2.05 FASTENINGS

- A. Fasteners: Of size and type to suit application; stainless steel finish at exposed and semi-exposed locations.
- B. Concealed Joint Fasteners: Threaded stainless steel.

2.06 ACCESSORIES

- A. Wood Filler: Latex base, tinted to match surface finish color.

2.07 FABRICATION

- A. Profiles: As indicated on Drawings.
- B. Shop assemble work for delivery to site, permitting passage through building openings.
- C. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.08 UPHOLSTERED SEAT AND BED - FABRICATION

- A. Fabricate seat and bed with single piece of 3 inch thick foam padding; cover uniformly with wrap.
- B. Fabricate seat back with single piece of 2 inch thick foam padding; cover uniformly with wrap.
- C. Install fabric without seams on face and back. Provide zippered closer on two adjacent sides to allow removal of cover.
- D. Size as indicated on Drawings.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.

- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 90 00.

3.04 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

ARCHITECTURAL WOOD CASEWORK**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Cabinet hardware.
- D. Factory finishing.
- E. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 22 42 00 - Commercial Plumbing Fixtures: Sinks.
- C. Section 26 05 33 - Raceways and Boxes for Electrical Systems: Surface mounted electrical raceways.

1.03 REFERENCE STANDARDS

- A. ANSI A135.4 - American National Standard for Basic Hardboard; 2004.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.
- C. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.
- D. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).
- E. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; Hardwood Plywood & Veneer Association; 2009 (ANSI/HPVA HP-1).
- F. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.
- G. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2010.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures; Submittal requirements.
- B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.
- C. Product Data: Provide data for hardware accessories.
- D. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches square, illustrating proposed cabinet, countertop, and shelf unit substrate and finish.
- E. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
- B. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.

1.07 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS**2.01 CABINETS**

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI Architectural Woodwork Standards for Grades as indicated.
- B. Wood Veneer Faced Cabinets: Custom grade.
 - 1. Exposed Surfaces: Grade AA, white birch, rotary cut, book-matched.
 - 2. Semi-Exposed Surfaces: Cabinet liner.

2.02 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

2.03 LUMBER MATERIALS

- A. Softwood Lumber: NIST PS 20; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade I/Premium; average moisture content of 5-10 percent; species as follows:
 - 1. Concealed Surfaces: Species Douglas fir.
- B. Hardwood Lumber: White birch species, rift sawn, maximum moisture content of 6 percent ; with vertical grain , of quality suitable for transparent finish.
 - 1. Trim: Sizes as indicated on Drawings.

2.04 PANEL MATERIALS

- A. Softwood Plywood: Any face species, veneer core; PS 1 Grade A-B; waterproof glue recommended for application; minimum 7-ply construction.
 - 1. Countertop Backing: 3/4 inch thickness.
- B. Hardwood Faced Plywood: HPVA HP-1; graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, core of Maple or Birch veneer; minimum 7-play hardwood, no-void, core; type of glue recommended for specific application; thickness as indicated.
 - 1. Typical: 3/4 inch thick.
 - 2. Drawer Construction: 1/2 inch thick, sides, backs and subfronts.
- C. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 - Tempered, 1/4 inch thick, smooth two sides (S2S); use for drawer bottoms, dust panels, and other components indicated on drawings.
 - 1. Backs: 1/4 inch.
- D. Hardwood Edgebanding: Use solid hardwood edgebanding matching species, color, grain, and grade for exposed portions of cabinetry.

2.05 LAMINATE MATERIALS

- A. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications and as follows:
 - 1. Horizontal Surfaces: HGL, 0.039 inch nominal thickness, color as selected, satin finish.
 - 2. Cabinet Liner: CLS, 0.020 inch nominal thickness, through color, color as selected, .
 - 3. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

- B. Products / Colors:
 1. PL-1: To match Wilsonart Olive Legacy 4654-60.

2.06 COUNTERTOPS

- A. Plastic Laminate Countertops: Plywood substrate covered with HPDL, conventionally fabricated, with decorative white maple edge and turn-down edge as indicated on Drawings.

2.07 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.
- E. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

2.08 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Shelf Rests: Steel, angular with riveted 0.5 mm diameter pin and securing hole; nickel plated.
 1. Products:
 - a. Cat. No. 282.11.710 by Hafele: www.hafeleus.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Drawer and Door Pulls: "U" shaped wire pull, steel with satin finish, 4 inch centers.
 1. Products:
 - a. Model 117.50.610 by Hafele: www.hafeleus.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Catches: Magnetic, adjustable.
 1. Products:
 - a. EDP# 71 0300 by The Stanley Works: www.stanleyworks.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- E. Drawer Slides:
 1. Type: Full extension.
 2. Static Load Capacity: Heavy Duty grade.
 - a. Pencil and Box Drawers: 100 pound capacity.
 - b. File Drawers: 200 pound capacity.
 3. Mounting: Side mounted.
 4. Stops: Integral type.
 5. Features: Provide self closing/stay closed type.
 6. Products:
 - a. Accuride International, Inc: www accuride.com.
 - b. Grass America Inc: www.grassusa.com.
 - c. Knappe & Vogt Manufacturing Company: www.knappeandvogt.com.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
- F. Hinges: Semiconcealed interleaf casework type, steel with satin finish.
 1. Products:
 - a. Class 1592-4 by Stanley.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- G. Grommets: Plastic ring type, 3 inch diameter; black color.
 1. Products:
 - a. Model EDP by Doug Mocket & Company.

- b. Substitutions: See Section 01 60 00 - Product Requirements.
- H. Keyboard Tray Assembly: Adjustable support, tray and wrist support.
 - 1. Products:
 - a. Model U-2180S Tray, Model 2120 Clip-On Wrist Rest, Model 2170-22TG Pinnacle Arm with 22 inch Track by Workrite Ergonomic Accessories, Inc: www.wrea.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

2.09 FABRICATION

- A. Cabinet Style: Reveal overlay.
- B. Cabinet Doors and Drawer Fronts: Flush style.
- C. Drawer Construction Technique: Dovetail joints.
- D. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- E. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- F. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- G. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
 - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 - 2. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- H. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.
- I. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.
- J. Grommeted Openings: Assume maximum four Grommeted openings at each countertop in non-restroom locations; final locations as indicated on Shop Drawings.

2.10 FACTORY FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. For opaque finishes, apply wood filler in exposed nail and screw indentations and sand smooth.
- C. On items to receive transparent finishes, use wood filler matching or blending with surrounding surfaces and of types recommended for applied finishes.
- D. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:
 - 1. Transparent:
 - a. System - 3, Lacquer, Postcatalyzed.
 - b. Stain: Honey color to match existing casework.
 - c. Sheen: Flat.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.

- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

3.03 ADJUSTING

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

SHEET METAL FLASHING AND TRIM**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including roof penetrations and fan curb base.

1.02 REFERENCE STANDARDS

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2011.
- B. ASTM A 53 - Standard Specification for Pipe, Steel, Black, Hot-Dipped, Zinc-Coated, Welded and Seamless.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2011.
- D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012)e1.
- E. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Samples: Submit two samples 4 x 4 inch in size illustrating metal finish color.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion. Defective work includes failure of watertightness or seals.
- C. Metal Finishes: Provide manufacturer's 20-year warranty covering metal finishes.

PART 2 PRODUCTS**2.01 SHEET MATERIALS**

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal, shop pre-coated with PVDF coating.
 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 2. Color: As selected by Architect from manufacturer's standard colors.

2.02 ACCESSORIES

- A. Fasteners: Stainless steel, with soft neoprene washers.
- B. Sealant: Type B - MS Polymer specified in Section 07 90 05.
- C. Plastic Cement: ASTM D4586, Type I.

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Fabricate to profiles indicated on Drawings.
- C. Form pieces in single length sheets.
- D. Miter and seal corners.
- E. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify roof openings are solidly set and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 INSTALLATION

- A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- D. Seal metal joints watertight.

3.03 SCHEDULE

	LOCATION	METAL TYPE	THICKNESS	FINISH
A.	Metal Curb / Flashing:	Formed Prefinished Steel	22 Gage	Fluoropolymer

END OF SECTION

FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Firestopping systems.
- B. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

- A. Section 09 26 13 - Gypsum Veneer Plastering: Wall finishes.

1.03 REFERENCE STANDARDS

- A. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2011a.
- B. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.
- C. FM 4991 - Approval of Firestop Contractors; Factory Mutual Research Corporation; 2001.
- D. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- E. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- E. Qualification statements for installing mechanics.

1.05 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the specified fire ratings when tested in accordance with methods indicated.
 - 1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
 - 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
 - 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
 - 1. Approved by Factory Mutual Research under FM Standard 4991, Approval of Firestop Contractors, or meeting any two of the following requirements:
 - 2. With minimum 3 years documented experience installing work of this type.
- D. Installing Mechanic's Qualifications: Trained by firestopping manufacturer and able to provide evidence thereof.

1.06 REGULATORY REQUIREMENTS

- A. Conform to Oregon Structural Specialty Code for fire-resistance ratings, surface burning characteristics, F-Rating and T-Rating Requirements.

- B. Conform to Oregon Structural Specialty Code, Section 712, 712.3 and 712.4 for exceptions allowed by code.
- C. F-Rated Firestopping Systems: Provide system with F-Ratings indicated, as determined by ASTM E 814, but not less than fire resistive rating of construction penetrated.
- D. T-Rated Firestopping Systems: For following conditions, provide system with T-Ratings indicated, as well as F-Ratings, as determined by ASTM E814, where system protects items exposed to potential contact with adjacent materials in occupied spaces.
 - 1. Penetration located outside wall cavities.
 - 2. Penetrations located outside fire-resistive shaft enclosures.
 - 3. Penetrations located in construction containing fire-protection-rated openings.
 - 4. Penetrating items larger than 4 inches in diameter nominal or 16 sq in in overall cross-sectional area.
- E. For joints in the following construction, provide fire-resistive joint systems that resist spread of fire, resist passage of smoke and other gases, and maintain original fire-resistive rating of assembly:
 - 1. Fire-resistive non-load bearing walls and partitions.
- F. Fire Resistance of Joint Assembly: Assembly rating indicated for the construction assembly as determined by UL 2079 and UBC Standard 26-9.
- G. Systems and devices to withstand the passage of cold smoke either as an inherent property of the system or by the use of a separate product included as a part of the UL system or device and designed to perform this function. Systems complying with the requirements for through-penetration firestopping in fire-rated construction are acceptable provided the system will provide a smoke seal.
- H. Performance Requirements: Capable of withstanding standard fire and hose stream test (F-Rating) and limit temperature rise (T-Rating) of penetrations on protection side as required by code. Conform to UBC Standard 7-5.

1.07 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 FIRESTOPPING - GENERAL REQUIREMENTS

- A. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

2.02 FIRESTOPPING SYSTEMS

- A. Firestopping: Any material meeting requirements.
 - 1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E814 that has F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and that meets all other specified requirements.
 - 2. Approved Manufacturers:
 - a. Hilti Construction Chemicals, Inc.
 - b. Specified Technologies, Inc.
 - c. 3M Fire Protection Products.
 - d. Substitutions: See Section 01 6000 - Product Requirements.

2.03 MATERIALS

- A. Materials: Provide putty, sealants, wraps, boards, and accessories as necessary and required for project conditions and system description requirements.

- B. Firestopping: Asbestos free, intumesce when exposed to temperatures of 250 degrees F as necessary for the required performance, and maintain an effective barrier against flame, smoke and gases, under actual fire conditions in the assemblies indicated without requiring removal of pipe insulation.
- C. Firestop Fire Rating: Not less than the rating of the assembly in which it will be installed.
- D. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authority having jurisdiction.
- C. Install labeling required by code.
- D. Provide firestopping at each joint and penetration in fire-resistive assemblies forming floors, roofs, shaft enclosures, exit enclosures, occupancy separations and corridors. Seal all holes or void to provide effective barrier against flame, smoke and gases.
- E. Firestopping: Required at each penetration through a fire-rated assembly without regard to the trade that performed the work. Provide at work that is recessed within or may otherwise effect the integrity of a fire-rated assembly, and shall effectively restore or maintain the required fire resistive performance. Firestop each penetration to maintain the integrity of the fire-rated assembly affected and to conform to the UL listing of the firestop material.
- F. Mechanical and Plumbing Systems: Smoke proof and fire-resistive seal pipe, duct, conduit and other penetrations. Firestop devices and equipment mounted in fire-rated assemblies.
- G. Electrical Systems including Signal and Data Systems: Smoke proof and fire-resistive seal cable tray, wiring, conduit and other penetrations. Firestop electrical devices, panelboards and light fixtures recessed in fire-rated assemblies.

3.04 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

- A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Preconstruction testing.

1.02 RELATED REQUIREMENTS

- A. Section 07 84 00 - Firestopping: Firestopping sealants.
- B. Section 08 80 00 - Glazing: Glazing sealants and accessories.
- C. Section 09 26 13 - Gypsum Veneer Plaster: Acoustic sealant installation.
- D. Section 09 30 00 - Tiling: Sealant used as tile grout.

1.03 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants; 2010.
- B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Provide data indicating sealant chemical characteristics.
- C. Manufacturer's Installation Instructions: Indicate special procedures.
- D. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in Quality Assurance below.
- E. Compatibility and Adhesion Test Reports: From sealant manufacturer, including the following:
 1. Confirmation that joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.
- C. Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants. Submit no fewer than four pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrate.
 2. Schedule sufficient time for testing and analyzing results to prevent delaying Work.
 3. For materials failing tests, obtain joint sealant manufacturer's written instruction for corrective measures including use of specially formulated primers.

1.06 MOCK-UP

- A. Construct mock-up with specified sealant types and with other components noted.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

1.07 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 COORDINATION

- A. Coordinate the work with all sections referencing this section.

1.09 WARRANTY

- A. See Section 01 77 00 - Closeout Procedures: Addition warranty requirements.
- B. Provide a five year extended correction period for sealant work.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS**2.01 SEALANTS**

- A. Type B - MS Polymer Sealant: ASTM C920, Type S, Grade NS, Class 25; single or 2-part component silyl-terminated polyether, moisture curing, non-staining, non-bleeding, capable of continuous water immersion, non-sagging type; multiple colors as selected to match adjacent materials; meeting the following minimum requirements.
 - 1. Elongation: 100 percent
 - 2. Service Temperature Range: -40 to 220 degrees F
 - 3. Shore A Hardness Range: 20 to 35
 - 4. Products:
 - a. Sonolastic 150 by Sonneborn Building Products: www.chemrex.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Type C - Acoustical Sealant (Exposed): ASTM C834; single component latex, non-staining, non-bleeding, non-sagging type; multiple colors to match adjacent materials.
 - 1. Products:
 - a. AC20 FTR Acoustical and Insulation Sealant by Pecora Corporation: www.pecora.com.
 - b. Sheetrock Acoustical Sealant by United States Gypsum Co: www.usg.com.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Type D - Acoustical Sealant (Concealed): Single component latex, non-staining, non-bleeding, non-hardening, non-skinning, non-sagging type; synthetic rubber type.
 - 1. Products:
 - a. BA-98 by Pecora Corporation.
 - b. Tremco Acoustical Sealant by Tremco: www.tremcosealants.com.
 - c. Acoustical Sealant by United States Gypsum Co: www.usg.com.
 - d. #313 Sound Control Sealant by The W.W. Henry Company: www.wwhenry.com.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Type E - Silicone Sealant: Single component, mildew resistant, acid curing, silicone sealant; Class 25.
 - 1. Products:
 - a. 786 Mildew Resistant by Dow Corning Corporation: www.dowcorningsealants.com.
 - b. Sanitary SCS1700 by GE Silicones: www.gesilicones.com.
 - c. Tremsil 200 by Tremco: www.tremcosealants.com.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.
- C. Verify that preconstruction testing has been completed.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
 1. Width/depth ratio of 2:1.
 2. Neck dimension no greater than 1/3 of the joint width.
 3. Surface bond area on each side not less than 75 percent of joint width.
- E. Install bond breaker where joint backing is not used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- H. Tool joints concave.
- I. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.

3.04 CLEANING

- A. Clean adjacent soiled surfaces.

3.05 PROTECTION

- A. Protect sealants until cured.

3.06 SCHEDULE

- A. Type B - MS Polymer:
 - 1. Perimeter of steel door frames.
 - 2. Perimeter of aluminum storefront systems.
 - 3. Joints in ceramic tile.
 - 4. Other joints indicated on Drawings.
- B. Type C - Acoustical Sealant: See also Section 09 21 16.
 - 1. Perimeter of gypsum board in acoustical wall, and corner intersections.
 - 2. Perimeter of penetrations in acoustical walls and ceilings.
- C. Type D: Acoustical Sealant:
 - 1. Under stud track at acoustical walls, 2 beads continuous.
 - 2. Concealed perimeter of gypsum board in acoustical walls and corner intersections.
 - 3. Concealed perimeter of penetrations in acoustical walls.
- D. Type E - Silicone Sealant:
 - 1. Perimeter of plumbing fixtures.

END OF SECTION

HOLLOW METAL FRAMES**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Non-fire-rated steel frames for non-steel doors.

1.02 RELATED REQUIREMENTS

- A. Section 08 14 16 - Flush Wood Doors: Wood doors.
- B. Section 08 71 00 - Door Hardware.
- C. Section 09 90 00 - Painting and Coating: Field painting of frames.

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2011).
- D. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.
- E. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes .
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
- D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS**2.01 STEEL DOOR FRAMES - GENERAL REQUIREMENTS**

- A. Refer to Door and Frame Schedule on the drawings for frame sizes, fire ratings, sound ratings, finishing, door hardware to be installed, and other variations, if any.
- B. Door Frame Type: Provide steel door frames with integral casings, for field finishing.
- C. Accessibility: Comply with ANSI/ICC A117.1.
- D. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified.

- E. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

2.02 STEEL DOOR FRAMES WITH INTEGRAL CASINGS

- A. Finish: Factory primed, for field finishing.
- B. Interior Door Frames, Non-Fire-Rated: Fully welded type.
 1. Grade: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
 2. Finish: Factory primed, for field finishing.

2.03 ACCESSORY MATERIALS

- A. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
- B. Grout for Frames: Portland cement grout of maximum 4-inch slump for hand troweling; thinner pumpable grout is prohibited.
- C. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.04 FINISH MATERIALS

- A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.
- B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

- A. Install frames in accordance with manufacturer's instructions and recommendations and as follows.
- B. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
- C. Coordinate frame anchor placement with wall construction.
- D. Grout frames using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- E. Coordinate installation of hardware.
- F. Coordinate installation of electrical connections to electrical hardware items.

3.04 TOLERANCES

- A. Clearances Between Door and Frame: As specified in ANSI A250.8.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

END OF SECTION

FLUSH WOOD DOORS**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Flush wood doors; flush configuration; non-rated.

1.02 RELATED REQUIREMENTS

- A. Section 08 12 13 - Hollow Metal Frames.
- B. Section 08 71 00 - Door Hardware.
- C. Section 08 80 00 - Glazing.

1.03 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
- D. Specimen warranty.
- E. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing and louvers.
- F. Samples: Submit two samples of door veneer, 8 x 10 inch in size illustrating wood grain, stain color, and sheen.
- G. Manufacturer's Installation Instructions: Indicate special installation instructions.
- H. Warranty, executed in Owner's name.

1.04 QUALITY ASSURANCE

- A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.

1.06 PROJECT CONDITIONS

- A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.07 WARRANTY

- A. See Section 01 77 00 - Closeout Procedures: Additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Provide warranty for the following term:
 1. Interior Doors: Life of installation.
- D. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Wood Veneer Faced Doors:
 1. Graham Wood Doors: www.grahamdoors.com.
 2. Algoma Hardwoods, Inc: www.algomahardwoods.com.
 3. Eggers Industries: www.eggersindustries.com.
 4. Marshfield DoorSystems, Inc: www.marshfielddoors.com.
 5. Vancouver Door, Inc: www.vancouverdoorco.com.
 6. VT Industries Inc: www.vtindustries.com.
 7. Western Door Systems, Inc: www.westerndoor.com.
 8. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS

- A. All Doors: See drawings for locations and additional requirements.
 1. Quality Level: Premium Grade, Heavy Duty performance, in accordance with WDMA I.S.1-A.
 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 1. Provide solid core doors at all locations .
 2. Face Veneer: White maple, rotary cut veneer facing with factory transparent finish .

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type structural composite lumber core (SCLC), plies and faces as indicated above. Assembly to be certified as FSC Pure.

2.04 DOOR FACINGS

- A. Wood Veneer Facing for Transparent Finish: Species as specified above, veneer grade as specified by quality standard, cut to match existing, book veneer match, running assembly match; unless otherwise indicated.
 1. Vertical Edges: Same species as face veneer.
- B. Facing Adhesive: Type I - waterproof.

2.05 ACCESSORIES

- A. Glazing Stops, Non-Rated Doors: Wood, of same species as door facing, mitered corners; prepared for countersink style tamper proof screws.

2.06 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
- C. Provide solid blocks at lock edge for hardware reinforcement.
 1. Provide solid blocking for other throughbolted hardware.
- D. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.
- E. Fit door edge trim to edge of stiles after applying veneer facing.
- F. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- G. Provide concealed wiring harness and standard Molex plug connectors on both ends to accommodate 12 wires in door cores scheduled to receive electrified hardware; coordinate connectors on harness to plug directly into electrified hardware.
- H. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

1. Exception: Doors to be field finished.

I. Provide edge clearances in accordance with the quality standard specified.

2.07 FACTORY FINISHING - WOOD VENEER DOORS

A. Factory finish doors in accordance with specified quality standard:

1. Transparent Finish: Transparent catalyzed polyurethane finish, Premium quality, satin sheen; Honey color stain to match existing doors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

3.03 TOLERANCES

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.
- C. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taut string, top to bottom, over an imaginary 36 by 84 inches surface area.
- D. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary 36 by 84 inches surface area.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

END OF SECTION

AUTOMATIC ENTRANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Packaged power-operated door assemblies.

1.02 RELATED REQUIREMENTS

- A. Section 26 01 00 - General Electrical Provisions: Electrical connections.

1.03 REFERENCE STANDARDS

- A. BHMA A156.10 - American National Standard for Power Operated Pedestrian Doors; Builders Hardware Manufacturers Association; 2011 (ANSI/BHMA A156.10).
- B. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 2011.
- C. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Shop Drawings:
 1. Indicate layout and dimensions; head, jamb, and sill conditions; elevations; components, anchorage, recesses, materials, and finishes, electrical characteristics and connection requirements.
 2. Identify installation tolerances required, assembly conditions, routing of service lines and conduit, and locations of operating components and boxes.
- C. Product Data: Provide data on system components, sizes, features, and finishes.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and manufacturer's hardware and component templates.
- E. Maintenance Data: Include manufacturer's parts list and maintenance instructions for each type of hardware and operating component.
- F. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years of experience.

1.06 WARRANTY

- A. See Section 01 77 00 - Closeout Procedures: Additional warranty requirements.
- B. Provide two year manufacturer warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Sliding Automatic Entrance Door Assemblies:
 1. Model TX9200AC Automatic Sliding Door System by Tormax Technologies Inc:
www.tormaxusa.com.

2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 POWER OPERATED DOORS

- A. All Power Operated Doors: Provide products that comply with the requirements of the authorities having jurisdiction; unless otherwise indicated, provide equipment selected for the actual weight of the doors and for light pedestrian traffic.
 1. Sliding and Folding Door Operators: In the event of power failure, provide for manual open, close, and break-away operation of door leaves.
 2. Packaged Door Assemblies: Provide all components by single manufacturer, factory-assembled, including doors, frames, operators, actuators, and safeties.
- B. Sliding and Folding Doors with Full Power Operators: Comply with BHMA A156.10; safeties required; provide break-away operation unless otherwise indicated; in the event of break-away operation, interrupt power operation.
 1. Comply with UL 325; acceptable evidence of compliance includes current UL or ULC listing.
 2. Force Required to Swing Break-Away Panel: 50 pounds-force, maximum, measured at 1 inch from the latch edge of the door at any point in the closing cycle.
- C. Operators:
 1. Electric Operators: Direct drive, with release clutch; size to accommodate door weight and operation.

2.03 PACKAGED AUTOMATIC ENTRANCE DOOR ASSEMBLIES

- A. Sliding Automatic Door : Bi-parting double leaf track-mounted, electric operation, extruded aluminum glazed door, with frame, and operator concealed overhead.
 1. Operation: Power open, spring close operation.
 2. "Outside" Side Actuator/Safety: Motion sensor.
 3. "Inside" Side Actuator/Safety: Motion sensor.
 4. Hold Open: Toggle switch at inside head of doors; this is not a fire-rated door.
 5. Door and Frame Finish: Manufacturer's standard powder coat finish, color as selected.

2.04 CONTROLLERS, ACTUATORS, AND SAFETIES

- A. Controller: Provide microprocessor operated controller for each door.
- B. Proximity Detector Actuator/Safety: Microwave; distance of control sensitivity adjustable.

2.05 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Electrical Characteristics:
 1. 120 volts, single phase, 60 Hz.
- B. Motors: NEMA MG 1.
- C. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
- D. Disconnect Switch: Factory mount disconnect switch in control panel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available and is of the correct characteristics.

3.02 INSTALLATION

- A. Install equipment in accordance with manufacturer's instructions.
- B. Coordinate installation of components with related and adjacent work; level and plumb.

3.03 ADJUSTING

- A. Adjust door equipment for correct function and smooth operation.

3.04 CLEANING

- A. Remove temporary protection, clean exposed surfaces.

3.05 CLOSEOUT ACTIVITIES

- A. Demonstrate operation, operating components, adjustment features, and lubrication requirements.

END OF SECTION

DOOR HARDWARE**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Hardware for wood and aluminum doors.

1.02 RELATED REQUIREMENTS

- A. Section 08 12 13 - Hollow Metal Frames.
- B. Section 08 14 16 - Flush Wood Doors.
- C. Section 08 42 29 - Automatic Entrances.

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- B. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
- C. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1993; also in WDHS-1/WDHS-5 Series, 1996.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.

1.05 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures" Submittal requirements.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- C. Shop Drawings:
 - 1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts, .
- D. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
- E. Keying Schedule: Submit for approval of Owner.
- F. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- G. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- H. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.
- I. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- J. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.

1.06 QUALITY ASSURANCE

- A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

- C. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with five years of experience.
- D. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 COORDINATION

- A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.
- B. Coordinate Owner's keying requirements during the course of the Work.

1.09 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year warranty for door closers.

1.10 MAINTENANCE PRODUCTS

- A. Provide special wrenches and tools applicable to each different or special hardware component.
- B. Provide maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide all items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
 1. Applicable provisions of federal, state, and local codes.
 2. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
- D. Finishes: Identified in schedule.
- E. Fasteners:
 1. Concrete and Masonry Substrates: Stainless steel machine screws and lead expansion shields.

2.02 KEYING

- A. Door Locks: Keying by Owner.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.

- C. Mounting heights for hardware from finished floor to center line of hardware item: As listed in Schedule, unless otherwise noted:
1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
 2. For steel doors and frames: See Section 08 11 13.
 3. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."

3.03 FIELD QUALITY CONTROL

- A. Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.04 ADJUSTING

- A. Adjust hardware for smooth operation.
- B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

HARDWARE SETS

4.01 HARDWARE GROUPS

- A. Group 1: Wood Door, Steel Frame - Entrance (Access Control)
- | | | | | |
|------|-----------------|-----------------|------|---------|
| 3 Ea | Hinge | 5BB1, 4.5 x 4.5 | 626 | Ives |
| 1 Ea | Lockset | | 626 | Schlage |
| 1 Ea | Electric Strike | | 626 | |
| 1 Ea | Closure | 4010/4110 DEL | Alum | LCN |
| 1 Ea | Remote Switch | By Owner | | |
| 1 Ea | Card Reader | By Owner | | |
- B. Group 2: Wood Door, Steel Frame - Entrance
- | | | | | |
|------|-----------|-----------------|-----|---------|
| 3 Ea | Hinges | 5BB1, 4.5 x 4.5 | 626 | Ives |
| 1 Ea | Lockset | ND93PD, Rhodes | 626 | Schlage |
| 1 Ea | Wall Stop | WS401 | 626 | Ives |
- C. Group 3: Sliding Glass Door Assembly
Hardware and controls by Section 08 42 29 - Automatic Entrances
- D. Group 4: Wood Door, Steel Frame - Office
- | | | | | |
|------|-----------------|-----------------|-----|---------|
| 3 Ea | Hinges | 5BB1, 4.5 x 4.5 | 626 | Ives |
| 1 Ea | Lockset, Office | ND53PD, Rhodes | 626 | Schlage |
| 1 Ea | Wall Stop | WS401 | 626 | Ives |
- E. Group 5: Wood Door, Steel Frame - Classroom
- | | | | | |
|------|---------------|-----------------|-----|---------|
| 3 Ea | Hinges | 5BB1, 4.5 x 4.5 | 626 | Ives |
| 1 Ea | Lockset | ND93PD, Rhodes | 626 | Schlage |
| 1 Ea | Overhead Stop | 104S | 626 | Ives |
- F. Group H6: Wood Door, Steel Frame - Toilet Room
- | | | | | |
|------|-------------------|-----------------|-----|---------------|
| 3 Ea | Hinges | 5BB1, 4.5 x 4.5 | 626 | Ives |
| 1 Ea | Latchset, Passage | ND10S, Rhodes | 626 | Schlage |
| 1 Ea | Overhead Stop | 104S | 626 | Glynn Johnson |
- G. Group 7: Existing Wood Door - Reading Intervention
- | | | | | |
|------|---------|---------------|-----|---------|
| 1 Ea | Lockset | ND10S, Rhodes | 626 | Schlage |
|------|---------|---------------|-----|---------|

DOOR HARDWARE - 08 71 00

H.	Group 8: Wood Door, Steel Frame - Reading Intervention				
	3 Ea	Hinges	5BB1, 4.5 x 4.5	626	Ives
	1 Ea	Latchset, Passage	ND10S, Rhodes	626	Schlage
	1 Ea	Wall Stop	WS401	626	Ives
I.	Group 9: Existing Wood Door				
	1 Ea	Lockset	ND93PD, Rhodes	626	Schlage
J.	Group 10: Existing Wood Door				
	1 Ea	Lockset	ND96PD, Rhodes	626	Schlage

END OF SECTION

GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 20 00 - Finish Carpentry: Wood frames for interior glass.
- B. Section 07 90 05 - Joint Sealers: Sealant and back-up material.
- C. Section 08 14 16 - Flush Wood Doors: Glazed lites in doors.
- D. Section 08 42 29 - Automatic Entrances: Glazing furnished as part of door assembly.

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).
- C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- D. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 PERFORMANCE REQUIREMENTS

- A. Select type and thickness of exterior glass to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with Oregon Structural Specialty code.
 - 1. Use the procedure specified in ASTM E 1300 to determine glass type and thickness.
 - 2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
 - 3. Thicknesses listed are minimum.

1.06 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- D. Samples: Submit two samples 12 inch in size of glass units, showing coloration and design.
- E. Certificates: Certify that products meet or exceed specified requirements.

1.07 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.08 MOCK-UP

- A. See Section 01 40 00 - Quality Requirements, for additional mock-up requirements.
- B. Provide mockup of exterior wall assembly including glass and air barrier and vapor retarder seal.
- C. Locate where indicated on Drawings.
- D. Mockup may remain as part of the Work.

1.09 PRE-INSTALLATION MEETING

- A. Convene one week before starting work of this section.

1.10 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 PRODUCTS**2.01 GLASS MATERIALS**

- A. Float Glass: All glazing is to be float glass unless otherwise indicated.
 - 1. Fully Tempered Type: ASTM C1048.
- B. Clear Safety Glass (Type CSG): Clear; fully tempered.
 - 1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1048.
 - 2. Comply with 16 CFR 1201 test requirements for Category II.
 - 3. Thickness: Minimum 1/4 inch.

2.02 GLAZING ACCESSORIES

- A. Setting Blocks: Silicone, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.
- C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; size as required; black color.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION**3.03 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)**

- A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- D. Place glazing tape on free perimeter of glazing in same manner described above.

- E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- F. Knife trim protruding tape.

3.04 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

END OF SECTION

NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Framing accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Stud framing and wood blocking within stud framing.
- B. Section 09 26 13 - Gypsum Veneer Plastering: Wall finishes.

1.03 REFERENCE STANDARDS

- A. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum three years experience.

PART 2 PRODUCTS

2.01 FRAMING AND FURRING MATERIALS

- A. Resilient Furring Channels: 24 - 26 gage sheet metal, 1/2 inch or 3/4 inch depth, for attachment to substrate through one leg only; galvanized finish.
- B. Fasteners: ASTM C1002 self-piercing tapping screws; non-corrosive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that rough-in utilities are in proper location.

3.02 RESILIENT FURRING

- A. Install as recommended by manufacturer;
- B. Coordinate with installation of veneer plaster base specified in Section 09 26 13.
- C. Install horizontal at 16 inches on center; secure one leg to wood stud framing; lap splices securely.
- D. Install furring independent of columns.

3.03 TOLERANCES

- A. Maximum Variation From True Position: 1/8 inch in 10 feet.
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

END OF SECTION

GYPSUM VENEER PLASTERING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Gypsum veneer plaster on gypsum veneer base.
- B. Gypsum veneer base and accessories.
- C. Acoustical insulation.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Partition framing for plaster.
- B. Section 09 22 16 - Non-Structural Metal Framing: Metal furring for plaster.

1.03 REFERENCE STANDARDS

- A. ASTM C587 - Standard Specification for Gypsum Veneer Plaster; 2004 (Reapproved 2009).
- B. ASTM C843 - Standard Specification for Application of Gypsum Veneer Plaster; 1999 (Reapproved 2012).
- C. ASTM C844 - Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster; 2004 (Reapproved 2010).
- D. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2010a.
- E. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2013.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Gypsum Veneer Plaster: ASTM C587, mixed in accordance with manufacturer's instructions.
- B. Fire-Rated Gypsum Veneer Base: ASTM C1396/C1396M, fire rated Type X; sizes to minimize joints in place; ends square cut.
 - 1. Thickness: 1/2 inch at walls, 5/8 inch at ceilings.
 - 2. Edges: Square.
- C. Gypsum Veneer Base Trim Accessories: Zinc-coated steel or plastic, complying with ASTM C1047.
- D. Gypsum Board Accessories: Complying with ASTM C1047.
- E. Joint Reinforcing for Gypsum Veneer Base: As specified in ASTM C587.
- F. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced; 3 inches thick or as indicated on Drawings; 1.5 - 3.0 lb density.
- G. Acoustical Sealant: As specified in Section 07 90 05.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that substrates are ready to receive work.
- B. Verify gypsum plaster base is flat, smooth and surface is ready to receive work. Verify joint and surface perimeter accessories are in place.

3.02 PREPARATION

- A. Clean surfaces of dust or loose matter.

3.03 INSTALLATION - GYPSUM PLASTER BASE

- A. Place acoustical insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions.
- B. Install gypsum base in accordance with ASTM C844.
- C. Use drywall screws to fasten gypsum base to framing substrate.
- D. Install accessories.
- E. Tape, fill, and sand filled joints, edges, corners, openings, and trim to produce surface ready to receive veneer finish.
- F. Feather coats onto adjoining surfaces so that joint camber is maximum 1/32 inch.
- G. Install acoustical sealant within partition assembly in accordance with manufacturer's instructions.
- H. Install acoustical sealant at gypsum board perimeter at:
 1. Perimeter interruptions.
 2. Seal all penetrations of partitions by conduit, pipe, ducts, and rough-in boxes.

3.04 INSTALLATION - VENEER PLASTER

- A. Install gypsum veneer plaster in accordance with ASTM C843 and manufacturer's instructions.
- B. At All Locations: Two Coat Application:
 1. Apply base coat to a thickness of 1/16 inches
 2. Apply final coat over slightly green, almost dry base coat, to a thickness of 1/16 inch.
 3. Total Thickness: 1/8 inch.
- C. Finish surface to flat, smooth, hard trowel finish.

3.05 TOLERANCES

- A. Maximum Variation From Specified Thickness: Plus or minus 1/64 inch.

3.06 PROTECTION

- A. Do not permit traffic near unprotected finished surfaces.

END OF SECTION

DIRECT-APPLIED ACOUSTICAL CEILINGS**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Acoustic units.

1.02 RELATED REQUIREMENTS

- A. Section 01 11 00 - Summary of Work: Removal of existing acoustical tile as part of asbestos abatement work.
- B. Section 07 90 05 - Joint Sealers.

1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
- B. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2008e1.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal Requirements.
- B. Product Data: Provide data on acoustic units.
- C. Samples: Submit two samples, 6 x 6 inch in size, illustrating material and finish of acoustic units.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the type of work specified in this section with minimum three years of documented experience.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assembly.

1.07 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after installation.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Acoustic Tile (ACT-1): ASTM E 1264, Type III, Form 2, Pattern CE, Conforming to the following:
 1. Size: 12 x 12 inches.
 2. Thickness: 1/2 inches.
 3. Composition: Wet-formed mineral fiber.
 4. Light Reflectance: 0.85 percent.
 5. NRC: 0.55.
 6. Surface Burning Characteristics: Flame spread index of 25 when tested in accordance with ASTM E 84.
 7. Joint: Tongue and groove.
 8. Edge: Beveled.
 9. Surface Color: White.
 10. Surface Finish: Non-directional, fine texture .
 11. Product:

- a. Fine Fissured 741 by Armstrong World Industries, Inc: www.armstrong.com/flooring.
- b. Radar ClimaPlus by USG Interiors: www.usg.com.
- c. Substitutions: See Section 01 60 00 - Product Requirements.

B. Adhesive: Waterproof, gun grade; type recommended by tile manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions and substrate flatness before starting work.
- B. Verify that substrate conditions are ready to receive the work of this section.

3.02 PREPARATION

- A. Fill holes and level existing plaster ceiling to accept new acoustical tile installation.
- B. Provide a smooth, uniform substrate surface.

3.03 INSTALLATION

- A. Install system in accordance with manufacturer's instructions.
- B. Center tile on room axis leaving equal border units.
- C. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- D. Install acoustic units level in uniform plane.

3.04 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

END OF SECTION

RESILIENT FLOORING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Resilient sheet flooring.
- B. Resilient base.
- C. Transition strips.
- D. Installation accessories.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: Description of asbestos abatement under separate contract.
- B. Section 02 41 00 - Demolition: Removal of existing floor and base finishes.
- C. Section 09 68 13 - Tile Carpeting.
- D. Section 09 26 13 - Gypsum Veneer Plastering: Wall finish.

1.03 REFERENCE STANDARDS

- A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Verification Samples: Submit two samples, 12 x 12 inch in size illustrating color and pattern for each resilient flooring product specified.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect roll materials from damage by storing on end.

1.06 FIELD CONDITIONS

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS**2.01 SHEET FLOORING**

- A. Vinyl Sheet Flooring : Inlaid sheet flooring:
 - 1. Minimum Requirements: Comply with ASTM F1303, Type 2, Grade 1, Class A.
 - 2. Wear Layer Thickness: 0.050 inch minimum.
 - 3. Total Thickness: 0.080 inch minimum.
 - 4. Sheet Width: 72 inch minimum.
 - 5. Static Load Resistance: 500 psi minimum.
 - 6. Heat welded seams.
 - 7. Pattern: Multiple flec.
 - 8. Color: Alabaster 18004.
 - 9. Product:
 - a. Magna Multiflec by Mannington Commercial: www.manningtoncommercial.com.

- b. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Vinyl Welding Rod: Solid vinyl bead produced by manufacturer of vinyl flooring for heat welding seams, in color matching field color.

2.02 RESILIENT BASE

- A. Resilient Base (RB): ASTM F 1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
 - 1. Height: 4 inch.
 - 2. Thickness: 0.125 inch thick.
 - 3. Finish: Satin.
 - 4. Length: Roll.
 - 5. Color: To match Johnsonite Fudge 167.
 - 6. Accessories: Premolded external corners and end stops.
 - 7. Manufacturers:
 - a. Burke Flooring: www.burkemercer.com.
 - b. Johnsonite, a Tarkett Company: www.johnsonite.com.
 - c. Roppe Corp: www.roppe.com.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 ACCESSORIES

- A. Subfloor Filler: Latex fortified Portland cement based; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Premolded Corner Adhesive:
 - 1. Durabond D15 by DAP Products Inc: www.dap.com.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Wainscot Cap: Aluminum "J" molding.
- E. Transition Strip (LIN to CPT): Rubber.
 - 1. Model CTA-XX-A by Johnsonite: www.johnsonite.com.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.
- F. Filler for Coved Base: Plastic.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive resilient flooring.
- C. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- D. Verify that sub-floor surfaces are dust-free and free of substances which would impair bonding of adhesive materials to sub-floor surfaces.
- E. Verify that concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:
 - 1. Moisture emission rate: Not greater than 3 lb per 1000 sq ft per 24 hours when tested using calcium chloride moisture test kit for 72 hours.
 - 2. Alkalinity: pH range of 5-9.

- F. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- B. Prohibit traffic until filler is cured.
- C. Clean substrate.
- D. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns carefully at seams.
- B. Double cut sheet at seams.
- C. Lay flooring with tightly butted seams, without any seam sealer unless otherwise indicated.
- D. Finish seams in sheet vinyl by heat welding.
- E. Coved Base: Install as detailed on drawings, using coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

3.05 RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Scribe and fit internal corners. At external corners, use premolded units secured with specified adhesive.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.
- E. Install base on solid backing. Bond tight to wall and floor surfaces.
- F. Glue is to be hand applied without use of a caulk gun to all permanent fixtures in room to receive base.

3.06 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.
- C. Clean, seal, and wax resilient flooring products in accordance with manufacturer's instructions.

3.07 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation of Owner furnished carpet tile.
- B. Installation of Owner furnished walk-off mats.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: Description of asbestos abatement work under separate contract.
- B. Section 02 41 00 - Demolition: Removal of existing floor and base finishes.
- C. Section 09 65 00 - Resilient Flooring: Base finish and transition strips.
- D. Section 12 48 13 - Entrance Floor Mats.

1.03 REFERENCE STANDARDS

- A. CRI (CIS) - Carpet Installation Standard; Carpet and Rug Institute; 2009.
- B. CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials; Carpet and Rug Institute; 2002.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in installing carpet with minimum three years experience.

1.05 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 CARPET

- A. Carpet Tile: Owner furnished.
 - 1. Size: 24 x 24 inch.
 - 2. Pattern/Color: Spectrum, custom color.
 - 3. Product:
 - a. Tandus Ethos Modular Dry Back Tile by Tandus: www.tandus.com.
- B. Walk Off Tile: Owner furnished.
 - 1. Size: 50 x 50 cm.
 - 2. Pattern/Color: Walnut.
 - 3. Product:
 - a. Vahernop 11T12, Super NOP Tile.

2.03 ACCESSORIES

- A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Adhesives: Acceptable to carpet tile manufacturer, compatible with materials being adhered.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet tile.

- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- D. Verify that concrete sub-floor surfaces are ready for carpet tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:
 - 1. Moisture emission rate: Not greater than 3 lb per 1000 sq ft per 24 hours when tested using calcium chloride moisture test kit for 72 hours.
 - 2. Alkalinity: pH range of 5-9.

3.02 PREPARATION

- A. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- C. Vacuum clean substrate.

3.03 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions and CRI Carpet Installation Standard.
- C. Install carpet tile in accordance with manufacturer's instructions and CRI 104.
- D. Blend carpet from different cartons to ensure minimal variation in color match.
- E. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- F. Lay carpet tile in non-directional pattern, with pile direction parallel to next unit, set parallel to building lines.
- G. Locate change of color or pattern between rooms under door centerline.
- H. Trim carpet tile neatly at walls and around interruptions.
- I. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

END OF SECTION

PAINTING AND COATING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Mechanical and Electrical:
 - a. In finished areas, paint all exposed insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated. Finish painting is not required in mechanical and electrical systems in Mechanical Rooms, Electrical Rooms, Plumbing, Custodial, Data and similar rooms.
 - b. In finished areas, paint shop-primed items.
 - c. On the roof and outdoors, paint all equipment that is exposed to weather or to view, including that which is factory-finished.
 - d. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - e. Paint dampers exposed behind louvers, grilles, to match face panels.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Non-metallic roofing and flashing.
 - 6. Stainless steel, anodized aluminum, bronze, terne, and lead items.
 - 7. Floors, unless specifically so indicated.
 - 8. Glass.
 - 9. Acoustical materials, unless specifically so indicated.
 - 10. Concealed pipes, ducts, and conduits.
- E. See Schedule - Surfaces to be Finished, at end of Section.

1.02 RELATED REQUIREMENTS

- A. Section 08 11 13 - Hollow Metal Doors and Frames: Shop-primed items.

1.03 REFERENCE STANDARDS

- A. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- B. GreenSeal GS-11 - Paints; 1993.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on gloss thick paper, 8-1/2 x 11 inch in size.
- D. Quality Control Plan: Provide a plan for achieving and maintaining requirements of this section.
- E. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

- F. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.
- G. Manufacturer's Instructions: Indicate special surface preparation procedures.
- H. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years documented experience.

1.06 MOCK-UP

- A. See Section 01 40 00 - Quality Requirements, for general requirements for mock-up.
- B. Provide one room as a mockup, illustrating coating colors, texture, and finish; include door and frame.
- C. Provide door and frame assembly illustrating paint coating color, texture, and finish.
- D. Locate where directed.
- E. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.

- C. Paints, Primer Sealers, Block Fillers:
 1. Base Manufacturer: Miller Paint Co.: www.millerpaint.com.
 2. Other Approved Manufactures of similar products:

2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 4. Supply each coating material in quantity required to complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

2.03 PRODUCTS

- A. Interior Metal Primer: Oil Based, Spray Application.
 1. Miller Paint Co., Quick Dry Metal Primer 358.
- B. Interior Galvanized Metal Primer:
 1. Miller Paint Co., Acrimetal DTM Primer/Finish 5000.
- C. Interior Acrylic Latex Primer:
 1. Miller Paint Co., Acro Pure Interior Primer 6440.
- D. Interior Acrylic Latex Enamel - Semi-Gloss:
 1. Miller Paint Co., Acro Pure 2850 Series.
- E. Interior Alkyd Enamel - Semi-Gloss:
 1. Miller Paint Co., Evolution 1750 Series.
- F. Epoxy Coating System:
 1. Miller Paint Co., Waterborne Epoxy 4200, Semi-Gloss.
- G. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Plaster and Stucco: 12 percent.
 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- H. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- I. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- J. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
- K. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's instructions.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FINISHING MECHANICAL AND ELECTRICAL WORK

- A. Prime and paint exposed pipes, conduit, boxes, ducts, hangers, brackets, collars and supports, except where items are shop finished or insulated.
- B. Paint shop-primed equipment, where indicated.
- C. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- D. Finish equipment, piping, conduit, and exposed duct work in utility areas in colors according to the color coding scheme indicated.
- E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 SCHEDULE - SURFACES TO BE FINISHED

- A. Do Not Paint or Finish the Following Items:
 1. Items fully factory-finished unless specifically noted.
 2. Fire rating labels, equipment serial number and capacity labels.
 3. Stainless steel items.
- B. Paint the surfaces described below under Schedule - Paint Systems.
- C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
 1. Paint all insulated and exposed pipes occurring in finished areas to match background surfaces, unless otherwise indicated.
 2. Paint all equipment, including that which is factory-finished, exposed to weather or to view on the roof and outdoors.
 3. Paint shop-primed items occurring in finished areas.
 4. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 5. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
 6. Paint interior of ductwork black behind all grilles.

3.07 SYSTEMS SCHEDULE - INTERIOR

- A. Gypsum Veneer Plaster Walls and Ceilings at Toilet Rooms (EP)
 1. Prepare surfaces.
 2. One coat Epoxy Primer.
 3. One coat Epoxy Top Coat; Semi-Gloss
 4. Colors: As scheduled.
- B. Gypsum Veneer Plaster:
 1. Prepare surfaces.
 2. One coat primer.
 3. Two coats Acrylic Latex Enamel, Semi-Gloss.
 4. Color: As selected.
- C. Metal Door Frames:
 1. Prepare surfaces.
 2. Touchup shop primer.
 3. Two coats Acrylic Latex Enamel, Semi-Gloss.
 4. Colors: As scheduled.

- D. Galvanized Steel:
 - 1. Prepare surfaces.
 - 2. One coat Galvanized Metal Primer.
 - 3. Two coats Acrylic Latex Enamel, semi-gloss.
 - 4. Colors: As selected.
- E. Ferrous Metal:
 - 1. Prepare surfaces.
 - 2. One coat Rust Inhibiting Primer.
 - 3. Two coats Acrylic Latex Enamel, Semi-Gloss.
 - 4. Colors: As selected.
- F. Wood (Opaque Finish):
 - 1. Prepare surfaces.
 - 2. One coat wood primer.
 - 3. Two coats Acrylic Latex Enamel, Semi-Gloss.
 - 4. Colors: As selected.
- G. Existing Surfaces Scheduled to be Repainted:
 - 1. Prepare surfaces.
 - 2. Two coats Acrylic Latex Enamel, gloss to match adjacent finishes.
 - 3. Colors: To match existing.

3.08 SCHEDULE - COLORS

- A. P-1: To match existing main wall color.
- B. P-2: To match existing wainscot color in Hallway 101.
- C. P-3: To match Rodda Acapulco Aqua 7480.
- D. P-4: To match existing coved base color in Hallway 101.
- E. P-5: To match existing wood trim color in existing School Office 103.

END OF SECTION

VISUAL DISPLAY BOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Markerboards.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Blocking and supports.

1.03 REFERENCE STANDARDS

- A. ANSI A208.1 - American National Standard for Particleboard; 2009.
- B. ASTM A424 - Standard Specification for Steel, Sheet, for Porcelain Enameling; 2009a.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures.
- B. Product Data: Provide manufacturer's data on markerboard, trim, and accessories.
- C. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.
- D. Samples: Submit two samples 2 by 2 inch in size illustrating materials and finish, color and texture of markerboard and trim.
- E. Manufacturer's printed installation instructions.
- F. Maintenance Data: Include data on regular cleaning, stain removal .

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year warranty for markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Visual Display Boards:
 1. MooreCo, Inc/Best-Rite: www.moorecoinc.com.
 2. Claridge Products and Equipment, Inc: www.claridgeproducts.com.
 3. Polyvision Corporation (Nelson Adams): www.polyvision.com.
 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 VISUAL DISPLAY BOARDS

- A. Markerboards: Porcelain enamel on steel, laminated to core.
 1. Metal Face Sheet Thickness: 0.024 inch (24 gage).
 2. Core: Particleboard, manufacturer's standard thickness, laminated to face sheet.
 3. Backing: Aluminum foil, laminated to core.
 4. Size: As indicated on drawings.
 5. Frame: Extruded aluminum, with concealed fasteners.
 6. Frame Profile: As indicated on drawings
 7. Frame Finish: Anodized, natural.

2.03 MATERIALS

- A. Porcelain Enameled Steel Sheet: ASTM A424, Type I, Commercial Steel, with fired-on vitreous finish.
- B. Particleboard: ANSI A208.1; wood chips, set with waterproof resin binder, sanded faces.
- C. Foil Backing: Aluminum foil sheet, 0.005 inch thick.

2.04 ACCESSORIES

- A. Map Rail: Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; 1 inch wide overall, full width of frame.
- B. Chalk Tray: Aluminum, manufacturer's standard profile one piece full length of chalkboard, molded ends; concealed fasteners, same finish as frame.
- C. Mounting Brackets: Concealed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that internal wall blocking is ready to receive work and positioning dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install boards in accordance with manufacturer's instructions.
- B. Secure units level and plumb.

3.03 CLEANING

- A. Clean board surfaces in accordance with manufacturer's instructions.
- B. Remove temporary protective cover at date of Substantial Completion.

END OF SECTION

TOILET, BATH, AND LAUNDRY ACCESSORIES**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Privacy curtains and rods.
- B. Grab bars.
- C. Installation of Owner furnished items.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: Owner Furnished Contractor Installed Items.
- B. Section 06 10 00 - Rough Carpentry: Concealed supports for accessories, including in wall framing and plates, and above ceiling framing.

1.03 REFERENCE STANDARDS

- A. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2013.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

1.05 COORDINATION

- A. Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Stainless Steel Tubing: ASTM A269, Type 304 or 316.
- B. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof, security type.

2.02 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.

2.03 PRIVACY CURTAINS AND ACCESSORIES

- A. Privacy Curtain: Polyester fabric, flame resistant, antimicrobial and stain resistant, hemmed top, bottom and sides; stainless steel grommets at 6 inches on center; provide 4 inch clearance at floor.
 - 1. Color/Pattern: To match Lancaster by InPro, color as selected.
 - 2. Product:
 - a. Shield Fabric by InPro Corporation: www.inprocorp.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Privacy Curtain Rod: Stainless steel tube, 1-1/4 inch outside diameter, 0.04 inch wall thickness, satin-finished, with 3 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for concealed mounting.
 - 1. Product:
 - a. Model B-6047 by Bobrick Washroom Equipment Inc: www.bobrick.com.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

- C. Curtain Hooks: Stainless steel, fitted for 1-1/4 inch rod; tear-drop shaped wire.
 - 1. Product:
 - a. Model 204-1 by Bobrick Washroom Equipment Inc: www.bobrick.com
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.
- D. See Section 06 10 00 for installation of blocking, reinforcing plates, and concealed anchors in walls and ceilings.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on the Drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

END OF SECTION

HORIZONTAL LOUVER BLINDS**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Horizontal slat louver blinds.
- B. Operating hardware.

1.02 RELATED REQUIREMENTS

- A. Section 12 24 14 - Roller Shades.
- B. Section 12 24 16.16 - Cellular Shades: Shades at Housing.

1.03 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures.
- B. Product Data: Provide data indicating physical and dimensional characteristics.
- C. Shop Drawings: Indicate opening sizes, tolerances required, method of attachment, clearances, and operation.
- D. Samples: Submit two samples, 4 inch long illustrating slat materials and finish, color, cord type and color.
- E. Manufacturer's Installation Instructions: Indicate special procedures.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.

1.05 PROJECT CONDITIONS

- A. Coordinate the work with window installation and placement of concealed blocking to support blinds.
- B. Take field measurements to determine sizes required.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Horizontal Louver Blinds:
 1. Levolor Contract; Product Mark I: www.levolorcontract.com.
 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 BLINDS AND BLIND COMPONENTS

- A. Blinds: Horizontal slat louvers hung from full-width headrail with full-width bottom rail; manual control of raising and lowering by cord with full range locking; blade angle adjustable by control wand; complying with WCMA A100.1.
- B. Metal Slats: Spring tempered pre-finished aluminum; radiused slat corners, with manufacturing burrs removed.
 1. Width: 1 inch.
 2. Thickness: 0.0075 inch.
 3. Color: As selected.
- C. Slat Support: Woven polypropylene cord, ladder configuration.
- D. Head Rail: Pre-finished, formed aluminum box, with end caps; internally fitted with hardware, pulleys, and bearings for operation; same depth as width of slats

- E. Bottom Rail: Pre-finished, formed steel with top side shaped to match slat curvature; with end caps. Color: Same as headrail.
- F. Lift Cord: Braided nylon or polypropylene; continuous loop.
 - 1. Free end weighted.
 - 2. Color: As selected.
- G. Control Wand: Extruded solid plastic; hexagonal shape.
 - 1. Non-removable type.
 - 2. Length of window opening height less 3 inches.
 - 3. Color: clear .
- H. Headrail Attachment: Brackets.
- I. Accessory Hardware: Type recommended by blind manufacturer.

2.03 FABRICATION

- A. Fabricate blinds to fit within openings with uniform edge clearance of 1/2 inch.
- B. Fabricate blinds to cover window frames completely.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that openings are ready to receive the work.
- B. Ensure structural blocking and supports are correctly placed.

3.02 INSTALLATION

- A. Install blinds in accordance with manufacturer's instructions.
- B. Secure in place with concealed fasteners.
- C. Place intermediate head supports at 24 inches on center.

3.03 INSTALLATION TOLERANCES

- A. Maximum Variation of Gap at Window Opening Perimeter: 1/4 inch.
- B. Maximum Offset From Level: 1/8 inch.

3.04 ADJUSTING

- A. Adjust blinds for smooth operation.

3.05 CLEANING

- A. Clean blind surfaces just prior to occupancy.

3.06 SCHEDULE

- A. As indicated on Drawings.

END OF SECTION

COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes:
 - 1. This Section includes Design-Build Work. The intent of Division 21 Specifications and the accompanying Drawings is to provide modifications to the existing ~~wet and dry~~wet-pipe sprinkler system, specified and required by applicable codes. Include all work specified in Division 21 and shown on the accompanying Drawings, including appurtenances, connections, etc., in the finished job.
 - 2. The Division 21 Specifications and the accompanying Drawings are complementary and what is called for by one shall be as binding as if called for by both. Items shown on the Drawings are not necessarily included in the Specifications and vice versa. Specifications shall supersede drawings in case of conflict.
 - 3. Imperative language is frequently used in Division 21 Specifications. Except as otherwise specified, requirements expressed imperatively are to be performed by the Contractor.
 - 4. The Drawings that accompany the Division 21 Specifications show the area where existing sprinkler piping and heads are to be modified to suit the new room layout and ceiling type. Piping and sprinkler head locations shall meet the Architectural design intent for the building in addition to applicable code.
 - 5. Furnish piping, pipe fittings, and incidental related items as required for complete system.
- B. Related Sections include:
 - 1. Section 21 10 00 Water Based Fire Suppression Systems.

1.03 RELATED WORK

- A. The General and Supplemental Conditions apply to this Division, including but not limited to:
 - 1. Drawings and specifications.
 - 2. Public ordinances, permits.
 - 3. Include payments and fees required by governing authorities for work of this Division.
- B. Division 1, General Requirements, applies to this Division.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. All products and equipments shall comply with Oregon Revised Statute (ORS) 453.005(7)(e) prohibiting pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipments within this specification contain these banned substances, provide complying products and equipments from approved manufacturers with equal performance characteristics.
 - 2. General: All work and materials shall conform to the local and State codes, and all Federal, State and other applicable laws and regulations.
 - 3. Contractor responsible for obtaining and payment for all permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.
 - 4. All fire protection system designs must bear the stamp and seal of the registered Professional Engineer who prepared the documents. The Engineer's stamp certifies that the work was done under the Engineer's supervision and control. Certification from NICET technicians, or other contractors, cannot replace the certification by the Engineer. Verify/coordinate with local building department for their specific requirements.

COMMON WORK RESULTS FOR FIRE SUPPRESSION – 21 05 00

5. Contractor shall coordinate review and approval of work of this division with Lane Country Building Department and the City of Eugene Fire Marshal in a timely manner, at no additional cost to owner.
- B. Materials and equipment shall be new. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents.
- C. Apparatus shall be built and installed to deliver its full rated capacity at the efficiency for which it was designed.
- D. For remodel projects, the existing system must remain fully operational, or provisions made to provide fire protection coverage while the new system is being installed. New installation switchover shall require minimal down time. Provide method to maintain fire protection or fire watch during any system down time. Include any related cost for materials or labor that is needed for providing continuous coverage.
- E. All equipment shall be installed level and true.
- F. Materials:
 1. Furnish all materials of size, make, type, and quality herein specified.
- G. Workmanship:
 1. General: All materials shall be installed in a neat and professional manner.
 2. Manufacturer's Instructions: Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 21 Specifications, obtain clarification from architect before starting work.
- H. Cutting and Patching:
 1. Cutting, patching, and repairing for the proper installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting shall be performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.
 2. Additional openings required in building construction shall be made by drilling or cutting. Use of jackhammer is specifically prohibited.
 3. Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.
 4. Beams or columns shall not be pierced without permission of Architect and then only as directed.
 5. All new or existing work cut or damaged shall be restored to its original condition.
- I. Demolition:
 1. Where existing equipment, piping and accessories are indicated to be demolished, remove from site and recycle or dispose of legally.
 2. Remove piping, supports, accessories, and small equipment that have been confirmed to be abandoned and no longer functional.

1.05 SUBMITTALS

- A. Certified Shop Drawings:
 1. The Drawings indicate the general layout of the piping and various items of equipment. Coordination with other trades and with field conditions will be required. For this purpose, prepare fire protection system layout Drawings showing locations and types of head or outlets, pipe sizes and cutting lengths, test tees and valves, drain valves, and other related items. Shop Drawings shall be new drawings prepared by Contractor and not reproductions or tracings of Architect's Drawings. Overlay drawings with shop drawings of other trades and check for conflicts. All drawings shall be same size as Architect's Drawings with title block similar to the Drawings and identifying Architect's Drawing number or any reference drawings. All drawings shall be fully dimensioned including both plan and elevation dimensions. Shop drawings cannot be used to make scope changes.
 2. Shop drawings shall be prepared in two-dimensional format.

3. Shop drawings shall include but are not limited to:
 - a. Sprinkler head layout drawings overlaid with ceiling and floor plans.
 - b. Sprinkler floor plans, including all piping, equipment and heads to a minimum of 1/8-inch equals 1'-0" scale or same as plans, whichever is greater.
 4. Submit shop drawings for review prior to beginning fabrication. Additional shop drawings may be requested if it appears that coordination issues are not being resolved in the field or if there is a question as to whether contract documents are being complied with or the design intent is being met.
- B. Product Data:
1. In general, submit product data for review on all scheduled pieces of equipment, on all equipment requiring electrical connections or connections by other trades, and as required by each specification section or by Drawing notes. Include manufacturer's detailed shop drawings, specifications and data sheets. Data sheets shall include capacities, RPM, BHP, pressure drop, design and operating pressures, temperatures, and similar data. Provide sample of each type of sprinkler head.
- C. Record Drawings:
1. Keep record drawings up to date as the work progresses.
 2. Show all changes, deviations, addendum items, change orders, corrections, and other variations from the Contract Drawings.
 3. Keep record drawings at the jobsite and available for the Architect's review.
 4. At the completion of the work, incorporate all deviations from the installation drawings to indicate "as-built" conditions.
- D. Test Reports: Submit certificates of completion of tests and inspections.
- E. Submission Requirements:
1. Refer to Division 1 for additional requirements related to submittals.
 2. Shop Drawings:
 - a. Provide one digital copy in PDF format of Drawings showing sprinkler head locations and layout coordinated with architectural ceiling details to the Architect for review prior to submitting Drawings to Building Official and Fire Marshal.
 - b. Then submit one digital copy in PDF format of Drawings approved by the fire marshal to Architect for final review.
 3. Product Data:
 - a. Submit electronic copies of shop drawings and product data for Work of Division 21 in PDF format with each item filed under a folder and labeled with its respective specification section number, article and paragraph and mark, if applicable.
 - b. Include a complete index in the original submittal. Indicate both original items submitted and note stragglers that will be submitted at a later date to avoid delay in submitting.
- F. Contractor Responsibilities: It shall be the Contractor's responsibility to:
1. See that all submittals are submitted at one time and are in proper order.
 2. Ensure that all equipment will fit in the space provided.
 3. Assure that all deviations from Drawings and Specifications are specifically noted in the submittals. Failure to comply will void review automatically.
 4. Assure that all new components of the system meet code requirements.
- 1.06 OPERATING AND MAINTENANCE MANUAL, PARTS LISTS, AND OWNERS INSTRUCTIONS**
- A. Refer to Division 1 for additional requirements.
- B. Submit copies of manufacturer's operation and maintenance instruction manuals and parts lists for each piece of equipment or item requiring servicing. Clearly mark and label in each submittal, the piece of equipment provided with the proper nameplate and model number identified. Provide wiring diagrams for all electrically powered equipment.

1.07 PROJECT CONDITIONS

- A. Existing Conditions: Prior to bidding, verify and become familiar with all existing conditions by visiting the site, and include all factors which may affect the execution of this Work. Include all related costs in the initial bid proposal.
- B. Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work.
- C. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City and Utility Company.

1.08 WARRANTY

- A. Provide a written guarantee covering the work of this Division (for a period of one calendar year from the date of substantial completion as required by the General Conditions.
- B. Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of substantial completion.
- C. Correct warranty items promptly upon notification.

1.09 TEST REPORTS AND CERTIFICATES

- A. Contractor shall submit one digital copy in PDF format of all test reports and certificates specified herein to the Architect.

1.010 SUBSTITUTIONS

- A. Contractor shall submit any requests for product substitutions in accordance with the Instructions to Bidders and the General and Supplemental Conditions.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 COORDINATION

- A. Coordinate fire protection piping and appurtenances with ducts, other piping, electrical conduit, and other equipment.

3.02 GENERAL

- A. Modify the existing fire protection systems to serve the area of work shown on the architectural drawings.
- B. The drawings indicate approximate locations of existing piping and types of systems. The drawings do not indicate the locations of sprinkler heads in ceiling areas. In general, sprinklers shall be located in the center of ceiling panels and symmetrically within rooms and down corridors, coordinated with and in pattern with lights and grilles. Deviations must be approved by the architect.
- C. Locations of all sprinkler heads, outlets, piping, and appurtenances are not shown in all areas.

3.03 CLEANING

- A. General: Clean equipment and piping of stampings and markings (except those required by codes), iron cuttings, and other refuse.
- B. Painted Surfaces: Clean scratched or marred painted surfaces of rust or other foreign matter and paint with matching color industrial enamel, except as otherwise noted.
- C. Additional requirements are specified under specific Sections of this Division.

3.04 ADJUSTING AND CLEANING

- A. Piping:
 - 1. Clean interior of all piping before installation.
 - 2. Flush sediment out of all piping systems.

3.05 PRESSURE TESTING

- A. Pressure test system as required by applicable codes.

END OF SECTION

WATER BASED FIRE SUPPRESSION SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 21 05 00, Common Work Results for Fire Suppression apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes Design-Build work. Provide all required modification to the existing automatic fire sprinkler system to accommodate changes in the room layouts as shown on drawings. Replace existing sprinkler heads in the work area. Do not relocate existing heads. Heads serving attic may remain in place.

1.03 QUALITY ASSURANCE

- A. Provide modifications to the existing wet-pipe sprinkler system in the area of work, in response to change in room layout and ceiling.
- B. Regulatory Requirements:
 - 1. As a minimum, sprinkler system shall comply with NFPA 13 and local Fire Marshal requirements.
- C. Hydraulically Calculated Sprinkler System: Sprinkler system to be hydraulically calculated.
- D. NFPA 13 shall be used for the location, sizing, and installation of piping and sprinkler systems unless local fire marshal or owner's insurance underwriter requirements are more stringent. Exceptions must be approved by the Engineer prior to usage.
- E. Water Service Pressure Basis of Design: The Contractor shall obtain current flow test information prior to starting their design of the fire sprinkler system.

1.04 SUBMITTALS

- A. Provide submittal in accordance with Section 21 05 00.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. As indicated for each product.
- B. Other Manufacturers: Submit Substitution Request.

2.02 SPRINKLER HEADS

- A. Acceptable Manufacturers: Viking, Reliable Automatic Sprinkler, Tyco Fire Products.
- B. General:
 - 1. Fire sprinklers shall be of one manufacturer throughout work area. No mixing of sprinkler brands shall be permitted.
 - 2. Sprinklers shall be UL listed and FM Approved for the appropriate water pressure.
 - 3. All heads shall be U.L. approved for application and installation.
- C. Sprinklers Installed in Finished Ceilings: Quick response, recessed, bulb type, chrome finish, chrome escutcheon, 165°F unless required otherwise.

2.03 BLACK STEEL PIPE

- A. General: Pipe shall be UL listed and FM approved for fire protection use. Fittings and joints must be UL listed with pipe chosen for use. Listing restrictions and installation procedures per NFPA 13 and state and local authorities for fire protection use.
- B. Pipe: ASTM A135 or A53.
- C. Fittings: Roll grooved ends with mechanical couplings

PART 3 EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Provide seismic hangers as required by code.
- B. Fire Service: Connect to sprinkler line where it enters the work area.
- C. Hangers and Supports:
 - 1. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.
 - 2. Install hangers, and supports in accordance with NFPA 13.
 - 3. Connections to structural framing shall not introduce twisting, torsion, or lateral bending in the framing members. Provide supplementary steel as required.
- D. Piping:
 - 1. Hold piping as tight to structure as possible.
 - 2. Mechanical Couplings:
 - a. Install in accordance with manufacturer's directions.
 - 3. Install all piping to drain per NFPA 13.
- E. Piping Joints:
 - 1. Pipe and fittings shall be joined using methods and materials recommended by manufacturer in conformance with standard practice and applicable codes. Cleaning, cutting, reaming, grooving, etc. shall be done with proper tools and equipment. Hacksaw pipe cutting is prohibited. Peening of welds to stop leaks is not permitted.
 - 2. Do not install couplings in floor or wall sleeves.

3.02 EXTRA STOCK

- A. Provide additional number of heads of each type and temperature rating installed as required to meet NFPA 13 requirements.
- B. Provide index label for each head indicating manufacturer, model, orifice size of K-factor, and temperature rating.

3.03 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 - 1. Perform all tests and arrange for required inspections of installed system as required.
 - 2. Notify the Architect 48 hours prior to any test or inspection.
 - 3. Final test and certification shall be provided in the presence of an Owner representative. Coordinate hereunder.
- B. Inspection Service:
 - 1. At start of warranty year, execute inspection agreement.
 - 2. Without additional charge to Owner, make quarterly inspection of system during year.
 - a. Check and operate all control valves.
 - b. Lubricate valve parts.
- C. Report each inspection to Owner.

END OF SECTION

COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of This Section, Common Work Results for Plumbing, apply to all sections in Division 22.
- C. All Sections of Division 22 are interrelated. When interpreting any direction, material, and method specified in any section of Division 22 consider it within the entirety of Work in Division 22.

1.02 SUMMARY

- A. The intent of Division 22 Specifications and the accompanying Drawings is to provide a complete and workable facility with complete systems as shown, specified and required by applicable codes. Include all work specified in Division 22 and shown on the accompanying Drawings, including appurtenances, connections, etc., in the finished job.
- B. The Division 22 Specifications and the accompanying Drawings are complimentary and what is called for by one shall be as binding as if called for by both. Items shown on the Drawings are not necessarily included in the Specifications and vice versa. Specifications shall supersede drawings in case of conflict.
- C. Imperative language is frequently used in Division 22 Specifications. Except as otherwise specified, requirements expressed imperatively are to be performed by the Contractor.
- D. The Drawings that accompany the Division 22 Specifications are diagrammatic. They do not show every offset, bend, tee, or elbow which may be required to install work in the space provided and avoid conflicts. Offsets and transitions shall be assumed at a minimum at each duct crossing, structural penetrations through shear walls or beams, structural grids where ceiling heights are restricted, and at piping mains. Follow the Drawing as closely as is practical to do so and install additional bends, offsets and elbows where required by local conditions from measurements taken at the Building, subject to approval, and without additional cost to the Owner. The right is reserved to make any reasonable changes in fixture location prior to roughing-in, without cost impact.

1.03 RELATED WORK

- A. The General and Supplemental Conditions apply to this Division, including but not limited to:
 - 1. Drawings and specifications.
 - 2. Public ordinances, permits.
 - 3. Include payments and fees required by governing authorities for work of this Division.
- B. Division 1, General Requirements, applies to this Division.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. All products and equipments shall comply with Oregon Revised Statute (ORS) 453.005(7)(e) prohibiting pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipments within this specification contain these banned substances, provide complying products and equipments from approved manufacturers with equal performance characteristics.
 - 2. General: All work and materials shall conform to the local and State codes, and all Federal, State and other applicable laws and regulations.
 - 3. Contractor responsible for obtaining and payment for all permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

- B. Materials and equipment shall be new. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents.
- C. The entire plumbing system and apparatus shall operate at full capacity without objectionable noise or vibration.
- D. Workmanship:
 - 1. General: All materials shall be installed in a neat and professional manner.
 - 2. Manufacturer's Instructions: Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 22 Specifications, obtain clarification before starting work.
- E. Cutting and Patching:
 - 1. Cutting, patching, and repairing for the proper installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting shall be performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.
 - 2. Additional openings required in building construction shall be made by drilling or cutting. Use of jackhammer is specifically prohibited.
 - 3. Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.
 - 4. Beams or columns shall not be pierced without permission of Architect and then only as directed.
 - 5. All new or existing work cut or damaged shall be restored to its original condition. Where alterations disturb lawns, paving, walks, etc., the surfaces shall be repaired, refinished, and left in condition existing prior to commencement of work.

1.05 SUBMITTALS

- A. Shop Drawings:
 - 1. The Contract Drawings indicate the general layout of the piping, and various items of equipment. Coordination with other trades and with field conditions will be required. For this purpose, prepare Shop Drawings of all piping, and equipment installations. Shop Drawings shall be new drawings prepared by Contractor and not reproductions or tracings of Architect's Drawings. Overlay drawings with shop drawings of other trades and check for conflicts. All drawings shall be same size as Architect's Drawings with title block similar to Contract Drawings and identifying Architect's Drawing number or any reference drawings. All drawings shall be fully dimensioned including both plan and elevation dimensions. Shop drawings cannot be used to make scope changes.
 - 2. Shop drawings shall be prepared in two-dimensional format.
 - 3. Shop drawings shall include but are not limited to:
 - a. Plumbing site plan drawn to same scale as Site Plan.
 - b. Complete floor plans with plumbing to a minimum of 1/4-inch equals 1'-0" scale.
 - 4. Submit shop drawings for review prior to beginning fabrication. Additional shop drawings may be requested when it appears that coordination issues are not being resolved in the field or when there is a question as to whether contract documents are being complied with or the design intent is being met.
- B. Submission Requirements:
 - 1. Shop Drawings and Product Data:
 - a. Refer to Division 1 for additional requirements related to submittals.
 - b. Submit electronic copies of shop drawings and product data for Work of Division 22 in PDF format with each item filed under a folder and labeled with its respective specification section number, article, and paragraph and mark, if applicable.
 - c. Include a complete index in the original submittal. Indicate both original items submitted and note stragglers that will be submitted at a later date to avoid delay in submitting.
 - d. The bulk of the shop drawings and product data shall be included with the original submittal. Partial submittals will not be accepted. Other stragglers submitted after return of the original binder shall include a tab similar to that originally submitted. Upon receipt of the returned late submittal, insert them in the previously submitted binder.

- C. Contractor Responsibilities: It shall be the Contractor's responsibility to:
 - 1. See that all submittals are submitted at one time and are in proper order.
 - 2. Ensure that all equipment will fit in the space provided.
 - 3. Assure that all deviations from Drawings and Specifications are specifically noted in the submittals. Failure to comply will void review automatically.

1.06 OPERATING AND MAINTENANCE MANUAL, PARTS LISTS, AND OWNERS INSTRUCTIONS

- A. Refer to Division 1 for additional requirements.
- B. Submit three bound copies of manufacturer's operation and maintenance instruction manuals and parts lists for each piece of equipment or item requiring servicing. Literature shall be on 8-1/2"x11" sheets or catalogs suitable for side binding. Submit data when the work is substantially complete, packaged separately, and clearly identified in durable 3-ring binder. Include name and contact information for location of source parts and service for each piece of equipment. Clearly mark and label in each submittal, the piece of equipment provided with the proper nameplate and model number identified. Provide wiring diagrams for all electrically powered equipment.
- C. Instruct Owner thoroughly in proper operation of equipment and systems, in accordance with manufacturer's instruction manuals. Operating instructions shall cover all phases of control.
- D. Furnish competent engineer knowledgeable in this building system for minimum of one 8-hour days to instruct Owner in operation and maintenance of systems and equipment. Contractor shall keep a log of this instruction including dates, times, subjects, and those present and shall present such log when requested by Architect.

1.07 PROJECT CONDITIONS

- A. Existing Conditions: Prior to bidding, verify and become familiar with all existing conditions by visiting the site, and include all factors which may affect the execution of this Work. Include all related costs in the initial bid proposal.
- B. Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work.
- C. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City and Utility Company.

1.08 WARRANTY

- A. Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.
- B. Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.
- C. Correct warranty items promptly upon notification.

1.09 TEST REPORTS AND CERTIFICATES

- A. Contractor shall submit one copy of all test reports and certificates specified herein to the Architect.

1.010 SUBSTITUTIONS

- A. Contractor shall submit any requests for product substitutions in accordance with the Instructions to Bidders and the General and Supplemental Conditions.

PART 2 PRODUCTS**2.01 ACCESS PANELS**

- A. Furnish under this Division as specified in another Division of work.

2.02 PIPE SLEEVES

- A. Interior Wall and Floor Sleeves: 18 gauge galvanized steel, or another pre-approved system.
- B. Interior Wall and Floor Sleeves (fire rated): Fire rated and water tight system approved by Authority Having Jurisdiction and Owners Insurance underwriter, with rating equal to floor or wall penetration, and designed specifically for the floor or wall construction, piping material, size and service.
- C. On Grade Floor Sleeves: Same as exterior wall sleeves.
- D. Water Tight Sleeves: Combination steel pipe sleeves with water stop and anchor plate; Link Seal Model WS, mated with synthetic rubber links interlocked with bolts and nuts; Link Seal Model LS.

2.03 FLOOR, WALL AND CEILING PLATES

- A. Furnish stamped split type plates as follows:
 1. Floor Plates: Cast brass, chromium plated.
 2. Wall and Ceiling Plates: Spun aluminum.

PART 3 EXECUTION**3.01 ACCESS PANELS**

- A. Install in accord with manufacturer's recommendations, coordinated with architectural features.
- B. Provide 2-hour fire rated doors where required bearing the U.L. label.
- C. Furnish 18x18-inch panels for ceilings and for access to equipment in soffits and shafts, and 12x12-inch for walls unless indicated otherwise.
- D. Furnish where indicated and where required to access valves, trap primers, shock arresters, and other appurtenances requiring operation, service or maintenance. Submit proposed locations for review prior to installation.

3.02 SLEEVES

- A. Interior Floor and Wall Sleeves: Provide sleeves large enough to provide 3/4-inch clearances around pipe or ductwork. Where pipe or ductwork is insulated, insulation shall pass continuously through sleeve with 3/4-inch clearance between insulation and sleeve. Penetrations through mechanical room and fan room floors shall be made watertight by packing with safing insulation and sealing with Tremco Dymeric Sealant or approved system.
- B. Sleeves Through Rated Floors and Walls: Similar to interior sleeves except install fire rated system approved by Authority Having Jurisdiction and Owners insurance underwriter, with rating equal to floor or wall penetration, and designed specifically for the floor or wall construction, piping material, size and service.
- C. Layout work prior to concrete forming. Do all cutting and patching required. Reinforce sleeves to prevent collapse during forming and pouring.
- D. All floor sleeves shall maintain a water barrier by providing a water tight seal or they shall extend 1-inch above finished floor except through mechanical equipment room floors and shafts where sleeves shall extend 2 inches above finished floor level. Sleeves through roof shall extend 8 inches above roof. Wall sleeves shall be flush with face of wall unless otherwise indicated. Waste stacks using carriers shall have sleeves flush with floor and sealed. Sleeves through planters shall extend 8 inches above planter base.
- E. Do not support pipes by resting pipe clamps on floor sleeves. Supplementary members shall be provided so pipes are floor supported.

3.03 CLEANING

- A. General: Clean plumbing equipment, fixtures and piping of stampings and markings (except those required by codes), iron cuttings, and other refuse.
- B. Painted Surfaces: Clean scratched or marred painted surfaces of rust or other foreign matter and paint with matching color industrial enamel, except as otherwise noted.
- C. Additional requirements are specified under specific Sections of this Division.

3.04 ACCESSIBILITY

- A. General: Locate valves, thermometers, cleanout fittings and other indicating equipment or specialties requiring frequent reading, adjustments, inspection, repairs, and removal or replacement conveniently and accessibly with reference to the finished building.
- B. Thermometers and Gauges: Install thermometers and gauges so as to be easily read from the floors, platforms and walkways.

3.05 FLOOR, WALL AND CEILING PLATES

- A. Install on piping and ductwork passing through finished walls, floors, ceilings, partitions, and plaster furrings. Plates shall completely cover opening around pipe.
- B. Secure wall and ceiling plates to pipe, insulation, or structure.
- C. Plates shall not penetrate insulation vapor barriers.
- D. Plates not required in mechanical rooms or unfinished spaces.

3.06 PAINTING

- A. General: Coordinate painting of mechanical equipment and items with products and methods in conformance with the appropriate Division of Work, Painting. All exposed work under this division shall receive either a factory painted finish or a field prime coat finish, except:
 - 1. Exposed copper piping.
 - 2. Aluminum jacketed outdoor insulated piping.
- B. Equipment Rooms and Finished Areas:
 - 1. Insulation: Not painted.
 - 2. Hangers, Uninsulated Piping, Miscellaneous Iron Work, Structural Steel Stands, Uninsulated Tanks, and Equipment Bases: Paint one coat of black enamel.
 - 3. Steel Valve Bodies and Bonnets: One coat of black enamel.
 - 4. Brass Valve Bodies: Not painted.
 - 5. Equipment: One coat of grey machinery enamel. Do not paint nameplates.
- C. Concealed Spaces (above ceilings, not visible):
 - 1. Insulation: Not painted.
 - 2. Hangers, Uninsulated Piping, Miscellaneous Iron Work, Valve Bodies and Bonnets: Not painted.

3.07 ADJUSTING AND CLEANING

- A. Before operating any equipment or systems, make thorough check to determine that systems have been flushed and cleaned as required and equipment has been properly installed, lubricated, and serviced. Check factory instructions to see that installations have been made accordingly and that recommended lubricants have been used.
- B. Use particular care in lubricating bearings to avoid damage by overlubrication and blowing out seals. Check equipment for damage that may have occurred during shipment, after delivery, or during installation. Repair damaged equipment as approved or replace with new equipment.

3.08 EQUIPMENT CONNECTIONS

- A. Make final connections to equipment specified in sections other than Division 22 of the specifications and Owner furnished equipment in accordance with manufacturer's instructions and shop drawings furnished and as indicated.
- B. Piping:
 - 1. Connections shall include hot and cold water sanitary waste and vent.
 - 2. Provide valves and specialties as specified and as detailed on the Drawings. Provide increasers, reducers, and any other fittings required for complete installation.
 - 3. All piping connections shall be independently supported to prevent undue strain on equipment.

END OF SECTION

GENERAL DUTY VALVES AND SPECIALTIES FOR PLUMBING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 22 05 00, Common Work Results for Plumbing, apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Valves, general purpose gauge cocks, and balance fittings.

1.03 SUBMITTALS

- A. Submit product data.

1.04 DEFINITIONS

- A. CWP: Cold working pressure.
- B. EPDM: Ethylene propylene copolymer rubber.
- C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- D. NRS: Nonrising stem.
- E. OS&Y: Outside screw and yoke.
- F. RS: Rising stem.
- G. PTFE: Polytetrafluoroethylene plastic.
- H. SWP: Steam working pressure.
- I. Lead Free: Refers to the wetted surface of pipe, fittings, and fixtures in potable water systems that have a weighted average lead content $\leq 0.25\%$ per Safe Drinking Water Act as amended January 4th 2011. Section 1417 *Add specific state requirements as needed.

1.05 QUALITY ASSURANCE

- A. ASME Compliance:
 - 1. ASME B16.10 for ferrous valve dimensions.
 - 2. ASME B31.9 for building services piping valves.
- B. NSF Compliance: NSF/ANSI 61 and/or NSF/ANSI 372 for valve materials for potable-water service. Valves for domestic water must be 3rd Party Certified.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURER VALVES

- A. General: Where only NIBCO INC. figure numbers are listed, equivalent products by those specified below are acceptable.
 - 1. Balancing: Bell and Gossett, Armstrong, Tour and Anderson, and Nibco.
 - 2. Ball: Gruvlok, Apollo, Crane, Hammond, Milwaukee and Victaulic.
- B. Other Manufacturers: Submit Substitution Request.
- C. All such valves shall be of one manufacturer.
- D. Valve ends may be threaded, flanged, soldered, or grooved, as applicable to piping system. Refer to Section 22 21 13 for allowable fittings.

2.02 BALL VALVES

- A. Bronze Ball: Bronze cast body, chrome-plated full port ball, with handle, Teflon seat, 600 psi WOG, 150 psi steam; Nibco 585-80.
- B. Lead Free Bronze Ball: Two piece, full port, Lead Free silicon bronze body, Stainless steel or silicon bronze trim, Reinforced PTFE or TFE seats, 600 psi CWP NIBCO T/S-585-80-LF or T/S-585-66-LF.

2.03 BALANCING VALVE

- A. Lead-Free Calibrated:
 - 1. Bronze, Ametal (copper-alloy), or ductile iron body, brass globe or ball, differential pressure readout valves with integral checks, calibrated plate, integral pointer, suitable for tight shutoff, memory stops, threaded, grooved or soldered ends, 250 psi water, NSF/ANSI 61 compliant, Bell and Gossett Lead-Free Circuit Setter Plus.

2.04 SPECIALTY VALVES

- A. Gauge Cocks: Brass, tee handle, male to female, 200 psi working pressure, 1/4 inch; Apollo 41 series.
- B. Drain Valves: Bronze globe valve or full port ball valve, garden hose end, cap and chain 3/4 inch size.

2.05 SYSTEM SPECIALTIES

- A. Manual Air Vents: Coin type; Dole No. 9 or approved equal.
- B. Pressure/Temperature Test Plug:
 - 1. Acceptable Manufacturers:
 - a. Peterson Engineering, Inc., Universal Lancaster, Sisco, Trerice.
 - b. Other Manufacturers: Submit Substitution Request.
 - 2. General: 1/2-inch N.P.T. fitting to receive either a temperature or pressure probe 1/8-inch O.D., fitted with a color coded and marked cap with gasket.
 - 3. Material: Solid brass with valve core of Nordel.
 - 4. Rating: Minimum 300 psig at 275°F.
 - 5. Gauges and Thermometers: Supply Owner with two pressure gauge adapters with 1/8-inch O.D. probe and two five-inch stem pocket test thermometers 25°F to 125°F for chilled water, 40°F to 240°F for heating water.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide valves at connections to equipment where shown or required for equipment isolation.
- B. Provide separate support for valves where necessary.
- C. Provide drain valves in all low points in the piping system at equipment, and as indicated.

3.02 APPLIED LOCATIONS PLUMBING VALVES

A. In piping 2-inches and smaller:

System	Valve Types				
	Gate	Globe	Swing Check	Ball	Butterfly
Domestic Hot	Lead Free Bronze	Lead Free Bronze	Lead Free Bronze	Lead Free Bronze	Not Allowed
Domestic Cold	Lead Free Bronze	Lead Free Bronze	Lead Free Bronze	Lead Free Bronze	Not Allowed

- B. Calibrated balancing valves on domestic hot water. Size balancing valves based on the published performance curve characteristics for the scheduled flow rate for each location to ensure proper operation at design conditions.
- C. Provide gauge cock for all pressure gauges.

3.03 VALVE IDENTIFICATION

- A. General: Identify valves to indicate their function and system served.
- B. See Section 22 05 53, Identification for Plumbing Piping and Equipment.

3.04 CHAIN OPERATORS

- A. All valves in equipment rooms or fan rooms used for equipment or coil isolation and more than 8 feet above floor shall be installed with stem horizontal and equipped with chain wheels and chains extending to 6 feet above floor.

3.05 INSTALLATION

- A. Manual Air Vents:
 - 1. Install at all high points where automatic air vents are not used, where noted, and where required for proper venting of system.
 - 2. Install in accordance with manufacturer’s recommendations.
- B. Test Plugs: Install where indicated and in accordance with the manufacturer’s recommendations.

END OF SECTION

HANGERS, SUPPORTS AND ANCHORS FOR PLUMBING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 22 05 00, Common Work Results for Plumbing apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Supports and anchors for piping systems and equipment.
- B. Related Sections include:
 - 1. Section 22 07 00 Insulation for Plumbing.
 - 2. Section 22 21 13 Pipe and Pipe Fittings Plumbing.

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Shop Drawings of contractor fabricated piping support structures.
 - 2. No other submittals required under this section.

PART 2 PRODUCTS

2.01 SUPPORTS, ANCHORAGE AND RESTRAINT

- A. General: Provide pipe and equipment hangers and supports in accordance with the following:
 - 1. When supports, anchorages, and seismic restraints for equipment, and supports and seismic restraints for conduit, piping, and ductwork are not shown on the Drawings, the contractor shall be responsible for their design.
 - 2. Seismic restraints and anchorages shall resist seismic forces as specified in the latest edition of the International Building Code for the seismic zone in which the project is constructed.
 - 3. Seismic restraint shall not introduce excessive stresses in the piping caused by thermal expansion or contraction.
 - 4. Connections to structural framing shall not introduce twisting, torsion, or lateral bending in the framing members. Provide supplementary steel as required.
 - 5. Seismic restraints shall be in accordance with the latest edition of the SMACNA "Seismic Restraint Manual - Guidelines for Mechanical Systems" for the Seismic Hazard Level corresponding to the seismic zone in which the project is constructed.
 - 6. Seismic restraints shall be in accordance with the applicable code.
 - 7. Seismic restraints shall follow the provisions described in Section 22 05 48 Vibration and Seismic Controls for Plumbing Piping and Equipment.
- B. Engineered Support Systems: The following support systems shall be designed, detailed, and bear the seal of a professional engineer registered in the State having jurisdiction.
 - 1. Supports and seismic restraints for suspended piping and equipment.
 - 2. Support frames such as pipe racks or stanchions for piping and equipment which provide support from below.
 - 3. Equipment and piping support frame anchorage to supporting slab or structure.

2.02 SUPPORTS, GENERAL

- A. Fabricate support members from welded standard structural shapes, pipe, and plate to carry the necessary rollers, hangers, and accessories as required. Support piping less than 4-inch pipe size from or by prefabricated roll-formed channels with necessary accessories to adequately support piping system.

- B. Acceptable Manufacturers: Unistrut, Superstrut, Powerstrut and Kinline, B-Line Systems, AnvilStrut.
- C. Supports and Accessories: Preformed roll-formed channels and accessories with matching compatible accessories as shown, as specified, and as required.
- D. Dissimilar Metal Protection: Hydra-Zorb cushions or Cush-a-strip.
- E. Clamps: Super Strut Series 700 through 702 or AnvilStrut Series 1000 through 1200.

2.03 PIPE ATTACHMENTS

- A. Acceptable Manufacturers: Anvil as noted or equivalent products by Superstrut, B-Line Systems, Tolco, Michigan Hanger.
- B. Uninsulated Horizontal Copper Piping:
 - 1. 2-inch and Smaller: Anvil CT-65, CT-69, CT-99C.
 - 2. Larger than 2-inch: Anvil 260 field or factory copper plated, plastic coated or other recognized industry methods. Electricians' tape is unacceptable.
- C. Insulated Horizontal Copper Pipe with Hangers Inside of Insulation: Same as Uninsulated Horizontal Copper Pipe.
- D. Insulated Horizontal Copper Pipe with Hangers Outside of Insulation:
 - 1. 2-inch and Smaller: Anvil 65, 70, 104 or 260.
 - 2. Larger than 2-inch: Anvil 260.
- E. Other Uninsulated Horizontal Pipe:
 - 1. 2-inch and Smaller: Anvil 65, 70, 104 or 260.
 - 2. Larger than 2-inch: Anvil 260.
- F. Other Insulated Horizontal Pipe With Hangers Inside of Insulation:
 - 1. 2-inch and Smaller: Anvil 65, 70, 104, 260 or 300.
 - 2. Larger than 2-inch: Anvil 260.
- G. Other Insulated Horizontal Pipe with Hangers Outside of Insulation:
 - 1. 2-inch and Smaller: Anvil 65, 70, 104 or 260.
 - 2. Larger than 2-inch: Anvil 260.
- H. Riser Clamps Copper Pipe:
 - 1. 4-inch and Smaller: Anvil CT-121, CT-121C or 261C.
 - 2. Larger than 4-inch: Anvil 261C.
- I. Riser Clamps Other Piping: Anvil 261.

2.04 PIPE ROLLERS, INSULATION PROTECTION SHIELDS AND INSULATION PROTECTION SADDLES

- A. Acceptable Manufacturers: Anvil as noted or equivalent Super Strut, B-Line Systems, Tolco, Michigan Hangers.
- B. Pipe Rollers: Anvil 174 or 274 as required. Size for pipe plus insulation for insulated pipe.
- C. Insulation Protection Shields: Anvil 167.
- D. Insulation Protection Saddles: Anvil 160 through 166A as required. Saddles for copper pipe, factory or field copper plated.

2.05 BUILDING ATTACHMENTS

- A. Acceptable Manufacturers: Anvil as listed or equivalent products by Elcen, Superstrut, B-Line Systems, Tolco, Michigan Hangers.
- B. Beam Hangers:
 - 1. On piping 6-inch and smaller: Anvil 86 with retaining clip Fig. 89.
 - 2. On piping larger than 6-inch: Anvil 228, or 292.

- C. Inserts: Anvil 152 malleable iron or 281 steel inserts. Inserts sized for required rod to support load being carried.
- D. Expansion Plugs: Similar and equal to Phillips “red-head” self-drilling flush shell selected for safety factor of 4.
- E. Powder actuated fasteners with silencers as approved by Architect.

PART 3 EXECUTION

3.01 HANGERS AND SUPPORTS

- A. General:
 - 1. Install all support systems as detailed and in accordance with manufacturer’s recommendations. Provide pipe racks, pipe stands, trapeze hangers, etc., as required and as detailed on the Drawings.
 - 2. Provide adjustable hangers for all pipes complete with inserts, adjusters, bolts, nuts, swivels, all-thread rods, etc., except where specified otherwise.
 - 3. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping and do not support piping from other piping.
 - 4. Except as otherwise indicated for exposed continuous pipe runs, install hangers and supports of same type and style as installed for adjacent similar piping.
 - 5. Install all cast iron piping in accordance with Cast Iron Soil Pipe Industry (CISPI) Standards.
 - 6. Support all piping within 2 feet of each change of direction on both sides of fitting.
- B. Insulated Piping Systems:
 - 1. See Section 22 07 00 for insulation requirements.
 - 2. Insulated Piping Systems with Vapor Barrier Insulation:
 - a. Install hangers outside of insulation.
 - b. On piping 1-1/2-inch and larger, provide insulation protection shields at each support location.
 - 3. Insulated Piping Systems with Non-Vapor Barrier Insulation:
 - a. At the contractor’s option, hangers may be installed inside or outside of insulation for piping 2-inch and smaller.
 - b. If hangers are installed outside of insulation, provide insulation protection shields at all support locations on piping 1-1/2-inch and larger.
 - c. On piping larger than 2-inch, provide insulation saddles at each support location.
- C. Vertical Piping:
 - 1. Support with U-clamps fastened to wall to hold piping away from wall unless otherwise approved.
 - 2. Riser clamps on steel pipe to be directly welded to pipe. Riser clamps on copper pipe to be installed directly under fitting.
 - 3. Risers that are not subject to thermal change to be supported at each floor of penetration.
 - 4. Risers that are subject to thermal change require engineered supports. Size supports to carry all forces exerted by piping system when in operation. Riser supports shall follow the provisions described in Section 22 05 48, Vibration and Seismic Controls for Plumbing Piping and Equipment.
- D. Horizontal Piping:
 - 1. Trapeze Hangers: Multiple pipe runs where indicated shall be supported on channels with rust resistant finish. Provide all necessary rods and supporting steel.
 - 2. Support Spacing: Provide support at minimum spacing per MSS SP-69-1996 Pipe Hangers and Supports - Selection and Application:
 - a. Support piping within 2 feet of each change in direction.
 - b. Steel Pipe, Copper Tubing:

Minimum Pipe Size	Max. Span Steel	Max. Span Copper	Rod Size
1-inch and smaller	7 feet	5 feet	1/4-inch
1-1/4-inch to 2-inch	8 feet	8 feet	3/8-inch
2-1/2-inch to 3-inch	11 feet	9 feet	1/2-inch
4-inch to 5-inch	14 feet	12 feet	1/2-inch

c. Plumbing Piping: Support in accordance with local plumbing code.

E. Building Attachments:

1. Fastening or attaching to steel deck (without concrete fill) is prohibited. It will be necessary to support all piping from structural members, beams, joists, or provide intermediate angle iron supporting members between joists. Supports may be attached to concrete filled steel deck with load limitations shown on the structural drawings or otherwise obtained from the structural engineer.
2. Provide horizontal bracing on all horizontal runs 1-1/2 inch and larger and exceeding 50 feet in length at 75 foot intervals and as required to provide stabilized piping systems.
3. Provide all additional structural steel angles, channels, or other members required to support piping where structures do not occur as required for proper support.
4. Arrange supports to prevent eccentric loading of joists and joist girders. Locate supports at joist panel points.

END OF SECTION

IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 22 05 00, Common Work Results for Plumbing apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Identify valves, piping and equipment components of the mechanical systems to indicate their function and system served.

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Valve Tag Directory: Submit for approval prior to fabrication of valve tags.
 - 2. Equipment Nameplate Directory: Submit for approval prior to fabrication.
 - 3. Operating and Maintenance Data: Include a copy of valve tag and equipment nameplate directories in each set of Operating and Maintenance manuals.

PART 2 PRODUCTS

2.01 VALVE IDENTIFICATION

- A. Valve Tags:
 - 1. General: Identify valves with metal tags, legends to be stamped or embossed. It shall indicate the function of the valve and its normal operating position; i.e.,
 - 56 HW (NUMBER AND CONTENT OF PIPE)
 - ISOLATION (VALVE FUNCTION)
 - NO (NORMAL OPERATION POSITION)
 - 2. Size: Valve tags 2-inch diameter with 1/4-inch high letters.
 - 3. Material: Use 0.050 or 0.064-inch brass tags.
 - 4. Automatic Valves and Regulating Valves: Use 1/16-inch thick laminated 3-ply plastic, center ply white, outer ply red, "Iamicoid" or equal. Form letters by exposing center ply.
 - 5. Buildings Systems: Contact the Owner for coordination with existing building tagging system and supplementary information required for any specific system before valve tagging begins.
- B. Valve Tag Directory: Include tag number, location, exposed or concealed, service, valve size, valve manufacturer, valve model number, and normal operating position of valve.

2.02 PIPING MARKERS

- A. Acceptable Manufacturers:
 - 1. W.H. Brady, Seton, Marking Systems, Inc. (MSI).
 - 2. Other Manufacturers: Submit Substitution Request.

- B. Pipes shall be labeled with all-vinyl, self-sticking labels or letters. For pipe covering sizes up to and including 3/4-inch outside diameter, select labels with 1/2-inch letters. For sizes from 3/4 to 2-inch outside diameter, 3/4-inch letters; above 2-inches outside diameter, 2-inch letters. The pipe markers shall be identified and color coded as follows with black directional arrows.

PLUMBING SERVICE	BACKGROUND PIPE MARKER *	COLOR
COLD WATER	“DOMESTIC COLD WATER”	GREEN
HOT WATER	“DOMESTIC HOT WATER SUPPLY”	YELLOW
	“DOM. HOT WATER RECIRC”	YELLOW OR GREEN
SANITARY WASTE	“SANITARY WASTE”	GREEN
VENT	“VENT”	GREEN

* Directional arrow applied adjacent to pipe marker indicating direction of flow.
 ** Provide custom marker labels for all piping for which no standard manufactured marker is available. Submit sample for approval.

PART 3 EXECUTION

3.01 VALVE IDENTIFICATION

- A. Valve Tags:
1. Attach to valve with a brass chain.
 2. Valve tag numbers shall be continuous throughout the building for each system. Contractor shall obtain a list for each system involved from the Owner.
- B. Valve Tag Directory: Post final copy in Operation and Maintenance Manual.

3.02 PIPING MARKERS

- A. Unless recommendations of ANSI A13.1, 1981 are more stringent, apply labels or letters after completion of pipe cleaning, insulation, painting, or other similar work, as follows:
1. Every 20 feet along continuous exposed lines.
 2. Every 10 feet along continuous concealed lines.
 3. Adjacent to each valve and stubout for future.
 4. Where pipe passes through a wall, into and out of concealed spaces.
 5. On each riser.
 6. On each leg of a “T”.
 7. Locate conspicuously where visible.
- B. Further, apply labels or letters to lower quarters of the pipe on horizontal runs where view is not obstructed or on the upper quarters when pipe is normally viewed from above. Apply arrow labels indicating direction of flow. Arrows to be the same color and sizes as identification labels.

END OF SECTION

INSULATION FOR PLUMBING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 22 05 00, Common Work Results for Plumbing apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Insulation for piping, and equipment.
- B. Related Sections include:
 - 1. Section 22 05 29 Hangers, Supports and Anchors for Plumbing.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. All insulating products shall comply with the Oregon Revised Statute (ORS) 453.005(7)(e) prohibiting pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products within this specification contain these banned substances, provide complying products from approved manufacturers with equal performance characteristics.
 - 2. Flame and Smoke Ratings: Installed composite flame spread not to exceed 25 and smoke developed not to exceed 50 as tested by UL 723.
 - 3. Energy Codes: Local Building and Energy Codes shall govern where insulation performance requirements for thickness exceeds thickness specified.
- B. Protection: Protect against dirt, water, chemical, or mechanical damage before, during, and after installation. Repair or replace damaged insulation at no additional cost.
- C. Source Quality Control:
 - 1. Service: Use insulation specifically manufactured for service specified.
 - 2. Labeling: Insulation labeled or stamped with brand name and number.
 - 3. Insulation and accessories shall not provide any nutritional or bodily use to fungi, bacteria, insects, rats, mice, or other vermin, shall not react corrosively with equipment, piping, or ductwork, and shall be asbestos free.

1.04 SUBMITTALS

- A. Submit the following.
 - 1. Product Data: For each type including density, conductivity, thickness, jacket, vapor barrier, and flame spread and smoke developed indices.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Equivalent products by Johns Manville, Knauf, Owens Corning, and CertainTeed are acceptable.
- B. All such insulation shall be of one manufacturer.
- C. Other Manufacturers: Submit Substitution Request.

2.02 PIPE INSULATION

- A. Fiberglass: Split sectional or snap-on type with 0.23 per inch maximum thermal conductivity (K-factor) at 75°F mean temperature, 850°F maximum service rating and white, vapor barrier jacket with pressure sensitive closure system. Johns Manville Microlok HP.

- B. Calcium Silicate: Sectional with 14 pcf nominal density, 0.40 maximum K-factor at 300°F mean temperature and 1200°F maximum service rating. Johns Manville Thermo-12 Gold.
- C. Elastomeric: Expanded closed cell, 0.27 per inch maximum K-factor at 75°F mean temperature, 220°F maximum service rating with fitting covers and paintable surface. Armacell AP Armaflex, Rubatex.
- D. Polyolefin: Semi-rigid polyolefin form snap-on or slip over type with 0.24 per inch maximum thermal conductivity (K-factor) at 75°F mean temperature -165°F to 210°F service factor and paintable surface. End joints in insulation on piping with fluid temperatures normally below 65°F fuse sealed in accordance with the manufacturer's instructions. Joints longitudinal joints and other end joints made with manufacturer's approval contact adhesive in accordance with the manufacturer's instructions. Joints may be pre-glued or pre-coated with adhesive where applicable.

2.03 ACCESSORIES PIPING

- A. Adhesives:
 1. Fiberglass: Zeston Z-Glu.
 2. Calcium Silicate: Benjamin Foster 30-36.
 3. Elastomeric: Armacell 520.
 4. Polyolefin: As approved by the insulation manufacturer.
- B. Cements:
 1. Insulating: Ryder.
 2. Heat Transfer: Zeston Z-20.
- C. Wire Mesh: 1-inch mesh with 20 gauge annealed steel wire.
- D. Pipe Fitting Covers: One piece PVC insulated pipe fitting covers. Zeston, Ceel-Co.
- E. Metal Pipe Jacket: 0.016-inch thick aluminum jacket with formed fitting covers, aluminum snap straps and sealant.
- F. Cloth Facing: Presized fiberglass cloth.
- G. Tapes: Pressure sensitive, weather resistant, and for temperatures up to 150°F. Zeston Z-tape.
- H. Paint: Ultraviolet resistant latex paint with special adherence capabilities to the PVC fitting covers, elastomeric, aluminum facing, Kraft paper, tapes and adhesives.

PART 3 EXECUTION

3.01 GENERAL

- A. Workmanship:
 1. Installation: Insulation installed in first class, neat professional manner.
 2. Applicators: Applicators shall be employed by firm that specializes in insulation work.
- B. Preparation: Surfaces of piping and equipment clean, free of oil or dirt, and dry before insulation is applied.
- C. Stamps: ASME stamps, UL labels, and similar stamps and labels shall not be covered.

3.02 PLUMBING PIPE AND EQUIPMENT INSULATION APPLIED LOCATIONS

A. Insulation Applied Locations – Plumbing Piping:

System	Pipe Size	Insulation Type	Insulation Thickness	Notes
Domestic Cold Water, Above Grade	1 1/4-inch and smaller	Fiberglass, all purpose jacket or Elastomeric or Polyolefin	1-inch	Note 1 Note 2
	Above 1 1/4-inch	Fiberglass, all purpose jacket	1 1/2-inch	Note 1
Domestic Hot Water Supply/Return, Above Grade	1 1/2-inch and smaller	Fiberglass, all purpose jacket or Elastomeric or Polyolefin	1 1/2-inch	Note 1 Note 2
	Above 1 1/2-inch	Fiberglass, all purpose jacket	2-inch	Note 1
Note 1: Cover with metal pipe jacket where exposed to weather, and over heat trace cable. Note 2: Elastomeric or polyolefin insulation not allowed over heat trace cable.				

- B. The following piping is not insulated:
 1. Waste and vent, except where heat traced.
 2. Domestic cold water runouts to single fixture less than 12-inch long and exposed supplies.
 3. Priming lines except where heat traced.
- C. Insulation shall include all fittings, unions, flanges, mechanical couplings, valve bodies, valve bonnets, piping through sleeves, except valve bonnets, unions and flanges need not be insulated on the following systems: Domestic hot water, inside building.
- D. Valves and irregular fittings shall be insulated with section of pipe insulation and insulating cement, securely fastened, and finished with 6 oz. canvas and Foster 30-36 lagging adhesive. The contractor shall have the option on all flanges, valves, strainers, not requiring a vapor barrier to insulate with removable replaceable pads fabricated of 1-inch layer of Pittsburgh Corning Temp Mat sandwiched between inner and outer layer of 8 oz. glass cloth held together with stainless staples with sufficient stainless lacing hooks to hold pad firmly to flange or valve with minimum 3-inch overlap onto adjacent pipe insulation using 18 gauge S.S. lacing wire.

3.03 PIPING INSTALLATION

- A. General:
 1. Joints: Coat both sides of complete joining area with applicable adhesive.
 - a. Longitudinal Joints: Make joints on top or back of pipe to minimize visibility. Except foam plastic, seal with closure system or 3-inch wide tape.
 - b. Butt Joints: Butt lightly together and, except for foam plastic, seal with 3-inch wide tape or butt straps.
 - c. Multiple Layered Insulation: Joints staggered.
 2. Access: Strainer and other items requiring service or maintenance with easily removable and replaceable section of insulation to provide access.
 3. Voids: Fill all voids, chipped corners and other openings with insulating cement or material compatible with insulating material.
 4. Seal joints, seams and fittings of metal watertight jackets at exterior locations.
- B. Fiberglass Insulation: Exterior insulation encased in metal jacket.

- C. Calcium Silicate Insulation:
 1. Secure with 18-gauge wire embedded into insulation.
 2. Cover with continuous vapor barrier jacket.
- D. Elastomeric and Polyolefin Insulation:
 1. Slit full length and snap around pipe.
 2. Make cuts perpendicular to insulating surface leaving no cut section exposed.
 3. Do not stretch insulation to cover joints or fittings.
 4. Seal joints in elastomeric insulation with adhesive.
 5. Seal joints in polyolefin as specified hereinbefore.
 6. Exterior insulation painted with two coats of specified paint in accordance with the manufacturer's instructions and encase in metal jacket.
 7. Sealing joints with tape will not be allowed.
- E. Fittings: Insulation specified with continuous vapor barrier, the vapor barrier must not be violated.
 1. On Elastomeric and Polyolefin Insulation: Fittings covered with covers made up of mitered sections of insulation or with formed pipe fitting covers.
 2. In Other Insulation: Fittings covered with insulation to the same level of the adjoining insulation or fill with insulating cement. Finish with pipe fitting covers or cloth facing and tape.
- F. Unions, Mechanical Joints, Valves, Etc.:
 1. General:
 - a. As specified for fittings.
 - b. Minimum thickness same as specified for piping.
 2. Unions: Build up insulation at least 1/2-inch beyond adjoining insulation.
 3. Flanges: With square corners. Where flanges are not insulated, terminate adjacent insulation so flange bolts can be removed.
 4. Flanged Valves: Insulation with square corners.
- G. Vapor Barrier Insulation:
 1. Refer to Section 22 05 29 for support requirements.
 2. Piping which requires vapor barrier protection shall have a continuous vapor barrier, which may not be pierced or broken. The following piping systems require vapor barrier protection:
 - a. Domestic cold water.
 - b. All other piping systems with a nominal operating temperature below 65°F.
 3. Vapor Barrier Insulation:
 - a. Insulation for pipe requiring vapor barrier protection 1-1/4-inch or smaller, insulation continuous through pipe hangers and rollers.
 - b. For pipe 1-1/2-inch and larger, 18-inch section of calcium silicate, same thickness as pipe insulation with continuous vapor barrier jacket at each hanger or roller. Provide pipe shield specified in Section 22 05 29.
- H. Non-Vapor Barrier Insulation:
 1. Refer to Section 22 05 29 for support requirements.
 2. At contractor's option, insulation may be interrupted at supports. Butt insulation tight to support.
 3. If contractor elects to continue insulation at supports, installation as specified for piping systems with vapor barrier installation.
 4. Void between saddle and pipe filled with insulation.

3.04 FIELD QUALITY CONTROL

- A. Field Test: All systems shall be tested and approved prior to installation of insulation.
- B. Existing Insulation:
 1. Repair existing insulation damaged during construction.

INSULATION FOR PLUMBING – 22 07 00

2. Make neat connections where new and existing insulation meet.
3. Where existing piping, or equipment is removed, cover existing surfaces neatly to match existing.

END OF SECTION

PIPE AND PIPE FITTINGS PLUMBING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 22 05 00, Common Work Results for Plumbing apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Furnish piping, pipe fittings, and incidental related items as required for complete piping systems.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Piping material and installation to meet requirements of the local plumbing, fire, and building codes and serving utility requirements.
 - 2. Provide chlorination of domestic cold and hot water piping in accordance with County and State health requirements.
- B. Pipe Cleaning: Should any pipe be plugged or should foaming of water systems occur, disconnect piping, reclean, and reconnect without additional expense to the Owner.
- C. Correct any damage to the building or systems resulting from failure to properly clean the system without additional expense to the Owner.
- D. All products with a wetted surface installed in potable water systems shall be UL classified in accordance with ANSI / NSF-61 for potable water service, and shall be certified to the low lead requirements of NSF-372.

1.04 SUBMITTALS

- A. Submit the Following:
 - 1. List of piping materials indicating the service it is being used for. (Do not submit piping product data).
- B. Test Reports and Certificates: Submit certificates of inspections and pipe tests to Owner.
- C. Other: Make certified welders' certificates available.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. As indicated.

2.02 CAST IRON SOIL PIPE, SERVICE WEIGHT (NO-HUB)

- A. General: A code approved hubless system conforming to Cast Iron Soil Pipe Institute Standard 301.
- B. Pipe and Fittings: Service weight hubless cast iron conforming to ASTM A 74, marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI) and listed by NSF International, Tyler, AB&I, or Charlotte.
- C. Gaskets: Compression type conforming to ASTM C 564.

- D. Couplings:
 1. Above Grade: Band type coupling in conformance with Cast Iron Soil Pipe Institute (CISPI) 310-90, consisting of stainless steel clamp and corrugated shield assemblies with a neoprene sealing sleeve ANSI A21.6, ANSI A21.10 Fittings.
 2. Buried: Husky 28 gauge 304 stainless steel hubless type clamp and orange corrugated shield assemblies (80-inch pound torque) with neoprene sealing gaskets (ASTM-C-564), or Clamp-All (125-inch pound torque), 24 gauge 304 stainless steel hubless type clamp, and shield assemblies with neoprene sealing gaskets (ASTM-C-564).
- E. Service:
 1. Sanitary, storm, and overflow drain.
 2. Vent piping 2 inches and above.

2.03 COPPER PIPE

- A. Pipe: Hard drawn copper tubing, Class L or K, ASTM B 88.
- B. Fittings: Wrought copper, 150 psi; ANSI B16.22 for soldered joints, ANSI B16.50 for brazed joints; Chase, Revere, Mueller or approved equal. At contractor's option, a system using mechanically extracted collars in main with branch line inserted to not obstruct flow may be used on domestic water piping above ground, similar to T-drill.
- C. Service:
 1. Domestic hot and cold water piping above ground (Type L, hard drawn) on piping 4 inches and smaller.
 2. Trap priming lines (Type L, annealed).
 3. Miscellaneous drains and overflows.

2.04 UNIONS

- A. 150 psi malleable iron, brass to iron seat, ground joint, black or galvanized to match pipe. 200 psi WOG bronze, ground joint, solder type for copper tubing.
 1. Unions or flanges for servicing or disconnect are not required in installations using grooved mechanical joint couplings. (The couplings shall serve as disconnect points.)
- B. Dielectric fittings shall be nationally listed, have a dielectric thermoplastic interior lining, and meet requirements of ASTM F-492. Fittings shall be suitable for the pressure and temperature to be encountered.

2.05 SOLDER AND BRAZING

- A. Brazed Joints:
 1. Wrought Copper Piping Fittings: Westinghouse Phos-Copper or Dyna-Flow by J.W. Harris Co., Inc.
 2. Applied locations:
 - a. All below grade piping.
 - b. All above grade piping larger than 2-inches for the following services: domestic hot and cold water.
 - c. Joints in Domestic Hot and Cold Water Piping: Use mechanically extracted collars. Braze in accordance with Copper Development Association Copper Tube Handbook using BCUP series filler material.
- B. Soldered Joints:
 1. Wrought Copper Pipe Fittings: All-State 430 with Duzall Flux, Engelhard Silvabrite with Engelhard General Purpose Flux or J.W. Harris Co.
 2. Valves, Cast Fittings or Bronze Fittings: Harris Stay-Silv-15 or Handy & Harmon Sil-Fos.
 3. Applied locations: Above grade piping 2-inch and smaller for the following services: domestic hot and cold water.

PART 3 EXECUTION**3.01 PREPARATION**

- A. Measurements, Lines and Levels:
 1. Check dimension at the building site and establish lines and levels for work specified in this Section.
 2. Establish all inverts, slopes, and manhole elevations by instrument, working from an established datum point. Provide elevation markers for use in determining slopes and elevations in accordance with Drawings and Specifications.
 3. Use established grid and area lines for locating trenches in relation to building and boundaries.

3.02 PIPING INSTALLATION

- A. Install unions in all non-flanged piping connections to apparatus and adjacent to all screwed control valves, traps, and appurtenances requiring removal for servicing so located that piping may be disconnected without disturbing the general system.
- B. Install all piping as to vent and drain. Install according to manufacturer's recommendations.
- C. Support all piping independently at apparatus so that its weight shall not be carried by the equipment.
- D. Run piping clear of tube cleaning or removal/replacement access area on heat exchangers, water heaters, etc.
- E. Dielectric Fittings: Provide dielectric couplings, unions, or flanges between dissimilar metals. In addition, provide dielectric couplings as required to isolate cathodically protected piping and equipment.
- F. No-Hub Couplings: Install per manufacturer's instructions.

3.03 PIPING JOINTS

- A. Pipe and fittings shall be joined using methods and materials recommended by manufacturer in conformance with standard practice and applicable codes. Cleaning, cutting, reaming, grooving, etc. shall be done with proper tools and equipment. Hacksaw pipe cutting prohibited. Peening of welds to stop leaks not permitted.
- B. Copper Piping: Pipe cut evenly with cutter, ream to full inside diameter; end of pipe and inside of fitting thoroughly cleaned and polished. Joint shall be uniformly heated, and capillary space completely filled with solder or braze material, leaving full bead around entire circumference.
- C. No couplings installed in floor or wall sleeves.

3.04 ADJUSTING AND CLEANING

- A. General:
 1. Clean interior of all piping before installation.
 2. Flush sediment out of all piping systems after installation before connecting plumbing fixtures to the piping.
 3. When placing the water systems in service during construction, each system shall be cleaned by circulating a solution with 1000 ppm (1#20 gallon) of trisodium phosphate for 24 hours, then drained, flushed and placed in service.
 4. Clean all strainers prior to placing in service.

END OF SECTION

PLUMBING FIXTURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 22 05 00, Common Work Results for Plumbing HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes:
 - 1. Plumbing fixtures.
 - 2. Fixture trim.
 - 3. Drainage products.
 - 4. Miscellaneous plumbing items.

1.03 QUALITY ASSURANCE

- A. Water closets shall have Maximum Performance (MaP) score of no less than 800.
- B. Faucets shall be certified to NSF/ANSI 61 and California AB1953.
- C. Electric Water Coolers and Drinking Fountains shall be certified to NSF/ANSI 61 and California AB1953.
- D. Emergency Eyewash and Emergency Shower Equipment shall comply with ANSI standard Z358.1.

1.04 SUBMITTALS

- A. Submit the following:
 - 1. Product data for each item specified.
 - 2. Operating and Maintenance Data:
 - a. Sensor operated faucets.
 - b. Sensor operated flush valves.
 - 3. Mounting heights for all fixtures.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturers are stated for each fixture specified. The following manufacturers are also acceptable, except when indicated "only".
- B. Drainage Products and Carrier Products: J.R. Smith, Josam, Sioux Chief, Zurn, Wade, Watts Drainage, Woodford, Mifab.
- C. Fixtures: American Standard, Kohler, Sloan, Toto.
- D. Seats: Olsonite, Church, Beneke, Bemis.
- E. Mixing Valves: Powers, Leonard, Symmons, Chicago.
- F. Stainless Steel Products: Elkay, Just, Franke.
- G. Faucets: Chicago, Delta Commercial, Kohler, Moen Commercial.
- H. Exposed Waste and Supply Piping Insulation Kits: Truebro, McGuire.
- I. Other Manufacturers: Submit Substitution Request.

2.02 FIXTURE TRIM

- A. Supply Stops: Chicago cast brass rigid riser supplies with loose key angle stops, wall flanges, NPT female inlet, all chrome plate finish; equivalent NPT McGuire (LK series), Basscraft (SCR series) or NPT stops by fixture supplier.
- B. Traps:
 - 1. For floor drains, provide coated cast iron P-trap; recessed, screw jointed or bell and spigot.
 - 2. For other fixtures, provide 17 gauge, chrome plated cast brass P-Traps with solder bushings, and clean-out.
- C. Support Rims: Hudee stainless steel rims, if sink not furnished with integral rim.
- D. Vacuum Breakers: Chicago Faucet, A.W. Cash or Febco chrome plated.

2.03 PLUMBING FIXTURES

- A. WC-1 Water Closet (ADA):
 - 1. Kohler Wellworth, two piece tank type, vitreous china, class five flushing system, elongated front bowl, floor mounted, 14-1/2-inches floor to rim, 12-inch rough-in, white color finish. (1.28 GPF)
 - 2. Bemis 1600 series white open-front seat, less cover with external check hinge including 300 series stainless steel post and pintles to stop seat at 11 degrees beyond vertical.
- B. S-1 Sink (ADA):
 - 1. Elkay CDKAD-251765, 25x17x6-1/2-inch, single compartment, 18 gauge, Type 302, 3-hole, self-rimming, stainless steel sink; LK-18 grid strainer. Additional hole provided for bubbler valve on opposite end.
 - 2. Elkay Model LK1141A metering bubbler valve with anti-microbial flexible projector head.
 - 3. Chicago 2300 series faucet with polished chrome plated solid brass body construction, single lever mixing valve, 10-inch cast brass spout, high temperature limit stop, 8-inch trim plate, 1.5 GPM pressure compensating laminar flow outlet, vandal resistant complete.
 - 4. Mixing Valve (Point-of-Use): Leonard 270 series thermostatic point-of-use mixing valve, bronze body, locked temperature adjustment cap (vandal resistant), integral check valves on hot and cold inlets, minimum flow 0.5 GPM and maximum 3.5 GPM flow rates at 5 PSI loss.

2.04 DRAINAGE PRODUCTS

- A. WCO Wall Cleanout: J.R. Smith 4530 series, round stainless steel vandal resistant cover and screw.
- B. Water Hammer Arrester: Precision Plumbing Products Model SC (Maintenance-Free).

PART 3 EXECUTION**3.01 FIXTURE TRIM**

- A. Provide plumbing fixture trim where applicable on fixtures, including but not limited to supply stops, traps, support rims, flush valve, and vacuum breakers.
- B. Provide rough-in and final piping connection to fixtures. Carefully review all construction documents to assure that all fixtures are provided with necessary services for a complete operating system.
- C. Rigidly secure rough-in piping, carriers and supports, and other service piping to structure.

3.02 PLUMBING FIXTURES

- A. Americans with Disabilities Act:
 - 1. Those fixtures indicated by "ADA" shall comply with and be installed in accordance with Americans with Disabilities Act Guidelines (ADAAG). Where applicable building code requirements are more stringent than ADAAG guidelines, building code requirements shall be followed.

2. Water Closets:
 - a. Mounting height of ADA water closet shall be 17 to 19 inches from floor to top of the toilet seat.
 - b. Mount flush valve for ADA water closets on wide side of enclosure.
 3. Sinks: Provide insulation kits on exposed hot water and waste piping beneath ADA sinks.
- B. Fixture Mounting Heights: All fixtures standard rough-in catalogued heights unless shown otherwise on the Architectural Drawings.
- C. Water Supplies: When both hot and cold water to a fixture is required, connect the hot on the left and the cold on the right.
- D. Floor Mounted Supports and Chair Carriers: Secure floor mounted supports and chair carriers to slab with a minimum of 1/2-inch bolts. Install supports and carriers per manufacturer's installation instructions.
- E. Cleanout:
 1. Where shown or required.
 2. Cover set flush with finished surface.
- F. Mixing Valves: Provide piping connections per manufacturer's installation instructions.

END OF SECTION

COMMON WORK RESULTS FOR HVAC

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of This Section, Common Work Results for HVAC, apply to all sections in Division 23.
- C. All Sections of Division 23 are interrelated. When interpreting any direction, material, and method specified in any section of Division 23, consider it within the entirety of Work in Division 23.

1.02 SUMMARY

- A. The intent of Division 23 Specifications and the accompanying Drawings is to provide a complete and workable facility with complete systems as shown, specified and required by applicable codes. Include all work specified in Division 23 and shown on the accompanying Drawings, including appurtenances, connections, etc., in the finished job.
- B. The Division 23 Specifications and the accompanying Drawings are complimentary and what is called for by one shall be as binding as if called for by both. Items shown on the Drawings are not necessarily included in the Specifications and vice versa. Specifications shall supersede drawings in case of conflict.
- C. Imperative language is frequently used in Division 23 Specifications. Except as otherwise specified, requirements expressed imperatively are to be performed by the Contractor.
- D. The Drawings that accompany the Division 23 Specifications are diagrammatic. They do not show every offset, bend, tee, or elbow which may be required to install work in the space provided and avoid conflicts. Offsets and transitions shall be assumed at a minimum at each duct crossing, structural penetrations through shear walls or beams, structural grids where ceiling heights are restricted, and at piping mains. Follow the Drawing as closely as is practical to do so and install additional bends, offsets and elbows where required by local conditions from measurements taken at the Building, subject to approval, and without additional cost to the Owner. The right is reserved to make any reasonable changes in outlet location prior to roughing-in, without cost impact.

1.03 RELATED WORK

- A. The General and Supplemental Conditions apply to this Division, including but not limited to:
 - 1. Drawings and specifications.
 - 2. Public ordinances, permits.
 - 3. Include payments and fees required by governing authorities for work of this Division.
- B. Division 1, General Requirements, applies to this Division.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. All products and equipments shall comply with Oregon Revised Statute (ORS) 453.005(7)(e) prohibiting pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipments within this specification contain these banned substances, provide complying products and equipments from approved manufacturers with equal performance characteristics.
 - 2. General: All work and materials shall conform to the local and State codes, and all Federal, State and other applicable laws and regulations.
 - 3. Contractor responsible for obtaining and payment for all permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

- B. Materials and equipment shall be new. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents.
- C. Apparatus shall be built and installed to deliver its full rated capacity at the efficiency for which it was designed.
- D. The entire mechanical system and apparatus shall operate at full capacity without objectionable noise or vibration.
- E. All equipment shall be installed level and true.
- F. Materials and Equipment:
 - 1. Each piece of equipment furnished shall meet all detailed requirements of the Drawings and Specifications and shall be suitable for the installation shown. Equipment not meeting all requirements will not be acceptable, even though specified by name along with other manufacturers.
 - 2. Where two or more units of the same class of equipment are furnished, use products of the same manufacturer. Component parts of the entire system need not be products of same manufacturer.
 - 3. Furnish all materials and equipment of size, make, type, and quality herein specified.
 - 4. Equipment scheduled by performance or model number shall be considered the basis of the design. If other specified manufacturer's equipment is provided in lieu of the basis of design equipment the contractor is responsible for all changes and costs which may be necessary to accommodate this equipment, including different sizes and locations for connections, different electrical characteristics, different dimensions, different access requirements or any other differences which impact the project.
- G. Workmanship:
 - 1. General: All materials shall be installed in a neat and professional manner.
 - 2. Manufacturer's Instructions: Follow manufacturer's directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 23 Specifications, obtain clarification before starting work.
- H. Cutting and Patching:
 - 1. Cutting, patching, and repairing for the proper installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting shall be performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.
 - 2. Additional openings required in building construction shall be made by drilling or cutting. Use of jackhammer is specifically prohibited.
 - 3. Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.
 - 4. Beams or columns shall not be pierced without permission of Architect and then only as directed.
 - 5. All new or existing work cut or damaged shall be restored to its original condition. Where alterations disturb lawns, paving, walks, etc., the surfaces shall be repaired, refinished, and left in condition existing prior to commencement of work.

1.05 SUBMITTALS

- A. Product Data:
 - 1. In general, submit product data for review on all scheduled pieces of equipment, on all equipment requiring electrical connections or connections by other trades, and as required by each specification section or by Drawing notes. Include manufacturer's detailed shop drawings, specifications and data sheets. Data sheets shall include capacities, RPM, BHP, pressure drop, design and operating pressures, temperatures, and similar data. Manufacturer's abbreviations or codes are not acceptable.
 - 2. List the name of the motor manufacturer and service factor for each piece of equipment.
 - 3. Indicate equipment operating weights including bases and weight distribution at support points.

4. In the case of equipment such as wiring devices, time switches, valves, etc., specified by specific catalog number, a statement of conformance will suffice.

B. Submission Requirements:

1. Shop Drawings and Product Data:

- a. Refer to Division 1 for additional requirements related to submittals.
- b. Submit electronic copies of shop drawings and product data for Work of Division 23 in PDF format with each item filed under a folder and labeled with its respective specification section number, article and paragraph and mark if applicable.
- c. Include a complete index in the original submittal. Indicate both original items submitted and note stragglers that will be submitted at a later date to avoid delay in submitting.
- d. The bulk of the shop drawings and product data, excepting Controls and Instrumentation, shall be included with the original submittal. Controls and Instrumentation submittals may lag but shall be complete when submitted. Partial submittals will not be accepted. Other stragglers submitted after return of the original binder shall include a tab similar to that originally submitted. Upon receipt of the returned late submittal, insert them in the previously submitted binder.

C. Contractor Responsibilities: It shall be the Contractor's responsibility to:

1. See that all submittals are submitted at one time and are in proper order.
2. Ensure that all equipment will fit in the space provided.
3. Assure that all deviations from Drawings and Specifications are specifically noted in the submittals. Failure to comply will void review automatically.

1.06 OPERATING AND MAINTENANCE MANUAL, PARTS LISTS, AND OWNERS INSTRUCTIONS

- A. Refer to Division 1 for additional requirements.
- B. Submit three bound copies of manufacturer's operation and maintenance instruction manuals and parts lists for each piece of equipment or item requiring servicing. Literature shall be on 8-1/2"x11" sheets or catalogs suitable for side binding. Submit data when the work is substantially complete, packaged separately, and clearly identified in durable 3-ring binder. Include name and contact information for location of source parts and service for each piece of equipment. Clearly mark and label in each submittal, the piece of equipment provided with the proper nameplate and model number identified. Provide wiring diagrams for all electrically powered equipment.
- C. Instruct Owner thoroughly in proper operation of equipment and systems, in accordance with manufacturer's instruction manuals. Operating instructions shall cover all phases of control.

1.07 PROJECT CONDITIONS

- A. Existing Conditions: Prior to bidding, verify and become familiar with all existing conditions by visiting the site, and include all factors which may affect the execution of this Work. Include all related costs in the initial bid proposal.
- B. Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work.
- C. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City and Utility Company.

1.08 WARRANTY

- A. Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.
- B. Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.
- C. Correct warranty items promptly upon notification.

1.09 PROVISIONS FOR LARGE EQUIPMENT

- A. Contractor shall make provisions for the necessary openings in building to allow for admittance of all equipment.

1.010 TEST REPORTS AND CERTIFICATES

- A. Contractor shall submit one copy of all test reports and certificates specified herein to the Architect.

1.011 SUBSTITUTIONS

- A. Contractor shall submit any requests for product substitutions in accordance with the Instructions to Bidders and the General and Supplemental Conditions.

PART 2 PRODUCTS**2.01 FLOOR, WALL AND CEILING PLATES**

- A. Furnish stamped split type plates as follows:
 1. Floor Plates: Cast brass, chromium plated.
 2. Wall and Ceiling Plates: Spun aluminum.

2.02 ELECTRICAL EQUIPMENT

- A. General: All equipment and installed work shall be as specified under Division 26, Electrical.
- B. Coordinate with the electrical Drawings and electrical contractor for minimum electrical equipment bracing requirements based on the available fault current rating at the bus of the panelboard or switchboard serving the piece of equipment. Provide equipment with a Short Circuit Current Rating (SCCR) that meets the bracing requirement.
- C. Starters: Provided under Division 26, Electrical, suitable for performing the control functions required, with the exception of self-contained equipment and where the starters are furnished as part of the control package.
- D. Equipment Wiring: Interconnecting wiring within or on a piece of mechanical equipment shall be provided with the equipment unless shown otherwise. This does not include the wiring of motors, starters and controllers provided under Division 26, Electrical.
- E. Control Wiring: All control wiring for mechanical equipment shall be provided under Section 23 09 00, Instrumentation and Controls for HVAC.
- F. Codes: All electrical equipment and products shall bear the Underwriters label as required by governing codes and ordinances.

PART 3 EXECUTION**3.01 CLEANING**

- A. General: Clean mechanical equipment, piping and ductwork of stampings and markings (except those required by codes), iron cuttings, and other refuse.
- B. Painted Surfaces: Clean scratched or marred painted surfaces of rust or other foreign matter and paint with matching color industrial enamel, except as otherwise noted.
- C. Additional requirements are specified under specific Sections of this Division.

3.02 EQUIPMENT PROTECTION

- A. Keep pipe, ductwork and conduit openings closed by means of plugs or caps to prevent the entrance of foreign matter. Protect piping, conduit, ductwork, equipment and apparatus against dirty water, chemical or mechanical damage both before and after installation. Restore damaged or contaminated fixtures, equipment, or apparatus to original conditions or replace at no cost to the Owner.
- B. Protect bright finished shafts, bearing housings, and similar items until in service. No rust will be permitted.
- C. Cover or otherwise suitably protect equipment and materials stored on the job site.

3.03 ACCESSIBILITY

- A. General: Locate valves, thermometers, cleanout fittings and other indicating equipment or specialties requiring frequent reading, adjustments, inspection, repairs, and removal or replacement conveniently and accessibly with reference to the finished building.
- B. Thermometers and Gauges: Install thermometers and gauges so as to be easily read from the floors, platforms and walkways.

3.04 FLOOR, WALL AND CEILING PLATES

- A. Install on piping and ductwork passing through finished walls, floors, ceilings, partitions, and plaster furrings. Plates shall completely cover opening around pipe and duct.
- B. Secure wall and ceiling plates to pipe, insulation, or structure.
- C. Plates shall not penetrate insulation vapor barriers.
- D. Plates not required in mechanical rooms or unfinished spaces.

3.05 ADJUSTING AND CLEANING

- A. Before operating any equipment or systems, make thorough check to determine that systems have been flushed and cleaned as required and equipment has been properly installed, lubricated, and serviced. Check factory instructions to see that installations have been made accordingly and that recommended lubricants have been used.
- B. Use particular care in lubricating bearings to avoid damage by over-lubrication and blowing out seals. Check equipment for damage that may have occurred during shipment, after delivery, or during installation. Repair damaged equipment as approved or replace with new equipment.

3.06 ELECTRICAL EQUIPMENT

- A. Ductwork or piping for mechanical systems not serving electrical space shall not be installed in any switchgear room, transformer vault, telephone room, or electric closet except as indicated.
- B. Ductwork or piping for mechanical systems shall not pass over switchboards or electrical panelboards. Where conflicts exist, bring to attention of Architect.

3.07 EQUIPMENT CONNECTIONS

- A. Make final connections to equipment specified in sections other than Division 23 of the specifications and Owner furnished equipment in accordance with manufacturer's instructions and shop drawings furnished and as indicated.
- B. Piping:
 - 1. Connections shall include steam supply, steam vent and condensate.
 - 2. Provide valves and specialties as specified and as detailed on the Drawings. Provide increasers, reducers, and any other fittings required for complete installation.
 - 3. All piping connections shall be independently supported to prevent undue strain on equipment.

END OF SECTION

GENERAL DUTY VALVES AND SPECIALTIES FOR HVAC

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC, apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Valves.

1.03 SUBMITTALS

- A. Submit product data.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURER VALVES

- A. General: Where only Nibco figure numbers are listed, equivalent products by those specified below are acceptable.
 - 1. Gate: Crane, Kennedy, Stockham, Milwaukee, Walworth and Hammond.
 - 2. Ball: Gruvlok, Apollo, Crane, Hammond, Milwaukee and Victaulic.
- B. Other Manufacturers: Submit Substitution Request.
- C. All such valves shall be of one manufacturer.
- D. Valve ends shall be threaded.

2.02 GATE VALVES

- A. Bronze Gate: Bronze body, bronze trim, bronze screwed bonnet; solid wedge, 150 psi steam rating (use bonnet on steam service), 300 psi WOG, Nibco 134.

2.03 BALL VALVES

- A. Bronze Ball: Bronze cast body or forged brass, chrome-plated full port ball, with handle, Teflon seat, 300 psi WOG, 150 psi steam; Nibco 585-70.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide valves at connections to equipment where shown or required for equipment isolation.
- B. Install all valves in accessible locations and same size as connected piping (not the size of the equipment connection).
- C. Provide separate support for valves where necessary.

3.02 APPLIED LOCATIONS HVAC VALVES

A. In piping 2-inches and smaller:

System	Valve Types				
	Gate	Globe	Swing Check	Ball	Butterfly
Low Pressure Steam	Bronze	Bronze	Bronze	Not Allowed	Not Allowed
Low Pressure Condensate	Bronze	Bronze	Bronze	Not Allowed	Not Allowed

END OF SECTION

HANGERS, SUPPORTS AND ANCHORS FOR HVAC

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Supports and anchors for piping systems and equipment.
- B. Related Sections include:
 - 1. Section 23 07 00 Insulation for HVAC.
 - 2. Section 23 21 13 Pipe and Pipe Fittings HVAC.

1.03 QUALITY ASSURANCE

- A. Provide pipe and equipment hangers and supports in accordance with the following:
 - 1. When supports and anchorages for equipment are not shown on the Drawings, the contractor shall be responsible for their design.
 - 2. Connections to structural framing shall not introduce twisting, torsion, or lateral bending in the framing members. Provide supplementary steel as required.
- B. Engineered Support Systems: The following support systems shall be designed, detailed, and bear the seal of a professional engineer registered in the State having jurisdiction.
 - 1. Supports and seismic restraints for suspended piping and equipment.
 - 2. Support frames such as pipe racks or stanchions for piping and equipment which provide support from below.
 - 3. Equipment and piping support frame anchorage to supporting slab or structure.

1.04 SUBMITTALS

- A. Submit the following:
 - 1. Shop Drawings of contractor fabricated support structures.
 - 2. Structural Details and Calculations: Submit structural details and calculations substantiating that building structure, anchorages, and fabricated steel braces can safely withstand maximum calculated loads.
 - 3. No other submittals required under this section.

PART 2 PRODUCTS

2.01 SUPPORTS, GENERAL

- A. Fabricate support members from welded standard structural shapes, pipe, and plate to carry the necessary rollers, hangers, and accessories as required. Support piping less than 4-inch pipe size from or by prefabricated roll-formed channels with necessary accessories to adequately support piping system.
- B. Acceptable Manufacturers: Unistrut, Superstrut, Powerstrut and Kinline, B-Line Systems, AnvilStrut.
- C. Supports and Accessories: Preformed roll-formed channels and accessories with matching compatible accessories as shown, as specified, and as required.
- D. Dissimilar Metal Protection: Hydra-Zorb cushions or Cush-a-strip.
- E. Clamps: Super Strut Series 700 through 702 or AnvilStrut Series 1000 through 1200.

2.02 PIPE ATTACHMENTS

- A. Acceptable Manufacturers: Anvil as noted or equivalent products by Superstrut, B-Line Systems, Tolco, Michigan Hanger.
- B. Insulated Horizontal Pipe With Hangers Inside of Insulation:
 - 1. 2-inch and Smaller: Anvil 65, 70, 104, 260 or 300.
- C. Insulated Horizontal Pipe with Hangers Outside of Insulation:
 - 1. 2-inch and Smaller: Anvil 65, 70, 104 or 260.

2.03 BUILDING ATTACHMENTS

- A. Acceptable Manufacturers: Anvil as listed or equivalent products by Elcen, Superstrut, B-Line Systems, Tolco, Michigan Hangers.

PART 3 EXECUTION

3.01 HANGERS AND SUPPORTS

- A. General:
 - 1. Install all support systems as detailed and in accordance with manufacturer's recommendations. Provide pipe racks, pipe stands, trapeze hangers, etc., as required and as detailed on the Drawings.
 - 2. Provide adjustable hangers for all pipes complete with inserts, adjusters, bolts, nuts, swivels, all-thread rods, etc., except where specified otherwise.
 - 3. Except as otherwise indicated for exposed continuous pipe runs, install hangers and supports of same type and style as installed for adjacent similar piping.
 - 4. Support all piping within 2 feet of each change of direction on both sides of fitting.
- B. Insulated Piping Systems:
 - 1. See Section 23 07 00 for insulation requirements.
 - 2. Other insulated Piping Systems with Non-Vapor Barrier Insulation:
 - a. At the contractor's option, hangers may be installed inside or outside of insulation for piping 2-inch and smaller.
 - b. If hangers are installed outside of insulation, provide insulation protection shields at all support locations on piping 1-1/2-inch and larger.
 - c. On piping larger than 2-inch, provide insulation saddles at each support location.
- C. Horizontal Piping:
 - 1. Support Spacing: Provide support at minimum spacing per MSS SP-69-1996 Pipe Hangers and Supports - Selection and Application:
 - a. Support piping within 2 feet of each change in direction.
 - b. Steel Pipe, Copper Tubing:

Minimum Pipe Size	Max. Span Steel	Max. Span Copper	Rod Size
1-inch and smaller	7 feet	5 feet	1/4-inch
1-1/4-inch to 2-inch	8 feet	8 feet	3/8-inch

- D. Building Attachments:
 - 1. Provide all additional structural steel angles, channels, or other members required to support piping where structures do not occur as required for proper support.
 - 2. Arrange supports to prevent eccentric loading of joists and joist girders. Locate supports at joist panel points.

END OF SECTION

IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Identify equipment components of the mechanical systems to indicate their function and system served.

PART 2 PRODUCTS

2.01 EQUIPMENT IDENTIFICATION

- A. Nameplates:
 - 1. Tag all air handling supply units with engraved nameplates. Nameplates shall be 1/16-inch thick, 3 x 5 laminated 3-ply plastic, center ply white, outer ply black. Form letters by exposing center ply.
 - 2. Identify unit with equipment tag as shown on Drawings and area served.

PART 3 EXECUTION

3.01 EQUIPMENT IDENTIFICATION

- A. Nameplates: Attach to prominent area of equipment, either with sheet metal screws, brass chain, or contact cement as applicable.

END OF SECTION

TESTING, ADJUSTING AND BALANCING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes:
 - 1. Testing and balancing of air systems.
 - 2. Testing and balancing of miscellaneous mechanical equipment.
- B. Related Sections include:
 - 1. Section 23 09 00 Instrumentation and Controls for HVAC.

1.03 QUALITY ASSURANCE

- A. Acceptable Testing and Balancing Firms:
 - 1. A.I.R., Inc.
 - 2. Air Balance Specialty, Inc.
 - 3. Neudorfer Engineers, Inc.
 - 4. Northwest Engineering Services.
 - 5. Pacific Coast Air Balance.
 - 6. Accurate Balancing Agency, Inc.
- B. Other Firms: Submit Substitution Requests prior to Bid Date.
- C. Industrial Standards: Testing and Balancing shall conform to NEBB, American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), and American National Standards Institute (ANSI) as follows:
 - 1. NEBB: Comply with Procedural Standards for Testing, Adjusting Balancing of Environmental Systems.
 - 2. ASHRAE: Comply with recommendations pertaining to measurements, instruments, and testing, adjusting and balancing.
 - 3. ANSI:
 - a. S1.4 Specifications for sound level meters.
 - b. S1.11 Specifications for Octave-Band and Fractional-Octave-Band analog and digital filters.
- D. Instrument Certification: All instruments used shall be accurately calibrated and certified within six months of balancing and maintained in good working order.
- E. Test Observation: If requested, the tests shall be conducted in the presence of the Architect or the Architect’s representative.

1.04 SUBMITTALS

- A. Submit the following:
 - 1. Balancing Log: Include all air and water outlets, actual field measured air and water volume, and percentage of design volumes. Provide drawings identifying location of all outlets.
 - 2. Equipment Data Sheets: Indicate actual equipment performance, model numbers, bearing and belt data, motor nameplate data, and final balanced motor data.
 - 3. Additional Data: Submit all additional data as provided by Associated Air Balance Council (AABC) Standard forms.
 - 4. Number of Copies: Submit six (6) copies of the above completed information to the Engineer for review and insertion into the Operating and Maintenance Data.

5. Instrument Certification: When requested, submit certificate of calibration for all equipment to be used.

B. Record data on NEBB forms or forms approved by the Architect.

1.05 PROJECT CONDITIONS

A. Where existing systems are to be adjusted, establish flow rates in all branches prior to making any modifications to system. Submit preliminary report indicating existing conditions prior to making any modifications to existing systems. Adjust central equipment as required and restore all unmodified branches and outlets to original condition. Obtain existing system drawings from Owner and become familiar with extent and nature of existing systems.

B. Do not perform final testing, adjusting, and balancing work until heating, ventilating, and air conditioning equipment has been completely installed and operating continuously as required.

C. Conduct air testing and balancing with clean filters in place. Clean strainers, etc., prior to performing hydronic testing and balancing.

1.06 WARRANTIES

A. In addition to the Requirements of the Contract, include an extended warranty of six months after completion of test and balance work during which time the Architect at his discretion may request a recheck or resetting of any equipment or device listed in the test reports.

PART 2 PRODUCTS – NOT APPLICABLE

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Balance to maximum measured flow. Deviation from specified values of ± 10 percent at terminal device and ± 5 percent at equipment, or mean sound level deviation of 15 decibels. Advise Engineer if deficiencies are generally noted to enable proper corrective actions.

3.02 AIR SYSTEMS

A. General: Make measurements in accord with Industrial Standards specified above. Record on appropriate forms.

B. Preliminary:

1. Identify and list size, type, and manufacturer of all equipment to be tested including air outlets and inlets.
2. Use manufacturer's ratings for equipment to make required calculations except where field test shows ratings to be impractical.

C. Central System:

1. Set speed to provide air volume at farthest run without excess static pressure.
2. Read and adjust air supply, return, and exhaust fan units to deliver design conditions at minimum O.S.A. and at 100% O.S.A.
3. Read static air pressure conditions on all air handling equipment including filter and coil pressure drops and total pressure across the fan. A Dwyer Series 400 air velocity meter only shall be used for final static pressures at equipment and where critical readings are required.
4. Measure temperature conditions across all outside air, return air, and exhaust dampers to check leakage.
5. Read and record motor data and amperage draw.

3.03 ELECTRIC HEATING EQUIPMENT

A. Test and record voltage and amperage readings at each electric heating device while fully energized and at part load conditions (each step) to verify proper operation.

B. Record data on appropriate forms.

3.04 AUTOMATIC CONTROL SYSTEM

- A. In cooperation with control manufacturer's representative, set and adjust automatically operated devices to achieve required sequence of operations.
- B. Testing organization shall verify all controls for proper calibration and list controls requiring adjustment by control system installer.

3.05 COORDINATION

- A. Coordinate work with other trades to ensure rapid completion of the project.
- B. Deficiencies noted during the course of air balancing in the mechanical installation shall be promptly reported to the Architect to allow corrective action to proceed.
- C. Periodic review of progress shall be provided as requested.

END OF SECTION

INSULATION FOR HVAC

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Insulation for piping, ductwork (external), ductwork (internal).
- B. Related Sections include:
 - 1. Section 23 05 29 Hangers, Supports and Anchors for HVAC.
 - 2. Section 23 31 01 HVAC Ducts and Casing – Low Pressure.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. All insulating products shall comply with the Oregon Revised Statute (ORS) 453.005(7)(e) prohibiting pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products within this specification contain these banned substances, provide complying products from approved manufacturers with equal performance characteristics.
 - 2. Flame and Smoke Ratings: Installed composite flame spread not to exceed 25 and smoke developed not to exceed 50 as tested by UL 723.
 - 3. Energy Codes: Local Building and Energy Codes shall govern where insulation performance requirements for thickness exceeds thickness specified.
- B. Protection: Protect against dirt, water, chemical, or mechanical damage before, during, and after installation. Repair or replace damaged insulation at no additional cost.
- C. Source Quality Control:
 - 1. Service: Use insulation specifically manufactured for service specified.
 - 2. Labeling: Insulation labeled or stamped with brand name and number.
 - 3. Insulation and accessories shall not provide any nutritional or bodily use to fungi, bacteria, insects, rats, mice, or other vermin, shall not react corrosively with equipment, piping, or ductwork, and shall be asbestos free.

1.04 SUBMITTALS

- A. Submit the following.
 - 1. Product Data: For each type including density, conductivity, thickness, jacket, vapor barrier, and flame spread and smoke developed indices.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Equivalent products by Johns Manville, Knauf, Owens Corning, and CertainTeed are acceptable.
- B. All such insulation shall be of one manufacturer.
- C. Other Manufacturers: Submit Substitution Request.

2.02 PIPE INSULATION

- A. Fiberglass: Split sectional or snap-on type with 0.23 per inch maximum thermal conductivity (K-factor) at 75°F mean temperature, 850°F maximum service rating and white, vapor barrier jacket with pressure sensitive closure system. Johns Manville Microlok HP.

2.03 DUCTWORK BLANKET INSULATION

- A. Fiberglass: 1.0 pcf nominal density, 0.25 per inch maximum K-factor at 75°F mean temperature, 250°F minimum operating temperature limit. Johns Manville Microlite Type 100 with facing as follows:
 - 1. Exposed: FSK facing (foil scrim Kraft) or vinyl - white appearance.
 - 2. Concealed with Vapor Barrier: FSK reinforced foil and paper.
 - 3. Concealed without Vapor Barrier: Facing not required.

2.04 DUCT INSULATION, INTERNAL

- A. Description: Fiberglass with airstream surface protected with a glass mat facing that contains an EPA registered anti-microbial agent proven to resist microbial growth as determined by ASTM G21 and G22, 1-inch thick unless indicated otherwise. 2-inch thick insulation shall have 0.24 per inch maximum K-Factor at 75°F mean temperature. Johns Manville Duct Liner PM for rectangular ductwork.
- B. Acoustical Absorption Coefficients: With minimum NRC of 0.70 for 1-inch and 0.90 for 2-inch as tested in accordance with ASTM C-423-90, type A mounting.
- C. Liner must meet ASTM C1071.

2.05 ACCESSORIES PIPING

- A. Adhesives:
 - 1. Fiberglass: Zeston Z-Glu.
 - 2. Calcium Silicate: Benjamin Foster 30-36.
 - 3. Elastomeric: Armacell 520.
 - 4. Polyolefin: As approved by the insulation manufacturer.
- B. Cements:
 - 1. Insulating: Ryder.
 - 2. Heat Transfer: Zeston Z-20.
- C. Wire Mesh: 1-inch mesh with 20 gauge annealed steel wire.
- D. Pipe Fitting Covers: One piece PVC insulated pipe fitting covers. Zeston, Ceel-Co.
- E. Cloth Facing: Presized fiberglass cloth.
- F. Tapes: Pressure sensitive, weather resistant, and for temperatures up to 150°F. Zeston Z-tape.

2.06 ACCESSORIES DUCTWORK

- A. Adhesives:
 - 1. Fiberglass: Zeston Z-Glu.
 - 2. Duct Insulation, Internal: Benjamin Foster 85-20.
- B. Weld Pins: Duro-Dyne with NC-1 nylon stop clips.
- C. Cements:
 - 1. Insulating: Ryder.
 - 2. Heat Transfer: Zeston Z-20.
- D. Wire Mesh: 1-inch mesh with 20 gauge annealed steel wire.
- E. Mastic: Chicago Mastic:
 - 1. Vapor Barrier: 17-475.
 - 2. Outdoor Mastic: 16-110 white.
- F. Cloth Facing: Presized fiberglass cloth.
- G. Tapes: Pressure sensitive, weather resistant, and for temperatures up to 150°F. Zeston Z-tape.

PART 3 EXECUTION**3.01 GENERAL**

- A. Workmanship:
 - 1. Installation: Insulation installed in first class, neat professional manner.
 - 2. Applicators: Applicators shall be employed by firm that specializes in insulation work.
- B. Preparation: Surfaces of piping, ductwork and equipment clean, free of oil or dirt, and dry before insulation is applied.
- C. Stamps: ASME stamps, UL labels, and similar stamps and labels shall not be covered.

3.02 HVAC PIPE AND EQUIPMENT INSULATION APPLIED LOCATIONS

- A. Insulation Applied Locations – HVAC Piping:

System	Pipe Size	Insulation Type	Insulation Thickness	Notes
Low Pressure Steam, Steam Condensate	Above 6-inch	Fiberglass	3 1/2-inch	Note 1
	1 1/4-inch and smaller	Fiberglass	2-inch	-

- B. The following piping is not insulated:
 - 1. Steam traps.
- C. Insulation shall include all fittings, unions, flanges, mechanical couplings, valve bodies, valve bonnets, piping through sleeves, except valve bonnets, unions and flanges need not be insulated on the following systems:
 - 1. Low pressure steam, inside building, 2-inch and smaller.
 - 2. Condensate inside building.
- D. Piping insulation is not required between the control valve and coil on run-outs when the control valve is located within 4 feet of the coils and the pipe size is 1-inch or less.
- E. Valves and irregular fittings shall be insulated with section of pipe insulation and insulating cement, securely fastened, and finished with 6 oz. canvas and Foster 30-36 lagging adhesive. The contractor shall have the option on all flanges, valves, strainers, not requiring a vapor barrier to insulate with removable replaceable pads fabricated of 1-inch layer of Pittsburgh Corning Temp Mat sandwiched between inner and outer layer of 8 oz. glass cloth held together with stainless staples with sufficient stainless lacing hooks to hold pad firmly to flange or valve with minimum 3-inch overlap onto adjacent pipe insulation using 18 gauge S.S. lacing wire.

3.03 PIPING INSTALLATION

- A. General:
 - 1. Joints: Coat both sides of complete joining area with applicable adhesive.
 - a. Longitudinal Joints: Make joints on top or back of pipe to minimize visibility. Except foam plastic, seal with closure system or 3-inch wide tape.
 - b. Butt Joints: Butt lightly together and, except for foam plastic, seal with 3-inch wide tape or butt straps.
 - c. Multiple Layered Insulation: Joints staggered.

2. Access: Items requiring service or maintenance with easily removable and replaceable section of insulation to provide access.
 3. Voids: Fill all voids, chipped corners and other openings with insulating cement or material compatible with insulating material.
 4. Seal joints, seams and fittings of metal watertight jackets at exterior locations.
- B. Unions, Mechanical Joints, Valves, Etc.:
1. General:
 - a. As specified for fittings.
 - b. Minimum thickness same as specified for piping.
 2. Unions: Build up insulation at least 1/2-inch beyond adjoining insulation.
- C. Non-Vapor Barrier Insulation:
1. Refer to Section 23 05 29 for support requirements.
 2. At contractor’s option, insulation may be interrupted at supports. Butt insulation tight to support.
 3. Void between saddle and pipe filled with insulation.

3.04 DUCT INSULATION APPLIED LOCATIONS

- A. General:
1. All external insulation with continuous vapor barriers unless specifically noted otherwise.
 2. Internally lined shall be lined completely to grille or diffuser or to indicated terminal points. Dimension shown are net inside of liner.
 3. Internally lined ductwork need not be externally insulated.
 4. In addition to locations described in specification, internally line medium, low, return and exhaust air ductwork where shown on drawings.
- B. Insulation Applied Location – HVAC Ductwork:

System	Location	Duct Type	Insulation Type	Thickness	Notes
Low Pressure Supply*	In Attic	Mains Branches	Internally Lined Fiberglass blanket	2-inch	-
	In Attic			2-inch	
Return Air to HRV	In Attic	Mains	Internally Lined	2-inch	—
	In Attic	Branches	Fiberglass blanket	2-inch	-

3.05 DUCTWORK INSTALLATION

- A. General:
1. Install in accordance with manufacturer’s instruction.
 2. The vapor barrier shall be continuous. Tears, holes, staples, etc. shall be coated with vapor barrier mastic and patch with facing or tape. Joints between insulation and access with vapor barrier mastic.
 3. Insulation at access panels to be removable or attached to panel with edges of panel and opening reinforced with metal beading.

- B. External Blanket Insulation:
 - 1. Insulation secured to ductwork with 20-gauge snap wires 24 inches on center and at all joints.
 - 2. Joints and seams lapped a minimum of 3 inches and sealed with jacket tape.
- C. Internal Duct Liner:
 - 1. The coated surface shall face air stream.
 - 2. Weld pins spaced maximum of 15-inch on center in both directions and within 2 inches of all corners and joints. Weld pins flush with liner surface.
 - 3. Complete duct surface coated with adhesive and insulation pressed tightly thereto.
 - 4. Edges at terminal points shall be provided with metal beading and heavily coated with adhesive.
 - 5. All joints and corners shall be heavily coated with adhesive.
 - 6. Damaged areas replaced or heavily coated with adhesive.
- D. Volume Dampers: Where volume dampers do not allow for continuous insulation, terminate insulation clear of handle sweep and finish edges to maintain vapor barrier and to prevent damage to the insulation.

3.06 FIELD QUALITY CONTROL

- A. Field Test: All systems shall be tested and approved prior to installation of insulation.

END OF SECTION

PIPE AND PIPE FITTINGS HVAC**PART 1 GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Furnish piping, pipe fittings, and incidental related items as required for complete piping systems.
- B. Related Sections Include:
 - 1. Section 23 25 00 HVAC Water Treatment.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Piping material and installation to meet requirements of the local building codes and serving utility requirements.
- B. Pipe Cleaning: Should any pipe be plugged or should foaming of water systems occur, disconnect piping, re-clean, and reconnect without additional expense to the Owner.
- C. Correct any damage to the building or systems resulting from failure to properly clean the system without additional expense to the Owner.

1.04 SUBMITTALS

- A. Submit the Following:
 - 1. List of piping materials indicating the service it is being used for. (Do not submit piping product data).
 - 2. Certificate of completion
 - 3. Treatment Reports
- B. Test Reports and Certificates: Submit certificates of inspections and pipe tests to Owner.
- C. Other: Make certified welders' certificates available.

PART 2 PRODUCTS**2.01 ACCEPTABLE MANUFACTURERS**

- A. As indicated.

2.02 BLACK STEEL PIPE, SCHEDULE 40 AND STANDARD

- A. Pipe: Schedule 40 conforming to ASTM A 135 or A 53. Schedule 40 up to 10-inch diameter. Standard weight for 12-inch diameter and above.
- B. Fittings: 150 lb. screwed malleable iron on 2 inches and below All elbows on pumped systems shall be long radius type. Short radius elbows not acceptable for use except as approved on a case by case basis.
- C. Service:
 - 1. Low pressure steam.

2.03 BLACK STEEL PIPE, SCHEDULE 80

- A. Pipe: Schedule 80 conforming to ASTM A135 or A53.
- B. Fittings: Extra heavy Class 300 screwed cast iron on 2-inch and below.
- C. Service:
 - 1. Pumped and gravity steam condensate return.

2.04 UNIONS

- A. 150 psi malleable iron, brass to iron seat, ground joint, black or galvanized to match pipe. 200 psi WOG bronze, ground joint, solder type for copper tubing.
- B. Dielectric fittings shall be nationally listed, have a dielectric thermoplastic interior lining, and meet requirements of ASTM F-492. Fittings shall be suitable for the pressure and temperature to be encountered.

PART 3 EXECUTION

3.01 PIPING INSTALLATION

- A. Install unions in all non-flanged piping connections to apparatus and adjacent to all screwed control valves, traps, and appurtenances requiring removal for servicing so located that piping may be disconnected without disturbing the general system.
- B. Install all piping as to vent and drain. Install according to manufacturer's recommendations.
- C. Support all piping independently at apparatus so that its weight shall not be carried by the equipment.
- D. Run piping clear of tube cleaning or removal/replacement access area on coils, heat exchangers, chillers, etc.
- E. Dielectric Fittings: Provide dielectric couplings, unions, or flanges between dissimilar metals. In addition, provide dielectric couplings as required to isolate cathodically protected piping and equipment.

3.02 PIPING JOINTS

- A. Pipe and fittings shall be joined using methods and materials recommended by manufacturer in conformance with standard practice and applicable codes. Cleaning, cutting, reaming, grooving, etc. shall be done with proper tools and equipment. Hacksaw pipe cutting prohibited. Peening of welds to stop leaks not permitted.
- B. No couplings installed in floor or wall sleeves.
- C. Steel Piping:
 - 1. Screwed Joints: Pipes cut evenly with pipe cutter reamed to full inside diameter with all burrs and cuttings removed. Joints made up with suitable lubricant or Teflon tape applied to male threads only, leaving two threads bare. Joints tightened so that not more than two threads are left showing. Junctions between galvanized steel waste pipe and bell of cast iron pipe shall be made with tapped spigot or half coupling on steel pipe to form spigot end and caulked.
- D. Screwed Joints: Use Teflon tape or Teflon liquid dope applied to male threads only.

3.03 ADJUSTING AND CLEANING

- A. General:
 - 1. Clean interior of all piping before installation.
 - 2. Flush sediment out of all piping systems after installation before connecting mechanical equipment to the piping.

END OF SECTION

STEAM AND CONDENSATE SPECIALTIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Provide steam and condensate specialties, including condensate traps and steam accessories.

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Product data for each item listed including performance curves, operating weights, and pressure ratings.
 - 2. Operating and Maintenance Data for each product listed.

PART 2 PRODUCTS

2.01 STEAM TRAPS

- A. Acceptable Manufacturers:
 - 1. Armstrong TS-3, Sarco, Watson McDaniel, MEPCO.
 - 2. Other Manufacturers: Submit Substitution Request.
- B. Balanced Pressure Thermostatic Steam Traps:
 - 1. Description: Cast bronze body with male union inlet connection.
 - 2. Element: Welded stainless steel with hardened stainless steel valve plug.
 - 3. Valve seat: Stainless steel.
 - 4. Internals: Stainless steel.
 - 5. Sizing: Unless otherwise indicated, traps on low pressure systems (15 psi or less) sized for two (2) times condensing rate at 1/2 psi differential.

PART 3 EXECUTION

3.01 STEAM TRAP INSTALLATION

- A. Install steam traps on the return side of all equipment utilizing steam..
- B. Use thermostatic traps for radiators and convectors.

END OF SECTION

HVAC DUCTS AND CASING-LOW PRESSURE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Low pressure ductwork and fittings.
- B. Related Sections include:
 - 1. Section 23 07 00 Insulation for HVAC.
 - 2. Section 23 33 00 Air Duct Accessories.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Work performed by qualified, experienced mechanics, in accordance with the manual of Duct and Sheet Metal Construction of the Sheet Metal and Air Conditioning Contractors National Association and these Specifications.
- B. Regulatory Requirements:
 - 1. Entire ductwork system, including materials and installation, installed in accordance with NFPA 90A.
 - 2. Ductwork and components shall be listed as U.L. 181, Class I air duct, flame rating not to exceed 25 and smoke rating not to exceed 50.

1.04 SUBMITTALS

- A. Submit the following:
 - 1. Provide catalog data on each product specified hereunder.
 - 2. Schedule of duct construction standards.

PART 2 PRODUCTS

2.01 SHEETMETAL DUCTWORK

- A. Fabricate from galvanized steel, unless noted otherwise.
- B. Minimum gauge, duct construction, joint reinforcing, fittings, hangers and supports shall be in accordance with SMACNA "HVAC Duct Construction Standards – Metal and Flexible", Latest Edition.
- C. Duct Classification: Ducts shall be considered low pressure when design velocities are 2000 fpm or less and maximum static pressure is 2 inches W.G. positive or negative.
 - 1. The following ductwork constructed in accordance with minimum reinforcement requirements for static pressure class of 1-inch W.G. positive or negative.
 - a. Supply, return, or exhaust ductwork serving fans scheduled to operate at less than 1 inch W.G. On supply fans pressure drops for louvers, coils, clean filters, and sound traps may be deleted from scheduled fan static.
 - b. Supply, return, or exhaust ductwork serving multiple duct branches where contractor can demonstrate that pressures will not exceed 1 inch W.G. positive or negative.
 - 2. The following ductwork constructed in accordance with minimum reinforcement requirements for static pressure class of 2 inches W.G., positive or negative.
 - a. Supply, return, or exhaust ductwork serving fans scheduled to operate at pressures greater than 1 inch W.G. positive or negative.

- D. Longitudinal seams on rectangular duct shall be Pittsburgh or Button punch snap lock. Snap lock seams for round duct may be used only on ducts classified for 1/2 inch W.G. Longitudinal seams for round ducts using lap and rivet, spot weld, or fillet weld may be used only on ducts classified for statics 1 inch W.G. or less.
- E. Joining and reinforcing systems manufactured by Ductmate, Roloc, or TDC are acceptable. Ductmate 35 is equivalent to SMACNA “J”, and Ductmate 25 is equivalent to SMACNA “F”.
- F. Use of adjustable round elbows not permitted.

2.02 FLEXIBLE DUCTS

- A. Acceptable Manufacturers:
 1. Thermaflex M-KE, Gen Flex IMP-25S.
 2. Other Manufacturers: Submit Substitution Request.
- B. Description: Flexible air duct with CPE or metal film liner permanently bonded to coated spring steel wire helix with 2-inch thick fiberglass insulation blanket covered with fiberglass reinforced metal film vapor barrier jacket. Duct rated for 6-inch W.G. positive and 1-inch W.G. negative.

PART 3 EXECUTION

3.01 APPLIED LOCATIONS

- A. Supply Ductwork from Spin-In Fittings to Supply Outlet Collar Connection: Flexible duct, maximum 4'-0" length.
- B. Return Air Trunk Ductwork from End Run to Unit Connection: Galvanized sheet metal ductwork, lined where indicated on the Drawings or as specified in Section 23 07 00.
- C. Exhaust Ductwork: Galvanized sheet metal ductwork, lined where indicated on the Drawings or as specified in Section 23 07 00.

3.02 INSTALLATION

- A. Ductwork:
 1. Seal traverse joints with an approved mastic during joining procedure or tape after joining to provide airtight duct system.
 2. Low pressure ductwork hanger and support systems in accordance with SMACNA “HVAC Duct Construction Standards – Metal and Flexible”. Wire supports are not allowed.
 3. Provide supplementary steel for support of ductwork in shafts and between building structural members.
 4. Fabricate changes in direction to permit easy air flow, using full 1.5D radius bends or fixed turning vanes in square elbows. Radius elbows less than 1.5D radius shall have splitter vanes.
 5. Change in duct size or shape necessitated by interference made using rectangular equivalents of equal velocity.
 6. Where pipe, structural member, or other obstruction passes through a duct, provide streamlined sheet metal collar around member and increase duct size to maintain net free area. Fit collar and caulk to make air tight.
- B. Sound Attenuation (Internal Insulation):
 1. Provide sound attenuation duct where shown and as specified under Section 23 07 00.
 2. Duct dimensions shown are net inside attenuating material.
- C. Dampers: Install where shown and where necessary to complete final balancing of system. Install regulators as specified in Section 23 33 00 for each specific project condition. Leave all dampers locked wide open in preparation for balancing.
- D. Flexible Connectors: Make connections to fans and other rotating equipment with flexible connectors with 2-inch minimum clearance between casing and ductwork. Not required on internally spring isolated units.

- E. Spin-in Fittings:
 - 1. Install at branch takeoffs to outlets using round or flex duct.
 - 2. Connect to flexible duct with draw band strap and minimum of two wraps of duct tape.
 - 3. Leave all dampers locked wide open.
- F. Flexible Ducts:
 - 1. Make connections at ends using draw band strap and a minimum of 2 wraps of duct tape.
 - 2. Suspend center spans from structure above using wire as required by code. Connect to manufacturer's eyelet on jacket or use 1-inch wide galvanized steel strap with single loop at top and smooth edges.
 - 3. Suspending duct by laying it on the ceiling is prohibited.
 - 4. Avoid crimping flex duct. All changes in direction shall be made using 2D radius. Duct connections to grilles, registers and diffusers using less than 2D radius bends are not acceptable. Where space is constricted, use sheet metal elbows or Thermaflex Flex Boots (or equal).

3.03 FIELD QUALITY CONTROL

- A. Coordination with Balance Agency:
 - 1. Provide services of a sheet metal person familiar with the system ductwork to provide assistance to the balancing agency during the initial phases of air balancing in locating all sheet metal dampers.
 - 2. Install missing dampers required to complete final balancing.

END OF SECTION

AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Low pressure duct accessories, sealants and tapes, flexible connectors, spin-in, gravity ventilators.
- B. Related Sections include:
 - 1. Section 23 31 01 HVAC Ducts and Casing-Low Pressure.

1.03 QUALITY ASSURANCE

- A. Work performed by qualified, experienced mechanics in accordance with the manual of Duct and Sheet Metal Construction of the National Association of Sheet Metal and Air Conditioning Contractors and these Specifications.
- B. Install entire ductwork system, including materials and installation, in accordance with NFPA 90A.
- C. Flexible connectors, flexible equipment connections, tapes and sealants listed as UL 181, Class I air duct. Flame spread rating not to exceed 25 and smoke developed rating not to exceed 50.

1.04 SUBMITTALS

- A. Submit the following: Product data for Duct Accessories.
 - 1. Low Pressure Duct Accessories:
 - a. Gravity ventilators, curb and accessories.

PART 2 PRODUCTS

2.01 LOW PRESSURE DUCT ACCESSORIES

- A. Acceptable Manufacturers:
 - 1. As indicated.
 - 2. Other Manufacturers: Submit Substitution Request.
- B. Damper Regulators:
 - 1. Ventlok model numbers used, similar products by Young, Durodyne or approved equal are acceptable.
 - 2. Dial Regulator: Concealed or exposed duct in unfinished spaces, blade lengths 18-inch and less, 3/8-inch, Ventlok 635 or 638 for insulated duct. For blade lengths, 19 inches and above, similar except 1/2-inch shafts.
 - 3. Dial Regulator: Exposed duct finished space, 3/8-inch, Ventlok 640.
 - 4. End Bearings: For ducts rated to 1 inch WG, open end, Ventlok 607.

- C. Volume Damper Fabrication:
 1. Single blade dampers reinforced or crimped for rigidity, with pivot rod extending through duct. Dampers over 12 inches high use multiple opposed blade damper. Single blade damper no larger than 12 inches x 48 inches.
 2. Minimum gauge and duct construction in accordance with SMACNA “HVAC Duct Construction Standards”, latest edition.
 3. Splitter and butterfly dampers fabricated of 18 gauge galvanized steel.
 4. Dampers of length suitable to close branch ducts without damper flutter.
 5. Damper blade must be aligned with handle and index pointer.
- D. Flexible Equipment Connections: 30 oz. Ventfabrics Ventglas or Duro Dyne neoprene coated fire retardant glass fabric or approved equal.
- E. Spin-in Fittings:
 1. Sheet Metal Duct: Straight pattern sheet metal spin-in fitting with scoops designed for connection to sheet metal ductwork, volume damper, and locking quadrant. Construction with spot welds or rivets. “Button-punch” fabrication prohibited.
- F. Duct Sealer:
 1. Based On: McGill Airseal Zero.
 2. Description: Suitable for indoor/outdoor use, rated to 10-inch WG, Maximum Flame Spread/Smoke Developed Rating of 25/50, maximum VOC of 30 g/L less water. SCAQMD Rule 1158 compliant.
- G. Duct Tape for Sheet Metal: ARNO C520 duct tape similar United, Duro Dyne, Nashua, Polymer Adhesive.
- H. Tape and Adhesive/Activator System for Sheet Metal: Hardcast, Polymer Adhesive.
- I. Turning Vane Assemblies:
 1. Sheet Metal Vanes: Multiple radius hollow vane air foil type 2-inch (small vane) or 4-1/2-inch (large vane) inside radius, galvanized steel construction.
 2. Runners: Push-on type.
 3. Acoustical Vanes: Multiple radius air foil type, perforated steel construction with fiberglass fill. AirSan Acoustiturn or as approved.
- J. Gravity Ventilators:
 1. Manufacturer: Greenheck GRSI/GRSR, Cook, PennBarry, Carnes
 2. Construction: Spun aluminum with heavy gauge aluminum curb cap, one piece spun venturi.
 3. Internal components: Rigid galvanized steel including birdscreen
 4. Accessories: Backdraft damper and tray, manufacturers curb to fit sloped roof application.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all devices as shown on the Contract Drawings and per manufacturer’s recommendations.
- B. Low Pressure Duct Accessory installation specified under Section 23 33 01.
- C. Gravity Ventilators: Confirm roof slope prior to ordering of ventilator and curb. See architectural drawings for flashing.

END OF SECTION

AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Ceiling diffusers, grilles.
- B. Related Sections include:
 - 1. Section 23 33 00 Duct Accessories.

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Shop Drawings: Showing dimensions and details of construction.
 - 2. Product Data.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Where only Titus figure numbers are listed, equivalent products by Carnes, Price, Krueger, Tuttle & Bailey, Anemostat, Nailor are acceptable.
- B. All such products shall be of one manufacturer.
- C. Other Manufacturers: Submit substitution Request.

2.02 PERFORMANCE

- A. Unit sizing is based on air being introduced at 20°F temperature differential and being diffused at the 5-foot level to a velocity not greater than 50 FPM and a temperature differential not greater than 1.5°F. Units are also selected so as not to exceed the NC-30 curve.

2.03 DIFFUSERS AND GRILLES

- A. Ceiling Supply Diffuser (C-1): Perforated face modular diffuser with adjustable modular core, steel panel, square or rectangular neck size as indicated, discharge pattern as indicated, surface mounted, white baked enamel finish, Titus PMC.
- B. Ceiling Return/Exhaust Grille (C-2): Perforated face modular ceiling grille, steel panel, with duct adapters for round or rectangular as indicated, surface mounted white baked enamel finish, Titus PAR.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all diffusers tight to their respective mounting surfaces.
- B. Installed plumb and true with room dimensions and accurately centered on projections as shown on the Architectural reflected ceiling plans.
- C. Install extractors behind all duct mounted sidewall supply grilles, and where shown. Turning vanes allowable if condition is the last outlet on a branch.

AIR OUTLETS AND INLETS – 23 37 00

- D. Set pattern control for directions of throw as shown on Drawings prior to air balancer arriving on Project.
- E. Paint ductwork behind all outlets flat black.

END OF SECTION

AIR TO AIR ENERGY RECOVERY UNITS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Heat recovery units.

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Shop drawings showing details of construction, dimensions, arrangement of components, isolation, filters, etc.
 - 2. Product data showing performance data, standard items and accessories, operating weight.
 - 3. Operating and maintenance data.
 - 4. Coordination letter from controls vendor indicating all control points have been coordinated between equipment supplier and controls vendor.

PART 2 PRODUCTS

2.01 HEAT RECOVERY UNITS

- A. Acceptable Manufacturers:
 - 1. Renewaive,
 - 2. Other Manufacturers: Submit Substitution Request.
- B. Description:
 - 1. Heat exchanger: Fixed plate, cross-flow air-to-air type.
 - 2. Casing: 24 gage steel, powder coat paint. Walls insulated with one inch expanded polystyrene foam with foil facing.
 - 3. Access: Access panels to blowers. Compression seal with closed cell foam gaskets.
 - 4. Filtration: MERV-8 polyester, disposable type in both air streams.
 - 5. Power: Line-cord power connection with internal 24VAC transformer and relay
 - 6. Mounting: Horizontal, as indicated.
- C. Performance: As scheduled
- D. Certifications and Listings:
 - 1. Certified by the Home Ventilating Institute (HVI) under CSA 439.
 - 2. Listed under UL 1812 Standard for Ducted Air to Air Heat Exchangers.
- E. Controls: 7-day programmable low-voltage timer, Honeywell or approved.

PART 3 EXECUTION

- A. Flexible Connections:
 - 1. Provide flexible connections between fans and the connected ducts.
 - 2. Install with 1-inch space between the fan and connecting duct with fabric snug but not stretched tightly.
 - 3. Provide accurate alignment between fan and duct.
- B. Controls: Set timer to provide unit operation during normal school hours.

END OF SECTION

CONVECTION HEATING UNITS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes:
 - 1. Convectors.
 - 2. Controls for convectors.

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Catalog data showing dimensions and performance.
 - 2. Computer calculations for coil performance.
 - 3. Operation and Maintenance Data: Convectors..

PART 2 PRODUCTS

2.01 CONVECTORS

- A. Acceptable Manufacturers:
 - 1. Trane, McQuay, Sterling, Air Therm, Dunham Bush.
 - 2. Other Manufacturers: Submit Substitution Request.
- B. Description: Provide convectors complete with heating elements and enclosures. Capacity as indicated on drawings.
- C. Elements: Copper tubes expanded and rolled into cast iron headers with brass bushings, aluminum fins, ribbed steel side plates and fin tube supports. Elements shall withstand 150 psi air pressure, factory tested under water.
- D. Enclosures: Enclosures to be wall hung constructed of 16 gauge steel on top and front panels and 18 gauge steel on slides. Convectors shall have sloped top outlet and open inlet.
- E. Units shall have baked enamel finish color as selected by Architect.

2.02 CONTROLS

- A. Acceptable Manufacturers: Honeywell, Johnson, or approved.
- B. Thermostats: Honeywell Model TP970
 - 1. Cover: Locking, with satin chrome finish, horizontal temperature scale and setpoint adjust.
 - 2. Direct acting
 - 3. Two pipe pneumatic
- C. Control valves: Honeywell VP525 pneumatic radiator valve with actuator
 - 1. Action: Normally open, single seated.
 - 2. Pattern: Angle or straight
 - 3. Spring range: 3-10 lb
 - 4. Control: proportional

PART 3 EXECUTION

3.01 INSTALLATION

- A. Convectors: Install per manufacturer's instructions. Provide valves and specialties as detailed on Drawings.
- B. Controls: Provide copper pneumatic tubing, similar to existing in school Route concealed in wall, crawl space, or in surface raceway.

END OF SECTION

ELECTRICAL HEATING EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The provisions of Section 23 05 00, Common Work Results for HVAC, apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes: Electric duct heaters.

1.03 SUBMITTALS

- A. Submit the following:
 1. Shop Drawings: Showing details of construction and dimensional data.
 2. Product Data: Showing performance data, ratings, electrical data, wiring diagrams, fusing quantity and types.
 3. Operating and maintenance data.

PART 2 PRODUCTS

2.01 ELECTRIC DUCT HEATERS

- A. Acceptable Manufacturers:
 1. Indeeco, Markel, Chromalox, Redd-i, Tuttle & Bailey, Dell Heatrix, Valley Industries, Warren.
 2. Other Manufacturers: Submit Substitution Request.
- B. Description:
 1. Resistance wire shall be iron free, 80 percent nickel and 20 percent chromium, spaced no more than 4 inches apart with ceramic insulators and bushings, all supported in aluminum steel frame.
 2. Test dielectrically for 1000V plus twice the rated voltage.
 3. Designed for horizontal or vertical air flow as required.
 4. Control Voltage: 24 volts.
 5. Overcurrent Protection: Built-in and prewired fuses with one overcurrent device for each 48 ampere circuit except with only one overcurrent device required for entire heater for those heaters rated 48 amperes or less. Fuses sized for available fault current with 20,000 AIC rating minimum. Supplier to coordinate with Division 26.
 6. Disc-type automatic reset thermal cutout for primary protection.
 7. For secondary protection, furnish a sufficient number of heat elements in case the primary cutout fails.
 8. Thermal cutout and heat limiters shall be serviceable through the terminal box without removing the heater.
 9. Terminal box with hinged, solid cover, duct mounted or remote as indicated on drawings.
 10. Built-in Accessories: Factory wired with terminal blocks as required for field connections.
 - a. Contactors: Mercury-type to de-energize heater circuits; 3-pole line break for three phase and 1-pole break for single phase. Furnish a contactor for each heater circuit (step).
 - b. Air Flow Switch: Pressure type to de-energize heater in the event of inadequate air flow. Switch located to function down to 25 percent of maximum air volume on discharge side of terminal unit.
 - c. Transformer: With primary fuse protection to supply control voltage.
 - d. Built-in disconnect switch.
 11. Capacity control: SCR with remote thermostat.
 12. Frame Style: Slip-in or flanged for low pressure application, suitable for lined ductwork.

- C. Capacity: See Schedule on Drawings for KW rating and duct sizes.

PART 3 EXECUTION

3.01 ELECTRIC DUCT HEATERS

- A. Support units rigidly from structure. Seal air tight around frame.
- B. Provide access to each side of elements.
- C. Electric coils to comply with voltage, wattage, number of steps and accessories as indicated, and installed in uniform air flow entering and leaving.
- D. Controls shall be completely accessible as installed.

END OF SECTION

GENERAL ELECTRICAL PROVISIONS

PART 1 GENERAL

1.01 CONTRACT CONDITIONS

- A. Work of this Section is bound by General Conditions, Supplementary Conditions, and Division 1 bound herewith in addition to this Specification and accompanying Drawings.
- B. The Drawings and Specifications are complimentary and what is called for by one shall be as binding as if called for by both.
- C. The Contractor shall inspect the job site prior to bidding and become familiarized with existing conditions which will affect the work.
- D. Prior to start of work, obtain "As built," "Record," or other Drawings showing existing conditions or underground utilities.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Comply with requirements herein where other Divisions call for Work under this Division of Specifications. Electrical Work required by other Divisions not shown on Electrical Drawings or specified in this Division of Specification shall be provided by trade or sub-trade requiring Electrical Work.

1.03 DESCRIPTION OF SYSTEM

- A. Electrical Drawings are diagrammatic and do not necessarily show all raceways, wiring, number and types of fittings required.
- B. Provide all related Electrical Work specified herein and diagrammed or scheduled on Electrical Drawings. All work shall conform to applicable national, state, and local codes. Contractor is responsible for installation of complete and operating electrical systems.
- C. Where any device or part of equipment is referred to in these specifications in the singular number (such as "the switch"), such reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.

1.04 QUALITY ASSURANCE

- A. Qualifications of Installers
 - 1. For actual fabrication, installation and testing of Work of this Section, use only thoroughly trained and experienced personnel familiar with requirements for this Work and with installation recommendations of Manufacturers of specified items.
- B. Design Criteria:
 - 1. Conform Work with conditions shown and specified.
 - 2. Where adjustments or modifications of Work are necessary for fabrication and installation of items, or for resolution of conflicts between items, make such adjustments at no added expense to Owner.
 - 3. Submit adjustments or modifications of Work affecting functional or aesthetic design of Work to Architect for review.
 - 4. Pay for equipment relocations or modifications necessitated by failure to advise Architect of conflicts or coordinate work.

- C. Select equipment to meet design conditions stated. Contractor is responsible for meeting technical data and performance requirements of system.
- D. Satisfy requirements of regulatory agencies or codes having jurisdiction over project. Provide U.L. labels for all equipment falling under testing capabilities of U.L.
- E. Procure licenses and permits, and pay fees, deposits, assessments and tax charges required for Electrical Work.
- F. Arrange for and pay for inspections and tests required by codes and ordinances during construction.

1.05 REFERENCE STANDARDS

- A. The following specifications and standards, except as hereinafter modified, are incorporated herein by reference and from a part of this specification to the extent indicated by the references thereto. Except where a specific date is given, the issue in effect (including amendments, addenda, revisions, supplements, and errata) on the date of Invitation for Bids shall be applicable. In text such specifications and standards are referred to by basic designation only.
 - 1. Underwriters Laboratories (UL).
 - 2. National Fire Protection Association (NFPA), Specifically:
 - a. NFPA 70 - National Electric Code.
 - b. NFPA 72 - National Fire Alarm Code.
 - c. NFPA 101 - Life Safety Code.
 - 3. National Electrical Safety Code.
 - 4. International Building Code (IBC) with State of Oregon Amendments.
 - 5. National Electrical Manufacturer's Association (NEMA).
 - 6. American National Standards Institute (ANSI).
 - 7. National Electrical Testing Associations (NETA).
 - 8. Occupational Safety and Health Administration (OSHA).
 - 9. City, County, and State Codes and Ordinances.

1.06 SUBMITTALS

- A. Provide shop drawings and product data for the Work of this Division in accordance with Division 1.
- B. Submittal material sent by facsimile machine will not be accepted.
- C. Provide product data for materials and equipment as required by individual sections.
- D. Provide Shop Drawings for materials and equipment as required by individual sections.

1.07 SUBSTITUTIONS

- A. Substitution requests will not be considered unless they are submitted in writing, in accordance with Instructions to Bidders, Supplementary Instructions to Bidders.
- B. Products specified herein are so specified to establish a minimum level of product quality. Except where indicated that no substitutions are allowable, equivalent quality products may be submitted to the Architect for approval.
- C. Substitution requests will not be considered unless they include the following:
 - 1. Model numbers of proposed substitutions.
 - 2. Options which are required to make the proposed substitution comply with Specifications.
 - 3. Summary of modifications of the Work which are required to accommodate the proposed substitution.

1.08 OPERATION AND MAINTENANCE MANUALS, INSTRUCTION AND TRAINING

- A. Manual:
 - 1. Provide in accordance with Division 1. Scope: Following installation of electrical equipment, and prior to acceptance of Electrical Work, prepare manuals describing operations, servicing, and maintenance requirements of electrical equipment and systems installed.
 - 2. Equipment described in manual:
 - a. Equipment listed under "Submittals."
 - b. Other auxiliary miscellaneous systems.
 - 3. Information contained in manual:
 - a. Catalog data on each item including complete parts lists, catalog numbers, maintenance information and wiring diagrams.
 - b. Service organizations for equipment.
 - c. Manufacturer's recommended servicing instructions.
 - d. Diagrams complete for each system installed.
 - 4. Presentation:
 - a. Provide information on neat, clean 8-1/2 inch x 11 inch sheets.
 - b. Provide drawings, accordion folded to letter size.
 - c. Divide manual into chapters which follow section sequence of Specifications of this Division.
- B. Instruction and Training:
 - 1. Contractor responsibilities:
 - a. Train Owner personnel in operation and maintenance of all installed electrical equipment and systems.
 - b. Submit proposed scope of training materials and instruction schedule to Architect for review and approval 30 days prior to scheduled completion of building.
 - c. Arrange mutually agreeable dates for training with Owner.
 - d. Include classroom and on-the-job instruction by qualified installation and maintenance personnel.

1.09 RECORD DRAWINGS

- A. Provide in accordance with Division 1.

1.10 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Make inspection of equipment for possible damage at time of delivery to avoid future delays in construction due to replacement or repair.
- B. Protect against damage, theft and deterioration.
 - 1. Store in original factory containers.
 - 2. Do not expose equipment to dust, powder, abrasive, wetness, excessive dampness or temperature extremes, unless equipment approved for that use.
- C. In event of damage, immediately make all repairs and/or replacements necessary to approval of Architect, at no additional expense to Owner.

1.11 PROTECTION

- A. Suitably protect any unfinished Work from potential physical damage.
- B. Do not leave unfinished Work unattended, which would pose life safety hazard.
- C. Protect other Work against damage and discoloration caused by Work of this Section.

1.12 COORDINATION

- A. Provide coordination for the Work of this Division in accordance with Division 1
- B. Report any discrepancies discovered between existing job conditions and Work to be installed. Fully resolve such discrepancies prior to continuation of work.
- C. Coordinate sequencing of equipment installation and energizing with other trades.
- D. Consult Architect prior to installing equipment in area which obviously exceeds, or will exceed, ambient operating requirements such as for temperature and humidity.

1.13 ALTERNATIVES AND ALLOWANCES

- A. Refer to Division 1 for possible effect upon Work of this Section.

1.14 WARRANTY

- A. Warrant all Work included in this Specification for period of one year from date of substantial completion, under provisions of Section 01700.
- B. During warranty period, remedy without delay or expense to Owner any defects providing, in judgment of Engineer, that such defects are not result of misuse or abuse on part of Owner.
- C. Warrant that all equipment and installations are in compliance with OSHA regulations.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Provide new material and equipment items that are standard products of Manufacturers regularly engaged in production of such materials and equipment. Architect reserves right to reject items not in accordance with Specifications.
- B. For each type of equipment, use same manufacturer throughout.
- C. Provide corrosion protection for ferrous metalwork exposed to weather by hot dip galvanizing, or factory painted finish suitable for outdoor installations.
- D. Verify all materials are acceptable to Authority having jurisdiction, as suitable for the use intended.

PART 3 - EXECUTION

3.01 COMPLETION

- A. Complete each system as shown or specified herein and place in operation, except where only roughing-in or partial systems are called for.
- B. Outlet or equipment shown on the plans, with no supply conduit or conductors indicated, shall be completed in the same methods and manner as similar or like outlets or equipment shown on the drawings.

3.02 SCHEDULING OF WORK

- A. Schedule Work with all other Contractors to maintain job progress schedule, and avoid conflicts in installation of Work by various trades.

- B. Coordinate with General Contractor to provide adequate access for installing large equipment.

3.03 SLEEVES AND OPENINGS

- A. Provide through floors and walls for Electrical Work.
- B. Coordinate with General Contractor and other trades involved.
- C. Patch and seal around all openings, both sides of material penetrated where possible.

3.04 CUTTING AND PATCHING

- A. See Division 1.
- B. Inform General Contractor of all openings required in building construction for installation of Work.
- C. Where access within or behind existing surfaces is required by the work of this Section, remove, cut, patch reinstall, and refinish surfaces and assemblies as required to restore them to their previous and/or scheduled finish condition.

3.05 PAINTING

- A. See Division 9.
- B. Painting of Electrical Work shall be performed by General Contractor.
- C. Painting of Electrical Work not included in Electrical Work, unless otherwise noted on Drawings or specified herein.
- D. Coordinate with General Contractor.

3.06 MANUFACTURER'S INSTALLATION DETAILS

- A. Follow exactly, where available.
- B. Provide special wiring or fittings as required.

3.07 ACCESSIBILITY OF EQUIPMENT

- A. Install equipment accessible for operation, maintenance or repair as required by NEC.
- B. Inaccessible Equipment:
 - 1. Where the Owner's representative determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled as directed, at no additional cost to the Owner.
 - 2. "Conveniently accessible" is defined as being capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping and ductwork.

3.08 COORDINATION

- A. Coordinate all light fixture and device locations with other trades to avoid possible conflicts with ducts, sprinkler piping, and other obstacles affecting installation.
- B. Coordinate conduit, junction boxes, supporting equipment, etc. Affecting normal operating and maintenance activities related to mechanical equipment, piping, valves, accessories, etc.

3.09 TESTS

- A. Fully test and adjust equipment installed under this specifications prior to Owner's personnel instruction. Each system shall be left in proper operation free of faults, shorts or unintentional grounds.
- B. Do not test or operate for any other purpose, such as checking motor rotation, any item of equipment until fully checked in accordance with Manufacturer's instructions.
- C. Demonstrate essential features of the following electrical systems:
 - 1. Audio / Visual System
- D. Demonstration held upon completion of all systems at a time agreed upon in writing by the Owner or his representative. Each system demonstrated once only, after completion of testing.
- E. Demonstrate functions and location of each system and indicate its relationship to "Riser-Diagrams" on Drawings. Demonstrate by "Start-Stop operation" how to work controls, reset protective devices, replace fuses and procedures for emergency conditions.
- F. Submit to engineer certificate of completed demonstration countersigned by Architect.

3.10 CLEANING OF ELECTRICAL INSTALLATION

- A. See Division 1.
- B. Prior to acceptance of building, thoroughly clean all exposed portions of electrical installation.
- C. Remove all nonessential labels and traces of foreign substances.
- D. Use only cleaning solution approved by Manufacturer.
- E. Avoid any damage to finished surfaces.

3.11 EQUIPMENT CONNECTIONS

- A. Provide a complete electrical connection for all items of equipment including incidental wiring, materials, devices and labor necessary for a complete operating system. The location and method for connecting to each item of equipment shall be verified prior to rough-in. The voltage and phase of each item of equipment shall be checked before connecting. Motor rotations shall be made in the proper direction. Pump motors are not to be test run until liquid is in the system and proper lubrication to all bearings in unit is checked.
- B. Conduit, wire and circuit breaker sizes for mechanical and similar equipment are based on the equipment ratings of one manufacturer. The equipment actually furnished may have entirely different electrical characteristics. Conduit, wire and circuit breakers shall not be ordered or installed until exact electrical requirements are obtained. Responsibility for this coordination rests with the Contractor.

END OF SECTION

MINOR ELECTRICAL DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical demolition.

PART 2 - PRODUCTS

2.02 MATERIALS AND EQUIPMENT

- A. Materials and Equipment for Patching and Extending Work: As specified in individual sections.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as shown on Drawings. Report discrepancies to Architect before proceeding with demolition work.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities. Report discrepancies to Architect before disturbing existing installation.

3.02 PREPARATION

- A. Disconnect electrical installations in walls, floors, and ceilings scheduled for removal. Report discrepancies to Architect before disturbing existing installation.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities. Report discrepancies to Architect before disturbing existing installation.
- C. Interrupt power only to make connections or switchovers.
 - 1. Obtain permission from Owner before scheduling partial or complete outages.
 - 2. Schedule each outage at least 24 hours in advance.
 - 3. Keep outages as short duration as possible and make temporary connections if required to maintain service to areas adjacent to work area.
 - 4. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations as required to accommodate new construction.
- B. Remove abandoned wiring to source of supply.
- C. Remove exposed abandoned conduit.
- D. Disconnect abandoned outlets and remove devices. Provide blank cover for abandoned outlets where conduit system is not removed.
- E. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

- F. Disconnect and remove abandoned luminaires.
 - 1. Remove brackets, stems, hangers, and other accessories.
- G. Repair adjacent construction and finishes damaged during demolition and extension work.
- H. Maintain access to existing electrical installations which remain active.
 - 1. Modify installation or provide access panel as appropriate.
- I. Extend existing installations using materials and methods compatible with existing electrical installations.
- J. Check branch circuit wiring disturbed in execution of this Work which is to remain for continuity, overloads and grounds. Repair any deficiencies.
- K. Existing outlets indicated on drawings to be removed or to remain, are shown for general information only and do not indicate exact location or total number of outlets involved.
- L. Relocate and reuse existing lighting fixtures as shown on drawings. Repair or replace missing or faulty parts such as reflectors, lens, and ballasts for first class operating condition. Provide new lamps.
- M. All salvage materials shall remain property of Owner and shall be stored at location designated by Owner, unless otherwise noted by Architect.
- N. Prior to acceptance of the building, thoroughly clean exposed portions of the electrical installation, removing labels and traces of foreign substance, using only a cleaning solution approved by the manufacturer and being careful to avoid damage to finished surfaces.

3.04 DISPOSAL OF PCB BALLASTS CONTAINING PCB'S

- A. Ballasts in removed fixtures not labeled "No PCBs" shall be assumed to contain PCBs.
- B. Remove PCB ballasts from fixtures and properly dispose of by incineration.
 - 1. Employ an abatement contractor with five years documented experience in ballast disposal.
- C. Submit to Architect: Certification of Ownership transferal including Bills of Lading, Bills of Storage, and Bills of Incineration.

3.05 DISPOSAL OF FLUORESCENT LAMPS CONTAINING MERCURY

- A. Lamps in removed fixtures shall be assumed to contain mercury.
- B. Remove lamps from fixtures and properly dispose of by mercury reclamation process.
 - 1. Employ an abatement contractor with five years documented experience in lamp disposal.
 - 2. Submit to Architect: Certification of Ownership transferal including Bills of Lading, Bills of Storage, and Bills of Reclamation.

END OF SECTION

WIRE AND CABLE

PART 1 GENERAL

1.01 SECTION INCLUDE

- A. Building wire.
- B. Cable.
- C. Wiring connections and terminations.

1.02 SUBMITTALS

- A. Submit shop drawings and product data under the provisions of Section 260100.
- B. Submit manufacturer's instructions Electrical demolition.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - WIRE

- A. American Insulated Wire Corp.
- B. Essex/Paranite/Diamond
- C. General Cable/Guardian/Carol
- D. Southwire
- E. Substitutions: Under provisions of Section 260100.

2.02 BUILDING WIRE

- A. Feeders and Branch Circuits Larger than 2 AWG:
- B. Copper.
 - 1. Stranded conductor.
 - 2. 600 volt insulation.
 - 3. THHN, THWN, XHHW. Except where adverse conditions require other insulation types.
- C. Feeders and Branch Circuits 4 AWG and Smaller:
 - 1. Copper conductor.
 - 2. 600 volt insulation.
 - 3. THHN/THWN.
 - 4. Not less than 98% conductivity.
 - 5. Stranded conductor.
- D. Control Circuits:
 - 1. Copper.
 - 2. Stranded conductor
 - 3. 600 volt insulation.
 - 4. THHN/THWN.

- E. Color Coding:
 1. 120/208 Volt System:
 - a. A phase - black.
 - b. B phase - red.
 - c. C phase - blue.
 - d. Neutral - white.
 - e. Travelers - lavender.
 - f. Switch leg - orange.
 - g. Ground - green.

2.03 REMOTE CONTROL AND SIGNAL CABLE

- A. Control Cable for Class 1, 2, or 3 Remote Control and Signal Circuits:
 1. Copper conductor.
 2. 600 volt insulation.
 3. Rated 60° C.
 4. Individual conductors twisted together.
 5. Shielded or non-shielded as required by equipment manufacturer.
 6. Covered with a PVC jacket.
 7. Class 2 or 3 cables used in plenums shall be UL listed for such use.
 8. Shall conform to the recommendations of the communication and signal systems manufacturer.

PART 3 - EXECUTION

3.01 GENERAL WIRING METHODS

- A. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 16 AWG for control wiring.
- B. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet, and for 20 ampere.
- C. Place an equal number of conductors for each phase of a circuit in same raceway or cable.
- D. Splice only in junction or outlet boxes.
- E. Neatly train and lace wiring inside boxes, equipment, and panelboards using cable ties.
 1. Manufacturer: T&B Ty-Rap, or approved.

3.02 WIRING INSTALLATION IN RACEWAYS

- A. Pull all conductors into a raceway at the same time.
- B. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.
- C. Equipment Grounding Conductors:
 1. Provide a separate, insulated equipment grounding conductor in feeder and receptacle branch circuits.
 2. Terminate each end on a grounding lug, bus, or bushing.
 3. Provide individual ground wire in flexible conduit and non-metallic raceways.

3.03 CABLE INSTALLATION

- A. Provide protection for exposed cables where subject to damage.
- B. Support cables 12" minimum above accessible ceilings.

- C. Use spring metal clips or plastic cable ties to support cables from structure or ceiling suspension system.
- D. Include bridle rings or drive rings.
- E. Use suitable cable fittings and connectors.
- F. Install cables in conduits where installed in walls or other inaccessible spaces.

3.04 WIRING CONNECTIONS AND TERMINATIONS

- A. Splice only in accessible junction boxes.
- B. #8 Copper Wire and Smaller:
 - 1. Use solderless spring connectors with insulating covers.
 - 2. Manufacturer: Buchanan, Ideal, Scotch, or approved.
 - 3. Connection by means of wire binding screws or studs and nuts having upturned lugs or equivalent shall be permitted for No. 10 solid or smaller conductors only.
- C. Thoroughly clean wires before installing lugs and connectors.
- D. Make splices, taps, and terminations to carry full ampacity of conductors without perceptible temperature rise.

3.05 FIELD QUALITY CONTROL

- A. Inspect wire and cable for physical damage and proper connection.
- B. Torque test conductor connections and terminations to manufacturer's recommended values.
- C. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

3.06 WIRE AND CABLE INSTALLATION SCHEDULE

- A. Interior and Exterior Locations: Building wire in continuous metallic raceways, as shown on Drawings.
- B. Cross marks for power and lighting branch circuits installed in raceways indicate quantity of number 12 copper branch circuit conductors unless otherwise noted. Where no cross marks appear on power or lighting circuits it shall be understood to provide two (2) number 12 conductors for lighting and three number 12 conductors for receptacle circuits.
- C. Conductor sizes indicated, such as home run annotations, shall be maintained throughout entire circuit length.
- D. Speaker Wiring: 1/2" C 4/C #20 cable.
- E. Fire Alarm Wiring: Match existing conditions.

END OF SECTION

SUPPORTING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Conduit and equipment supports.
- B. Fastening hardware.

1.02 COORDINATION

- A. Coordinate size, shape, and location of concrete pads with Division 3.

1.03 QUALITY ASSURANCE

- A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Support Channel: Zinc plated.
- B. Hardware: Corrosion resistant.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Equipment Support From Building Structure:
 - 1. Precast insert system.
 - 2. Expansion anchors.
 - 3. Preset inserts.
 - 4. Beam clamps.
 - 5. Spring steel clips.
 - 6. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.
 - 7. Do not use powder-actuated anchors.
- B. Equipment Support Partitions:
 - 1. Toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls.
 - 2. Expansion anchors or preset inserts in solid masonry walls.
 - 3. Self-drilling anchors or expansion anchor on concrete surfaces.
 - 4. Sheet metal screws in sheet metal studs.
 - 5. Wood screws or sheet metal screws in wood construction.
- C. Cabinets and Panelboards:
 - 1. Minimum of four anchors.
 - 2. Provide steel channel supports to stand cabinet one inch (25 mm) off wall.
 - 3. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

3.02 SEISMIC REQUIREMENTS

- A. Equipment anchorage and supports:
 - 1. All equipment shall be securely anchored to the building and properly supported to resist the forces of a Seismic Zone 3 event at the site.
 - 2. Anchorage for equipment subject to thermal expansion shall be in accordance with recommendations of the manufacturer.
 - 3. Anchors and fasteners shall be sized to resist shear and overturning moments caused by the anticipated seismic forces.

END OF SECTION 26 05 29

CONDUIT**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Rigid metal conduit and fittings.
- B. Electrical metallic tubing and fittings.
- C. Flexible metal conduit and fittings.
- D. Liquidtight flexible metal conduit and fittings.

PART 2 – PRODUCTS**2.01 RIGID STEEL CONDUIT**

- A. Standard pipe with screwed joints for electrical raceway use.
- B. Zinc coated by hot dip galvanizing or sherardizing.
- C. Manufacturer: Allied Tube and Conduit, Triangle PWC Inc., Western Tube & Conduit, or approved.

2.02 ELECTRIC METALLIC TUBING (EMT)

- A. Zinc coated by hot dip galvanizing or sherardizing.
- B. Manufacturer: Allied Tube and Conduit, Triangle PWC Inc., or approved.

2.03 FLEXIBLE CONDUIT

- A. Galvanized steel or aluminum, abrasion resistant.
- B. Manufacturer: Anamet (Type DE-710), Triangle PWC, Inc. (Type 710), or approved.

2.04 FLEXIBLE CONDUIT, LIQUID TIGHT

- A. Hot dipped galvanized steel core with thermoplastic overcoat.
- B. Manufacturer: AFC Nortek, Alflex, Anamet (Type "UA"), Electriflex, Thomas & Betts, or approved.

2.05 CONNECTIONS AND FITTINGS

- A. Especially for purpose used.
- B. Same material and finish as raceway.

2.06 UNION JOINTS FOR RIGID STEEL OR IMC CONDUIT

- A. Split coupling.
- B. Running threads not allowed.
- C. Insulated throat.
- D. Manufacturer: O.Z. Gedney type "SSP," or approved.

2.07 COUPLINGS AND CONNECTORS FOR ELECTRICAL METALLIC TUBING (EMT)

- A. Exterior[/Interior]: Raintight compression type, employing split corrugated ring and tightening nut.
- B. Interior: Set-screw type shall be permitted:
 - 1. Hex head set screw for 2-1/2" and larger.
- C. Manufacturer: Appleton, Raco, Thomas & Betts, or approved.
- D. Cast connectors and couplings are not allowed.

2.08 CONDUIT HANGERS AND SUPPORTS

- A. One-hole or two-hole push-on straps or one-hole clamps.
 - 1. Manufacturer: Appleton, Raco, Thomas & Betts, or approved.
- B. Use of J-nails limited to 1/2" & 3/4" conduit in wood frame construction.
- C. Fastener designed for the purpose may be used in wood or metal stud construction or for support from ceiling tees, ceiling support wires, channel, or beams.
 - 1. Manufacturer: Caddy, B-Line, or approved.

PART 3 - EXECUTION**3.01 CONDUIT SIZING AND ARRANGEMENT**

- A. Size conduit for Type THW conductors. Minimum conduit size for home runs and backbone conduit system is 3/4 inch. Individual branch circuits from backbone junction boxes to device or fixture locations may be run in 1/2 inch conduit.
- B. Arrange conduit to maintain headroom and present a neat appearance.
- C. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.
- D. Maintain minimum 6 inch clearance between conduit and mechanical piping if practical. Coordinate installation with other trades. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.
- E. Maintain 12 inch clearance above removable ceiling tiles.

3.02 CONDUIT SUPPORT

- A. Arrange conduit supports to prevent distortion of alignment by wire pulling operations.
- B. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.
- C. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps.
 - 1. Provide space for 25 percent additional conduit on conduit racks.
- D. Do not fasten conduit with wire or perforated pipe straps.
- E. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

- F. Exposed conduit and tubing attached directly to building surface, use one hole galvanized steel pipe clamps.
- G. Conduit and tubing in metal stud walls shall be supported by fasteners approved for the purpose.
- H. Conduits rising vertically between studs shall be supported by approved fasteners attached to supports horizontally secured between studs for multiple runs and shall be offset and attached to vertical stud, by an approved fastener, for single runs.
- I. Wire suspension systems above suspended ceilings:
 1. Support conduits above suspended ceilings from structure.
 2. Provide a dedicated support wire system for conduits.
 3. Use fasteners and support hardware designed for the purpose.
 4. Do not support conduits from ceiling support wires.
- J. Hanger Spacing:
 1. Do not exceed 8 foot 0 inches on center.
 2. Provide one hanger adjacent to each outlet box, and one hanger within 12 inches on each side of a change in direction.
- K. Conduits not permitted to be supported from ducts, pipes or other systems foreign to electrical installation.
- L. Support conduit as close to ceiling structure as practical. Coordinate conduit location with other trades.
- M. Attachment of one hole straps on horizontal runs shall be from above.

3.03 CONDUIT INSTALLATION

- A. Cut conduit square using a saw; de-burr cut ends.
- B. Bring conduit to the shoulder of fittings and couplings and fasten securely.
- C. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.
- D. Install no more than the equivalent of four 90 degree bends between boxes.
- E. Use conduit bodies to make sharp changes in direction, as around beams.
- F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 1-1/4 inch size.
- G. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.
- H. Avoid condensation between moist warm locations and cool locations by blocking air flow in conduit with "Duct Seal" or similar material.
- I. Thoroughly clean interior of conduits.
- J. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.
- K. Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves and nipples.
- L. Install expansion joints where conduit crosses building expansion or seismic joints.

3.04 CONDUIT PENETRATIONS

- A. Fire-Rated Walls and Floors: Seal conduit penetrations using one of the following methods:
 1. Provide mechanical fire-stop fittings with UL listed fire rating equal to wall or floor rating.
 2. Seal opening around conduit with UL listed foamed silicone elastomer compound.
- B. Non Fire-Rated Walls: Silicone RTV foam membrane permitted.
- C. Route conduit through roof openings for piping and ductwork where possible: otherwise, route through roof jack with pitch pocket.

3.05 FLEXIBLE CONDUIT

- A. Use limited to the following:
 1. Lighting fixture pigtails to remote junction box in accessible ceilings.
 2. Interior motor connections.
 3. At building expansion joints.
 4. Vibrating or movable equipment connections.
 5. Flexible conduit may not be installed in stud walls in new construction.
 6. Flexible conduit may be fished in stud walls.
- B. Provide separate ground conductor full length of flexible conduit or outside of conduit.

3.06 FLEXIBLE CONDUIT, LIQUID TIGHT

- A. Exterior motor connections for movable or vibrating equipment.
- B. Flexible connections in damp or wet locations.
- C. Provide separate ground conductor full length of flexible conduit in addition to integral bonding tape.

3.07 RIGID STEEL CONDUIT

- A. Exposed indoor runs where subject to damage up to 8 feet above finished floor.
- B. In poured concrete or masonry.
- C. Exposed outdoor locations.

3.08 ELECTRICAL METALLIC TUBING

- A. Dry locations where not subject to damage.
- B. Concealed in non-masonry/concrete walls or ceiling.
- C. Exposed runs above 8 feet in non-protected areas.

3.09 QUALITY ASSURANCE

- A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

END OF SECTION

SURFACE RACEWAYS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface raceways.
- B. Multi-outlet assemblies.

1.02 RELATED SECTIONS

- A. Section 26 27 26 - Wiring Devices: Receptacles.
- B. Section 27 10 00 - Telephone/Data Communication Network Wiring Systems.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 26 01 00.
- B. Include product data for surface metal raceways, surface non-metal raceway, multi-outlet assemblies, auxiliary gutters, and accessories.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - SURFACE RACEWAYS

- A. Wiremold.
- B. Hubbell.
- C. Panduit.
- D. Mono Systems.
- E. Thomas and Betts.
- F. Substitutions: Under provisions of Section 260100.

2.02 SURFACE RACEWAY

- A. Surface Metal Raceway: Sheet metal or extruded aluminum channel with fitted cover, suitable for use as surface metal raceway.
- B. Size: 1.25" x .9"
- C. Finish: Ivory
- D. Fittings: Entrance end fittings, radius inserts, couplings, elbows, and connectors designed for use with raceway system.
- E. Boxes and Extension Rings: Designed for use with raceway systems.

2.03 ACCEPTABLE MANUFACTURERS - MULTI-OUTLET ASSEMBLY

- A. Mono Systems.
- B. Wiremold.

- C. Thomas and Betts.
- D. Panduit.
- E. Substitutions: Under provisions of Section 260100.

2.04 MULTI-OUTLET ASSEMBLY

- A. Multi-outlet Assembly: Sheet metal channel extruded aluminum channel, or plastic channel with fitted cover, receptacles and data outlets as scheduled, suitable for use as a multi-outlet assembly.
- B. Size: 4.75" x 1.75"
- C. Finish: Ivory
- D. Fittings: Couplings, elbows, entrance end fittings, radius inserts, and connectors designed for use with multi-outlet system.

PART 3 - EXECUTION

3.01 INSTALLATION - SURFACE RACEWAY, MULTI-OUTLET ASSEMBLY

- A. Routing of raceways and multi-outlet assemblies:
 - 1. In general route surface metal raceways at locations to minimize the architectural impact of the surface.
 - 2. Avoid installing surface raceway across open wall or ceilings.
 - 3. Install runs adjacent to architectural elements.
 - 4. Install vertical runs on walls adjacent to door/window frames, casework or adjacent to inside corners.
 - 5. Route horizontal runs on walls at top of base molding.
 - 6. Route on ceilings adjacent to walls where ever possible.
- B. Use flat-head screws to fasten channel to surfaces.
- C. Mount plumb and level.
- D. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.
- E. Maintain grounding continuity between raceway components to provide a continuous grounding path.
- F. Fastener Option: Use clips and straps suitable for the purpose.
- G. Use of surface raceways restricted to areas where indicated on Drawings or where concealed wiring methods are impractical. Authorization of Architect/Engineer required for installation of surface raceway not indicated on Drawings.
- H. Provide quantity of branch circuits to multi-outlet assemblies as indicated on Drawings.

END OF SECTION 26 05 31

OUTLET, PULL AND JUNCTION BOXES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall and ceiling outlet boxes.
- B. Pull and junction boxes.

1.02 RELATED SECTIONS

- A. Section 26 27 26 - Wiring Devices: Service fittings and fire-rated poke-through fittings for floor boxes.

1.03 PROJECT CONDITIONS

- A. Verify Field measurements are as shown on drawings.

1.04 SUBMITTALS

- A. Submit product data under provisions of Section 26 01 00.
- B. Provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - OUTLET BOXES

- A. Appleton.
- B. Bowers.
- C. Crouse Hinds.
- D. Killark.
- E. O Z Gedney.
- F. Raco/Bell.
- G. Steel City.
- H. Thepitt.
- I. Substitutions: under provisions in Section 260100.

2.02 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: Galvanized steel
- B. Cast Boxes: Aluminum or cast ferrous alloy, deep type, gasketed cover, threaded hubs.

2.03 ACCEPTABLE MANUFACTURERS - PULL AND JUNCTION BOXES

- A. Circle AW.
- B. Hoffman.

- C. Rittal.
- D. Substitutions: under provisions of Section 260100.

2.04 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: Galvanized steel.
- B. Sheet Metal Boxes Larger Than 18 Inches in Any Dimension: Hinged enclosure.
- C. Cast Metal Boxes for Outdoor and Wet Location Installations:
 1. UL listed as raintight.
 2. Galvanized cast iron or cast aluminum box and cover.
 3. Ground flange.
 4. Neoprene gasket.
 5. Stainless steel cover screws.

PART 3 - EXECUTION

3.01 COORDINATION OF BOX LOCATIONS

- A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.
- B. Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.
- C. Locate and install boxes to allow access. Where installation is inaccessible, coordinate locations and sizes of required access doors with Section 08305.

3.02 OUTLET BOX INSTALLATION

- A. Do not install boxes back-to-back in walls. Provide minimum 6 inch separation, except provide minimum 24 inch separation in acoustic-rated walls.
- B. Locate boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for boxes.
- C. Provide knockout closures for unused openings.
- D. Support boxes independently of conduit.
- E. Support boxes above suspended ceilings from structure. Provide dedicated support wires for boxes as required by NEC 300.
- F. Use multiple-gang boxes where more than one device are mounted together: do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
- G. Install boxes in walls without damaging wall insulation.
- H. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes with architectural drawings.
- I. Position outlets to locate luminaires as shown on reflected ceiling plans.
- J. In inaccessible ceiling areas, position outlets and junction boxes within 6 inches of recessed luminaire, to be accessible through luminaire ceiling opening.

- K. Provide recessed outlet boxes in finished areas: secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.
- L. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
- M. Provide cast outlet boxes in exterior locations when exposed to the weather and wet locations.
- N. In areas where outlets are subject to damage or abuse, provide backing behind box. Support both sides of boxes on backing.

3.03 PULL AND JUNCTION BOX INSTALLATION

- A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.
- B. Support pull and junction boxes independent of conduit.
- C. Boxes larger than 200 cubic inches or 18 inches in any dimension: Use hinged enclosure.

END OF SECTION

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nameplates.
- B. Wire and cable markers.
- C. Pull box and junction box identification.
- D. Device plate identification.

1.02 RELATED SECTIONS

- A. Section 26 27 26 - Wiring Devices.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Nameplates:
 - 1. Engraved three-layer laminated plastic.
 - 2. White letters.
 - 3. Black background.
- B. Wire and Cable Markers:
 - 1. Cloth markers split sleeve or tubing type.
- C. Labels:
 - 1. Adhesive Film Labels: Machine printed, in black on clear background, by thermal transfer or equivalent process.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Degrease and clean surfaces to receive nameplates.
- B. Install nameplates parallel to equipment lines.
- C. Secure nameplates to equipment fronts using screws or drive rivets.
 - 1. Secure nameplate to inside face of recessed panelboard doors in finished locations.
 - 2. Secure nameplate to inside face of panelboard doors in unfinished locations.
- D. Use stick-on characters for identification of individual wall switch and receptacle cover plates.

3.02 WIRE IDENTIFICATION

- A. Provide wire markers on each conductor in panelboards pull boxes, and at load connection.
- B. Identify with branch circuit or feeder number for power and lighting circuits.
- C. Identify control wire number as indicated on equipment manufacturer's shop drawings.

3.03 NAMEPLATE ENGRAVING SCHEDULE

- A. Identify all electrical distribution and control equipment and disconnect switches at loads served.
- B. Letter Height:
 - 1. 1/8 inch for individual switches and loads served.
 - 2. 1/4 inch for distribution and control equipment identification.
 - 3. 1/8 inch identifying voltage rating and source.

3.04 PULL BOX AND JUNCTION BOX IDENTIFICATION

- A. Identify each junction box with complete system description. Examples:
 - 1. Fire alarm.
 - 2. Telephone.
 - 3. 208 V system.
 - 4. HVAC controls.
- B. Locations:
 - 1. On outside of box cover where concealed.
 - 2. In exposed box locations, locate on inside of box cover.
 - 3. Identify main pull boxes by number and indicate numbers on record drawings.

3.05 DEVICE PLATE IDENTIFICATION:

- C. 1/8 inch letter height.
- D. Black letter color.
- E. Location:
 - 1. Bottom center of device plate for single gang and bottom center of device for multiple gang outlets.
 - a. Provide branch circuit identification (such as "C-37" to indicate Panel "C" Circuit #37) at bottom center of device plate.

3.06 BRANCH CIRCUIT PANELBOARDS

- A. Provide typed circuit directory for each branch circuit panelboard affected by construction. Revise directory to reflect circuiting changes required to balance phase loads.

END OF SECTION

WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall switches.
- B. Receptacles.
- C. Device plates and box covers.

1.02 RELATED SECTIONS

- A. Section 260532 - Outlet, Pull and Junction Boxes.
- B. Section 260553 - Electrical Identification.
- C. Section 260531 – Surface Raceway

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 260100.
- B. Provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

1.04 SUBSTITUTIONS

- A. Products specified herein are so specified to establish a minimum level of product quality as determined by the engineer. Except where indicated no substitutions are allowable, equivalent quality products may be submitted to the Architect for approval, under provisions of Section 260100.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - WALL SWITCHES AND RECEPTACLES

- A. Hubbell.
- B. Leviton.
- C. Arrow Hart.
- D. Eagle.

2.02 WALL SWITCHES

- A. AC general use quiet type switch with toggle handle.
- B. 20 amp rating, 120-277 volts.
- C. Ivory
- D. Hubbell 1221 Series.

2.03 RECEPTACLES

- A. Convenience and straight blade receptacles.

1. Specification grade.
 - a. 125 volt, 15 amp, Hubbell 5252, AH 5262, Leviton 5262.
 - b. 125 volt, 20 amp, Hubbell 5352, Eagle 5262
 2. Ivory face
- B. GFCI Receptacles:
1. Duplex convenience receptacle.
 2. Integral ground fault current interrupter.
 3. Four to six milliamp sensitivity.
 4. Ivory face.

2.04 ACCEPTABLE MANUFACTURERS WALL PLATES

- A. Hubbell.
- B. Leviton.
- C. P&S/LeGrand.
- D. Sierra.
- E. Substitution: under provisions of Section 260100.

2.05 WALL PLATES

- A. Decorative Cover Plate: Ivory smooth, rigid impact resistant, nylon/thermo-plastic.

2.06 ACCEPTABLE MANUFACTURERS - WEATHERPROOF COVER PLATES

- A. Crouse Hinds
- B. Hubbell/Raco/Bell
- C. Substitutions: under provisions of Section 260100.

2.07 WEATHERPROOF COVER PLATES

- A. Gasketed cast metal.
- B. Gasketed device covers.
- C. Corrosion resistant.

2.08 DIMMING SWITCHES – APPROVED MANUFACTURERS

- A. Hunt Eclipsis Series.
- B. Lutron Nova T Series.

2.09 DIMMING SWITCH – CHARACTERISTICS

- A. Controls 0-10V Fluorescent Ballasts; Connected Load: 600 Watts
- B. Linear slide control with off position

PART 3 – EXECUTION**3.01 INSTALLATION**

- A. Switches:
 - 1. Wall switches 48 inches above floor.
 - 2. OFF position down, unless otherwise noted.
 - 3. Derate ganged dimmer switches as instructed by manufacturer.
 - 4. Dimmer switches shall not use common neutral.

- B. Receptacles:
 - 1. 18 inches above floor, unless otherwise noted.
 - 2. 6 inches above counters, unless otherwise noted.
 - 3. 3 inches above backsplash, unless otherwise noted.
 - 4. Grounding pole on bottom.
 - 5. Verify exact height and orientation of outlets with Architectural Details prior to rough-in.
 - 6. Install specific-use receptacles at heights shown on Contract Drawings.
 - 7. Provide 20 amp rated receptacles where the device is served by a dedicated circuit.
 - 8. Provide 15 amp minimum rating for receptacles shown as part of a multi-outlet branch circuit.

- C. Plates:
 - 1. Decorative plates on switch, receptacle, and blank outlets in finished areas.
 - 2. Jumbo size plates for outlets installed in masonry walls.
 - 3. Galvanized steel plates on outlet boxes and junction boxes in unfinished area, above accessible ceilings, and on surface-mounted outlets.
 - 4. Install device and wall plates flush and level.
 - 5. Where outlets are adjacent to each other at same mounting heights, install under common device plate, except when outlets are of different voltages, such as telephone and duplex receptacle, unless otherwise noted.
 - 6. Provide dark brown device and plate on wood paneled walls.

END OF SECTION

LIGHT FIXTURES**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Interior luminaires and accessories.
- B. Lamps.
- C. Ballasts.

1.02 RELATED SECTIONS

- A. Section 262726- Wiring Devices.
- B. Section 260923 - Lighting Control Equipment.

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 260100.
- B. Include outline drawings, lamp and ballast data, support points, weights, and accessory information for each luminaire type.
- C. Submit manufacturer's installation instructions under provisions of Section 260100.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 260100.
- B. Store and protect products under provisions of Section 260100.

1.05 JOB CONDITIONS

- A. Existing Conditions:
 - 1. Prior to ordering lighting fixtures, verify finish material in locations where lighting fixtures are mounted.
 - 2. Prior to ordering lighting fixtures, verify conditions for mounting lighting fixtures and select proper mounting hardware.
 - 3. Verify fire rating of new and existing ceilings.

PART 2 - PRODUCTS**2.01 INTERIOR LUMINAIRES AND ACCESSORIES**

- A. See Luminaire Schedule.
- B. Lighting Fixture Construction:
 - 1. Light leaks not accepted. Fixture designed or gasketed to eliminate light leaks.
 - 2. Surface mounted fixture with surface conduit: Constructed with knockouts or collars to allow fixture mounting tight to ceiling. Fixtures not allowed to mount on surface boxes, unless otherwise noted.
 - 3. Parabolic louvers for fluorescent fixtures, and parabolic and elliptical reflectors for downlights shall have low iridescent finish.
 - 4. Unless otherwise noted, prismatic lenses shall be A19, 0.156 inches minimum thickness virgin acrylic. Hogged out prisms are not acceptable.
 - 5. All fixture parts shall be painted after fabrication.

2.02 ACCEPTABLE MANUFACTURERS - LAMPS

- A. General Electric.
- B. Osram/Sylvania.
- C. Philips.
- D. Venture.
- E. Substitutions: Under provisions of Section 260100.

2.03 LAMPS

- A. Fluorescent T8 Lamps:
 - 1. See Luminaire Schedule.
 - 2. All by same manufacturer.
 - 3. Specification/Designer Series.
 - 4. 3500K correlated color temperature, unless otherwise noted.
 - 5. Minimum color rendering index of 80.

2.04 BALLASTS (GENERAL)

- A. HPF, unless otherwise noted.
- B. Number of lamps controlled by ballast:
 - 1. Fluorescent: As required by fixture or by switching requirements.
- C. Date of manufacturer stamped on case.
- D. Mounted as integral part of lighting fixture, unless otherwise noted.
- E. Temperature ratings as follows:
 - 1. Minimum indoor starting: +50° F.
 - 2. Minimum outdoor starting: -20° F.
 - 3. Maximum case temperature: +90° C.
- F. Provide "in-line" fusing. Size per manufacturer's recommendation.
- G. Voltage: As required by branch circuit voltage and "Luminaire Schedule."

2.05 BALLASTS (FLUORESCENT NON-DIMMING TYPE)

- A. Type - Solid state electronic.
 - 1. Designed to operate T8.
 - 2. Programmed Start.
 - 3. High frequency operation >20 MHZ.
 - 4. Less than 10% THD.
 - 5. See Luminaire Schedule on Drawings for number of lamps controlled by single ballast.
- B. Acceptable manufacturers (rapid start, <10% THD):
 - 1. Advance.
 - 2. Magnetek.
 - 3. Motorola.
 - 4. Philips.
 - 5. Substitutions - See Section 260100.

PART 3 - EXECUTION**3.01 INSTALLATION**

- A. Install lamps in luminaires and lampholders.
- B. Fixture Support:
 1. Light fixtures mounted in or on suspended ceilings shall be positively attached to the suspended ceiling system.
 2. Support surface-mounted and pendant-mounted luminaires directly from building structure and attach to main runners of ceiling grid T structure.
 3. If structure is inaccessible in existing plasterboard ceiling installations, use toggle bolts at each fixture end.
 4. Fasten to T grid system using bolts, screws, rivets, or approved ceiling framing member clips.
 5. Support all pendant fixtures independently of outlet box from roof, floor, or ceiling structure above. Use approved hanger, lag screws, lag bolts, toggle bolts, or cinch anchors to support fixture plus 100 lbs at each support.
 6. Provide two #12 gauge steel wire seismic supports connected to structure for light fixtures less than 50 lbs. Seismic supports may be installed slack.
 7. Coordinate with other trades for additional framing or support, if required to properly install recessed, surface, and pendant mounted fixture in various ceiling suspension systems.

3.02 RELAMPING

- A. Relamp luminaires which have failed lamps at completion of work.

3.03 ADJUSTING AND CLEANING

- A. Align luminaires and clean lenses and diffusers at completion of work. Clean paint splatters, dirt, and debris from installed luminaires.
- B. Touch up luminaire finish at completion of work.

3.04 PREPARATION

- A. Field Measurements:
 1. See architectural reflected ceiling plans for exact location of ceiling mounted lighting fixtures.
 2. See architectural elevations for exact location of wall mounted lighting fixtures.
 3. Coordinate lighting fixture location in mechanical spaces with mechanical equipment. Report adverse conditions to Architect.
 4. Lighting fixtures are generally located for symmetrical pattern and to suit structural conditions. Location changes shall be approved by Architect.
 5. Do not install any work until any discrepancies discovered have been resolved.
- B. Preparation of Surfaces:
 1. Clean field painted lighting fixtures, poles, etc., prior to application of paint. See Division 9.
 2. Ensure finished surfaces of pole base tops smooth and relatively level prior to application of lighting fixture poles. Make final adjustments to plumb poles with leveling nuts.
- C. Noisy Ballasts:
 1. Architect shall determine which ballasts are excessively noisy and to be replaced at no cost to owner.
 2. Check: Ballasts shall be tightly fastened to fixture and have no loose connections.

END OF SECTION

COMMUNICATION RACEWAY SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Furnish and install all labor and materials required for the extension of the existing building voice and data cable infrastructure to new network faceplates.
- B. Network wiring will be provided under as separate contract by School District.
- C. Provide clock and intercom system wiring as specified in Section 27 51 13.

1.02 RECORD DOCUMENTATION

- A. Record conduit routing on record drawings.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 CONDUIT AND SURFACE RACEWAY

- A. Some conduit and surface raceway is to be installed as required. The conduit and surface raceway shall be appropriately sized as to not damage nor exceed the bend radius of the cable.
- B. See Sections 260530 and 260531 for raceway requirements.
- C. Provide pull wire in all empty raceways.

END OF SECTION

CLOCK AND INTERCOM SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Intercom System Equipment.
- B. Program clock system.
- C. Conduit, Backboxes, and Wiring.

1.02 RELATED SECTIONS

- A. Section 26 05 30 - Conduit.
- B. Section 26 05 32 - Outlet, Pull and Junction Boxes.

1.03 DESCRIPTION

- A. Extend existing Telcor Intercom and Programmed Clock systems from existing head end equipment to new classroom as specified and shown on Drawings.
- B. All components new and unused and standard catalog products of manufacturers regularly engaged in the production of these products.

1.04 QUALIFICATIONS

- A. Installer: Company specializing in communication systems with five years documented experience. Company must be authorized Telcor factory representative.

1.05 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 260100.
- B. Provide wiring diagrams, data sheets, and equipment ratings, layout, dimensions, and finishes.
- C. Submit manufacturer's certificate under provisions of Section 260100 that system meets or exceeds specified requirements.

1.06 PROJECT RECORD DRAWINGS

- A. Submit documents under the provisions of Section 260100.
- B. Include location and end-of-line devices.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 260100.
- B. Store and protect products under provisions of Section 260100.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Telcor to match existing equipment.

- B. Call Station: Telecor MC3-300 Console.
- C. Clock / Speaker Station: Telecor IP Clock Speaker.

PART 3 EXECUTION

3.01 GENERAL

- A. Install in strict compliance with manufacturer's recommendations.
- B. Consult manufacturer for all wiring diagrams, schematics, equipment sizes, outlets, etc., before installing conduits and pulling wire.

3.02 MOUNTING

- A. Wall Mounted Devices:
 - 1. In general, install where shown on drawings at mounting height listed.
 - 2. See Architectural elevations and details.
 - 3. Notify Architect of any conflicts or discrepancies.

3.03 WIRING

- A. All wiring shall be run open on drive rings where concealed in accessible spaces.
- B. In walls and inaccessible areas, conduits shall be of sizes as indicated on the drawing, or code size as required for the conductors. Minimum size is 1/2".
- C. Wiring type shall be as recommended by manufacturer.

3.04 FINAL ACCEPTANCE

- A. System accepted after:
 - 1. Satisfactory test entire system accomplished in the presence of the Owner's representative.
- B. Receipt of Owner's written acceptance of Operational Training by Architect.
- C. Receipt and approval of Operation and Maintenance Manuals by Architect.

END OF SECTION

FIRE ALARM SYSTEM

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish and install fire alarm devices, as specified herein and indicated on the drawings.
- B. The system shall include signal initiating devices, audible and visual alarm devices, a wiring system and all accessory devices required to provide a complete operating system.
- C. All components shall be compatible with the existing system.

1.02 SUBMITTALS

- A. Submit complete and descriptive shop drawings in accordance with Section 26 01 00.
- B. Submit plans and specifications to the local fire marshal. Obtain his written acceptance of the system prior to beginning work and ordering equipment.

1.03 OPERATION AND MAINTENANCE DATA

- A. Submit data under provisions of Section 16010.
- B. Install an additional manual inside the fire alarm control panel.
- C. Include operating instructions, and maintenance and repair procedures, including trouble shooting procedures.
- D. Include manufacturer representative's letter stating that system is operational.

1.04 REFERENCES

- A. NFPA 72 - National Fire Alarm Code.
- B. NFPA 101 - Life Safety Code.
- C. IBC – International Building Code.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. FCI System 7200.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install system in accordance with manufacturer's instructions.
- B. Mounting Heights:
 - 1. Manual station with operating handle 54 inches above floor.
 - 2. Audible and visual signal devices 90 inches above floor.
- C. Wire:

1. Furnish and install all required wiring in accordance with Local and National Codes and Article 210 of the National Board of Fire Underwriter's Standard Number 72.
 2. 14 AWG minimum size conductors for fire alarm detection and signal circuit conductors or as per manufacturer's recommendations and as per NEC.
 3. All wiring shall be in conduit. Conduit shall be sized by the Contractor.
- D. The Contractor shall test all conductors for ground before making final wiring connections. This shall be done with a megger insulation tester or equal.
- E. All "J" boxes for fire alarm system shall be painted red and labeled in white letters, minimum 1/4" "fire alarm".
- F. Refer to mechanical drawings for quantity, location and type of device to be connected to the fire alarm system.

3.02 FIELD QUALITY CONTROL

- A. Field testing will be performed under provisions of Section 26 01 00.
- B. Test in accordance with NFPA 72H and local fire department requirements.

3.03 MANUFACTURER'S FIELD SERVICES

- A. Provide manufacturer's field services under provisions of Section 16010.
- B. Include services of factory trained representative to supervise installation, adjustments, final connections, and system testing.

3.04 INSPECTION AND TESTS UPON COMPLETION OF SYSTEM

- A. Check out and final connections to the fire alarm control panel shall be made by factory trained technicians in the employ of a factory authorized franchised dealer for the products installed. In addition, factory trained technicians shall demonstrate operation of the complete system and each major component to the Owner.
- B. The system, upon completion of installation by the Electrical Contractor, shall be checked out and all connections to initiating and indicating devices shall be supervised by factory trained technicians in the employ of a factory franchised dealer for the product installed. Each individual device shall be checked out and tested for operation by a factory trained technician.
- C. System field wiring diagrams shall be provided to the Electrical Contractor by the system manufacturer prior to installation.
- D. Tests by the Electrical Contractor shall include tests for grounds and short circuits, continuity tests of exterior circuit. Performance of controls and all initiating and indicating devices shall be made by the factory trained technicians in the employ of a factory authorized franchised dealer for the product installed.
- E. The report covering these tests and inspection will be submitted direct to the Architect in triplicate.
- F. Documentation from the manufacturer shall be presented to the Architect and/or Engineer upon request indicating that the persons making the final connections and check out are factory trained technicians in the employ of a factory authorized franchised dealer for the products installed.
- G. The system, upon completion of installation by the Electrical Contractor, shall be tested. All initiating devices and indicating devices and control functions shall be tested for operation.

1. The completed Fire Alarm System shall be fully tested (100% point tested) in accordance with NFPA 72 by the Contractor in the presence of the Owner's Representative and the local Fire marshal.
2. The test shall be supervised by factory trained technicians in the employ of a factory franchised dealer for the product installed.
3. Each individual device shall be checked out and tested for operation by a factory trained technician.
4. Upon completion of a successful test, the Contractor shall so certify in writing to the Owner and Architect.

3.05 WARRANTY

- A. The Contractor shall warrant the completed Fire Alarm System wiring and equipment to be free from inherent mechanical and electrical defects for a period of one (1) year from the date of the completed and certified test or from the date of first beneficial use.
- B. The equipment supplier shall make available to the Owner a maintenance contract proposal in compliance with NFPA 72 guidelines.

END OF SECTION

