

RODD HANSEN, ARCHITECT, L.L.C.
ARCHITECTURE AND PLANNING

Eugene Public School District 4J

Spencer Butte Middle School

Energy Efficiency Upgrades

C.I.P. 420.578.032



PROJECT MANUAL

April 24, 2014

SET: _____

GENERAL PROJECT INFORMATION

PROJECT MANUAL:

Spencer Butte Middle School – Energy Efficiency Upgrade
500 East 43rd Avenue
Eugene, OR 97405
Eugene Public School District 4J
Eugene, Oregon
C.I.P. Project No. 420.578.032

OWNER:

Eugene School District 4J
715 West 4th Ave.
Eugene, Oregon 97402

CONTACT:

Project Manager, Kirk Gebb
(541) 790-7417 Office
(541) 790-7420 FAX
gebb@4j.lane.edu

ARCHITECT:

Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401
Project Architect: Rodd Hansen, AIA
Project Manager: Rodd Hansen, AIA
(541) 687-7800
(541) 687-1200
rodd@rharchitectural.com

DATE:

April 24, 2014

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Sealed bids will be received by Kathi Hernandez, Facilities Management Assistant, for the Spencer Butte Middle School – Energy Efficiency Upgrade project on Thursday May 8, 2014 until the Deadline for Bid Submission at 2:00 p.m. 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 the installation of new rooftop HVAC units throughout the school (and associated roofing), the installation of new windows, the demolition of the existing ramp / corridor, the complete construction of a new ADA ramp / stair hallway enclosure, lighting / ceiling upgrades; coordinate with asbestos abatement contractor (provided by owner). Work shall commence approximately June 18, 2014 and shall be substantially complete by August 22, 2014.

Beginning Thursday, April 24, 2014, Prime Bidders, Sub-bidders and Suppliers may obtain bidding documents at the following hyperlink: <http://www.4j.lane.edu/bids/sbms-energy-upgrades-2014>

Hard copies are not provided by the School District.

It shall be the responsibility of all Prime Bidders, Sub-bidders, and Suppliers to obtain Bidding Documents and any and all Addenda from the hyperlink.

All Bids must be submitted on the form provided and enclosed in a sealed envelope marked:
Spencer Butte Middle School – Energy Efficiency Upgrades

A **MANDATORY** pre-bid conference and walk-through has been scheduled for Thursday, May 1, 2014 at 2:00 p.m. local time. The location of the conference will be at the front office of Spencer Butte Middle School, 500 East 43rd, Eugene, Oregon. All Prime Bidders wishing to submit a bid are required to attend this conference. Statements made by the District’s representatives at the conference are not binding upon the District unless confirmed by Written Addendum. 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 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”.

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 24, 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 97403

AIA[®] Document A701[™] – 1997

Instructions to Bidders

for the following PROJECT:

(Name and location or address)

Spencer Butte Middle School - Energy Efficiency Upgrades
500 East 43rd
Eugene, Oregon

THE OWNER:

(Name, legal status and address)

Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97401

THE ARCHITECT:

(Name, legal status and address)

Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

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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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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.

Additions and Deletions Report for

AIA® Document A701™ – 1997

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

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:38:00 on 04/24/2014.

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Spencer Butte Middle School - Energy Efficiency Upgrades
500 East 43rd
Eugene, Oregon

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Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97401

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Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

PART 1 GENERAL

STANDARD FORM

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

END OF DOCUMENT 00 21 13

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 ten (10) 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 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 00 22 13

BID FOR: Eugene School Dist. 4J
Spencer Butte Middle School – Energy Efficiency Upgrades CIP Number: 420.578.032

Submitted to: Facilities Management
Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97402

Bid Deadline: **May 8, 2014, 2:00 p.m.**

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 price(s) 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.

ALTERNATE #1

The undersigned proposes to furnish all material, equipment, and labor required for the Work:

- All windows in Rooms 25b, 25l, 25m, 25n, 25r, 25s and 25t
- All work associated with the installation of HP-28, HP 29 and the relocation of HP-42

ALTERNATE #1:

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

The undersigned agrees, if awarded the Contract, to substantially complete all Alternate #1 work on or before the dates specified in Section 01 11 00.

ALTERNATE #2

The undersigned proposes to furnish all material, equipment, and labor required for the Work:

- All work associated with the installation of HP-25 and HP-26

ALTERNATE #2:

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

The undersigned agrees, if awarded the Contract, to substantially complete all Alternate #2 work on or before the dates specified in Section 01 11 00.

ALTERNATE #3

The undersigned proposes to furnish all material, equipment, and labor required for the Work:

- All work associated with the installation of HP-40 and HP-41

ALTERNATE #3:

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

The undersigned agrees, if awarded the Contract, to substantially complete all Alternate #3 work on or before the dates specified in Section 01 11 00.

ALTERNATE #4

The undersigned proposes to furnish all material, equipment, and labor required for the Work:

- All work associated with the demolition of the existing ramp and construction of the new ramp (Hall 52)

ALTERNATE #4:

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

The undersigned agrees, if awarded the Contract, to substantially complete all Alternate #4 work on or before the dates specified in Section 01 11 00.

ALTERNATE #5

The undersigned proposes to furnish all material, equipment, and labor required for the Work:

- All work associated with Edgewood Elementary

ALTERNATE #5:

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

The undersigned agrees, if awarded the Contract, to substantially complete all Alternate #5 work on or before the dates specified in Section 01 11 00.

ALTERNATE #6

The undersigned proposes to furnish all material, equipment, and labor required for the Work:

- All work associated with the new lighting in the Large Gym (Room 46) and the Small Gym (Room 37)

ALTERNATE #6:

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

The undersigned agrees, if awarded the Contract, to substantially complete all Alternate #6 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 plus additive alternates.

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.

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

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

PROJECT: EUGENE SCHOOL DISTRICT 4J
SPENCER BUTTE MIDDLE SCHOOL – ENERGY EFFICIENCY UPGRADE
CIP NUMBER: 420.578.032

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

BID SUBMISSION DEADLINE: Date: April 29, 2014, 2:00 p.m.

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 00 45 22

PART 1 GENERAL

STANDARD FORM

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 00 52 13

AIA[®] Document A101[™] – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97401

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Spencer Butte Middle School - Energy Efficiency Upgrades
500 East 43rd
Eugene, Oregon

The Architect:
(Name, legal status, address and other information)

Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

The Owner and Contractor agree as follows.

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.

AIA Document A201[™]-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA[®] Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS**
- 2 THE WORK OF THIS CONTRACT**
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**
- 4 CONTRACT SUM**
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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be \$ (), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:

(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.4 Allowances included in the Contract Sum, if any:

(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price
------	-------

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be 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.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent (%);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

- Arbitration pursuant to Section 15.4 of AIA Document A201–2007
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

%

§ 8.3 The Owner’s representative:
(Name, address and other information)

§ 8.4 The Contractor’s representative:
(Name, address and other information)

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201-2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages

§ 9.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- 1 AIA Document E201™-2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:
- 2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201-2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents)

unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201–2007.)

Type of insurance or bond

Limit of liability or bond amount (\$0.00)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*

CONTRACTOR *(Signature)*

(Printed name and title)

(Printed name and title)

Additions and Deletions Report for

AIA® Document A101™ – 2007

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

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:40:39 on 04/24/2014.

PAGE 1

Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97401

...

Spencer Butte Middle School - Energy Efficiency Upgrades
500 East 43rd
Eugene, Oregon

...

Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

PART 1 GENERAL

STANDARD FORM

“General Conditions of the Contract for Construction” AIA Document A-201, 2007 edition, immediately following, are part of these specifications.

The Contractor and all Subcontractors shall read and be governed by them.

CONFLICTS

In the case of conflicts between the AGeneral Conditions@ and these Specifications, the Specifications govern.

END OF DOCUMENT 00 72 13

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Spencer Butte Middle School - Energy Efficiency Upgrades
500 East 43rd
Eugene, Oregon

THE OWNER:

(Name, legal status and address)

Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97401

THE ARCHITECT:

(Name, legal status and address)

Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

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- 3 CONTRACTOR
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- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
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- 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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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.

§ 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 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 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.

§ 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 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.

§ 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.

§ 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 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 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
- .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.

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;
- .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 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.

§ 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 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 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 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.

§ 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.

§ 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.

§ 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 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.

Additions and Deletions Report for

AIA® Document A201™ – 2007

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

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PAGE 1

Spencer Butte Middle School - Energy Efficiency Upgrades
500 East 43rd
Eugene, Oregon

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Eugene School District 4J
715 West Fourth Avenue
Eugene, Oregon 97401

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Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

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 Kirk Gebb (541) 968-0950, 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 or federal 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.
- d. 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.
- e. 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.

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 it's place.

4. Add the following Subparagraph:

4.1.4 The Architect is defined as:

Rodd Hansen, Architect, L.L.C.
1551 Oak Street, Suite A

Eugene, OR 97401

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:	\$115 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 \$1,000 per unusable classroom, 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 \$3,000,000 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.

.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 substitute the following:

11.4.1 Unless otherwise stated in the solicitation document, the successful Contractor shall furnish the Owner with a Performance Bond and Labor and Material Payment Bond, covering faithful performance of the contract and payment of obligations arising hereunder. Bonds are to be obtained through a company that is on the US Government Treasury list for approved sureties and/or approved by School District 4J’s Risk Manager. The cost of the bond shall be included in the contract sum. The amount of each bond shall be equal to one hundred percent (100%) of the contract sum. Submit on AIA Document A312, latest edition.

 - .1 The Contractor shall deliver the required bonds to the Owner with the executed Agreement to:

Kirk Gebb
Facilities Management Office
Eugene Public School District 4J
715 West Fourth
Eugene, Oregon 97402
 - .2 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.

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 00 73 00

PART 1 GENERAL

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).

END OF DOCUMENT 00 73 43

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 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of the installation of new HVAC units, new windows and a new A.D.A. compliant ramp / hallway.
 - 1. Owner: Eugene School District 4J, 715 West Fourth Avenue, Eugene, OR 97402.
- B. Architect Identification: The Contract Documents, dated April 24, 2014, were prepared by Rodd Hansen, Architect, L.L.C., 1551 Oak Street, Suite A, Eugene, OR 97401.
- C. Project Manager: Kirk Gebb has been appointed by Owner to serve as Project Coordinator.

1.3 CONTRACT

- A. Project will be constructed under a general construction contract, AIA Document A101, for use where the Basis of Payment is a Stipulated Sum (Fixed Price).

1.4 WORK SEQUENCE

- A. Do not commence Work until after execution of Agreement and receipt of Notice-to-Proceed from Owner.
- B. Perform work in order to achieve Substantial Completion by **August 22, 2014**.
- C. Achieve Final Completion within seven (7) days following the date of Substantial Completion.

1.5 USE OF PREMISES

- A. Work Area Access: Buildings may 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 in areas indicated; 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 as indicated on Drawings.

- E. Contractor Staging Areas: Limit staging to areas indicated on Drawings.
- F. Construction Operations: Limited to areas indicated on Drawings.

1.6 WORK UNDER SEPERATE CONTRACTS

- A. Separate Contract: Owner will award a separate contract for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. This contract will include the following:
 - 1. The District will contract separately for Asbestos related demolition. This abatement work shall be coordinated with this contract.
- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.7 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish carpet for the new ramp / hallway area.
 - 1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
 - 2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
 - 3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
 - 4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
 - 5. Contractor shall review Shop Drawings, Product Data, and Samples and return them to Architect noting discrepancies or anticipated problems in use of product.
 - 6. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
 - 7. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
 - 8. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

1.8 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. Contractor's 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. Contractor shall comply with NFPA 70E (Electrical Safety in the Workplace), current edition. Contractor shall comply with Oregon OSHA 1910.137 (Personal Protective Equipment). The Contractor shall review with the School District Project Manager the 'Eugene School District Electrical Safety Program' before any work commences. The Contractor shall 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 11 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 11 00B at the end of this Section.

J. FULL TIME SUPERINTENDENT DISCLOSURE STATEMENT

1. Prior to or in conjunction with the Preconstruction Conference, the Contractor shall submit the disclosure statement which identifies the Full Time Superintendent for this Project. The form for this statement, Form 01 11 00C, is provided at the end of this Section.

EUGENE SCHOOL DISTRICT 4J
Spencer Butte Middle School – Energy Efficiency Upgrades
C.I.P. 420.578.032

SECTION 01 11 00
SUMMARY OF WORK

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - SCHEDULE OF PRODUCTS ORDERED IN ADVANCE

PART 5 - ASBESTOS FORMS

Form 01 11 00A

**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 00B

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 01 11 00

Form 01 11 00 C

FULL TIME SUPERINTENDENT DISCLOSURE STATEMENT

Prior to or in conjunction with the Preconstruction Conference, the Contractor shall submit this disclosure statement which identifies the Full Time Superintendent for this Project.

Project Title: Spencer Butte Middle School – Energy Efficiency Upgrades
Eugene Public School District 4J
Eugene, Oregon
C.I.P. Project No. 420.578.032

CONTRACTOR INFORMATION

Company Name: _____

Company Address: _____

City, State, Zip: _____

List below the name, address, telephone, cellular phone FAX numbers and e-mail address (if available) for the full time Superintendent for this Project:

Superintendent's Name: _____

Address: _____
(if different from Contractor's) _____

I
Phone: _____ Fax: _____
Cell: _____ e-mail _____

The undersigned acknowledges that this project requires and will provide a full-time superintendent throughout this project.

Signature: _____
Authorized Signature

Printed Name: _____

Title: _____

Signature Notarized by:

Subscribed and sworn before me this _____ day of _____, 20__.

Notary Public: _____
Signature

My commission expires: _____

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 specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 0 Document 00 52 13 “ Form of Agreement” for monetary values of established Unit Prices and Alternates.
 - 2. Division 0 Document 00 72 13 “General Conditions” for additional requirements for Changes in the Work, Contract Sum, and Contract Time.
 - 3. Division 1 Section 00 11 13 “Supplementary Conditions” for allowable percentages for Contractors’ Overhead and Profit.
 - 4. Division 1 Section 01 22 00 “Unit Prices” for administrative requirements for using unit prices.
 - 5. Division 1 Section 01 33 00“ Submittal Procedures” for Schedule of Values requirements.
 - 6. Division 1 Section 01 60 00 "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.
 - 7. Division 1 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
2011-2014 Capital Improvement Program
Eugene School District 4J

.....
CHANGE REQUEST NOTICE

Change Request No.: _____
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

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 01 25 00

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 specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
1. Division 1 Section 01 25 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 2. Division 1 Section 01 27 00 "Unit Prices" for administrative requirements governing use of unit prices.
 3. Division 1 Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.
 4. Division 1 Section 01 77 00 "Closeout Procedures" for final Application for Payment.

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 procedures (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 10 29 00

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 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. Division 1 Section 01 32 00 "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 - 2. Division 1 Section 01 73 00 "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 1 Section 01 77 00 "Closeout Procedures" for 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.

EUGENE SCHOOL DISTRICT 4J

Spencer Butte Middle School – Energy Efficiency Upgrades PROJECT MANAGEMENT AND COORDINATION
C.I.P. 420.578.032

SECTION 01 31 00

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PRECONSTRUCTION CONFERENCE AGENDA (SAMPLE)

Eugene School District 4J

Spencer Butte Middle School – Energy Efficiency Upgrades

[Date]

AGENDA

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.

Date:

A/E Firm:

Contractor:

Subcontractors:

END OF SECTION 01 31 00

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

- 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.

OR

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 10 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 5 percent increments within time bar.

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 01 32 00

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 submitting Shop Drawings, Product Data, Samples, Information Submittals, Delegated Design and other submittals.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 1 Section 01 31 00 "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 3. Division 1 Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 1 Section 01 40 00 "Quality Requirements" for submitting test and inspection reports and for mockup requirements, if any.
 - 5. Division 1 Section 01 77 00 "Closeout Procedures" for submitting warranties.
 - 6. Division 1 Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 7. Division 1 Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 8. Divisions 2 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 Division 1 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 Noted."
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, 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 Noted" 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 but no larger than 30 by 40 inches.
 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 two 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.
- 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: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
 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 Division 1 Section 01 40 00 "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section 01 31 00 "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 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 Division 1 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 Division 1 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 Noted; OR Rejected - 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 01 33 00

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 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. Division 1 Section 01 32 00 "Construction Progress Documentation" for developing a 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 as follows:

<List Special Inspections Here>

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. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

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 requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 11 00 "Summary of Work" for limitations on utility interruptions and other work restrictions.
 - 2. Division 1 Section 01 33 00 "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
 - 3. Division 1 Section 01 77 00 "Execution Requirements" for progress cleaning requirements.
 - 4. Divisions 2 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. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.76-mm-) thick, 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 rails.
- B. 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.
- C. Lumber and Plywood: Comply with requirements in Division 6
- D. Gypsum Board: Minimum 1/2 inch (12.7 mm) thick by 48 inches (1219 mm) wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: At Contracto's option, prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. 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. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high

humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

- D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- E. 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.
- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- G. Telephone Service:
 - 1. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Parking: Arrange for temporary parking areas for construction personnel.
- B. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- 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 Division 1 Section 01 77 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 Division 1 Section 01 11 00 "Summary of Work."
- B. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. 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.
- E. 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 dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
 2. Insulate partitions to provide noise protection to occupied areas.
 3. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
 4. Protect air-handling equipment.
 5. Weather strip openings.
 6. Provide walk-off mats at each entrance through temporary partition.
- F. 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 01 50 00

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 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. Division 1 Section 01 23 00 "Alternates" for products selected under an alternate.
 - 2. Division 1 Section 01 77 00 "Closeout Procedures" for submitting warranties for Contract closeout.
 - 3. Divisions 2 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 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 Division 1 Section 01 77 00 "Closeout Procedures."

EUGENE SCHOOL DISTRICT 4J
Spencer Butte Middle School – Energy Efficiency Upgrades
C.I.P. 420.578.032

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

SUBSTITUTION REQUEST FORM

TO: Rodd Hansen, Architect, LLC
1551 Oak Street, Suite A
Eugene, Oregon 97401

DEADLINE: April 22, 2014

PROJECT: Spencer Butte Middle School – Energy Efficiency Upgrades
Eugene School District 4J

CIP # 420.578.032

ITEM: _____
Section No. Page 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 includes description of changes to Contract Documents which the proposed substitution will require for its proper installation.

Submitted by: _____ Signature: _____

Firm: _____

Address: _____

Telephone: _____ Fax: _____

Date: _____

END OF SECTION 01 60 00

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 general procedural requirements governing execution of the Work including, but not limited to, the following:

- 1. Construction layout.
- 2. Field engineering and surveying.
- 3. General installation of products.
- 4. Coordination of Owner-installed products.
- 5. Progress cleaning.
- 6. Starting and adjusting.
- 7. Protection of installed construction.
- 8. Correction of the Work.

- B. Related Sections include the following:

- 1. Division 1 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
- 2. Division 1 Section 01 33 00 "Submittal Procedures" for submitting surveys.
- 3. Division 1 Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- B. Final Property Survey: Submit 2 copies showing the Work performed and record survey data.

1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

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 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Owner's Project Manager promptly.
 - 1. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
- B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Owner's Project Manager.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 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.

3.6 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 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.
- 3.8 STARTING AND ADJUSTING
- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
 - B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
 - C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 - D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section 01 40 00 "Quality Requirements."

3.9 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.

3.10 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 01 73 00

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 procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 31 00 – “Project Management and Coordination” for pre- construction and pre-installation conferences.
 - 2. Division 2 Section "Selective Demolition" for demolition of selected portions of the building.
 - 3. 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 results 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, that results in reducing their capacity to perform as intended, or that results 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. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 - 5. 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 01 73 29

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 contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

- B. Related Sections include the following:

1. Division 1 Section 01 29 00 "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 1 Section 01 73 00 "Execution Requirements" for progress cleaning of Project site.
3. Division 1 Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
4. Division 1 Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
5. Divisions 2 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 Division 1 Section "Payment Procedures."
 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. Complete list of Contractor and all Subcontractors with address, phone numbers, and work
 - k. Asbestos-Containing Materials Statement (Form 01100B).
 - l. Proof of final acceptance and compliance from governing authorities having jurisdiction.
 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 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

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 01 77 00

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

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 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.

1.5 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 systems.
 - 3. List of equipment.
 - 4. List of all subcontractors and material suppliers, including names, addresses and phone numbers.
 - 5. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

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 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 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 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.

3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 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.
- 2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL
- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
 - B. Source Information: List each system, subsystem, and piece of equipment 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. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard printed maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
 - D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.

2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. 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. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. 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.

- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared Record Drawings in Division 1 Section 01 78 39 "Project Record Documents."

- G. Comply with Division 1 Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

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 Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 77 00 "Closeout Procedures" for general closeout procedures.
 - 2. Division 1 Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Divisions 2 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.
- 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.

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. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.

- c. 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. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. 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. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. 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.
 2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
 3. 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.

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 in the field office 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 10 78 39

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED IN OTHER SECTIONS

A.

1.2 COORDINATION

A. Coordinate with other Trades affecting or affected by Work of this Section.

1.3 REGULATORY AGENCY REQUIREMENTS

A. Blasting & Burning: None permitted.

PART 2 - PRODUCTS

2.1 HERBICIDE

A. Manufacturer & Brand: Contractor's choice

B. Type: Satisfy conditions of use.

PART 3 - EXECUTION

3.1 PROTECTION

A. Carefully maintain Bench Marks, Monuments, and other Reference Points, if disturbed or destroyed, replace as directed.

B. Protect Workmen, Passersby, and Neighboring Property against injury and damage.

C. Plan Equipment access to minimize soil disturbance and compaction outside of areas to be cleared.

D. Unless otherwise indicated, do not disturb Topsoil or Vegetation outside of areas to be cleared.

E. Maintain Pavement and Sidewalks clean.

F. Protect existing Construction to remain, if any. Leave in as good condition as found.

PART 3 - EXECUTION

3.2 CLEARING

- A. Completely clear areas to be occupied by Construction and other Improvements.
- B. Remove Snags, Brush, Grass, Weeds, Rubbish, Pavement, and Debris, if any.
- C. Remove Trees only where so noted on Drawings.
- D. Remove Willow and Blackberry, if any, to not less than 12 inches below original Ground surface.
- E. Cut other Trees, Stumps, Shrubs, and Brush flush with or slightly below original Ground surface.

3.3 GRUBBING

- A. Remove Stumps, Roots larger than 1-1/2 inches in diameter, Rocks larger than 4 inches, and existing Construction not suitable for bearing, to the following levels:
 - 1. In areas to receive Plants: To not less than 12 inches below Finish Grade.
 - 2. In areas to receive Construction or Pavement: To not less than 18 inches below Subgrade.
 - 3. In other areas: To not less than 6 inches below Finish Grade.

3.4 DISPOSAL OF CLEARED & GRUBBED MATERIAL

- A. Remove from Site daily, and lawfully dispose.

3.5 STUMP POISONING

- A. Treat any Stumps or Roots, over 3 inches in diameter, with Herbicide to prevent regrowth.
- B. Apply Herbicide in accordance with Manufacturer's instructions.

END OF SECTION 02 23 00

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Site Clearing: Section 02 23 00

1.2 WORK INCLUDED, BUT REIMBURSED BY OWNER

- A. Should Rock as defined below be encountered, other than any shown on Drawings, or any exposed to view during Bidding Period, Owner will pay extra for any necessary Rock removal and take credit for omitted Earth excavation, in accordance with Contract Conditions.
- B. Should Unstable Soil as defined below or excessive Water be encountered, other than any shown on Drawings, or any exposed to view during Bidding Period, Owner will pay extra for necessary site dewatering or soil removal, in accordance with Contract Conditions. Owner will not pay for removal or dewatering of Unstable Soil caused by reasonably anticipated inclement weather or by Contractor's work at the Site.
- C. Should Wells, Cisterns, Tanks, Cesspools, Garbage Pits, Foundations, Rubble, etc. be encountered, other than any shown on Drawings, or any exposed to view during Bidding Period, Owner will pay extra for any necessary removal and take credit for omitted Earth excavation, in accordance with Contract Conditions.

1.3 DEFINITIONS

- A. Rock:
1. Boulders larger than 1 cu. yd. or Material that requires Splitting, Drilling, Blasting or other Specialized Equipment for removal.
- B. Unstable Soil:
1. Soft, loose, or wet Ground that is incapable of supporting Material, Equipment, Personnel, or Structure.
- C. Unsuitable Fill Material:
1. Soil with more than 2% Organic Fragments by volume, and/or with more than Optimum Moisture Content for compaction, and/or with Debris.
- D. AASHTO:
1. American Association of State Highway and Transportation Officials, 341 National Press Building, Washington, D.C., 20004
- E. Weed-free:
1. Material containing less than 5 objectionable Weeds per 100 sq. ft. Weeds include Dandelion, Jimsonweed, Quack Grass, Horsetail, Mustard, Canadian Thistle, Morning Glory, Rush Grass, Lambs Quarter, Chickweed, Cress, Crabgrass, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, and any other similar objectionable growth.

1.4 COORDINATION

- A. Coordinate with other Trades affecting or affected by Work of this Section.

1.5 REGULATORY AGENCY REQUIREMENTS

- A. This project is on Tribal land, therefore there is no regulating agency. However, the Tribe is requiring the project to be built to current relevant building codes.

1.6 ADVANCE NOTICE

- A. Notify Engineer at least 48 hours prior to performing Site Proof Rolling so Work can be observed.

PART 2 - PRODUCTS

2.1 GRAVEL

- A. Material: Round; water-worn; washed; sound; durable Rock which is free of soft, friable, thin, elongated, or laminated Pieces; disintegrated Material; organic Matter; Oil; Alkali; or other Deleterious Substances.
- B. Maximum Size: See Filling under Part 3 - Execution
- C. Minimum Size: 5% maximum passing #200 Sieve
- D. Gradation: Even

2.2 CRUSHED ROCK

- A. Material: Washed; sound; durable Rock which is free of soft, friable, thin, elongated, or laminated pieces; disintegrated Material; organic Matter; Oil; Alkali; or other Deleterious Substance.
- B. Shape: Mechanically crush as follows:
 - 1. Fracture at least 70% of Particles on at least 2 Faces.
 - 2. Maximum Unfractured Particles:
 - a. 3/8 inch and larger Rock: 10%
 - b. Smaller than 3/8 inch Rock: 5%
- C. Maximum Size: See Filling under Part 3 - Execution
- D. Minimum Size: 5% maximum passing #200 Sieve
- E. Gradation: Even

2.3 NATIVE MATERIAL

- A. Existing Soil excavated from Project Site and stockpiled on Project Site for future use.

2.4 IMPORTED LOAM

- A. Material: Fertile, friable, natural, native of locality, and reasonably free of Subsoil, Clay, Silt, Stones, Lumps, Plants, Roots, Sticks, Weeds, Seeds, and other Extraneous Matter. Material need not be processed and screened.
- B. Extent of Work: Provide if stockpiled Existing Topsoil is not sufficient to complete Work.

2.5 COMPACTION EQUIPMENT

- A. Type: Contractor's choice, but appropriate for conditions of use.
- B. Caution: Within 3 ft. of Walls or Curbs use only small, manually-guided Compactors.

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS

- A. Prior to starting Work of this Section, verify that Site Clearing has been properly completed and that existing Grades agree with Drawings.
- B. Notify General Contractor about defects requiring correction.
- C. Do not start Work until conditions are satisfactory.
- D. Should any suspected Contaminated Soil be encountered perform the following:
 - 1. Immediately notify Engineer and Dept. of Environmental Quality.
 - 2. Comply with Engineer's directions and Regulatory Agency requirements.
 - 3. Perform no Work that could disturb or spread suspected Contaminated Soil.
 - 4. Owner will employ and pay Testing Lab to confirm presence of Contaminated Soil.
 - 5. If Laboratory Tests confirm presence of Contaminated Soil, Owner will remove Contaminated Soil and will issue Change Order increasing Contract Sum for any proven additional cost to the Contractor and extending Contract Completion Date for any proven Contractor's lost time.

3.2 PROTECTION

- A. Monuments:
 - 1. Carefully maintain Bench Marks, Monuments, and other Reference Points.
 - 2. If disturbed or destroyed, replace as directed.
- B. Existing Utilities:
 - 1. Comply with requirements specified.
- C. Traffic Control:
 - 1. Unless otherwise approved by Governing Authorities, provide necessary Barricades, Detours, Warning Devices, Flaggers, and coordinate Equipment movement to maintain Vehicle and Pedestrian Traffic on Public and Private Streets, Drives, and Walks.
- D. Street Cleaning:
 - 1. Maintain Public and Private Streets and Walkways clean and Drains open at all times.
- E. Dust Control:
 - 1. Protect Persons and Property against damage and discomfort caused by Dust; water where necessary to settle Dust and where directed.
- F. Existing Trees to remain:
 - 1. Protect against damage.
- G. Work of this Section:
 - 1. Except under Pavement and Walkways, protect Graded Material against damage and compaction from Traffic.
 - 2. Provide necessary Slopes and Ditches to drain Site during construction. Prevent Soil Erosion and Silt Deposition.
- H. Other Work and Adjacent Property:
 - 1. Protect against damage and discoloration caused by work of this Section.

3.3 CUTTING EXISTING PAVEMENT, IF ANY

- A. Cut, prior to excavating, with vertical, straight-line Joints using Pavement Saw or other Tool designed for cutting Pavement.
- B. Make Cuts parallel or perpendicular to Pavement centerline.

- C. Pavement Cut Width: Extend Cut 1 ft. beyond each side of Excavation.
- D. Replace Pavement to condition at least as good as existing prior to cutting.

3.4 EXCAVATION

- A. After Site Clearing Work is completed, but before excavating:
 - 1. At Planting Areas: Break up remaining Sod-like Vegetation to approximately 4 inch depth.
 - 2. Elsewhere: Strip at least 6 inches of existing Topsoil, and stockpile for possible future use.
 - 3. Remove from Topsoil any Vegetation, Sticks, Clods, Rocks larger than 1-1/2 inches, excessive Gravel, Subsoil, and Debris.
- B. Excavating:
 - 1. Excavate with square-edge Buckets as necessary for Work shown on Drawings or specified.
 - 2. Allow ample space for Concrete Formwork and Utility Trenching.
 - 3. Do not weave, pump, rut, or otherwise disturb Excavated Grade Surfaces with Equipment.
 - 4. Protect any Excavation Slopes with securely anchored Plastic Sheeting. Install as soon as practical following excavation, and maintain as long as necessary to prevent Soil erosion.
 - 5. Remove any Disturbed Material and replace with Compacted Fill at no additional cost to Owner.
 - 6. Leave Bearing Surfaces undisturbed, level, and true. Where necessary, compact as specified below.
- C. Blasting:
 - 1. None permitted.
- D. Depth of Excavation:
 - 1. Excavate to elevations no higher than shown on Drawings.
 - 2. Notify Engineer if adequate Soil Bearing is not reached.
 - 3. Drawings indicate Contract Quantities; adjustments for variations will be made in accordance with General Conditions.
- E. Temporary Stockpiling of Excavated Material:
 - 1. Locate within Construction Area as directed by Tribal representative.
 - 2. Unless otherwise approved, do not obstruct Private or Public Streets, Drives, or Walkways.
 - 3. Locate sufficiently far from Excavation edges to prevent Stockpiled Material from falling into Excavation, and as required to eliminate effect on Excavation stability.
 - 4. At Stockpiles remaining during Rainy Periods, grade and cover Stockpile as required to prevent Compaction, Erosion, and Water Infiltration.
 - 5. Unless otherwise indicated, stockpiling Topsoil is not required if Topsoil can be distributed directly to final position.
- F. Water, Snow, Ice, & Frost:
 - 1. Keep Bearing under Footings dry and free of Snow, Ice, and Frost.
 - 2. Provide and operate Pumping Equipment necessary to keep Excavations free from Standing Water. Do not reduce adjacent Ground Water level to extent that could endanger or damage adjacent Structures or Property.

3. Do not create "quick" condition or affect Soil Bearing Capacity.
4. Do not discharge "removed" Water into permanent, on-site Utilities or Trenches without Sediment Control.
5. If Bearing Surfaces are softened by Water, Snow, Ice, or Frost, re-excavate to Solid Bearing and fill at Contractor's expense with Concrete as specified in Section 03 30 00.

3.5 EXCESS OR SHORTAGE OF EARTH

- A. Provide additional Material herein specified or needed for Fills.
- B. Stockpile excess Earth Material suitable for filling. Remove from Site unused and unsuitable Fill Material.

3.6 PROOF-ROLLING SUBGRADE

- A. Following Subgrade preparation, within 24 hours prior to Fill or Base Course placement, and in Engineer's presence; proof-roll Subgrade beneath Building and Pavement Areas with fully-loaded 10 to 12 cu. yd. Dump Truck. Contractor shall notify Engineer a minimum of 48 hours prior to proof rolling the subgrade.
- B. If any areas pump, weave, or appear soft, immediately notify Engineer about encountered conditions. Unless otherwise directed, over-excavate areas in 6 inch minimum lifts until suitable material is found. Then add a geotextile fabric as shown on the plans and fill with Crushed Rock compacted as specified below. When over-excavated areas are determined, a change order will be prepared for additional payment at unit prices defined in the bid documents for material used.
- C. If significant length of time has passed between completion of Fill placement and construction start, or if vehicle traffic has been routed across area, repeat proof-rolling specified above.

3.7 FILLING

- A. General:
 1. Before proceeding, remove any Snow, Ice, Frozen Material, Debris or Decayable Matter from areas to be filled.
 2. To insure bond, scarify any Sloping Ground to receive Fill.
 3. Make Fills as soon as feasible to assure thorough settlement.
 4. Uniformly place Fills adjacent to Structures to prevent unbalanced loading.
 5. Place Fills in the following maximum loose-lift thicknesses:
 - a. Where Compacted with Heavy Equipment Compactors: 6 inches
 - b. Where Compacted with Hand-operated Compactors: 4 inches
- B. Fills directly under Concrete Footings & Flatwork:
 1. Base Course:
 - a. Material: Crushed Rock
 - b. Maximum Size: 1-1/2 inches
 - c. Thickness: Fill space between underside of Leveling Course above and existing Subgrade below.
 2. Leveling Course:
 - a. Material: Gravel
 - b. Maximum Size: 3/4 inch

- c. Thickness: 6 inches
- C. Fills beneath Sloping Concrete Flatwork & Asphalt Pavement:
 - 1. Slope Fill to prevent reducing Concrete and Asphalt thicknesses.
- D. Fills at Planting Areas:
 - 1. Fill with stockpiled Native Topsoil or Imported Loam.

3.8 COMPACTING FILLS

- A. Maintain optimum Moisture Content for compaction.
- B. Minimum ASTM D-1557 (modified proctor) Compaction:
 - 1. Under and within 2 ft. of Slabs and Pavements: 95%
 - 2. Under and within 2 ft. of Foundations: 95%
 - 3. Elsewhere: 95%
- C. Extend Fill-compaction to at least 5 ft. beyond edges of Work to be supported.

3.9 WET WEATHER WORK

- A. If Fill is to be placed during wet weather or under wet conditions when control of Soil Moisture-content is not possible, Fill Material shall contain no more than 5% Material passing No. 200 Mesh Sieve (by weight).
- B. Additionally:
 - 1. Slope Ground Surface in Construction Area and seal with Smooth Drum Roller to promote rapid Water-runoff and to prevent Water-ponding, and
 - 2. Perform Work in small areas, and carry through to completion to minimize exposure to wet weather, and
 - 3. Where Traffic over exposed Subgrade is anticipated, protect Subgrade with 12 inch minimum thickness Working Blanket of compacted clean Crushed Rock applied over non-woven Filter Fabric. Areas used as Haul Routes for heavy Construction Equipment may require thicker Blanket. If necessary limit traffic as required to prevent Soil disturbance, and
 - 4. Leave no Soil uncompacted so it can soak-up Water. Remove Soil which has become too wet for compaction, and replace with new Specified Fill Material.
- C. Optional Treatment:
 - 1. Immediately following excavation, cover Subgrade with Geotextile Fabric. Overlap Fabric Seams 24 inches minimum.

3.10 GRADING

- A. Rough Grading:
 - 1. Grade entire area of Property to reasonably true and even surfaces.
 - 2. Unless otherwise shown on Drawings, slope Ground at 5% rate for at least 10 ft. away from Building to facilitate drainage.
 - 3. Prevent Water-ponding.
 - 4. Grade to uniform levels or slopes between given Grade Points.
 - 5. Round Surfaces at abrupt Grade changes.
- B. Levels:
 - 1. Grade area around Construction to the following levels:
 - a. Paving, Walks, and other Hard-surfaced Areas:
 - 1. To underside of Surfacing, allowing for Gravel Base Course.

- b. Lawn Planting Areas:
 - 1. To Finish Grades, allowing for 12 inches of stockpiled Native Topsoil or Imported Loam.
- C. Finish Grading:
 - 1. If Subsoil has not been freshly graded, scarify at least 6 inches deep. Areas to compacted levels shown on Drawings.
 - 2. Spread available Stockpiled Topsoil and necessary Imported Loam over Planting areas to compacted level shown on Drawings.
 - 3. Without over-compacting, roll and tamp Soil to prevent future settlement.
 - 4. Remove Stones and Clods larger than 3/4 inch in size; Twigs and Sticks; and any other Foreign Matter.
 - 5. Leave Surfaces ready for Soil-preparation Work by Landscape Subcontractor.
- 3.11 GRADING TOLERANCE
 - A. Position Finish Grade within 0.10 ft. of Grades shown on Drawings.
- 3.12 RECONDITIONING FINISHED WORK
 - A. Where completed Work has been disturbed by subsequent Work, Operations, or Adverse Weather; scarify Surface, re-shape, and re-compact to required Density at no additional cost to Owner.
- 3.13 CLEANING & REPAIRING
 - A. Including Work of other Trades, clean, repair and touch-up, or replace when directed, Work which have been soiled, discolored, or damaged by Work of this Section.
 - B. Remove Debris from Project Site upon Work completion, or sooner if directed.

END OF SECTION 02 30 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A This section includes the following:
 - 1. Demolition and removal of selected portions of the building and finishes.
 - 2. Salvage of existing items to be reused or recycled.

1.3 SALVAGE

- A. None. Remove and dispose of all material from site as noted on Drawings.

1.4 SUBMITTALS

- A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.5 PROTECTION

- A. General:
 - Protect portions of existing facilities which are to remain against damage and discoloration.
 - Allow no leaks, even temporary, in existing building.
- B. Barriers, Safety Guards, and Warning Lights. Provide where necessary for public protection.
- C. Utilities
 - Keep active utilities intact and in continuous operation.

1.6 SCHEDULE

- A. Provide a proposed schedule of demolition Work to the Owner for review within 5 days of receiving the written Notice to Proceed. Contractor shall coordinate with Owners asbestos abatement contractor.

1.7 QUALITY STANDARDS

- A. Provide experienced, well-trained workers competent to complete the work as specified.
- B. Unless approved by the Architect, provide all related products and accessories from one manufacturer.

- C. Use materials from manufacturers and suppliers specified or approved by the Architect.
- D. All work shall comply with governing building and safety codes.

1.8 MATERIALS HANDLING

- A. Provide all materials required to complete the work as shown on the Drawings and specified herein.
- B. Deliver, store, and transport materials to avoid damage to the materials or to any other work.

1.9 PROJECT CONDITIONS

- A. Examine and verify that job conditions are satisfactory for speedy and acceptable work.
- B. Notify Architect when work is scheduled to be started and completed.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

1.10 ALTERNATES

- A. Refer to Section 01 23 00 for possible effect on work of this Section.

PART 2 - PRODUCTS

2.1 PROTECTIVE BARRIERS AND COVERS

- A. Provide demolition materials, barriers, protective covers, etc. to complete the work as specified.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not start work until conditions are satisfactory.

3.2 SITEWORK PREPARATION

- A. Obtain all required permits and approvals and obey all restrictions, deadlines, and notification requirements of governing agencies.
- B. Notify owners and tenants of adjacent properties of impending work.
- C. Identify and clearly mark underground utility lines, pipe, cable, and conduits.

3.3 DUST-PROOF PARTITIONS

- A. Build where necessary to prevent dust-spread.
- B. Face with plywood attached solidly to studs and cross blocking.
- C. Cover joints with reinforced Kraft paper cemented in place.
- D. Maintain dust-proof; remove only when directed.
- E. Provide access and egress doors as required to maintain fire escape routes.

3.4 CLEANING AND REPAIRING

- A. Allow no debris to accumulate in buildings, or on grounds, streets, or walks.
- B. Haul away from site as soon as removed.
- C. Dispose of at Contractor's expense.
- D. Clean, repair and touch, or replace when directed, adjacent property and surfaces which have been soiled, discolored, or damaged by work of this Section.

END OF SECTION 02 41 19

PART 1 - GENERAL

1.1 WORK INCLUDED BUT SPECIFIED IN OTHER SECTION

- A. Trenching & Backfilling for Work of this Section: Section 02315

1.2 COORDINATION

- A. Coordinate with other Trades affecting or affected by Work of this Section.

1.3 PRODUCT DELIVERY, STORAGE, & HANDLING

- A. Protect against damage and discoloration.
B. Store Plastic Pipe, if any, on firm, level support; protect against direct Sunlight.
C. Store Plastic Pipe Cement, if any, in cool location.

1.4 TEMPERATURE

- A. 32°F minimum and 110°F maximum at mating surfaces of Plastic Pipe and Fittings.

1.5 FIELD MEASUREMENTS

- A. System layout on Drawings, including Sewer location and depth, is diagrammatic and may not be exact.
B. Verify prior to starting Work.
C. If field measurements differ slightly from Drawing dimensions modify Work as required for accurate fit. If measurements differ substantially, notify Engineer prior to starting Work.

1.6 ADVANCE NOTICES

- A. Notify Engineer and Regulatory Agency Representatives at least 24 hours prior to covering over Work of this Section so inspections can be made.

PART 2 - PRODUCTS

2.1 DRAIN PIPE & FITTINGS

- A. Type & Size: See Drawings.

2.2 CATCH BASINS

- A. Manufacturer: Gibson, Lynch, or approved.
B. Material: 10 ga. Steel
C. Exterior & Interior Coating: Asphalt
D. Dimensions: See Drawings
E. Grating Material: Bicycle-proof Steel

2.3 PIPE BED & BACKFILL MATERIALS

- A. Specified in Section 02315.

2.4 OTHER MATERIALS

- A. Recommended by Manufacturer and subject to Engineer's review and acceptance.
- B. Provide all required to complete and make System operational.

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS

- A. Verify that Drainage Subgrade Surfaces prepared by other Trades are accurately located, graded, compacted, and otherwise properly prepared.
- B. Prior to starting Work, notify General Contractor about defects requiring correction.
- C. Do not start Work until conditions are satisfactory.

3.2 PROTECTING OTHER WORK

- A. Monuments:
 - 1. Carefully maintain Bench Marks, Monuments, and other Reference Points.
 - 2. If disturbed or destroyed, replace as directed.
- B. Work of Other Sections: Protect against damage and discoloration caused by work of this Section.

3.3 TRENCHING & PIPE BEDDING

- A. Specified in Section 02315.

3.4 DRAIN PIPE INSTALLATION

- A. Follow Manufacturer's instructions and Regulatory Agency requirements.

3.5 ALLOWABLE PIPING INSTALLATION TOLERANCES

- A. Install Piping within 1/4 inch of indicated Grade, Location, and Pitch.

3.6 BACKFILLING

- A. Specified in Section 02315.

3.7 CATCH BASIN INSTALLATION

- A. Follow Manufacturer's instructions.
- B. Install on solid Gravel Bed, plumb, square with adjacent construction, level, and Top flush with Adjacent Surface.
- C. Make Pipe-entries watertight.

3.8 PROTECTING INSTALLED WORK

- A. Protect System against displacement and intrusion by Foreign Matter.
- B. Prevent prolonged exposure of Plastic Pipe to Sunlight.

3.9 PRODUCT CLEANING & REPAIRING

- A. Including Work of other Trades, clean, repair and touch-up, or replace when directed, Products which have been soiled, discolored, or damaged by Work of this Section.
- B. Remove Debris from Project Site upon Work completion, or sooner if directed.

END OF SECTION 02 63 00

1 PART 1 - GENERAL

2

3 CONTRACT CONDITIONS

4 Work of this Section is bound by the General Conditions,
5 Supplementary Conditions, and Division 1 bound herewith in
6 addition to this Specification and accompanying Drawings.

7

8 RELATED WORK SPECIFIED ELSEWHERE

9 Concrete Reinforcement including Bar Supports and Reinforcement
10 Accessories, Section 03 20 00.
11 Cast-in-Place Concrete, Section 03 30 00.

12

13 WORK INSTALLED BUT FURNISHED BY OTHERS

14 Build in as directed by those Contractors, without weakeni
15 defacing formwork.

16

17 DESIGN AND ENGINEERING

18 Formwork design and engineering, as well as construction,
19 Contractor's responsibility.

20

21 CONTRACT QUANTITIES

22 Drawings and Specifications indicate contract quantities.
23 If quantity adjustments are made contract price will be ad
24 in accordance with unit prices.

25

26 REGULATORY AGENCY REQUIREMENTS

27 Conform to Building Code requirements, if more rigid than
28 specified herein.
29 Notify Architect of differences before starting Work.

30

31 ALLOWABLE TOLERANCES FOR CONCRETE

32 Variation from Level

33 Sills, Horizontal Grooves, and Conspicuous Lines:

34 3/16 inch in any bay or 20 feet maximum.

35 3/8 inch in 40 feet or more.

36 Variation of Building Lines

37 1/4 inch in any bay or 20 feet maximum.

38 Variation in Cross-Sectional Dimensions

39 Minus 1/8 inch; plus 1/4 inch.

40 Variation in Surface Tolerance

41 1/8 inch in any 10 feet measured with 10 foot straight-edge.

42 Deflection of Form Facing Material between Supports

43 0.0025 x span, maximum.

44 Column and Wall Locations

45 Accurately located within 1/8 inch.

46 Openings and Slabs

47 Accurately sized and located within 1/8 inch plus or minus

48 Crossing Property Lines

49 Regardless of tolerances specified above, no construction
50 shall extend beyond the legal boundary of the project.

51

- 1
- 2
- 3 **PRODUCT DELIVERY, STORAGE, AND HANDLING**
- 4 Protect against damage and discoloration.
- 5
- 6 **COORDINATION**
- 7 Coordinate with other trades affecting or affected by Work of
- 8 this section.
- 9
- 10 **PROTECTION**
- 11
- 12 Work of this section.
- 13
- 14 **ALTERNATES**
- 15 Refer to Section 01030 for possible effect upon Work of this
- 16 section.
- 17
- 18 **PART 2 - PRODUCTS**
- 19
- 20 **PLYWOOD FORMS**
- 21 APA B-B Plyform grade Plywood, Class 1.
- 22 Thickness: As required by Concrete placement rate.
- 23
- 24 **PLANK FORMS (Typical Use)**
- 25 Douglas Fir or Hemlock S4S, green, with no loose knots or knot
- 26 holes; maximum Knot size 1-1/2 inch and well scattered.
- 27 Size as required to support concrete at rate poured.
- 28 Provide at footing and flatwork perimeters, unless otherwise
- 29 indicated.
- 30
- 31 **FORM TIES**
- 32 Plastic cone type; Burke, Bowman, Richmond, Doyton, JEF, or
- 33 approved; with standard 1 inch breakback; equipped with inner
- 34 waterproofing washer; and type recommended by manufacturer for
- 35 conditions of installation.
- 36 Wire ties and wood spacers not permitted.
- 37
- 38 **EMBEDDED ITEMS**
- 39 Steel Reinforcement
- 40 Refer to Section 03 20 00.
- 41 Anchor Bolts
- 42 Furnished by Steel Fabricator and General Contractor.
- 43
- 44 **FORM TREATMENT**
- 45 For Plank Forms
- 46 Clean water.
- 47 For Plywood Forms
- 48 Coat with approved Stainless Form Oil, using minimum
- 49 quantity required for satisfactory form removal.

- 1 PART 3 - EXECUTION
- 2
- 3 GENERAL
- 4 Conform to shapes, lines, and dimensions shown on drawings.
- 5 Brace and tie together to insure that position and shape are
- 6 maintained.
- 7 Make tight to prevent concrete leakage.
- 8 Arrange joints as indicated or directed.
- 9 Form surface indentations, as shown on Drawings.
- 10 Provide access openings as required for cleaning and inspection
- 11 of forms and embedded items prior to placing concrete. Locate
- 12 where not exposed to view.
- 13 Anchor as required to prevent upward or lateral formwork movement
- 14 during concrete placement.
- 15
- 16 PLYWOOD FORMS
- 17 Prevent plywood end grain from forming concrete exposed to view.
- 18
- 19 BRACING
- 20 Provide as required to meet load requirements.
- 21 Protect against undermining or settlement when placed on ground
- 22
- 23 FORM TIES
- 24 Unless otherwise indicated or approved, locate equidistant and
- 25 symmetrical; align vertically and horizontally.
- 26
- 27 OPENINGS AND CHASINGS
- 28 Provide openings and chasings of slabs and walls for mechanical
- 29 and electrical work.
- 30 Sizes and locations as directed by mechanical and electrical
- 31 trades.
- 32
- 33 EARTH FORMS
- 34 Native soils or consolidated backfill may be used as foundation
- 35 side forms provided that the soil is not prone to sloughing and
- 36 concrete dimensions are increased by 3 inches at each side where
- 37 earth forms occur. Obtain Architect's approval prior to use of
- 38 earth forming technique.
- 39
- 40 TREATMENT OF FORMS
- 41 Plank Forms
- 42 Keep wet previous to placing concrete; wet thoroughly just before
- 43 concrete placing.
- 44 Plywood Forms
- 45 When treating previously set forms, prevent coatings from
- 46 covering reinforcing steel or existing concrete where bond is
- 47 required.
- 48 Prohibit coatings from collecting in puddles.

- 1
- 2 PART 3 - EXECUTION (Continued)
- 3
- 4 EMBEDDED ITEM INSTALLATION
- 5 Steel Reinforcement
- 6 Refer to Section 03 20 00.
- 7 Anchor Bolts
- 8 Secure in accordance with approved setting drawings.
- 9 Set with templates to assure accurate bolt positioning.
- 10
- 11 ADJUSTMENTS
- 12 Reposition to true alignment prior to, during, and after concrete
- 13 placement, if necessary.
- 14 During concrete placement, in areas where formwork develops
- 15 weakness, settlement, or distortion, stop placement and remove or
- 16 strengthen formwork.
- 17
- 18 FORM CLEANING
- 19 Remove debris and foreign matter from formwork prior to concrete
- 20 placement. Remove loose rust and foreign matter from reusable
- 21 hardware prior to installation into formwork.
- 22 Leave forms and shoring in place until concrete has attained
- 23 sufficient strength to safely support own weight and imposed
- 24 loads..
- 25
- 26 FORM REMOVAL
- 27 Remove forms at time and in manner to insure safety of structure,
- 28 and without concrete surface damage.
- 29 Remove top forms from any sloping concrete surfaces as soon as
- 30 concrete is self supporting. Repair and finish, if necessary,
- 31 and cure immediately.
- 32
- 33 FORM RE-USE
- 34 Withdraw projecting nails; clean concrete from contact surfaces.
- 35 Replace with new material when necessary or when directed.
- 36 Re-use forms only when contact surfaces equal those specified for
- 37 original use.
- 38
- 39 CLEANING AND REPAIRING
- 40 Remove formwork and debris from project site upon Work completion
- 41 or sooner, if directed.
- 42 Including Work of other sections, clean, repair and touch-up, or
- 43 replace when directed, products which have been soiled,
- 44 discolored, or damaged by Work of this section.

END OF SECTION 03 10 00

1 PART 1 - GENERAL

2

3 CONTRACT CONDITIONS

4 Work of this Section is bound by the General Conditions,
5 Supplementary Conditions, and Division 1 bound herewith in
6 addition to this Specification and accompanying Drawings.

7

8 RELATED WORK SPECIFIED ELSEWHERE

9 Quality Requirements, Section 01 40 00.

10 Concrete Formwork, Section 03 10 00.

11 Cast-in-Place Concrete, Section 03 30 00.

12

13

14 CONTRACT QUANTITIES

15 Provide all required steel reinforcement, including reinforcement
16 at Masonry walls.

17 Drawings and specifications indicate contract quantities.

18

19 ALLOWABLE VARIATION FROM DRAWING DIMENSIONS

20 Fabrication

21 Sheared Length: Plus or minus 1 inch.

22 Stirrup, and Tie Dimensions: Plus or minus 1/2 inch.

23 All Other Bend Dimensions: Plus or minus 1 inch.

24 Placement

25 Concrete cover: Plus or minus 1/4 inch.

26 Spacing between Bars: 1/4 inch.

27 Bar relocation to avoid interference with other reinforcement,
28 conduits, or embedded items: 1 Bar diameter, unless otherwise
29 approved by Architect.

30

31 SHOP AND PLACEMENT DRAWINGS

32 Follow "Manual of Standard Practice for Detailing Reinforced
33 Concrete Structures, Standard 315", published by American
34 Concrete Institute, Box 9094, Farmington Hills, MI, 48333.
35 Submit in accordance with Section 01 30 00.

36

37 PRODUCT DELIVERY, HANDLING, AND STORAGE

38 Protect against damage, rust, mud, grease, and oil.

39 Tag each piece or bundle; indicate size, grade, and location.

40

41 COORDINATION

42 Coordinate with other trades affecting or affected by Work of
43 this Section.

44

45 PROTECTION

46 Protect other Work against damage and discoloration caused by
47 Work of this Section.

48

49 ALTERNATES

50 Refer to Section 01 03 00 for possible effect upon Work of this
51 Section.

- 1 PART 2 - PRODUCTS
- 2
- 3 BARS
- 4 ASTM A615, grade 60.
- 5
- 6 TIE WIRE
- 7 Black, annealed steel 16 gauge minimum Fed. Spec. QQ-W-461.
- 8
- 9 ACCESSORIES
- 10 Conform to "Manual of Standard Practice" published by Concrete
- 11 Reinforcing Steel Institute, 933 North Plum Grove Road,
- 12 Schaumburg, IL, 60173.
- 13 Include all devices necessary for proper reinforcement placement,
- 14 spacing, supporting, and fastening.
- 15 Fabricate from concrete, ceramics, metal or plastic.
- 16 Galvanize metal accessories in contact with finished concrete
- 17 surfaces.
- 18
- 19 FABRICATION
- 20 Follow Concrete Reinforcing Steel Institute "Manual of Standard
- 21 Practice".
- 22
- 23 PART 3 - EXECUTION
- 24
- 25 EXISTING CONDITIONS
- 26 Verify that surfaces to receive reinforcement are accurately
- 27 sized and located, square, plumb, rigid, secure, and otherwise
- 28 accurately prepared.
- 29 Prior to starting Work, notify General Contractor of defects
- 30 requiring correction.
- 31 Do not start Work until conditions are satisfactory.
- 32
- 33 INSTALLATION
- 34 General
- 35 Conform to Uniform Building Code paragraphs hereinafter named and
- 36 amplified.
- 37 Welding of Rebar will not be allowed.
- 38 Bending
- 39 Conform to paragraph 1907.1, .2 and .3.
- 40 Bend Bars without heat.
- 41 Field bending partially embedded bars not permitted without
- 42 Architect's approval.
- 43 Placing
- 44 Conform to paragraph 1907.5.
- 45 Secure against displacement.
- 46 Spacing
- 47 Conform to paragraph 1907.6.
- 48 Clear distance between parallel Bars, including splices, unless
- 49 otherwise permitted by Code, no less than:
- 50 Nominal Bar diameter.
- 51 1-1/2 times maximum Concrete Aggregate size.
- 52 1 inch.

- 1 PART 3 - EXECUTION (Continued)
- 2
- 3 INSTALLATION (Continued)
- 4 Splicing
- 5 At All Bars:
- 6 36 Bar diameters minimum, but no less than 24 inches.
- 7 Protective Concrete Covering
- 8 Conform to paragraph 1907.7.
- 9 3 inches minimum
- 10 At principal structural members cast directly against the ground,
- 11 including Footings.
- 12 2 inches minimum
- 13 At principal structural members in direct contact with the ground
- 14 after Formwork removal.
- 15 3/4 inches minimum, or Bar diameter, whichever the larger
- 16 At slabs and walls not exposed directly to ground or weather.
- 17 1-1/2 inches minimum, or bar diameter, whichever larger
- 18 All other locations.
- 19
- 20 SPECIAL REINFORCEMENT, unless otherwise shown on Drawings:
- 21 At Wall Corners and Intersections
- 22 Splice horizontal Wall Reinforcing with corner bars; same size
- 23 and spacing.
- 24 Extend beyond Corner or Intersection 36 Bar diameters, 24 inches
- 25 minimum.
- 26 At Slab Re-entrant Corners
- 27 Provide 2each, 48 inch long, #4 Bar diagonally across Corners.
- 28
- 29 CLEANING AND REPAIRING
- 30 Prior to concrete placement, remove loose flaky rust, mud, oil,
- 31 and other bond-reducing coatings.
- 32 Remove debris from project site upon Work completion or sooner,
- 33 if directed.
- 34 Including Work of other Sections, clean, repair
- 35 replace when directed, Products which have been soiled,
- 36 discolored, or damaged by Work of this Section.

END OF SECTION 03 20 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This section includes the following:
 - 1. Footings
 - 2. Slabs-on-grade

1.3 SUBMITTALS

- A. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.4 QUALITY ASSURANCE

- A. Follow these standards: Place concrete according to ACI 301. Reinforcing to comply with ACI 301 and related ACI, CRSI, and ASTM standards. Formwork to comply with ACI 301, 318, and ACI 347. Tolerance standards for level, plumb, and aligned construction shall be as per ACI 117.

PART 2 - PRODUCTS

2.1 FORMWORK MATERIALS

- A. Miscellaneous materials include: Construction joints: Tongue and groove extruded plastic as manufactured for this purpose to be installed where sawn trenches in existing slabs cross existing control joints. Joint filler: Premolded asphaltic board as per ASTM D 1751.
- B. Vapor retarder for concrete slab on grade: "Moistop Ultra 10", 10 mil fiberglass reinforced polyethylene, manufactured by Fortifiber Building Products Systems, or approved.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, ¾ by ¾ inch min.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS

- A. Reinforcing bars or wire mesh: All Interior and Exterior slabs on grade shall be reinforced with #4 deformed bars spaced 18" o.c.

2.3 CONCRETE MATERIALS

- A. Concrete ingredients: Portland cement ASTM C 150 Normal-Type I. Aggregate, fine and coarse as per ASTM C 33. Water as per ASTM C 94, clean, free of salt or any chemicals or contaminants that might injure the concrete. Where exposed aggregate finish is noted on the Drawings provide special “exposed aggregate mix” to match as closely as possible the exposed aggregate finish of existing exposed aggregate finish closest to new slab.
- B. Admixtures and miscellaneous materials:
 - 1. Air entraining admixture as per ASTM C 260 and manufacturer's instructions. Water reducing, retarding, accelerating admixtures as per: ASTM C 494 and manufacturer's instructions. Bonding agent: Polymer resin. Non-shrink grout: Non-metallic mineral aggregate, cement, water reducing materials as per ASTM C 494 and as per manufacturer's instructions.
- C. Curing & Sealing products:
 - 1. Curing and protection paper: Products shall comply with ASTM C 171. Use non-staining curing paper or paper with polyethylene film on floor slabs.
 - 2. Liquid curing & hardening agents as manufactured by Sonneborn or its descendants, or approved.
 - 3. Interior Flatwork to receive finish covering: Clear, colorless, with fugitive dye, approved by floor covering Contractor; meet or exceed ASTM C-309-Type 1., no VOC
 - 4. Exterior Flatwork without finish covering: White pigmented, non-yellowing, meet or exceed ASTM C-309-Type 1, no VOC.

2.4 CONCRETE MIXTURE

- A. All mixing and tests to assure compliance with standards as per CI 301.
 - 1. Provide concrete ready-mixed in compliance with ASTM C 94. Concrete strength will conform to ACI 301, 318, and applicable building code requirements.

Compressive strength of 1700 psi in 7 day test.

Compressive strength of 3500 psi in 28 day test.

Slump (5) inches maximum.
- B. Add air entraining admixture as required to protect concrete exposed to exterior weather. Admixture as per ACI 301 and 318 and manufacturer's instructions.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. Concrete slabs shall be fully supported by compacted crushed rock.

- B. Joints & Formwork: Install formwork to provide movement joints to align with and continue existing control joints.
- C. Clean cut edges of existing concrete and remove trash, scraps, and other foreign materials prior to installing new concrete..
- D. Avoid damage to existing concrete surfaces which are scheduled to remain. It is the intent of this Contract to avoid the need to replace existing resilient flooring.
- E. Tool scored joints into concrete slabs at joints between new and existing slabs and to extend existing score lines through new concrete surfaces.
- F. Concrete slab patches shall be steel troweled smooth at building interior to match adjacent finishes.
- G. Where exterior walks are cut and patched, or extended, new concrete shall be finished to match slopes of adjacent existing walks to continue existing drainage patterns. Finishes of new walks shall match texture and patterns of existing walks.

3.2 CONCRETE - PRE-PLACEMENT COORDINATION

- A. Obtain all required agency approvals.

3.3 FORMWORK

- A. Install vapor retarder under slabs on grade with joints lapped a minimum of 8 to 12 inches. Seal entire vapor retarder watertight.
- B. Coordinate installation of related work before concrete pour, and protect from damage all work such as base plates, utility boxes, drains, conduit, pipes and plumbing. Put required attachments, accessories, and inserts in place before pouring.
- C. Prepare previous concrete work for connection with new work by cleaning with wire brush and adding bonding agent as per manufacturer's instructions.
- D. Install joint filler at joint lines where concrete slab abuts building exterior foundation wall. Separate slab from vertical surfaces with 1/2" joint filler or bond breaker. Install concrete without interruption between construction or expansion joints.
- E. Areas to receive concrete shall be free of debris or organic matter and wetted if dry.
- F. Keep formwork in place after pouring until concrete reaches required strength. Adjust and retighten forms as necessary to fasten securely against concrete surfaces. Keep all formwork bracing in place after pouring until ample time has passed for concrete to reach required strength.

3.4 CONCRETE PLACEMENT

- A. Provide site sample test materials such as cylinders, slump cone and measuring equipment.
- B. Record dates and times of placement, interruptions, tests, completion, and finish work. Verify concrete requirements for tests and mix before delivery and placement.
- C. Slump must pass visual inspection. Check test results at 3 or 7 days, and confirm at 28 days.

3.5 INSTALLATION

- A. Ready-mix concrete to conform to ACI 301 and 304. Allow no unauthorized watering or overwatering.
- B. Job-mixed concrete shall not be installed at exterior exposed slabs. Small concrete patches at building interior may be Job-mixed and shall conform to ACI and ASTM. Keep cement in dry storage. Protect all materials from contamination. Keep mix water clean and free of salts or other harmful chemicals.
- C. Follow a continuous concrete delivery schedule to allow uninterrupted placement of concrete for exterior walkways. Avoid any unplanned cold joints. Do not allow mix trucks to stay beyond allowable waiting period before pouring concrete. Typical waiting limits are: Less than an hour on hot days. Less than half an hour after water has been added.
- D. Preparation: All materials, equipment, and personnel shall be as required to perform the work shown and specified. Verify that slabs will be properly sloped for required drainage.

3.6 CONCRETE PROTECTING AND CURING

- A. Provide for curing of concrete as per ACI 308 for a minimum of seven days. Start curing procedures promptly after pour, to protect concrete from premature drying. Control curing methods, covers, and wetting, with special attention to weather conditions. Apply curing compound in strict accordance with manufacturer's instructions for conditions of use.
- B. During curing, protect concrete from heat or cold, to maintain temperature between 50 and 70 F. Degrees. Protect concrete from inclement weather, running water, construction equipment, movement and load stress. Apply liquid sealer in strict accordance with manufacturer's instructions for conditions of use.
- C. Where exposed aggregate finish is noted wash off excess concrete to expose aggregation on same day of concrete installation. Expose top surfaces only of aggregate to preserve mechanical bond of each aggregate with the slab. Apply liquid sealer in strict accordance with manufacturer's instructions for conditions of use.

3.7 FINISHING FORMED SURFACES

- A. Match up finish work to adjacent or nearby surfaces at all joints, edges, and corners.
- B. Floating, troweling, and special finishes shall be as noted on the Drawings. Do not begin floating until bleed water is gone and avoid over-troweling. Do not dust cement to expedite

troweling start time.

- C. Complete finishes as shown on the Drawings including troweled finish for walking surfaces or those receiving floor covering or membrane. Broom finish shall be non-slip for landings and walkways.
- D. After first floating, check plane of surface with 10' steel straight edge. Finish work, measured with a 10' straightedge, must not exceed a tolerance of 1/8" in 10' in any direction. Exterior slabs which allow ponding of water to occur shall be removed and replaced.

3.8 FORM REMOVAL, CLEANING & REPAIRING

- A. Remove formwork as per CSI 301 and 318. Remove wood formwork below grade, as well as above grade.
- B. Protect newly poured concrete surfaces from damage during and after stripping of forms. Promptly remove form tie clamps before corrosion can begin. Remove loose nails and other metals that might leave rust. Grout any depressions in concrete smooth and level.
- C. After form removal, promptly repair honeycombs and all other surface defects on concrete surfaces that will remain visible as directed by the Architect.
- D. Clean work surfaces, remove formwork, completely remove debris from the job site.

END OF SECTION 03 30 00

1 PART 1 - GENERAL

2

3 CONTRACT CONDITIONS

4 Work of this Section is bound by the General Conditions,
5 Supplementary Conditions, and Division 1 bound herewith in
6 addition to this Specification and accompanying Drawings.

7

8 RELATED WORK SPECIFIED ELSEWHERE

9 Reinforcing Steel for Concrete, Section 03 20 00.
10 Rough Hardware for Carpentry, Section 06 10 00.
11 Finish Painting of Steel Items, Section 09 90 00.
12 Anchors, Bolts, Sleeves, and Supports for Mechanical and
13 Electrical Work, Divisions 15 and 16, respectively.

14

15 EXTENT OF WORK

16 Provide all steel work.

17

18 SHOP DRAWINGS

19 Submit in accordance with section 01 33 00.

20

21 Show locations, critical dimensions, required clearances,
22 construction details, installation methods including splices,
23 attachments, and anchoring.

24

25 Substitution of fabricated framing devices for those indicated in
26 Section 06 10 00 will not be accepted.

27

28 QUALIFICATIONS

29 Welders

30 Welders must be qualified for welds to be performed in accordance
31 with AWS D1.1.

32

33 Submit Qualification Test Report not older than two years from
34 approved independent laboratory or inspection service for each
35 welder in accordance with AWS D1.1.

36

37 TESTING OF STRUCTURAL CONNECTIONS

38 Owner will provide independent inspection as specified in section
39 01 40 00.

40

41 PRODUCT DELIVERY, STORAGE, AND HANDLING

42 Protect against damage and discoloration.

43

44 COORDINATION

45 Coordinate with other trades affecting or affected by work of
46 this section.

47

48 PROTECTION

49 Protect other work against damage and discoloration caused by
50 work of this section.

- 1
- 2
- 3 ALTERNATES
- 4 Refer to Section 01 23 00 for possible effect upon work of this
- 5 section.
- 6
- 7 PART 2 - PRODUCTS
- 8 STEEL
- 9 Tube: ASTM A-500, Grade B, Fy 46 Ksi.
- 10 All other Work: ASTM A-36.
- 11
- 12 THREADED FASTENERS
- 13 Bolts and Nuts: ASTM A-325 for steel to steel connections, ASTM
- 14 A-307, Grade A for connections to wood, concrete or masonry.
- 15 Plain Washers: American National Standards Institute B 27.2.
- 16 Beveled Washers: American National Standards Institute B 27.4.
- 17 Epoxy Bolts: Power-fast adhesive with threaded rods.
- 18 Expansion Anchors: Power Bolt, Kwik-Bolt II or approved.
- 19
- 20 WELDING ELECTRODES
- 21 ASTM A-233, Series Low Hydrogen E-70.
- 22
- 23 SHOP PAINT, except where galvanized:
- 24 Rust-inhibiting primer specified in Section 09 90 00; minimum dry
- 25 thickness: 1 mil.
- 26
- 27 MISCELLANEOUS
- 28 Provide all other steel items shown on drawings.
- 29
- 30 FABRICATION
- 31 General
- 32 Form to accurate sizes and shapes, with sharp lines and angles,
- 33 and in accordance with AISC Minimum Fabrication Standards and
- 34 approved shop drawings.
- 35 Punch and shear to leave clean surfaces.
- 36 Weld permanent connections; grind exposed welds smooth.
- 37 Provide holes and connections for work of other trades.
- 38 Cut abutting structural members to fit with full-bearing contact.
- 39 Form elbows and bends to uniform radii, free from buckles and
- 40 twists, with finished surfaces smooth.
- 41 Miter and cope member intersections within 2°, fit to within 0.02
- 42 inches, and weld all around.
- 43 Where exposed to weather, form to exclude water; allow for
- 44 expansion and contraction.
- 45 Do not use screws or bolts when they can be avoided; when used
- 46 countersink heads, draw up tight, and nick threads to prevent
- 47 loosening.

- 1 PART 2 - PRODUCTS (Continued)
- 2
- 3 FABRICATION (Continued)
- 4 Shop Treatment
- 5 Provide the following after fabrication but before installation:
- 6 Preparation of Surfaces
- 7 Remove rust, scale, grease, and oil.
- 8 Exterior Metal
- 9 Hot-dip galvanize in accordance with ASTM A-123.No shop
- 10 painting required.
- 11 All Other Metal
- 12 Provide one coat of shop paint.
- 13
- 14 PART 3 - EXECUTION
- 15
- 16 EXISTING CONDITIONS
- 17 Verify that surfaces and structures to receive fabricated steel
- 18 are accurately sized and located, square, plumb, true, rigid,
- 19 secure, and otherwise properly prepared.
- 20 Prior to starting work, notify General Contractor of defects
- 21 requiring correction.
- 22 Do not start work until conditions are satisfactory.
- 23
- 24 FIELD MEASUREMENTS
- 25 Verify prior to fabrication.
- 26 If field measurements differ slightly from drawing dimensions,
- 27 modify Work as required for accurate fit.
- 28 If measurements differ substantially, notify Architect prior to
- 29 fabrication.
- 30
- 31 INSTALLATION
- 32 General
- 33 Follow manufacturer's instructions and approved shop drawings.
- 34 Install to true lines, plumb and level as detailed or required
- 35 for rigidity and permanence.
- 36
- 37 TOUCH-UP
- 38 Repair or replace damaged painted and galvanized coatings.
- 39
- 40 ADJUSTMENTS
- 41 Adjust moving parts to operate satisfactorily at time of final
- 42 project acceptance and during warranty period.
- 43
- 44 PRODUCT CLEANING AND REPAIRING
- 45 Including work of other sections, clean, repair and touch-up, or
- 46 replace when directed, products which have been soiled,
- 47 discolored, or damaged by work of this section.
- 48 Leave surfaces ready for finishing specified in Section 09 90 00.
- 49 Remove debris from project site upon work completion or sooner,
- 50 if directed.

END OF SECTION 05 50 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Provide rough carpentry work:
 1. Wood framing.
 2. Sheathing.
 3. Subflooring.
 4. Underlayment.
 5. Backing panels for utilities.
 6. Nailers, blocking, furring, metal connectors at all post/beam/footing joints, and sleepers.
 7. Glue-laminated beams, girders, and headers specified under 06 19 00

1.3 SUBMITTALS

- A. Submit for approval product data.

1.4 QUALITY STANDARDS

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber, finished 4 sides, 19% maximum moisture content:
 1. Light framing: Construction grade Douglas Fir or Southern Pine, appearance grade where exposed.
 2. Structural framing and timbers: No. 1 grade Douglas fir or southern pine, appearance grade where exposed.
 3. Boards: Construction grade.

- B. Wood for nailers, blocking, furring and sleepers: Construction grade, finished 4 sides, 19% maximum moisture content. Pressure preservative treat items in contact with roofing, flashing, waterproofing, masonry, concrete or the ground. Provide blocking for all mounted items, including:
 - 1. Casework and shelving.
 - 2. Handrails and railings.
 - 3. Toilet accessories.
 - 4. Window treatment.
 - 5. Nailers for roof crickets

- C. Plywood, APA rated for use and exposure & Cementitious Underlayment:
 - 1. Cementitious underlayment for single-ply roofing: 1/4" Dens-deck as manufactured by Georgia Pacific, or approved cementitious underlayment board as required to meet UL Class A requirement for roofing assembly.
 - 2. Subflooring: APA sheathing, 1-1/8" thick 2:4:1, 48/24 Douglas Fir Plywood
 - 3. Wall sheathing: APA sheathing, 1/2" C-D plugged, Exterior.
 - 4. Roof sheathing: APA sheathing, 5/8", 32/16 Douglas Fir Plywood Exterior.
 - 5. Backing panels: APA C-D plugged interior with exterior glue, 3/4" thick.

- D. Building paper: Asphalt saturated felt, non-perforated, ASTM D 226, Type 1.

- E. Air infiltration barrier @ Interior face of Exterior Studs typical: 6 mil Visqueen or approved equal.

- F. Wood treatment:
 - 1. Preservative treatment: Pressure-treated with waterborne preservatives, to comply with AWPB LP-2 for above-ground items LP-22 for ground contact items. Kiln dry after treatment to 19% max. moisture content for lumber and 15% for plywood. Treat above-ground wood exposed to deterioration by moisture and all wood in contact with the ground or fresh water.
 - 2. Fire-retardant treatment: Pressure impregnated, to comply with AWPA C20 for lumber and AWPA C27 for plywood; provide where indicated and where required by code. Do not use fire-retardant treatment containing ammonium phosphates.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Wood framing: Comply with recommendations of NFPA Manual for House Framing, NFPA Recommended Nailing Schedule, and NFPA National Design Specifications for Wood Construction.

- B. Plywood: Comply with recommendations of APA Design and Construction Guide - Residential and Commercial.
 - 1. Minimum Nailing Standards for Wall Sheathing: 8d nails @ 6" o.c. at all edges, 12" o.c. at all intermediate supports.
 - 2. Minimum Attachment Standards for Floor Sheathing: #10 x 2-1/2" screws @ 6" o.c. at all edges, 12" o.c. at all intermediate supports.

3. Minimum Attachment Standards for Roof Sheathing: 8d nails @ 6" o.c. at all edges, 12" o.c. at all intermediate supports. Decrease nail spacing to 4" o.c. at all edges and 8" o.c. at intermediate supports within 10 feet of roof edges and at roofs over third floor areas.
- C. Provide nailers, blocking and grounds where required. Set work plumb, level and accurately cut. Provide 2 inch nominal solid fire blocking between studs and other framing at a maximum spacing of 10' centers and at all floor and fire rated ceiling lines.
 - D. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with other work.
 - E. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials. Provide STAINLESS STEEL OR DOUBLE GALVANIZED FASTENERS for attachments of all Pressure Treated Materials.
 - F. Restore damaged components. Protect work from damage.

TABLE 2304.9.1 FASTENING SCHEDULE

CONNECTION	FASTENING ^{a, m}	LOCATION
1. Joist to sill or girder	3 - 8d common (2½" × 0.131") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail
2. Bridging to joist	2 - 8d common (2½" × 0.131") 2 - 3" × 0.131" nails 2 - 3" 14 gage staples	toenail each end
3. 1" × 6" subfloor or less to each joist	2 - 8d common (2½" × 0.131")	face nail
4. Wider than 1" × 6" subfloor to each joist	3 - 8d common (2½" × 0.131")	face nail
5. 2" subfloor to joist or girder	2 - 16d common (3½" × 0.162")	blind and face nail
6. Sole plate to joist or blocking	16d (3½" × 0.135") at 16" o.c. 3" × 0.131" nails at 8" o.c. 3" 14 gage staples at 12" o.c.	typical face nail
Sole plate to joist or blocking at braced wall panel	3- 16d (3½" × 0.135") at 16" o.c. 4 - 3" × 0.131" nails at 16" o.c. 4 - 3" 14 gage staples at 16" o.c.	braced wall panels
7. Top plate to stud	2 - 16d common (3½" × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	end nail
8. Stud to sole plate	4 - 8d common (2½" × 0.131") 4 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail
	2 - 16d common (3½" × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	end nail
9. Double studs	16d (3½" × 0.135") at 24" o.c. 3" × 0.131" nail at 8" o.c. 3" 14 gage staple at 8" o.c.	face nail
10. Double top plates	16d (3½" × 0.135") at 16" o.c. 3" × 0.131" nail at 12" o.c. 3" 14 gage staple at 12" o.c.	typical face nail
Double top plates	8 - 16d common (3½" × 0.162") 12 - 3" × 0.131" nails 12 - 3" 14 gage staples	lap splice
11. Blocking between joists or rafters to top plate	3 - 8d common (2½" × 0.131") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail
12. Rim joist to top plate	8d (2½" × 0.131") at 6" o.c. 3" × 0.131" nail at 6" o.c. 3" 14 gage staple at 6" o.c.	toenail
13. Top plates, laps and intersections	2 - 16d common (3½" × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	face nail
14. Continuous header, two pieces	16d common (3½" × 0.162")	16" o.c. along edge
15. Ceiling joists to plate	3 - 8d common (2½" × 0.131") 5 - 3" × 0.131" nails 5 - 3" 14 gage staples	toenail
16. Continuous header to stud	4 - 8d common (2½" × 0.131")	toenail

TABLE 2304.9.1—continued FASTENING SCHEDULE

CONNECTION	FASTENING ^{a, m}	LOCATION
17. Ceiling joists, laps over partitions (see Section 2308.10.4.1, Table 2308.10.4.1)	3 - 16d common (3 ¹ / ₂ " × 0.162") minimum, Table 2308.10.4.1 4 - 3" × 0.131" nails 4 - 3" 14 gage staples	face nail
18. Ceiling joists to parallel rafters (see Section 2308.10.4.1, Table 2308.10.4.1)	3 - 16d common (3 ¹ / ₂ " × 0.162") minimum, Table 2308.10.4.1 4 - 3" × 0.131" nails 4 - 3" 14 gage staples	face nail
19. Rafter to plate (see Section 2308.10.1, Table 2308.10.1)	3 - 8d common (2 ¹ / ₂ " × 0.131") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail
20. 1" diagonal brace to each stud and plate	2 - 8d common (2 ¹ / ₂ " × 0.131") 2 - 3" × 0.131" nails 3 - 3" 14 gage staples	face nail
21. 1" × 8" sheathing to each bearing	3 - 8d common (2 ¹ / ₂ " × 0.131")	face nail
22. Wider than 1" × 8" sheathing to each bearing	3 - 8d common (2 ¹ / ₂ " × 0.131")	face nail
23. Built-up corner studs	16d common (3 ¹ / ₂ " × 0.162") 3" × 0.131" nails 3" 14 gage staples	24" o.c. 16" o.c. 16" o.c.
24. Built-up girder and beams	20d common (4" × 0.192") 32" o.c. 3" × 0.131" nail at 24" o.c. 3" 14 gage staple at 24" o.c.	face nail at top and bottom staggered on opposite sides
	2 - 20d common (4" × 0.192") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	face nail at ends and at each splice
25. 2" planks	16d common (3 ¹ / ₂ " × 0.162")	at each bearing
26. Collar tie to rafter	3 - 10d common (3" × 0.148") 4 - 3" × 0.131" nails 4 - 3" 14 gage staples	face nail
27. Jack rafter to hip	3 - 10d common (3" × 0.148") 4 - 3" × 0.131" nails 4 - 3" 14 gage staples	toenail
	2 - 16d common (3 ¹ / ₂ " × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	face nail
28. Roof rafter to 2-by ridge beam	2 - 16d common (3 ¹ / ₂ " × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail
	2 - 16d common (3 ¹ / ₂ " × 0.162") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	face nail
29. Joist to band joist	3 - 16d common (3 ¹ / ₂ " × 0.162") 4 - 3" × 0.131" nails 4 - 3" 14 gage staples	face nail

TABLE 2304.9.1—continued FASTENING SCHEDULE

CONNECTION	FASTENING ^{a,m}	LOCATION
30. Ledger strip	3 - 16d common (3 ¹ / ₂ " × 0.162") 4 - 3" × 0.131" nails 4 - 3" 14 gage staples	face nail at each joist
31. Wood structural panels and particleboard ^b Subfloor, roof and wall sheathing (to framing)	1/2" and 6d ^{c,1} less 2 ³ / ₈ " × 0.113" nail ^p 1 ³ / ₄ " 16 gage ^o 19/32" to 3/4" 8d ^d or 6d ^e 2 ³ / ₈ " × 0.113" nail ^p 2" 16 gage staple ^p 7/8" to 1" 8d ^e 1 ¹ / ₈ " to 1 ¹ / ₄ " 10d ^d or 8d ^e Single floor (combination subfloor-underlayment to framing) 3/4" and less 6d ^e 7/8" to 1" 8d ^e 1 ¹ / ₈ " to 1 ¹ / ₄ " 10d ^d or 8d ^e	
32. Panel siding (to framing)	1/2" or less 6d ^f 5/8" 8d ^f	
33. Fiberboard sheathing ^g	1/2" No. 11 gage roofing nail ^h 6d common nail (2" × 0.113") No. 16 gage staple ⁱ 25/32" No. 11 gage roofing nail ^h 8d common nail (2 ¹ / ₂ " × 0.131") No. 16 gage staple ⁱ	
34. Interior paneling	1/4" 4d ^j 3/8" 6d ^k	

For SI: 1 inch = 25.4 mm.

- Common or box nails are permitted to be used except where otherwise stated.
- Nails spaced at 6 inches on center at edges, 12 inches at intermediate supports except 6 inches at supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to [Section 2305](#). Nails for wall sheathing are permitted to be common, box or casing.
- Common or deformed shank (6d - 2" × 0.113"; 8d - 2¹/₂" × 0.131"; 10d - 3" × 0.148").
- Common (6d - 2" × 0.113"; 8d - 2¹/₂" × 0.131"; 10d - 3" × 0.148").
- Deformed shank (6d - 2" × 0.113"; 8d - 2¹/₂" × 0.131"; 10d - 3" × 0.148").
- Corrosion-resistant siding (6d - 1⁷/₈" × 0.106"; 8d - 2³/₈" × 0.128") or casing (6d - 2" × 0.099"; 8d - 2¹/₂" × 0.113") nail.
- Fasteners spaced 3 inches on center at exterior edges and 6 inches on center at intermediate supports, when used as structural sheathing. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications.
- Corrosion-resistant roofing nails with 7/16-inch-diameter head and 1¹/₂-inch length for 1/2-inch sheathing and 13/4-inch length for 25/32-inch sheathing.
- Corrosion-resistant staples with nominal 7/16-inch crown or 1-inch crown and 1¹/₄-inch length for 1/2-inch sheathing and 1-inch length for 25/32-inch sheathing. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
- Casing (1¹/₂" × 0.080") or finish (1¹/₂" × 0.072") nails spaced 6 inches on panel edges, 12 inches at intermediate supports.

- k. Panel supports at 24 inches. Casing or finish nails spaced 6 inches on panel edges, 12 inches at intermediate supports.
- l. For roof sheathing applications, 8d nails ($2\frac{1}{2}'' \times 0.113''$) are the minimum required for wood structural panels.
- m. Staples shall have a minimum crown width of $\frac{7}{16}$ inch.
- n. For roof sheathing applications, fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.
- o. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports for subfloor and wall sheathing and 3 inches on center at edges, 6 inches at intermediate supports for roof sheathing.
- p. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.

END OF SECTION 06 10 00

1 PART 1 - GENERAL

2

3 CONTRACT CONDITIONS

4 Work of this Section is bound by the General Conditions,
5 Supplementary Conditions and Division 1 bound herewith in
6 addition to this Specification and accompanying Drawings.

7

8 RELATED WORK SPECIFIED ELSEWHERE

9 Fabricated Steel Attaching Devices, Section 05 50 00.
10 Trussed Joists, Section 06 19 10.

11

12 MANUFACTURER'S QUALITY CONTROL

13 Deliver to Architect report of approved, Independent Testing Lab
14 or AITC Certificate of Conformance with Attachments 1 and 2,
15 stating that glued laminated units conform to these
16 Specifications.

17 Refer to Section 01 41 00 for testing details.

18

19 REQUIREMENTS OF REGULATORY AGENCIES

20 Conform to Building Code, if requirements are more rigid than
21 those specified herein. Notify Architect of differences prior to
22 fabrication.

23

24 SHOP DRAWINGS

25 Submit in accordance with Section 01 30 00.

26 Include locations, dimensions, camber amounts and complete
27 fabrication and installation details.

28

29 PRODUCT DELIVERY, STORAGE AND HANDLING

30 Coordinate deliveries with General Contractor's erection
31 sequence.

32 Store on level surface.

33 Protect against damage and discoloration; handle with non-marring
34 slings.

35

36 PROTECTION

37 Bundle-wrap members with water-resistant paper in accordance with
38 AITC Specification 111.

39 Protect other work against damage or discoloration caused by work
40 of this Section.

41

42 COORDINATION

43 Coordinate with other trades affecting or affected by work of
44 this section.

45

46 ALTERNATES

47 Refer to Section 01 03 00 for possible effect upon work of this
48 section.

- 1 PART 2 - PRODUCTS
- 2
- 3 LUMBER
- 4 Douglas Fir or Larch meeting structural requirements and
- 5 laminating specifications.
- 6
- 7 ADHESIVE
- 8 In accordance with Standard Specifications; Wet-use type.
- 9
- 10 APPEARANCE GRADE
- 11 AITC "Industrial" grade where concealed.
- 12 AITC "Architectural" grade where exposed.
- 13
- 14 RADIUS MEMBERS
- 15 See Drawings for locations and radii of arched beams.
- 16
- 17 SURFACE TEXTURE
- 18 Plane or sand smooth at fabricator's option.
- 19
- 20 STRUCTURAL GRADE
- 21 Provide AITC standard strength combination 24F-V4 or as indicated
- 22 on drawings.
- 23
- 24 CAMBER
- 25 Standard camber, unless noted otherwise.
- 26
- 27 FABRICATOR
- 28 Western Structures, Willamette Industries, American Laminators,
- 29 and Rosboro, or approved.
- 30
- 31 FABRICATION
- 32 Conform to Product Standard PS-56, 73 and other herein named
- 33 Standards of American Institute of Timber Construction, herein
- 34 called AITC.
- 35 Standard Specifications may be examined at Architect's Office or
- 36 obtained from institute, 7012 S. Revere Parkway, Suite 140,
- 37 Englewood, Colorado 80112.
- 38 In Members subject to bending and spanning continuously over more
- 39 than 2 supports, provide tension laminations complying with AITC
- 40 requirements in both top and bottom laminations as necessitated
- 41 by flexural configuration of member.
- 42 Comply with AITC 117-79.
- 43
- 44 SHOP TREATMENT
- 45 General
- 46 Follow AITC 111 Standards as hereunder specified.
- 47 All Surfaces
- 48 Sealer coat.

1 PART 3 - EXECUTION

2

3 EXISTING CONDITIONS

4 Verify that structure and surfaces to receive glued-laminated
5 lumber are rigid, secure, accurately sized and located and
6 otherwise properly prepared.

7 Prior to starting work, notify general contractor of defects
8 requiring correction.

9 Do not start work until conditions are satisfactory.

10

11 FIELD MEASUREMENTS

12 If field measurements differ slightly from drawing dimensions,
13 modify work as required for accurate fit.

14 If measurements differ substantially, notify Architect prior to
15 fabrication.

16

17 INSTALLATION

18 Accurately locate with camber side up.

19 Secure with no less support-bearing than shown on contract
20 drawings and approved shop drawings.

21

22 PRODUCT CLEANING AND REPAIRING

23 Including work of other sections, clean, repair and touch-up, or
24 replace when directed, products which have been soiled,
25 discolored, or damaged by work of this section.

26 Remove debris from project site upon work completion or sooner,
27 if directed.

END OF SECTION 06 18 10

1 PART 1 - GENERAL

2

3 CONTRACT CONDITIONS

4 Work of this Section is bound by the General Conditions,
5 Supplementary Conditions and Division 1 bound herewith in
6 addition to this Specification and accompanying Drawings.

7

8 RELATED WORK SPECIFIED ELSEWHERE

9 Rough Carpentry, Section 06 10 00.

10

11

12 Caulking and Sealing, Section 07 51 00.

13 Painting and Finishing, Section 09 90 00.

14

15 WORK PERFORMED BUT SPECIFIED ELSEWHERE

16

17

18 QUALITY STANDARDS

19 General

20 Unless otherwise modified herein, materials and workmanship
21 quality grades shall be determined by the association listed
22 below.

23 Standards may be obtained from Association.

24 Quality Standards of American Woodwork Institute 6th Edition,
25 herein after referred to as AWI, 13924 Braddock Rd., Suite 100
26 Centreville, VA 22020.

27

28 SAMPLES

29 Submit for review and acceptance, two (2)12" lengths of each
30 board and 12" squares of each sheet material as samples of each
31 specified wood and plywood.

32 Clearly label specie and grade.

33

34 SHOP DRAWINGS

35 Submit in accordance with Section 01 30 00.

36 Show profiles, joint details and other pertinent items.

37 Show connections to adjacent work and complete assembly, whether
38 or not materials are furnished by mill.

39 Identify each Item as to location, material grade, workmanship
40 grade, specie and finish.

41

42 PRODUCT DELIVERY

43 Do not deliver products to jobsite until notified by General
44 Contractor that project is conditioned and prepared to handle and
45 store products without damage or discoloration.

46

47 PRODUCT STORAGE AND HANDLING

48 Protect against damage and discoloration.

49

50 ILLUMINATION

51 Perform no work under less than 30 foot candles of light measured
52 3 feet above floor.

- 1
- 2
- 3 TEMPERATURE
- 4 Maintain 50°F minimum in interior spaces where
- 5 materials are located.
- 6
- 7 PROTECTION
- 8 Protect other surfaces against damage or discoloration caused by
- 9 work of this section.
- 10
- 11 COORDINATION
- 12 Coordinate with other trades affecting or affected by work of
- 13 this section.
- 14
- 15 ALTERNATES
- 16 Refer to Section 01 03 00 for possible effect upon work of this
- 17 section.
- 18
- 19 PART 2 - PRODUCTS
- 20
- 21 MOISTURE CONTENT IN LUMBER
- 22 12% maximum.
- 23
- 24 INTERIOR WOOD TRIM
- 25 Sills and trim.
- 26 Species: Maple
- 27 Grain: Plain sawn
- 28 AWI Grade: Grade 1
- 29 Surface Texture: Smooth
- 30 Minimum Lengths:
- 31 Opening Trim: 1 piece, single length.
- 32 Standing Trim: No less than full height.
- 33
- 34 EQUIPMENT MOUNTING PANELS
- 35 Thickness: 3/4-inch thickness unless otherwise noted and longest
- 36 practicable lengths possible, APA plywood, Fire Retardant
- 37 Treated.
- 38
- 39 FABRICATION
- 40 General
- 41 Conform to AWI Premium Grade unless specifically noted otherwise.
- 42 Assemble finish material at mill where feasible.
- 43 Use concealed fastenings wherever possible.
- 44 Conceal end grain in exposed surfaces.
- 45 Kerf backs of flat grain members more than 5 inches wide or more
- 46 than 1 inch nominal thickness.
- 47 Machine sand finish carpentry not specified with rough surface.

- 1 PART 3 - EXECUTION
- 2
- 3 EXISTING CONDITIONS
- 4 Verify that surfaces to receive finish carpentry are straight,
- 5 plumb, true, solid, rigid and otherwise properly prepared.
- 6 Prior to starting work, notify General Contractor of defects
- 7 requiring correction.
- 8 Do not start work until conditions are satisfactory.
- 9
- 10 FIELD MEASUREMENTS
- 11 Verify prior to fabrication.
- 12 If field measurements differ slightly from Drawing dimensions,
- 13 modify work as required for accurate fit.
- 14 If measurements differ substantially, notify Architect prior to
- 15 fabricating work.
- 16
- 17 INSTALLATION
- 18 General
- 19 Miter corners.
- 20 Accurately scribe filler strips and trim strips to adjacent
- 21 surface irregularities.
- 22 Remove sharp external corners prior to finishing.
- 23 Ease all edges prior to finishing.
- 24
- 25 EQUIPMENT MOUNTING PANEL INSTALLATION
- 26 Install with flathead wood screws and finish washers at 24 inches
- 27 on center around panel perimeter.
- 28
- 29 PRODUCT CLEANING AND REPAIRING
- 30 Including work of other sections, clean, repair and touch-up or
- 31 replace when directed, products which have been soiled,
- 32 discolored, or damaged by work of this section.
- 33 Leave surfaces ready for finishing specified in Section 09 90 00.
- 34 Remove debris from project site upon work completion or sooner,
- 35 if directed.

END OF SECTION 06 20 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This section includes the following:
 - 1. Provide all wall insulation in walls as shown on drawings.
 - 2. Provide all roof / attic insulation over ceiling areas as shown on drawings
 - 3. Provide all rigid insulation on exposed concrete stemwalls as shown on drawings.

1.3 QUALITY STANDARDS

- A. Provide experienced, well-trained workers competent to complete the work as specified.
- B. Unless approved by the Architect, provide all related products and accessories from one manufacturer.

1.4 DEFINITIONS

- A. “R” value designates thermal resistance of insulation only, not including alleged air spaces or other factors assumed to result in higher “R” values.

1.5 MATERIALS HANDLING

- A. Provide all materials required to complete the work as shown on drawings and specified herein. Deliver, store, and transport materials to avoid damage to the products or to any other work and as per the General Conditions.

1.6 PREPARATION

- A. Examine and verify that job conditions are satisfactory for speedy and acceptable work.

PART 2 - PRODUCTS

2.1 THERMAL INSULATION

- A. Insulation shall be flexible fiberglass insulation batts with Kraft paper facing at warm

side (interior).
Manufactured by Owens-Corning, Certainteed or approved.
Location: As specified herein.
R-value:21 Thickness: 5 ½"

Rigid Insulation: shall be extruded polystyrene, closed cell foam
Manufactured by Owens-Corning, Certainteed or approved.

- B. Provide tapes, fastenings, and other related materials as instructed by insulation manufacturer.

PART 3 - CONSTRUCTION AND INSTALLATION

3.1 MATERIALS HANDLING

- A. Keep insulation materials totally dry at all times in storage and during installation.

3.2 INSTALLATION

- A. Keep areas to be insulated clean and dry. Do not install insulation where it might be exposed to water.
- B. Install as per manufacturer's instructions and building code requirements. Keep ventilation space unobstructed.

END OF SECTION 07 20 00

1 PART 1 - GENERAL

2

3 CONTRACT CONDITIONS

4 Work of this Section is bound by the General Conditions,
5 Supplementary Conditions, and Division 1 bound herewith in
6 addition to this Specification and accompanying Drawings.

7

8 RELATED WORK SPECIFIED ELSEWHERE

9 Sealing Sheet Metal Joints, Section 07600.

10 Glazing Compounds employed by Set Glass, Section 08800.

11 Acoustic Caulking at Gypsum Wallboard, Section 09250.

12

13 MECHANICAL AND ELECTRICAL PENETRATION FIRE STOPPING SYSTEMS

14 See Mechanical and Electrical Specifications.

15

16 EXTENT OF WORK

17 Fill space beneath exterior door thresholds with STPe sealant.

18 Caulk exterior joints around meter bases, window frames, door
19 frames, expansion joints, and other openings in exterior walls,
20 which are subject to moisture infiltration, with STPe type
21 sealant.

22 Caulk elsewhere shown on Drawings.

23

24 CERTIFICATE OF COMPLIANCE

25 Submit prior to starting work, manufacturer's written
26 certification that specified sealants are suitable for intended
27 use.

28 Submit upon work completion, manufacturer's written certification
29 that specified sealant has been properly mixed and installed.

30

31 PRODUCT DELIVERY, STORAGE AND HANDLING

32 Protect against damage and cold temperatures.

33 Store in original, tightly sealed containers, and with original
34 legible labels thereon.

35 Do not open containers or remove labels until Architect reviews.

36 WEATHER DURING WORK

37 Perform no Work when weather exceeds manufacturer's specified
38 limits.

39

40 COORDINATION

41 Coordinate with other trades affecting or affected by work of
42 this section.

43

44 PROTECTION

45 Mask surfaces adjacent to joints as required for complete
46 protection.

47

48 WARRANTY

49 Caulking and Sealing subject to 20-year Weatherproof Warranty.

- 1 PART 2 - PRODUCTS
- 2
- 3 SILYL-TERMINATED POLYETHER SEALANT (STPe)
- 4 Sonneborne Sonolastic 150.
- 5
- 6 COLOR OF EXPOSED SEALANT
- 7 Approximate color of adjacent surfaces, unless otherwise
- 8 directed.
- 9
- 10 PRIMER AND SURFACE CONDITIONER
- 11 Made or recommended by sealant manufacturer.
- 12
- 13 BACKER ROD
- 14 Closed-cell, polyethylene or “soft” gasketing rod; Dow
- 15 “Ethafoam”, or approved. Diameter: ¼” greater than width of
- 16 joint where to be installed.
- 17
- 18 ROPE YARN
- 19 Raveled strands of non-staining fiber or cotton wicking.
- 20
- 21 MIXING
- 22 Follow sealant manufacturer's directions.
- 23
- 24 PART 3 - EXECUTION
- 25
- 26 EXISTING CONDITIONS
- 27 Verify that joints to be sealed and filled are clean, dry, and
- 28 free from dust, oil, grease, rust, lacquer, laitence, loose
- 29 mortar, or other bond-reducing matter.
- 30 Allow concrete surfaces to dry at least 4weeks before caulking
- 31 or sealing.
- 32 Prior to starting work, notify General Contractor of defects
- 33 requiring correction.
- 34
- 35 SURFACE PREPARATION
- 36 Remove dust and dirt by brushing and air-blowing.
- 37
- 38 PRIMING
- 39 Prime surfaces as required by manufacturer's instructions. Apply
- 40 with bristle brush.
- 41 Do not flood surfaces.

- 1 PART 3 - EXECUTION (Continued)
- 2
- 3 BACKING INSTALLATION
- 4 Joints to receive STPe Sealant
- 5 Install Backer Rod behind Sealant in accordance with
- 6 Manufacturer's directions.
- 7 Provide in as long continuous lengths as practicable.
- 8 Stretch taut and force into Joints to uniform depth,
- 9 approximately joint width but not to exceed inch.
- 10 Replace any punctured backer rod.
- 11
- 12 SEALANT INSTALLATION
- 13 Mix and apply in accordance with manufacturer's directions using
- 14 gun-type dispenser.
- 15 Seal joints before applying final Paint coat.
- 16 Size gun nozzle to fit joint.
- 17 Fill joints and voids solid; superficial pointing with skin bead
- 18 not acceptable.
- 19 Install flush with adjacent surfaces.
- 20 Tool joints smooth within 10 minutes after installation.
- 21 Remove masking materials, if any, immediately after sealant
- 22 installation.
- 23
- 24 CLEANING
- 25 Remove excess material as work progresses and leave surfaces
- 26 neat, smooth, and clean.
- 27 Remove debris from project site upon work completion or sooner,
- 28 if directed.
- 29 Including work of other sections, clean, repair and touch-up, or
- 30 replace when directed, products which have been soiled,
- 31 discolored, or damaged by work of this section.

END OF SECTION 07 95 10

PART 1 - GENERAL

1.01 CONTRACT CONDITIONS

- A. This Contractor is bound by the General Conditions, Supplementary Conditions, and Division 1 bound herewith in addition to this Specifications and accompanying Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. HVAC Metal Curbs, Grilles, Louvers, and Sheetmetal for Ventilation System, Division 15
- B. Sealants, Section 07 90 00.
- C. Finish Painting, Section 09 90 00.

1.03 SHOP DRAWINGS

- A. Submit in accordance with General Conditions.
- B. Show joints, types and locations of fasteners, and special shapes.

1.04 GUARANTEE

- A. Guarantee work weathertight for 2 years, subject to General Condition terms.

1.05 ALTERNATES

- A. Refer to Section 01 03 00 for possible effect upon work of this Section.

PART 2 - PRODUCTS

2.01 SHEET METAL

- A. Galvanized Steel: ASTM A-525, Coating Designation: G-90, lock-forming quality conforming to ASTM A-527.

2.02 REGLETS

- A. Type detailed, or as required by conditions of use.
- B. 24 ga. galvanized steel.
- C. Provide with factory-formed corners and joint connectors.

2.03 NAILS

- A. Flat head, wire, barbed, slating type, conforming to Fed. Spec. FF-N-105B, Type 11, Style 23.
- B. Galvanized steel, 1 inch long by 12 ga., minimum.

2.04 SCREWS

- A. Pan head, self-tapping, sheet metal type conforming to Fed. Spec. FF-S-107; #7 by one inch long minimum, cadmium plated.

2.05 RIVETS

- A. 1/8 inch minimum diameter, length as recommended by rivet manufacturer for materials to be joined; cadmium plated.

2.06 EXPANSION ANCHORS

- A. Type recommended by manufacturer by conditions of use. Submit for Architect's review and acceptance.
- B. 1/4 inch diameter by 1 inch long, minimum.

2.07 SOLDER

- A. ASTM B-32; 50% tin and 50% lead.

2.08 FLUX

- A. Rosin, cut muriatic acid, or commercial preparation for material to be soldered.

2.09 SEALANT

- A. Silicone type, Dow, GE, or approved.

2.10 ASPHALT PLASTIC CEMENT

- A. Fed. Spec. SS-C-153, Type 1.

2.11 PRIMER COATING AND UNDERCOATING

- A. Zinc Dust Zinc Oxide, Fed. Spec. TT--641D, Type 11.

2.12 ASPHALTIC COATING COMPOUND

- A. Fed. Spec. TT-C-494, Type 11.

2.13 WINDOW HEAD, JAMB, & SILL FLASHING

- A. Self adhering 8" x 40 mil elastomeric flashing wrap over window head & jamb nailing fins & under window sill nailing fin. Provide at perimeter of all exterior windows & other exterior openings in walls.

2.14 FABRICATION

- A. General:

1. Form to shapes and dimensions shown with planes and lines in true alignment.
2. Hem exposed edges.
3. Angle bottom edges of vertical surfaces to form a continuous 1" wide drip edge .

- B. Cleats:

1. Same material and thickness as sheet metal.

2.15 GUTTER AND DOWNSPOUTS

- A. 5" 26ga. pre-finished continuous gutters – color selected from manufacturer's stock colors

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

- A. Verify that surfaces to receive sheet metal are smooth, clean and otherwise properly prepared.
- B. Verify that reglets and nailers to receive sheet metal are properly placed.
- C. Prior to starting work notify General Contractor of defects that require correction.
- D. Do not start work until conditions are satisfactory.

3.02 FIELD MEASUREMENTS

- A. Before fabricating sheet metal, verify shapes and dimensions of surfaces to be covered.
- B. If field measurements differ slightly from Drawing dimensions modify work as required for accurate fit.
- C. If measurements differ substantially notify Architect prior to fabrication.

3.03 INSTALLATION, GENERAL

- A. Install work watertight, without waves, warps, buckles, fastening stresses, distortion, or defects which impair strength or mar appearance.

- B. Install planes and lines to true alignment.
- C. Allow for sheet metal expansion and contraction.

3.04 CLEAT INSTALLATION

- A. Space 2 feet on center, unless continuous cleats or other spacings are specified hereunder.
- B. Secure spaced cleats to substrate with 2 fasteners.
- C. Secure continuous cleats to substrate with fasteners spaced at 12 inch maximum centers.
- D. Cover fastener heads with cleat tabs.

3.05 HEAD FLASHING INSTALLATION

- A. Install one piece over entire new window, extend beyond jambs 1" minimum.
- B. Flashing may be fastened with screws directly into frames or supported by cleats, minimum 3 per head.

3.06 ELASTOMERIC FLASHING INSTALLATION

- A. Self adhering 8" x 40 mil elastomeric flashing wrap over window head & jamb nailing fins & under window sill nailing fin: Provide & conceal at perimeter of all windows & other openings in walls.

3.07 SEALANT INSTALLATION

- A. Apply 1/4 inch diameter bead, centered in full length of joint.

3.08 ASPHALT PLASTIC INSTALLATION

- A. Trowel apply 1/8 inch thick.
- B. Coat dissimilar metal surfaces prior to installation.

3.09 CLEANING AND REPAIRING

- A. As work progresses, neutralize excess flux with 5% to 10% washing soda solution, and thoroughly rinse.
- B. Including products of other Sections, clean, repair and touch-up, or replace when directed, products which have been soiled, discolored, or damaged by work of this Section.
- C. Leave surfaces ready for finish painting specified in Section 09 90 00.
- D. Remove debris from project site upon work completion or sooner, if directed.

END OF SECTION 07 60 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Provide everything required to complete the Work as shown on the Drawings and specified herein. Provide patching of surfaces where impacted by this project.

1.3 QUALITY ASSURANCES

- A. Source Limitations: Obtain gypsum wallboard products, including gypsum wallboard, joint reinforcing tape, and embedding material, from a single manufacturer.
- B. Mockups: Provide a full-thickness mockup for each type and finish of gypsum wallboard and substrate to demonstrate aesthetic effects and set quality standards for materials and execution.

PART 2 - PRODUCTS

2.1 GYPSUM WALLBOARD

- A. Gypsum wallboard shall be manufactured by U.S. Gypsum, or approved.
 - 1. Provide boards in 8 foot or other lengths to minimize construction joints.
- B. Gypsum wallboard shall be as per Federal Specification SS-L-30D, in 48" widths.
- C. Use types and thicknesses specified below except where shown otherwise in the Drawings.
 - 1. Water-resistant wallboard: Type VII, Grade W or X as required, Class 2, 5/8" thick.
 - 2. Provide seals for sound and thermal insulation at: floor plates, top plates, connection to adjacent walls/pilasters/columns, and all cutouts.

2.2 TRIM ACCESSORIES

- A. Standard Trim: ASTM C 1047, provided or approved by manufacturer for use in gypsum wallboard applications indicated.
- B. Metal Trim: Zinc-coated steel 26 gauge min., as per Federal Specification QQ-S-775, Class d or e.
- C. Casing beads: Channel-shapes with exposed wing, and concealed wing not less than 7/8" wide.

- D. Corner beads: Angle shapes with wings not less than 7/8" wide: Perforated for nailing and joint treatment. Or use paper/metal combination bead suitable for joint treatment.
- E. Edge beads at ceiling perimeter: Angle shapes with wings 3/4" wide minimum. Concealed wing perforated for nailing, exposed wing edge folded flat.

2.3 JOINT REINFORCING MATERIALS

- A. General: Comply with joint strength requirements in ASTM C 1597M and with gypsum wallboard manufacturer's written recommendations for each application indicated.
- B. Jointing system with reinforcing tape and compound as supplied or recommended by the gypsum wallboard manufacturer.

2.4 FASTENINGS

- A. For gypsum wallboard attached to metal framing and channels: Flat-head screws, 1" long minimum. Self-tapping threads and self-drilling points. Specifically designed for use with power-driven tools.
- B. For gypsum wallboard attached to wood: 1-1/4" type W bugle-head screws.
 - 1. Alternate: Annular ring nails complying with ASTM C514.
 - 2. Nail sizes as required by governing building code.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Preparation and coordination: Install blocking and backups to support all edges of wallboard. Verify that wood framing to receive wallboard is dry and not subject to shrinkage.
- B. Keep wallboard materials dry and protected from moisture. Store wallboard materials so they are protected from damage to surfaces and edges. Maintain interior work environment closed in, not exposed to weather, clean, dry, well-ventilated, well-lighted, and comfortable in temperature.
- C. Keep work of trades such as conduit, pipe, and ducts clear of the inside faces of wall panels.

3.2 INSTALLING PANELS

- A. Install as per manufacturer's instructions, trade association standards, and governing building code.
- B. If there is a conflict between instructions, standards, code, etc., install as instructed by the Architect.

- C. For walls and ceilings: Hold wallboard 3/8 inch to 1/2 inch up from floor. Install wall panels horizontally unless otherwise required. Stagger panel joints vertically.
- D. Nailing and screw attachment as per manufacturer's instructions. Do not position conduit and piping where it can be damaged by nailing. Do not proceed with nailing into wood framing that has over 19% of moisture content.
- E. Taping and spackling must follow applicable trade standards and manufacturer's instructions throughout. Keep temperature above specified minimum (usually 55 degrees). Do not track gypsum and spackle dust to clean areas.
- F. Joint treatment must follow applicable trade standards and manufacturer's instructions throughout. Gypsum wallboard must fit completely snugly against supporting framework. Joint work shall be at a minimum of 55 degrees F. for 24 hours prior to work.
- G. Finish: Light spray texture. Where textured finish on gypsum board walls are perpendicular to walls finished with other finishes, mask adjacent wall prior to spraying new wall. Match texture with that of approved sample.

3.3 TRIM ACCESSORIES

- A. Provide all metal trim as required to complete the work. Securely nail corner beads with required type and size nails starting 2 inches from each end. Space and stagger as required by wallboard system manufacturer.

3.4 CLEANING AND REPAIR

- A. Don't allow tracking of gypsum and finishing compounds onto floor surfaces. At completion of each segment of work in a room, clean thoroughly and remove all debris. Frequently remove all debris from site. Make a final check to determine that there are no penetrations through fire-rated walls.
- B. Recheck work for necessary repairs that may be required before painting or other added work. Complete repairs as directed by the Architect.

END OF SECTION 09 26 13

PART 1 GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:

1. Acoustical ceiling panels.
2. Exposed grid suspension system.
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

B. Related Sections:

1. Section 09 20 00 (09250) – Plaster and Gypsum Board
2. Divisions 23 (15) – HVAC
3. Division 26 (16) Sections - Electrical Work

1.3 REFERENCES

1. ASTM A568 Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements.
2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
4. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
5. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
6. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
7. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
9. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
11. ASTM E 1264 Classification for Acoustical Ceiling Products.
12. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
13. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
14. ASTM E 119 Standard Test Method for Fire Tests of Building Construction and Material.
15. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components

16. International Code Council-Evaluation Services - Evaluation Report, ESR-1308, Fire- and Nonfire-Resistance-Rated Suspended Ceiling Framing Systems.
17. ASCE 7 Standard – American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
18. CISCA 0-2 – Ceilings and Interior Systems Construction Association Recommendations for Direct-Hung Acoustical Tile and Lay-In Panel Ceilings, Seismic Zones 0-2

1.4 SYSTEM DESCRIPTION

Seismic Loads: Design and size components to withstand seismic loads in accordance with the International Building Code, Section 1621 for Category D.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer’s technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- D. Certifications: Manufacturer’s certifications that system complies with specified requirements:
 1. For seismic performance: International Code Council Evaluation Report, ESR-1308
 2. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
- E. If the material supplied by the acoustical subcontractor does not have an Underwriter’s Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect’s or owner’s discretion. All products not conforming to manufacturer’s current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less
 - b. Smoke Developed: 50 or less

- C. Seismic Performance: Provide acoustical ceiling system that has been evaluated by an independent party and found to be compliant with the 2003 International Building Code, Seismic Category D.
 - 1. Tested per International Code Council – Evaluation Services – AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components as evidenced by International Code Council Evaluation Report, ESR-1308.
- D. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.8 PROJECT CONDITIONS

- A. Space Enclosure:

Standard Ceilings: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.

1.9 WARRANTY

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 - 1. Acoustical Panels: Sagging and warping
 - 2. Grid System: Rusting and manufacturer's defects
- B. Warranty Period:
 - 1. Acoustical panels: One (1) year from date of substantial completion.
 - 2. Cirrus Acoustical panels: Ten (10) years from data of substantial completion. Note Space Enclosure requirements.
 - 3. Grid: Ten years from date of substantial completion.

1.10 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - 1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
 - 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Ceiling Panels:
 - 1. Armstrong World Industries, Inc., USG, or approved.
- B. Suspension Systems:
 - 1. Armstrong World Industries, Inc., USG, or approved.

2.2 ACOUSTICAL CEILING UNITS

- A. Acoustical Panels Type AP-1:
 - 1. Surface Texture: _____
 - 2. Composition: _____
 - 3. Color: _____
 - 4. Size: _____
 - 5. Edge Profile: _____ for interface with Prelude XL 15/16” Exposed Tee Grid System.
 - 6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton _____.
 - 7. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton _____.
 - 8. Articulation Class (AC): ASTM E 1111; Classified with UL label on product carton, _____.
 - 9. Flame Spread: ASTM E 1264; Class A.
 - 10. Light Reflectance (LR) White Panel: ASTM E 1477; _____.
 - 11. Dimensional Stability: _____.

2.3 SUSPENSION SYSTEMS

- A. Components: Main beams and cross tees In accordance with the International Building Code, Section 1621 for Category C as described in ESR-1308.
 - 1. Structural Classification: ASTM C 635, (Intermediate Duty) (Heavy Duty).
 - 2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.

- B. Attachment Devices: In accordance with the International Building Code, Section 1621 for Category D.
- C. Wire for Hangers and Ties: In accordance with the International Building Code, Section 1621.
- D. Wall Moldings: In accordance with the International Building Code, Section 1621 for Category D or method as described in ESR-1308.
 - 1. Nominal 7/8 inch x 7/8 inch hemmed, pre-finished angle molding (7800) (7802) (7803) (780036) (HD7801)
 - 2. Nominal 15/16 inch x 15/16 inch hemmed, pre-finished angle molding (7809)
- E. Accessories:
 - 1. BERC2 – 2 inch Beam End Retaining Clip, 0.034 inch thick, hot-dipped galvanized cold-rolled steel per ASTM A568 – used to join main beam or cross tee to wall molding.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
 - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

- A. Install suspension system and panels in accordance with the International Building Code, Section 1621, except as noted in Section 4.4.3.2 of ESR-1308, and with the authorities having jurisdiction.
- B. ESR-1308, Section 4.4.3.2, Seismic Design Category D Installation:

Terminal ends of the runners are secured by attaching the BERC-2 clip to the wall molding and attaching the runners to the BERC-2 clip. The runners have zero clearance at the perimeter on two adjacent walls and with 3/8-inch (9.5 mm) clearance on the opposite walls. The clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. BERC-2 clips installed in this manner are an acceptable means of preventing runners from spreading, in lieu of spacer bars required in CISCA 0-2, which is referenced in

ASCE 7, Section 9.6.2.6.2.1, which is referenced in IBC Section 1621. Except for the use of the BERC-2 clip as noted above, installation of the ceiling system must be as prescribed by the applicable code. Maximum ceiling weight permitted is 1.20 pounds per square foot (5.86 kg/m²). This construction is equivalent to that required by CISCA 0-2, which is referenced in ASCE-7, Section 9.2.6.2.1, and which is referenced in IBC Section 1621.

- C. The presence of a hanger wire within 3 inches of an expansion relief joint as called for in ASTM C 636 shall be required in addition to the requirements of the International Building Code, Section 1621.2.5 and with the authorities having jurisdiction.
 - 1. Only applies when using (Prelude XL Fire Guard 15/16”) (Prelude Plus XL Fire Guard 15/16”) (Suprafine XL Fire Guard 9/16”) Exposed Tee Systems.
- D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.5 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.
- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer’s instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 50 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Provide surface preparation and painting for ALL remodeled areas. Extend preparation and painting on All affected surfaces to the nearest wall corner.
- B. Painting includes all exposed bare and covered pipes, ducts, exposed steel supports and surfaces of mechanical and electrical equipment that do not have a factory applied final finish.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include the following factory-finished components:
 - a. Toilet enclosures.
 - b. Factory finished mechanical and electrical equipment.
 - c. Light fixtures.
 - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Furred areas.
 - b. Ceiling plenums.
 - c. Pipe spaces.
 - d. Duct shafts.
 - 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
 - 4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
 - 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment

name, identification, performance rating, or nomenclature plates.

6. Do not paint previously unpainted masonry.

7. Do not paint previously unpainted concrete.

1.3 SUBMITTALS

- A. Product Data: For each paint system indicated. Include primers.
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Initial Selection: For each type of finish-coat material indicated. After color selection, Architect will furnish color chips for surfaces to be coated.
- C. Qualification Data: For Applicator.

1.4 QUALITY ASSURANCE

- A. Paints shall be applied in accordance with manufacturer's printed directions.
- B. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- C. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.
- D. Mockups: Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
 - 1. Architect will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 10 sq. ft..
 - b. Small Areas and Items: Architect will designate items or areas required.
 - 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, Architect will use the room or surface to

evaluate coating systems of a similar nature.

3. Final approval of colors will be from benchmark samples.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.6 EXTRA STOCK

- A. One gallon of each color used. Label for identification and store where directed.

1.7 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS- PAINT

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.
- B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
 - 1. ICI Dulux Paint Centers (ICI Dulux Paints).
 - 2. PPG Industries, Inc. (Pittsburgh Paints).

3. Sherwin-Williams Co. (Sherwin-Williams).
4. Rodda.
5. Substitutions by approval.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: As selected by Architect from manufacturer's full range.

2.3 INTERIOR PRIMERS

- A. Interior Gypsum Board and Veneer Plaster Primer (new work): Factory-formulated latex-based primer for interior application.
 1. ICI Dulux Paints; 1000-1200 Dulux Ultra Basecoat Interior Latex Wall Primer: Applied at a dry film thickness of not less than 1.2 mils.
 2. ICI Dulux Paints; 1030-1200 Ultra-Hide PVA Interior Primer Sealer General Purpose Wall Primer: Applied at a dry film thickness of not less than 1.9 mils.
 3. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil.
 4. Sherwin-Williams; PrepRite 200 Latex Wall Primer B28W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
- B. Interior Gypsum Board and Veneer Plaster Primer (Existing Work): Factory formulated solvent-based primer for interior application.
 1. ICI Dulux Paints; 1120 -1200, wall and woodwork penetrating solvent-based primer sealer
 2. Sherwin Williams; B79W000IO, PrepRite ProBlock interior alkyd primer sealer.
 3. Kelly Moore; 935 stain lock.
- C. Interior Wood Primer for Acrylic-Enamel: Factory-formulated acrylic-latex-based interior wood primer.

1. ICI Dulux Paints; 1010-1200 Ultra-Hide Aquacrylic Stain Killer Primer Sealer: Applied at a dry film thickness of not less than 1.8 mils.
 2. Pittsburgh Paints; 6-855 SpeedHide Latex Enamel Undercoater: Applied at a dry film thickness of not less than 1 .0 mil.
 3. Sherwin-Williams; PrepRite Wall and Wood Primer B49W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
 4. Sherwin-Williams; PrepRite Classic Interior Primer B28W101 Series: Applied at a dry film thickness of not less than 1 .6 mils.
- E. Interior Ferrous-Metal Primer: Factory-formulated quick-drying rust-inhibitive alkyd-based metal primer.
1. ICI Dulux Paints; 4030-xxxx True-Glaze-WB: Applied at a dry film thickness of not less than 2.0 mils.
- F. Interior Glazed CMU: Urethane modified acrylic bonding primer.
1. X-1-M Products, Inc.; X-1-M UMA: Applied per manufacturer's instructions.

2.4 INTERIOR FINISH COATS

- A. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.
1. ICI Dulux Paints; 1402-XXXX Dulux Professional Acrylic Eggshell Interior Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.4 mils.
 2. Kelly-Moore; 1686 Dura-Poxy Eggshell Acrylic Enamel: Applied at a dry film thickness of not less than 1 .6 mils.
 3. Pittsburgh Paints; 6-400 Series SpeedHide Eggshell Acrylic Latex Enamel: Applied at a dry film thickness of not less than 1.25 mils.
 4. Sherwin-Williams; ProMar 200 Interior Latex Egg-Shell Enamel B20W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
- B. Interior Semi-gloss Acrylic Enamel: Factory-formulated semi-gloss acrylic-latex enamel for interior application.
1. ICI Dulux Paints; 1406-XXXX Dulux Professional Acrylic Semi-Gloss Interior Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.5 mils.
 2. Pittsburgh Paints; 6-500 Series SpeedHide Interior Semi-Gloss Latex: Applied at a dry film thickness of not less than 1.0 mil.
 3. Sherwin-Williams; ProMar 200 Interior Latex Semi-Gloss Enamel B31W200 Series: Applied at a dry film thickness of not less than 1.3 mils.
- C. Interior Full-Gloss Acrylic Enamel: Factory-formulated full-gloss acrylic-latex interior enamel.
1. ICI Dulux Paints; 3028-XXXX Dulux Interior/Exterior Acrylic Gloss Finish: Applied at a dry film thickness of not less than 1.6 mils.
 2. Pittsburgh Paints; 6-8534 SpeedHide Interior Latex 100 Percent Acrylic Gloss Enamels: Applied at a dry film thickness of not less than 1.0 mil.
 3. Pittsburgh Paints; 90-374 Pitt-Tech One Pack Interior/Exterior High Performance Waterborne High Gloss DTM Industrial Enamel: Applied at a dry

- film thickness of not less than 3.0 mils.
4. Sherwin-Williams; ProMar 200 Interior Latex Gloss Enamel B21W201: Applied at a dry film thickness of not less than 1.5 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.
 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation
 1. Existing painted surfaces have numerous paint layers and bottom layers may contain lead based paint. Should suspect layers be encountered, adhere to the following paragraph, 3.2D for additional precautions for preparation of surfaces containing lead paint. Review procedure with District before proceeding.
 2. Maintenance painting will frequently not permit or require complete removal of all old coatings prior to repainting. However, all surface contaminations such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence and sealers must be removed to assure sound bonding to the tightly adhered old paint. In addition, glossy surfaces of old paint films must be clean and dull before repainting (thorough washing with an abrasive kitchen cleanser will clean and dull in one operation, or wash thoroughly and dull by sanding. Remove sanding dust.) Spot prime all bare areas with appropriate primer,\). Feather all edges. Fill depressions left

- by removed paint. Always check for compatibility of the previously painted surface with the new coating by applying a test patch of 2-3 square feet. Allow to dry thoroughly and check adhesion.
3. Remove loose paint by hand scraping and/or wire brushing.
 4. Do not sand or scrape cement plaster or stucco.
 5. Surfaces: Correct defects and clean surfaces which affect work of this section.
 6. Mold or mildew must be removed by scrubbing with a mixture of one quart of household bleach to three quarts of water. CAUTION: DO NOT ADD HOUSEHOLD DETERGENTS OR AMMONIA TO THE BLEACH SOLUTION. Wear protective glasses or goggles, waterproof gloves and protective clothing and quickly wash off any of the solutions that touches the skin. Scrub well with brush and allow solution to remain on the surface for ten minutes before rinsing thoroughly with clean water. Allow to dry.
 7. Surfaces may be solvent cleaned, if required, only with approval of the Owner's representative and the Architect.
 8. Acid washing, water blasting or sand blasting is generally not acceptable. Exceptions need prior written approval by the Owner' representative and the Architect unless called for in the contract documents.
 9. Glossy surfaces shall be dulled.
 10. Treat areas where factory applied coating has been damaged as unfinished material. Sand edges of blemishes to achieve a smooth transition.
 11. Marks: Seal with appropriate sealer those marks which may bleed through surface finishes.
 12. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
 13. Doors, Frames: Finish door edges and protect hardware from damage. Remove as may be required to apply specified finish.
 14. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
 15. Concrete, Masonry, Plaster, Stucco: Repair surface defects. Remove grease, oil and other contaminants by solvent cleaning. Scrape carefully to remove deteriorated coatings. Glossy or very hard coatings should be sanded lightly to promote maximum adhesion of the subsequent coating. Surface must be thoroughly dry before coating.
 16. Galvanized Surfaces: Remove surface contamination and oils and thoroughly clean with surface conditioner in accordance with manufacturer's instructions.
 17. Shop Primed Steel Surfaces: 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.
 18. Bare, Sandblasted or Pickled Metal: Treat with a metal treatment before applying primer.
 19. Aluminum: Remove surface oxidation on aluminum scheduled to be painted. Apply etching primer immediately after cleaning.
 20. Interior Wood Items Scheduled to Receive Paint Finish: Remove tape residue and wire staples. Wipe off dust and grit prior to priming. Seal knots, knot holes, pitch streaks and resinous sapwood sections with sealer. Fill nail and screw

- holes. Rough areas and cracks after primer has dried, sand between coats.
21. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, knot holes, pitch streaks and resinous sapwood sections with sealer. Set nails (nail pops) and fill nail holes with tinted exterior caulking compound after prime coat has been applied. Sand smooth as required. Clean and allow surface to be thoroughly dry before coating.
 22. Plastic: Sand lightly and wipe with solvent appropriate for material.
 23. At completion of preparation, remove all evidence of paint chips, dust, and debris as a result sanding, scraping; and caulk and window putty removal. District dumpsters not available for disposal of waste generated by this project.
- D. Surface Preparation - Existing Lead Based Paint
1. Prepare surfaces with the additional following precautions.
 2. Some paint in this project is assumed to be lead containing and where identified shall be prepared and painted according to the following guidelines. Contractor is solely responsible for protection of workers and the public. Safety precautions shall include, but not be limited to, the following:
 - a. Follow all regulatory agency requirements in the handling, collecting and disposal of lead containing paint.
 - b. Maintain the safety of workers through the usage of respirators and other measures deemed appropriate by the contractor or as required by governmental agencies.
 - c. No power sanding, drilling, grinding, or sawing of lead based paint surfaces is permitted unless area is isolated and under negative air containment.
 - d. Cover areas with plastic sheeting to collect debris. Bag up and dispose of lead based material with rest of debris.
 - e. Avoid unnecessary scraping or sanding of lead based paint surfaces.
 - f. Surfaces are to be minimally hand sanded only. All visible dust created shall be promptly collected with a HEPA vacuum, and cleaned from building surfaces with a damp cloth or sponge.
 - g. All debris from surface preparation shall be collected for safe disposal before the next school day. No one is to be able to walk through, breath, or otherwise be able to ingest potentially lead laden debris material.
 - h. Torches and heat guns are prohibited.
 1. Dry abrasive blasting is prohibited.
 - J. Use of paint strippers is prohibited.
 - k. Surfaces proven to not contain lead may be prepared without these additional preparation precautions. Testing swabs are available from District for contractor's use.
- E. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- F. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the

color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 3. Provide finish coats that are compatible with primers used.
 - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 - 7. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 - 8. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 - 9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 - 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 - 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
 - 1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 - 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 - 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by

manufacturer for material and texture required.

- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
 - 1. Un-insulated metal piping.
 - 2. Uninsulated plastic piping.
 - 3. Pipe hangers and supports.
 - 4. Tanks that do not have factory-applied final finishes.
 - 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
- 7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:
 - 1. Switchgear.
 - 2. Panelboards.
 - 3. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no bum-through or other defects due to insufficient sealing.
- I. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- J. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
- K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
 - 1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified,

- sealed, and certified in the presence of Contractor.
2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting.
Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - I. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA Pl.

3.7 INTERIOR PAINT SCHEDULE

- A. Refer to drawings for schedule of lusters.
- B. Primer may be omitted at previously painted surfaces that remain intact.
- C. Previously painted wall and ceiling surfaces: Provide the following finish systems:
 1. Acrylic-Enamel Finish: Two finish coats over a primer. (Full alkyd prime coat at walls.)
- D. Gypsum Board: Provide the following finish systems over interior gypsum board and veneer plaster surfaces:
 1. Acrylic-Enamel Finish: Two finish coats over a primer.
- E. Wood and Hardboard: Provide the following paint finish systems over interior wood surfaces:
 1. Acrylic-Enamel Finish: Two finish coats over a wood under-coater.
 - a. Primer: Interior wood primer for acrylic-enamel and semi-gloss alkyd-enamel finishes.
 - b. Finish Coats: Interior acrylic enamel.
- F. Ferrous Metal: Provide the following finish systems over ferrous metal:
 1. Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer. b. Finish Coats: Interior acrylic enamel.

- G. Clear Finish Wood (doors, cabinets and other clear finish wood): Provide the following:
 - 1. Interior Semi-Gloss Spar Urethane: Two coats minimum.

- H. Clear finish wood to receive a painted finish: Provide the following:
 - 1. Primer: One coat oil based primer.
 - 2. Finish Coats: Two coats acrylic Latex Enamel.

End of Section 09 90 00

PART I GENERAL

1.01 SUMMARY

A. This document is to be used in preparing specifications for projects utilizing Dryvit Textured Acrylic Finishes

Option 1 and Option 2

B. Related Sections

1. Unit Masonry – Section 04200.
2. Concrete – Sections 03300 and 03400.
3. Light Gauge Cold Formed Steel Framing – Section 05400
4. Wood Framing – Section 06100
5. Sealants – Section 07900
6. Flashing – Section 07600

1.02 REFERENCES

A. Section Includes:

1. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus.
2. ASTM C 67 Test Method for Sampling and Testing Brick and Structural Tile.
3. ASTM C 150 Standard Specification for Portland Cement.
4. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.
5. ASTM C 578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
6. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
7. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
8. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
9. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
10. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
11. ASTM E 96 Standard Test Method for Water Vapor Transmission of Materials.
12. ASTM E 331 Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
13. ASTM E 2098 (Formerly EIMA Method 105.01) Test Method for Determining Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for Use in Class PB Exterior Insulation and Finish Systems (EIFS) after Exposure to Sodium Hydroxide Solution.
14. ASTM E 2134 Test Method for Evaluating the Tensile-Adhesion Performance of Exterior Insulation and Finish Systems (EIFS)
15. ASTM E 2430 Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS)
16. ASTM E 2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
17. ASTM E 2486 (formerly EIMA Std. 101.86) Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
18. ASTM G 154 Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.
19. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus, for Exposure of Nonmetallic Materials.

20. DS151, Custom Brick™ Polymer System Specifications For Use On Vertical Walls.
21. DS152, Dryvit Cleaning and Recoating.
22. DS153, Expansion Joints/Sealants.
23. DS159, Dryvit Water Vapor Transmission.
24. DS191, Dryvit Cement Board MD Finish System Specifications.
25. DS193, Dryvit ICF Finish System Details.
26. DS194, Dryvit ICF Finish System Specifications.
27. DS204, Dryvit Outsulation® System Application Instructions.
28. DS456, Rapidry DM™ 35-50 or DS457, Rapidry DM™ 50-75 Data Sheets.
29. DS705, Reflectit™
30. ICC ES AC219 Exterior Insulation and Finish Systems.

1.03 DEFINITIONS

- A. Contractor: The contractor that applies materials to the substrate.
- B. Dryvit: Dryvit Systems, Inc., the manufacturer of the coating materials, a Rhode Island corporation.
- C. Lamina: The layer consisting of the reinforced base coat and finish materials.
- D. Finish: An acrylic based finish, available in a variety of textures and colors, which is applied to the prepared wall surface.
- E. Reinforced Base Coat: The layer consisting of fiberglass reinforcing mesh fully embedded in the base coat material applied to the outside surface of the substrate.
- F. Reinforcing Mesh: Glass fiber mesh used to reinforce the base coat.
- G. Substrate: The material to which Dryvit TAFS are applied.

1.04 DESCRIPTION

- A. Dryvit TAFS are exterior architectural coatings and are available in two configurations:
 1. Dryvit TAFS Option 1 consists of a Dryvit acrylic primer and Dryvit finish applied to various substrates.
 2. Dryvit TAFS Option 2 consists of a Dryvit base coat, Dryvit reinforcing mesh, Dryvit acrylic primer (when specified) and Dryvit acrylic finish applied to various substrates.
- B. Design Requirements
 1. Acceptable surfaces for Dryvit Textured Acrylic Finishes include:
 - a. Poured-in-place and precast concrete.
 - b. Unglazed brick and masonry units.
 - c. Cement plaster.
 - d. Insulated Concrete Forms (ICF'S) (TAFS Option 2 only) – Refer to Dryvit ICF specification (DS194).
 - e. EPS surfaced panels (TAFS Option 2 only) meeting ASTM C 578 Type I Properties.
 - f. Exterior cement and calcium silicate boards (without joints). NOTE: When bridging sheathing joints, refer to Dryvit Specification DS191.
 2. Deflection of substrate systems shall not exceed 1/240 times the span.
 3. Substrate systems shall be designed to meet all local building code requirements and shall be approved for use on this project.
 4. Vapor Retarders – The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with local building code requirements. The type and location shall be noted on the project drawings and specifications. Vapor retarders may be inappropriate in certain areas and can result in condensation within the wall assembly. Refer to Dryvit Publication DS159 for additional information.
 5. Projecting surfaces shall have a minimum slope of 6:12 and maximum length of 305 mm (12 in).
 6. The substrate shall be clean, smooth, planar and free of surface imperfections that would interfere with application of a surface coating.
 7. TAFS shall be terminated a minimum of 203 mm (8 in) above finished grade.

8. Dark Colors – For application over EPS, the use of dark colors must be considered in relation to wall surface temperature as a function of local climatic conditions. Use of dark colors in high temperature climates can affect the performance of the EPS substrate.
 9. Sealants
 - a. Shall be manufactured and supplied by others.
 - b. Shall be compatible with Dryvit TAFS materials. Refer to current Dryvit publication DS153 for listing of sealants tested by sealant manufacturers for compatibility.
 - c. The sealant backer rod shall be closed cell.
- C. Performance Requirements: As a minimum the Dryvit materials shall be tested as follows:
1. Durability:

TEST	TEST METHOD	CRITERIA	RESULTS
Abrasion Resistance	ASTM D 968	No deleterious effects after 500 liters (528 quarts)	No deleterious effects after 1000 liters (1056 quarts)
Accelerated Weathering	ASTM G 155 Cycle 1	No deleterious effects after 2000 hours	No deleterious effects after 5000 hours
	ASTM G 154 Cycle 1 (QUV)		No deleterious effects after 5000 hours
Freeze-Thaw	ASTM E 2485 (formerly EIMA 101.01)	No deleterious effects after 60 cycles	Passed - No deleterious effects after 90 cycles
	ASTM C 67 modified	No deleterious effects after 60 cycles	Passed - No deleterious effects after 60 cycles
	ICC ES Procedure	No deleterious effects after 10 cycles	Passed - No deleterious effects after 10 cycles
Mildew Resistance	ASTM D 3273	No growth during 28 day exposure period	No growth during 60 day exposure period
Moisture Resistance	ASTM D 2247	No deleterious effects after 14 days exposure	No deleterious effects after 42 days exposure
Taber Abrasion	ASTM D 4060	N/A	Passed 1000 cycles
Salt Spray Resistance	ASTM B 117	No deleterious effects after 300 hours exposure	No deleterious effects after 1000 hours exposure
Water Penetration***	ASTM E 331 ICC ES (AC219)	No water penetration beyond the inner-most plane of the wall after 2 hours at 300 Pa (6.24 psf)	Passed
Alkali Resistance of Reinforcing Mesh	ASTM E 2098 (formerly EIMA 105.01)	> 21dN/cm (120 pli) retained tensile strength after exposure	Passed
Water Vapor Transmission	ASTM E 96	Vapor permeable	EPS 5 perm-inch Base Coat* 40 Perms Finish** 40 perms
Tensile Bond	ASTM C 297/E 2134	Minimum 104 kPa (15 psi) – substrate or insulation failure	Minimum 132 kPa (19.1 psi)
* Based on Dryvit Genesis® ** Based on Dryvit Quarzputz® *** TAFS Option 2			

2. Impact Resistance: In accordance with ASTM E 2486 (formerly EIMA Standard 101.86):

Reinforcing Mesh/Weight g/m ² (oz/yd ²)	Minimum Tensile Strengths	EIMA Impact Classification	EIMA Impact Range		Impact Test Results	
			Joules	(in-lbs)	Joules	(in-lbs)
Standard - 146 (4.3)	27 g/cm (150 lbs/in)	Standard	3-6	(25-49)	4	(36)
Standard Plus™ - 203 (6)	36 g/cm (200 lbs/in)	Medium	6-10	(50-89)	6	(56)
Intermediate™ - 407 (12)	54 g/cm (300 lbs/in)	High	10-17	(90-150)	12	(108)
Panzer® 15 * - 509 (15)	71 g/cm (400 lbs/in)	Ultra High	>17	(>150)	18	(162)

Panzer 20 * - 695 (20.5)	98 g/cm (550 lbs/in)	Ultra High	>17	(>150)	40	(352)
Detail Mesh® Short Rolls - 146 (4.3)	27 g/cm (150 lbs/in)	n/a	n/a	n/a	n/a	n/a
Corner Mesh™ - 244 (7.2)	49 g/cm (274 lbs/in)	n/a	n/a	n/a	n/a	n/a
*Shall be used in conjunction with Standard Mesh Values based on testing over EPS substrate						

3. Fire performance

TEST	TEST METHOD	CRITERIA	RESULTS
Flame Spread	ASTM E 84	All components shall have a Flame Spread Index \leq 25 Smoke Developed Index \leq 450	Passed

1.05 SUBMITTALS

- A. Product Data: The contractor shall submit to the owner/architect manufacturer's product data sheets describing products, which will be used on the project.
- B. Samples: The contractor shall submit to the owner/architect two samples of each finish, texture, and color to be used on the project. The same tools and techniques proposed for the actual installation shall be used to prepare the samples. Samples shall be of sufficient size to accurately represent each color and texture to be utilized on the project.
- C. Test Reports: When requested, the contractor shall submit to the owner/architect copies of selected test reports verifying the performance of the system materials.

1.06 QUALITY ASSURANCE

A. Qualifications

- 1. Manufacturer: Shall be Dryvit Systems, Inc. All materials shall be manufactured or sold by Dryvit and shall be purchased from Dryvit or its authorized distributor.
 - a. Materials shall be manufactured at a facility covered by a current ISO 9001:2008 and ISO 14001:2004 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
- 2. Contractor: Shall be knowledgeable in the installation of the Dryvit materials and shall be experienced and competent in the application of Dryvit Textured Acrylic Finishes. Additionally, the contractor shall possess a current trained contractor certificate** from Dryvit for any of its Exterior Insulation and Finish Systems.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. All Dryvit materials shall be delivered to the job site in the original, unopened packages with labels intact.
- B. Upon arrival, materials shall be inspected for physical damage, freezing, or overheating. Questionable materials shall not be used.
 - 1. Materials shall be stored at the job site in a cool, dry location, out of direct sunlight, protected from weather and other sources of damage. Minimum storage temperature shall be as follows:
 - a. Demandit[®], Revyvit[®] and Reflectit: 7 °C (45 °F)
 - b. Ameristone[™], TerraNeo[®] and Limestone[™]: 10 °C (50 °F)
 - c. DPR, PMR[™] and E Finishes[™], Color Prime[™], Primus[®], Genesis, and NCB[™]: 4 °C (40 °F)
 - d. Custom Brick Finish: Refer to Custom Brick Polymer Specification DS151
 - e. For other products, refer to specific product data sheet.
 - 2. Maximum storage temperature shall not exceed 38 °C (100 °F). NOTE: Minimize exposure of materials to temperatures over 32 °C (90 °F). Finishes exposed to temperatures over 43 °C (110 °F) for even short periods may exhibit skinning, increased viscosity and should be inspected prior to use.
- C. Protect all products from inclement weather and direct sunlight.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

- 1. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.
- 2. At the time of application, the minimum air and wall surface temperatures shall be as follows:
 - a. Demandit, Revyvit and Reflectit: 7 °C (45 °F)
 - b. Ameristone, TerraNeo and Limestone: 10 °C (50 °F)
 - c. DPR, PMR and E Finishes, Color Prime, Primus, Genesis, and NCB: 4 °C (40 °F)
 - d. Custom Brick Finish: Refer to Custom Brick Polymer Specification DS151
 - e. For other products, refer to specific product data sheet.

3. These temperatures shall be maintained, with adequate air ventilation and circulation, for a minimum of 24 hours (48 hours for Ameristone, TerraNeo and Limestone) thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.
- B. Existing Conditions: The contractor shall have access to electric power, clean water, and a clean work area at the location where the Dryvit materials are to be applied.

1.09 SEQUENCING AND SCHEDULING

- A. Installation of the Dryvit Textured Acrylic Finishes shall be coordinated with other construction trades.
- B. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.

1.10 LIMITED MATERIALS WARRANTY

- A. Dryvit Systems, Inc. shall provide a written limited materials warranty against defective materials, upon written request. Dryvit shall make no other warranties, expressed or implied. Dryvit is not liable for incidental or consequential damages. Dryvit does not warrant workmanship.
- B. The applicator shall warrant workmanship separately. Dryvit shall not be responsible for workmanship associated with the installation of the Dryvit Textured Acrylic Finishes.

1.11 DESIGN RESPONSIBILITY

- A. It is the responsibility of both the specifier and the purchaser to determine if a product is suitable for its intended use. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail, structural capability, attachment details, shop drawings, and the like. Dryvit has prepared guidelines in the form of specifications and product sheets to facilitate the design process only. Dryvit is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings, or the like, whether based upon the information prepared by Dryvit or otherwise, or for any changes which purchasers, specifiers, designers, or their appointed representatives may make to Dryvit's published comments.

1.12 MAINTENANCE

- A. Maintenance and repair shall follow the procedures noted in Dryvit Outsulation System Application Instructions, DS204.
- B. All Dryvit products are designed to minimize maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DS152 on Cleaning and Recoating.
- C. Sealants, flashings and other building envelope components shall be inspected on a regular basis and repairs made as necessary.

PART II PRODUCT

2.01 MANUFACTURER

- A. All Dryvit Textured Acrylic Finishes shall be obtained from Dryvit or its authorized distributors. Substitutions or additions of materials other than specified will void the warranty.

2.02 MATERIALS

- A. Portland Cement: Shall be Type I or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.
- B. Water: Shall be clean and free of foreign matter.

2.03 COMPONENTS

- A. Base Coat (when specified) (required with TAFS Option 2 over EPS insulation): Shall be compatible with the substrate and reinforcing mesh(es).
1. Cementitious: A liquid polymer based material, which is field-mixed in a 1:1 ratio by weight with Portland cement.
 - a. Shall be Primus or Genesis.
 2. Ready mixed: A dry blend cementitious, co-polymer based product, field mixed with water.
 - a. Shall be Primus[®] DM, Genesis[®] DM, Genesis[®] DMS, Rapidry DM 35-50 or Rapidry 50-75.
 3. Noncementitious: A factory-mixed, fully formulated, water-based product.
 - a. Shall be NCB.
- B. Reinforcing Mesh(es) (when specified) (required with TAFS Option 2 over EPS insulation): Shall be a balanced open weave, glass fiber fabric treated for compatibility with other TAFS materials. NOTE: Reinforcing meshes are classified by impact resistance and specified by weight and tensile strength as listed in Section 1.04.C.2.
1. Shall be Standard, Standard Plus, Intermediate, Panzer 15, Panzer 20, Detail and Corner Mesh.
 2. Shall be colored blue for product identification bearing the Dryvit logo.
- C. Primers
1. Color Prime: Pigmented, acrylic based primer used to improve adhesion and uniformity of finish color.
 2. Primer with Sand[™]: Pigmented acrylic based primer with sand improves adhesion and uniformity of finish color as well as application of trowel-applied finishes.
 3. Color Prime-W[™]: A water based acrylic, semi transparent primer for use over cement plaster and other cementitious substrates. NOTE: Because it is semi transparent, tinted colors are affected by the color of the substrate.
- D. Finish: Shall be the type, color and texture as selected by the architect/owner and shall be one or more of the following:
1. Standard DPR (Dirt Pickup Resistance): Water-based, acrylic coating with integral color and texture and formulated with DPR chemistry:
 - a. Quarzputz[®] DPR: Open-texture.
 - b. Sandblast[®] DPR: Medium texture.
 - c. Freestyle[®] DPR: Fine texture.
 - d. Sandpebble[®] DPR: Pebble texture.
 - e. Sandpebble[®] Fine DPR: Fine pebble texture.
 2. E: Water-based, lightweight acrylic coating with integral color and texture and formulated with DPR chemistry:
 - a. Quarzputz[®] E
 - b. Sandpebble[®] E
 - c. Sandpebble[®] Fine E
 3. Specialty: Factory mixed, water-based acrylic:
 - a. Ameristone: Multi-colored quartz aggregate with a flamed granite appearance.
 - b. Stone Mist[®]: Ceramically colored quartz aggregate.
 - c. Custom Brick Polymer Finish: Acrylic polymer-based finish used in conjunction with a proprietary template system to create the look of stone, brick, slate or tile.
 - d. TerraNeo: 100% acrylic-based finish with large mica chips and multi-colored quartz aggregates.
 - e. Limestone: A premixed, 100% acrylic-based finish designed to replicate the appearance of limestone blocks.
 - f. Reflectit[™]: 100% acrylic coating providing a pearlescent appearance.
 4. Elastomeric DPR (Dirt Pickup Resistance): Water-based elastomeric acrylic coating with integral color and texture and formulated with DPR chemistry:
 - a. Weatherlastic[®] Quarzputz
 - b. Weatherlastic[®] Sandpebble
 - c. Weatherlastic[®] Sandpebble Fine
 - d. Weatherlastic[®] Adobe

5. Medallion Series PMR (Proven Mildew Resistance): Water-based acrylic coating with integral color and texture and formulated with PMR chemistry:
 - a. Quarzputz[®] PMR
 - b. Sandblast[®] PMR
 - c. Freestyle[®] PMR
 - d. Sandpebble[®] PMR
 - e. Sandpebble[®] Fine PMR
6. Coatings and Sealers:
 - a. Demandit
 - b. Weatherlastic[®] Smooth
 - c. Tuscan Glaze[™]
 - d. Revyvit
 - e. SealClear[™]

PART III EXECUTION

3.01 EXAMINATION

- A. Prior to application of Dryvit TAFS, the contractor shall ensure that the substrate is of a type listed in Section 1.04.B.1
- B. Prior to the installation of Dryvit TAFS, the architect or general contractor shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the application of Dryvit TAFS.
- C. The contractor shall notify the general contractor and/or architect and/or owner of all discrepancies. Work shall not proceed until discrepancies have been corrected.

3.02 SURFACE PREPARATION

- A. The substrates shall be prepared so as to be free of foreign materials such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellents, moisture, frost and any other materials that inhibit adhesion.
- B. Concrete and masonry
 1. Shall be dry and cured a minimum of 28 days.
- C. ICF (Insulated Concrete Forms) (TAFS Option 2 is required)
 1. Refer to ICF Specifications (DS194) and ICF Details (DS193).
 2. All gaps between ICF blocks shall be slivered with pieces of EPS.
 3. The entire surface of the EPS shall be rasped to remove any UV degradation and provide a smooth, level surface for TAFS Option 2.
- D. EPS Surfaced Panels (TAFS Option 2 is required)
 1. EPS shall meet the requirements of ASTM E 2430 and Dryvit specification DS131.
 2. All gaps between EPS pieces shall be slivered with pieces of EPS.
 3. The entire surface of the EPS shall be rasped to remove any UV degradation and provide a smooth, level surface for TAFS Option 2.
 4. EPS shall be properly supported by and attached to the substrate.
- E. Cement Plaster
 1. Plaster shall be dry and fully cured prior to application of coatings.
 2. Plaster shall be floated using a wood or hard rubber float to ensure a surface with adequate "tooth" for the finish application. NOTE: Floating to an excessively smooth surface is not recommended and may result in cracking or poor adhesion of the finish coat.
- F. Exterior Cement and Calcium Silicate Boards (without joints)
 1. Board surfaces shall be clean, dry and free of dust or other contaminants.

2. All fasteners shall be corrosion resistant and installed in a manner as to be flush with the surface of the board.

G. Painted Surfaces

1. Shall be cleaned to remove all loose paint, dirt, dust, chalk, and any other materials that may inhibit adhesion.
2. Glossy surfaces shall be sanded to remove gloss and cleaned.
3. Test patches, located in inconspicuous areas should be prepared to verify adhesion. A minimum of one test every 46 m² (500 sq. ft.) of wall area is recommended.

3.03 INSTALLATION

A. The Dryvit materials shall be mixed and applied in accordance with current Dryvit printed product data sheets.

B. Masonry Surfaces

1. Apply a continuous layer of Genesis or Genesis DM mixture over the entire wall surface to fill voids and provide a smooth level base for primer and finish application. Application thickness shall not exceed 3 mm (1/8 in) in a single pass.
2. When specified, a layer of reinforcing mesh is embedded into the wet base coat mixture and troweled smooth.
3. Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
4. Using a brush, roller, or airless spray equipment, apply a coat of Color Prime or Primer with Sand over the dry base coat surface, and allow to dry.
5. Apply the specified finish in accordance with Dryvit's printed installation instructions.

C. ICF (Insulated Concrete Forms) (TAFS Option 2 only)

1. Refer to printed Dryvit ICF Specifications (DS194) and ICF Details (DS193).
2. When specified, high impact meshes shall be installed at ground level, high traffic areas, and other areas exposed to or susceptible to impact damage.

D. Cement Plaster, Poured in Place and Precast Concrete Surfaces

1. When specified, apply a continuous layer of Genesis or Genesis DM mixture over the entire wall surface to fill small voids and provide a smooth level base for primer and finish application. Application thickness shall not exceed 3 mm (1/8 in) in a single pass.
2. When specified, a layer of reinforcing mesh is embedded into the wet base coat mixture and troweled smooth.
3. Allow the base coat to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
4. Using a brush, roller, or airless spray equipment, apply a coat of Color Prime or Primer with Sand over the dry base coat or cleaned substrate, and allow to dry.
5. Apply the specified finish in accordance with Dryvit's printed installation instructions for the specific finish being used.

E. EPS Surfaced Panels (TAFS Option 2 only)

1. Dryvit reinforced base coat shall be applied in accordance with current Dryvit Outsulation System Application Instructions DS204.
2. Apply a continuous layer of base coat and reinforcing mesh over the entire EPS surface in accordance with published instructions for the specific base coat being used.
3. All EPS terminations shall be encapsulated with reinforced base coat.
4. When specified, high impact meshes shall be installed at ground level, high traffic areas, and other areas exposed to or susceptible to impact damage.
5. Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.

E. Cement Plaster

1. Plaster shall be dry and fully cured prior to application of coatings.
 2. Plaster shall be floated using a wood or hard rubber float to ensure a surface with adequate "tooth" for the finish application. NOTE: Floating to an excessively smooth surface is not recommended and may result in cracking or poor adhesion of the finish coat.
- F. Exterior Cement and Calcium Silicate Boards (without joints)
1. Board surfaces shall be clean, dry and free of dust or other contaminants.
 2. All fasteners shall be corrosion resistant and installed in a manner as to be flush with the surface of the board.
- G. Painted Surfaces
1. Shall be cleaned to remove all loose paint, dirt, dust, chalk, and any other materials that may inhibit adhesion.
 2. Glossy surfaces shall be sanded to remove gloss and cleaned.
 3. Test patches, located in inconspicuous areas should be prepared to verify adhesion. A minimum of one test every 46 m² (500 sq. ft.) of wall area is recommended.

3.03 INSTALLATION

- A. The Dryvit materials shall be mixed and applied in accordance with current Dryvit printed product data sheets.
- B. Masonry Surfaces
1. Apply a continuous layer of Genesis or Genesis DM mixture over the entire wall surface to fill voids and provide a smooth level base for primer and finish application. Application thickness shall not exceed 3 mm (1/8 in) in a single pass.
 2. When specified, a layer of reinforcing mesh is embedded into the wet base coat mixture and troweled smooth.
 3. Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
 4. Using a brush, roller, or airless spray equipment, apply a coat of Color Prime or Primer with Sand over the dry base coat surface, and allow to dry.
 5. Apply the specified finish in accordance with Dryvit's printed installation instructions.
- C. ICF (Insulated Concrete Forms) (TAFS Option 2 only)
1. Refer to printed Dryvit ICF Specifications (DS194) and ICF Details (DS193).
 2. When specified, high impact meshes shall be installed at ground level, high traffic areas, and other areas exposed to or susceptible to impact damage.
- D. Cement Plaster, Poured in Place and Precast Concrete Surfaces
1. When specified, apply a continuous layer of Genesis or Genesis DM mixture over the entire wall surface to fill small voids and provide a smooth level base for primer and finish application. Application thickness shall not exceed 3 mm (1/8 in) in a single pass.
 2. When specified, a layer of reinforcing mesh is embedded into the wet base coat mixture and troweled smooth.
 3. Allow the base coat to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
 4. Using a brush, roller, or airless spray equipment, apply a coat of Color Prime or Primer with Sand over the dry base coat or cleaned substrate, and allow to dry.
 5. Apply the specified finish in accordance with Dryvit's printed installation instructions for the specific finish being used.
- E. EPS Surfaced Panels (TAFS Option 2 only)
1. Dryvit reinforced base coat shall be applied in accordance with current Dryvit Outsulation System Application Instructions DS204.
 2. Apply a continuous layer of base coat and reinforcing mesh over the entire EPS surface in accordance with published instructions for the specific base coat being used.
 3. All EPS terminations shall be encapsulated with reinforced base coat.

4. When specified, high impact meshes shall be installed at ground level, high traffic areas, and other areas exposed to or susceptible to impact damage.
 5. Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
 6. Apply the specified finish in accordance with Dryvit's printed installation instructions for the specific finish being used.
- F. Exterior Cement and Calcium Silicate Boards (without joints)
1. When specified, apply a continuous layer of Genesis over the sheathing face and embed a layer of reinforcing mesh into the wet base coat mixture such that the entire surface of the board is covered.
 2. Allow the base coat to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
 3. If base coat is not specified, using a brush, roller, or airless spray equipment, apply a coat of Color Prime Color Prime-W, or Primer with Sand over the face of the sheathing board and allow to dry.
 4. Apply the finish in accordance with Dryvit's printed installation instructions for the specified finish.
- G. Painted Surfaces
1. Apply the finish in accordance with Dryvit's printed installation instructions for the specified finish.
NOTE: It is not recommended to skim painted surfaces with a cementitious base coat material.
- H. When specified, the base coat shall be applied such that the overall minimum thickness shall be sufficient to fully embed the mesh. The recommended method is to apply the base coat in two (2) passes.
- I. Sealant shall not be applied directly to textured finishes or base coat surfaces. Base coat surfaces which will be in direct contact with sealant shall be coated with Demandit or Color Prime.

3.04 FIELD QUALITY CONTROL

- A. The contractor shall be responsible for the proper application of Dryvit TAFS.
- B. Dryvit assumes no responsibility for on-site inspections or application of its products.
- C. If required, the contractor shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures, workmanship and as to the specific products used.
- D. If required, the sealant contractor shall certify in writing that the sealant application is in accordance with the sealant manufacturer's and Dryvit's recommendations.

3.05 CLEANING

- A. All excess Dryvit materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.
- B. All surrounding areas, where Dryvit TAFS have been installed, shall be left free of debris and foreign substances resulting from the contractor's work.

3.06 PROTECTION

- A. Dryvit TAFS shall be protected from weather and other sources of damage until dry and permanent protection in the form of flashings, sealants, etc. are installed.

END OF SECTION 09 96 00

SECTION 22 05 00

GENERAL PLUMBING REQUIREMENTS

PART 1 - GENERAL

1.01 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.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Refer to Division 1, Summary of Work for description of alternates and phasing of work.

1.03 WORK INCLUDED

- A. Provide all materials, labor, equipment together with all incidental items not shown or specified, which are required by code and good practice to provide complete systems. Refer to Division 1, Summary of Work.

1.04 COORDINATION

- A. Coordinate all work in Division 22 with work specified in other Divisions to provide a complete installation. Expense of changes required because of lack of supervision or coordination shall be borne by the Contractor. Such changes shall be to the satisfaction of and directly supervised by the Architect.

1.05 CONTRACT DRAWINGS

- A. Location of lighting, ductwork, piping, and equipment on Drawings is approximate. Plan exact location with respect to measurements on the job and work of other trades prior to work. If measurements differ slightly, modify work. If measurements differ substantially, notify Architect prior to fabrication.

1.06 SITE VISIT

- A. Examine site of proposed work and become familiar with job conditions affecting work. No additional allowance will be granted due to lack of information of existing conditions.

1.07 SUBSTITUTIONS

- A. Manufacturer's names and model numbers shown on drawings or in specifications form the basis of design and indicate quality of equipment or materials. Manufacturers not listed require prior approval. Substitution requests must be made in writing to the Architect prior to bid in accordance with Division 1, Product Requirements. Provide sufficient information indicating compliance with these Specifications.

1.08 PERMITS, CODES, AND INSPECTIONS

- A. Permits: Basic building permit will be obtained by Owner. Obtain any required additional permits and pay fees required by governing agencies having jurisdiction over this work.
- B. Codes, Standards: Applicable codes and standards contained therein shall determine minimum requirements for materials, methods, and labor practices not otherwise stated herein.
- C. Inspections: Arrange and pay for inspections and tests required by codes or ordinances.

1.09 CUTTING AND PATCHING

- A. Not permitted unless shown on the drawings or approved by the Architect.

1.10 TEMPORARY SERVICES

- A. Provide in accordance with Section Division 1, Temporary Facilities and Controls as required for completion of Work.

1.11 COMPLETION

- A. General: When installation is complete, cleaned and adjustments specified herein made, operate system to demonstrate to Architect that system is complete and operating in conformance with these Specifications.
- B. Substantial Completion: Work hereunder will not be reviewed for Substantial Completion until operating and maintenance data, record drawings and directories specified herein have been approved.
- C. Final Completion: Entire installation turned over to the Owner in finished and satisfactory working condition.

1.12 WARRANTY

- A. Provide a written warranty covering Work of the Division for a period of one year in accordance with Division 1.

PART 2 - PRODUCTS

2.01 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle materials and equipment in a manner to prevent damage and deterioration. Store in original container.

2.02 MATERIALS

- A. All materials employed in permanent construction shall be new, full weight, in first class condition and suitable for space provided. All similar materials shall be of one manufacturer. All materials designed for dispensing potable water shall be 'No-Lead' meeting the

requirements of NSF/ANSI 372.

2.03 PIPES AND PIPE FITTINGS

- A. Plastic Drain & Vent Pipe: Schedule 40 solid wall PVC gravity sewer pipe and fittings conforming to ASTM D2665, ASTM D1784 and ASTM D1785 with solvent weld DWV fittings, and tracer wire where below grade. Pipe to be dual labeled complying with both ASTM D2665 and ASTM D1785. Foam core not allowed.

2.04 PIPE SUPPORTS AND ACCESSORIES

- A. Use adjustable pipe hangers on suspended pipe. Chain or perforated strap hangers are not permitted. Provide supports between piping and building structure where necessary to prevent swaying.
- B. Pipe Hangers:
 - 1. Size 3" and smaller: Adjustable, malleable iron, solid or split ring, black. UL and FM approved. PHD 505, Grinnell, or equal.

PART 3 - EXECUTION

3.01 CLEANING SYSTEMS

- A. After all fixtures and piping systems are installed, system shall be thoroughly cleaned per Division 1. Clean all piping systems prior to installation of insulation or painting. Repair or replace any discoloration or damage to system, building finish, or furnishing resulting from failure to properly clean systems.

3.02 SEISMIC REQUIREMENTS

- A. All piping, equipment, and fixtures shall be provided with hangers, transverse bracing, longitudinal bracing, bolts, and connection types per OSSC. Seismic calculations shall be provided by the Contractor. Refer to structural drawings for seismic design requirements.

3.03 PIPES

- A. Route piping in general locations indicated. Coordinate with other piping, ducts, conduits and equipment making necessary offsets. Install to conserve headroom and interfere as little as possible with use of available space. Group piping at common elevations wherever possible.
- B. Slope piping and arrange for drainage at low point.
- C. Provide clearance for proper installation of insulation and for access to other pipes, valves, and equipment as required.
- D. Install horizontal lines parallel with walls and partitions, vertical risers plumb and straight. Conceal piping above ceiling and within furring and walls unless otherwise indicated. Piping shall not be installed on the floor without prior approval.

3.04 PIPE SUPPORTS AND ACCESSORIES

- A. Supports for all piping not more than two feet from each change of direction.
- B. Vertical Pipe Supports:
 - 1. Vertical pipes adjacent to walls: Support by means of bracket formed of steel straps bolted to wall, with clamps around pipe. Super Strut with series 700 clamps or equal.
 - 2. Vertical pipes not adjacent to walls: Riser clamp at each floor, steel on steel pipe and copper-plated on copper pipe.
- C. Horizontal Pipe Supports:
 - 1. Support piping at each joint and at each branch fitting with same size rod diameter as specified below.
 - 2. Spacing for horizontal steel and copper piping supports as follows unless otherwise indicated on Drawings:

Pipe size	Rod Diameter	Max. Spacing	
		Steel & Copper	PVC & CPVC Sch 80
Up to 1"	3/8"	6'-0"	4'-0"
1-1/4" thru 2"	3/8"	10'-0"	5'-0"
2-1/2" thru 3-1/2"	1/2"	10'-0"	6'-0"
4"	5/8"	14'-0"	6'-6"
6"	3/4"	17'-0"	7'-6"

3.05 PIPE PENETRATION

- A. Where pipes pass through walls, ceilings, or floors, seal off void between opening and duct, or pipe and sleeve. Provide escutcheon in exposed locations.
- B. Where pipes or other material pass through or penetrate any fire-resistant wall, ceiling, or floor use UL listed fire stop systems meeting the requirements of the Authority having Jurisdiction. Provide packing materials, sealants, angles, and accessories. Completely seal voids the full thickness of material being penetrated. STI, Metacaulk, or equal.

3.06 FLASHING

- A. All exterior building penetrations shall be flashed for weather tightness. Coordinate with General Contractor.

END OF SECTION

SECTION 22 13 00

SANITARY VENT

PART 1 - GENERAL

1.01 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.

PART 2 - PRODUCTS

2.01 PIPING

- A. Vent within building: Plastic sewer pipe.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Prior to all Work of this section, carefully inspect the installed Work of all other trades affected by Work of this section and verify that all such Work is completed to the point where installation may properly commence. Verify that plumbing may be installed in strict accordance with all pertinent codes and regulations and approved Shop Drawings.
- B. In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 PIPE AND FITTINGS

- A. Route piping in general locations indicated. Coordinate with other piping, ducts, conduits and equipment making necessary offsets. Install to conserve headroom and interfere as little as possible with use of available space. Group piping at common elevations wherever possible.
- B. Provide clearance for proper installation and for access to other pipes, valves, and equipment as required.
- C. Vent Piping: Vents through roof shall be flashed with Roofing Manufacturer's piping penetration kit compatible with roofing material and acceptable to Roofing Contractor. Joints shall be no hub cast iron or screwed cast iron drainage fittings with maximum of 25% of threads showing. Install piping sloped at minimum of 1/2" per 10 feet. Hold exposed piping as near framing as possible, parallel and plumb to building lines.

3.03 PIPE TEST

- A. Test all piping per code requirements. Make all tests before pipes are concealed. Provide valves and temporary plugs or caps as needed to isolate sections of piping for testing.

3.04 CLOSING IN UNINSPECTED WORK

- A. Do not cover up or enclose work until it is complete and has passed all required inspections.
- B. Should any of the Work be covered up or enclosed prior to all required inspections and approvals, uncover the Work as required, make all repairs and replacement with such materials as are necessary to the approval of the Architect and at no additional cost to the Owner.

3.05 CLEANING UP

- A. Prior to acceptance of the Work, thoroughly clean all exposed portions of the installation, removing all labels and all traces of foreign substances, using only a cleaning solution approved by the manufacturer of the plumbing item and being careful to avoid all damage to finished surfaces.

END OF SECTION

SECTION 23 05 00

GENERAL HVAC REQUIREMENTS

PART 1 - GENERAL

1.01 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.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Refer to Division 26 related electrical work.
- B. Refer to Division 1, Summary of Work for description of alternates and phasing of work.

1.03 WORK INCLUDED

- A. Provide all materials, labor, equipment together with all incidental items not shown or specified, which are required by code and good practice to provide complete systems. Refer to Division 1, Summary of Work.

1.04 COORDINATION

- A. Coordinate all work in Division 23 with work specified in other Divisions to provide a complete installation. Expense of changes required because of lack of supervision or coordination shall be borne by the Contractor. Such changes shall be to the satisfaction of and directly supervised by the Architect.

1.05 CONTRACT DRAWINGS

- A. Location of lighting, ductwork, piping, and equipment on Drawings is approximate. Plan exact location with respect to measurements on the job and work of other trades prior to work. If measurements differ slightly, modify work. If measurements differ substantially, notify Contractor prior to fabrication.

1.06 SITE VISIT

- A. Examine site of proposed work and become familiar with job conditions affecting work. No additional allowance will be granted due to lack of information of existing conditions.

1.07 SUBSTITUTIONS

- A. Manufacturer's names and model numbers shown on drawings or in specifications form the basis of design and indicate quality of equipment or materials. Manufacturers not listed require prior approval. Substitution requests must be made in writing to the Architect prior to bid in accordance with Division 1, Product Requirements. Provide sufficient information indicating compliance with these Specifications.

1.08 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Provide shop drawings in accordance with Division 1. Submittals shall include all information necessary as required for complete check including any changes or modifications to the drawings necessary. Include fan curves.

1.09 RECORD DRAWINGS

- A. Provide record "as-built" drawings in accordance with Division 1, Project Record Drawings. Show all deviations from Contract Drawings, including addenda and change order items. Dimension all concealed piping from column grids or building lines

1.10 PERMITS, CODES, AND INSPECTIONS

- A. Permits: Basic building permit will be obtained by Owner. Obtain any required additional permits and pay fees required by governing agencies having jurisdiction over this work.
- B. Codes, Standards: Applicable codes and standards contained therein shall determine minimum requirements for materials, methods, and labor practices not otherwise stated herein.
- C. Inspections: Arrange and pay for inspections and tests required by codes or ordinances.

1.11 CUTTING AND PATCHING

- A. Not permitted unless shown on the drawings or approved by the Architect.

1.12 TEMPORARY SERVICES

- A. Provide in accordance with Division 1, Temporary Facilities and Controls as required for completion of Work. Permanent heating and ventilating systems shall not be used for heating and ventilation during construction without prior approval by the Architect. Provide separate portable heaters and fans as required.

1.13 OPERATING AND MAINTENANCE DATA

- A. Submit in accordance with Division 1, Operation and Maintenance Data. Include information only on the exact equipment installed. Include the following information where applicable:
 1. Manufacturer's printed operating, maintenance, and service information for equipment.
 2. Approved shop drawings.
 3. Manufacturer's parts list.
 4. Service and dealer directory listing.
 5. Balance report.

1.14 START UP

- A. The Mechanical Contractor shall be responsible for proper operation of all systems and shall coordinate start up procedures, calibration and system checkup with subcontractors present. Coordinate with Owner's Control Contractor. System operational problems shall be diagnosed

and corrected as required for system operation.

1.15 COMPLETION

- A. General: When installation is complete, cleaned and adjustments specified herein made, operate system to demonstrate to Architect that system is complete and operating in conformance with these Specifications.
- B. Substantial Completion: Work hereunder will not be reviewed for Substantial Completion until operating and maintenance data, record drawings and directories specified herein have been approved.
- C. Final Completion: Entire installation turned over to the Owner in finished and satisfactory working condition.

1.16 WARRANTY

- A. Provide a written warranty covering Work of the Division for a period of one year in accordance with Division 1. Include manufacturer's written warranties for material and equipment.

PART 2 - PRODUCTS

2.01 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle materials and equipment in a manner to prevent damage and deterioration. Store in original container. Indoor units, if stored outside, must be covered.

2.02 MATERIALS

- A. All materials employed in permanent construction shall be new, full weight, in first class condition and suitable for space provided. All similar materials shall be of one manufacturer.

2.03 ELECTRICAL EQUIPMENT

- A. All electrical equipment UL and NEMA labeled or acceptable to electrical inspection authorities having jurisdiction. All equipment which requires electrical service of 50 amps or more shall have lugs suitable for either copper or aluminum supply conductors.
- B. All wiring (and electrical Work pertaining to mechanical system) by Mechanical Contractor unless specified in Division 26.
- C. Motors: Motors 1/2 HP or over voltage and phase as shown on Drawings. Motors rated less than 1/2 HP wound for 120 volt 60 cycle, single phase, 1750 rpm, unless otherwise specified. Provide manual switch with overload protection when required. All motors protected by thermal overload protection. Motor starters and fused disconnects shall be provided by the Mechanical Contractor unless specified in Division 26.

2.04 VARIATIONS IN EQUIPMENT

- A. Manufacturer's names and model numbers shown on drawings or in specifications form the basis of design. If approved mechanical equipment of other manufacturer requires modification or additions to any Work as shown on the drawings, Mechanical Contractor shall arrange for and pay costs of such changes as part of this Work.

2.05 EQUIPMENT SPECIALTIES

- A. Machinery Guards: All moving parts of machinery, such as shaft couplings and belt drives, shall be adequately covered with removable metal guards to protect personnel from possible injury.
- B. V-Belt Motor Drives: Rated at 150% of motor capacity with adjustable cast iron drive sheave and enclosed with protective belt guard secured to equipment.

PART 3 - EXECUTION

3.01 CLEANING SYSTEMS

- A. After all equipment, pipes, and duct systems are installed, system shall be thoroughly cleaned per Division 1. Remove all stickers and tags from equipment and fixtures. Clean all piping systems prior to installation of insulation or painting. Repair or replace any discoloration or damage to system, building finish, or furnishing resulting from failure to properly clean systems.

3.02 ACCESS TO EQUIPMENT AND ACCESSORIES

- A. Install equipment with adequate access for service. Provide access doors where shown or required for proper access to valves, dampers, motors, and all other mechanical equipment requiring maintenance where area is not accessible by other means.
- B. Access doors shall be minimum size of 12 X 12 inches. Access doors in public areas shall be lockable. Filter rack access shall have handles. Access doors shall have same fire rating as the surface they are installed in. Type, size, and exact location of access doors shall be coordinated with Architect prior to Work.

3.03 SEISMIC REQUIREMENTS

- A. All piping, ductwork, and equipment shall be provided with hangers, transverse bracing, longitudinal bracing, bolts, and connection types per OSSC and SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems. Seismic calculations shall be provided by the Contractor. Refer to seismic design requirements on structural drawings and seismic curbs specified in Section 23 81 00.
- B. Refer to structural drawings for seismic support of exposed ductwork.

3.04 COMPONENT IDENTIFICATION

- A. Equipment: Identify all equipment with nameplate attached to the equipment or adjacent to it. Use equipment designation per schedule on drawings, where possible. Nameplate shall be black bakelit or phenolic resin with 1/2" high white letters.

3.05 PAINTING

- A. Inside ducts visible through face of grilles or diffusers, paint one coat flat black.
- B. Prepare all exposed ductwork for painting. Refer to Division 9.
- C. All pipe hangers, ferrous piping, supports, and equipment without factory finish and where exposed below finished ceilings or on the exterior of the building shall be painted flat black.
- D. All outside equipment without factory finish and outside duct work shall be painted. Provide necessary protection of work installed by other trades. Prepare surfaces to receive paint using a cleaning solution as recommended by paint manufacturer. Paint with one coat of primer followed by two coats Rustoleum enamel, and one coat enamel color as selected by Architect.

3.06 PIPE AND DUCTWORK PENETRATION

- A. Where ducts and pipes pass through walls, ceilings, or floors, seal off void between opening and duct, or pipe and sleeve. Provide escutcheon in exposed locations.
- B. Where ducts, pipes, conduit, equipment, or other material passes through or penetrates any fire-resistant wall, ceiling, or floor use UL listed fire stop systems meeting the requirements of the Authority having Jurisdiction. Provide packing materials, sealants, angles, and accessories. Completely seal voids the full thickness of material being penetrated. STI, Metacaulk, 3M, or equal.

3.07 ROOF PENETRATION SYSTEMS

- A. All pipe penetrations through roof shall be manufactured roof penetration systems constructed of 14 gauge powder coated welded aluminum housing with stainless steel hardware and schedule 80 PVC exit seals with aluminum or stainless steel UV protection. Systems shall be compatible with roofing material and acceptable to Roofing Contractor. Coordinate with General Contractor and Roofing Manufacturer. Pipe Chase Housing by Smart Box or equal.

3.08 VIBRATION ISOLATION AND EQUIPMENT BASES

- A. Provide complete vibration isolation supports for all equipment where required to prevent transmission of vibration to the building. Size springs in accordance with manufacturer's recommendations. Where fan and motor are mounted separately, provide integral steel fan and motor base. Maximum of 10% transmissibility. Provide minimum 3" high concrete equipment bases for pumps, boilers, tanks, etc., as required.

END OF SECTION

SECTION 23 05 93

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 other Division 1 Specification Sections, apply to this section.

1.02 DESCRIPTION

- A. The work performed by the Testing, Adjusting, and Balancing Contractor under this Section shall be performed by a firm experienced in this work and as approved by the Architect. The work includes testing, adjusting, and balancing of the installed mechanical systems. The Mechanical Contractor shall be responsible for the coordination of the work of the Balancing Contractor and other Contractors involved in the installation of the systems being balanced.
- B. The Balancing Contractor shall be a current member of AABC and/or NEBB, have at least three years experience in projects similar to this project, and maintain an office within 100 miles of the job site. The Balancing Contractor shall be independent of the installer of the systems being tested.
- C. Balancing Contractors: Air Balance Specialties, Neudorfer Engineers, Southern Oregon Air Balance, AIR Incorporated, Northwest Engineering, or approved.

1.03 SUBMITTALS

- A. System Performance Report: All test results shall be recorded on forms which have been approved by the Architect. Reference to system points shall be designated by Architectural Room No. and points per room. Include in report drawings which relate all reference points in report to Contract Drawings. Report shall be bound in a 3-ring binder completely indexed. Submit 3 copies to Architect at completion of the work.

PART 2 - PRODUCTS

2.01 BALANCING EQUIPMENT

- A. The Balancing firm shall supply all instruments, tools, and equipment necessary to perform the work specified herein. All instruments shall have been calibrated within the preceding six months. Provide proof of calibration to the Engineer. Mechanical Contractor shall make changes in motor sheaves where required and provide any scaffolding, ceiling tile removal and replacement necessary to provide access to balancing dampers or to take required readings.

PART 3 - EXECUTION

3.01 FINISHED SURFACES

- A. Protection: Use all means necessary to protect the installed work and materials of all other trades and existing surfaces.
- B. Replacements: In the event of damage, immediately make all repairs and replacement necessary to the approval of the Architect at no additional cost to the Owner.

3.02 ADJUSTMENT AND BALANCING OF AIR SYSTEMS

- A. Make the following observations and make corrections where necessary to report to Mechanical Contractor:
 - 1. Check for drafts, noise and vibration.
 - 2. Check building pressure under normal operating conditions.
 - 3. Establish equal pressure within the building from one room to another except special areas requiring positive or negative conditions.
- B. Make the following measurements and adjustments to all new mechanical equipment and systems listed in the Mechanical Equipment Schedule, existing CEU-1 (Cafeteria), REU-1B/REU-2B (Big Gym), REU-3B (Little Gym), and REU-4B (Locker Rooms). Record results in System Performance Report.
 - 1. Identify and list size, type and manufacturer of all air terminals, fans, and heat transfer equipment.
 - 2. Record nameplate data for all motors, and record the actual running amperes for each fan motor.
 - 3. Test, adjust, and record supply, return, and exhaust fan rpm to deliver not less than 90% nor more than 110% of total volume specified.
 - 4. Test and record initial velocities and cfm at all supply, return and exhaust air terminals.
 - 5. Test, adjust, and record the maximum and minimum air flow, heating temperatures, and static pressures at each terminal unit.
 - 6. Test and record initial velocities and cfm at all supply, return and exhaust air terminals. Adjust and record until volumes are within 10% of air quantity specified. Adjust air flow pattern to minimize drafts to the extent design and equipment permits.
 - 7. Test and record entering and leaving dry bulb and wet bulb temperature for the heating and cooling cycle of each supply fan.
 - 8. Test and record static pressure at the inlet and outlet of all supply and exhaust air fans.
 - 9. After all air flow adjustments have been made, mark final position of balancing dampers.
 - 10. Check and record room thermostat settings and room temperature after all air flow adjustments have been made. Check operation of all controls. Set time clocks and thermostats per Owner's instruction.

3.03 CLEANING UP

- A. Prior to acceptance of the Work, thoroughly clean all exposed portions of the installation. Remove all labels and all traces of foreign substance, using only a cleaning solution approved by the manufacturer of the equipment and being careful to avoid all damage to finished spaces. Remove all debris accumulated by this Work.

END OF SECTION

SECTION 23 07 00

HVAC INSULATION

PART 1 - GENERAL

1.01 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.

1.02 SUBMITTALS

- A. Provide Shop Drawings for all insulation products to be used on this project.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All glass fiber coverings and liners shall have a composite fire and smoke hazard rating as tested by procedure ASTM-E-84, NFPA 255 and UL-723, not exceeding 25 flame spread, 50 smoke developed. All insulation products shall be PBDE free per State of Oregon requirements. All accessories, such as adhesive, mastic cements, tape, and fabric cloths for fitting shall have the same component ratings as listed above. Materials and insulating characteristics shall meet OMSC and OEESC, latest edition.

2.02 DUCT INSULATION

- A. Outside Duct Wrap: Formaldehyde-free fiberglass blanket with FSK foil reinforced fire-resistant facing, thermal conductance of 0.27 BTU per inch per square foot per deg. F. per hour at a mean temperature of 75F, and vapor barrier rating of 0.02 perms. JM Microlite XG, Owens Corning, Knauf, Certainteed, or equal.
- B. Flexible Duct Liner:
 - 1. Duct liner with reinforced acrylic polymer coating, edge seals, thermal resistance of 4.3 BTU per inch per square foot per deg. F. per hour at a mean temperature of 75F, 1-1/2 pound per cubic foot density. Liner shall be a fire, mildew, and damage resistant surface meeting ASTM G21/C1338 for fungi resistance and ASTM G22 for bacteria resistance. Liner shall have no detectable fiber loss at maximum rated velocity using UL 181. Johns Manville Linacoustic RC, Johns Manville Spiracoustic Plus Round Liner, Owens Corning QuietR Rotary Duct Liner, Certainteed, Knauf, Casco, or equal.

2.03 PIPE INSULATION

- A. Flexible Closed Cell: Flexible, closed cell elastomeric thermal insulation, 1.5 lbs. per cubic foot density with a maximum K factor of 0.25 BTU per inch per square foot per deg. F. per hour at a mean temperature of 75F, non-toxic, non corrosive with maximum 0.05 perm.-in. water vapor transmission. Pre-slit for above ground applications. Heat resistance rating to 250F. Nomaco, Armaflex, or equal.

- B. Lineset Cover System: Weather resistant, UV stabilized PVC piping cover and accessories with stainless steel screws. Fortress, Daikin, Mitsubishi, or equal.
- C. Field Applied Jackets and Fitting Covers: Aluminum jacket and fittings, minimum 0.016 inch thick.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 - 1. Prior to all Work of this section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where installation may properly commence.
 - 2. Verify that the Work of this section may be installed in accordance with all pertinent codes and regulations and the approved Shop Drawings.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify the Architect.
 - 2. Do not proceed with installation in the areas of discrepancy until all such discrepancies have been fully resolved.

3.02 APPLICATION

- A. Duct Insulation:
 - 1. Provide duct insulation as required by code. See Section 23 31 00 for additional requirements.
 - 2. Use internal liner to meet insulation requirements for exposed ducts, where exterior insulation would be subject to damage such as mechanical rooms, storage areas, etc., or where acoustical isolation is required.
- B. Pipe Insulation:
 - 1. Refrigeration piping – 1-1/2" flexible closed cell.
- C. Covers:
 - 1. Provide lineset cover system over refrigerant piping and drain piping exposed inside the building and exposed on exterior walls.
 - 2. Provide aluminum jacket over exterior exposed flexible closed cell insulation located on the roof and on mechanical platforms (HP-26, HP-30, HP-38, HP-39, and HP-42).

3.03 INSTALLATION

- A. General:
 - 1. Insulation shall be applied on clean, dry surfaces, after inspection and release for insulation.
 - 2. All insulation shall be continuous through wall and ceiling openings and sleeves.
 - 3. Insulate and cover all fittings, valve bodies, etc., as specified herein.

B. Duct Insulation:

1. Inside Duct Liner - Attenuation: Apply to flat sheet metal before fabrication with minimum 90% adhesive coverage using a water based adhesive, DuroDyne SSG or equal. On ducts over 16" in height or width, the liner shall be additionally secured with impact driven or weld secured fasteners on 15" centers. All joints shall be tightly butted together.
2. Inside Duct Liner Round Ducts: Slip straight sections into ductwork for tight fit. Adjacent sections shall be tightly butted together. Any loose sections shall be secured with pins and adhesives. Fitting insulation shall be cut to minimize gaps and voids, and shall be secured with pins and adhesives. Seal large voids with suitable patches, sealed on all sides before and after placement.
3. All joints, exposed edges, leading edge of all cross joints, and shop fabrication cuts of duct liner shall be coated with Manufacturer's sealing material. All rips and tears on the air stream surface shall be repaired by Manufacturer's sealing material. Channel metal nosings shall be securely installed over traverse edges facing the air stream at fan discharge and at any lined duct preceded by unlined duct.

C. Pipe Insulation:

1. Flexible Closed Cell (above ground) - Insulation shall be slipped on the pipe prior to connection wherever possible, and the radial seams sealed with adhesive. Where the slip-on technique is not possible, pre-slit insulation shall be slit and snapped over the pipe with longitudinal and radial seams sealed with adhesive. Fitting cover insulation shall be fabricated and installed according to the manufacturer's recommended procedures.
2. Lineset cover system shall include wall cover inlet, flexible joint/tube, end socket, and 90 degree elbows as required. Size to adequately cover all piping. Install per manufacturer's recommendations. Seal joints and seams where exposed to weather.
3. Seal seams and joints of aluminum jacket. Install with seams behind or under the exposed side of the piping.

3.04 CLOSING IN UNINSPECTED WORK

- A. Do not cover up or enclose work until it is complete and has passed all required inspections.
- B. Should any of the Work be covered up or enclosed prior to all required inspections and approvals, uncover the Work as required; and, after it has been completely inspected and approved, make all repairs and replacements with such materials as are necessary to the approval of the Architect and at no additional cost to the Owner.

3.05 CLEANING UP

- A. Prior to acceptance of the Work, thoroughly clean all exposed portions of the insulation installation, removing all labels and all traces of foreign substance. Remove all debris accumulated by this Work.

END OF SECTION

SECTION 23 09 00

CONTROL FOR HVAC

PART 1 - GENERAL

1.01 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.

1.02 DESCRIPTION

- A. DDC system for control of the new HVAC equipment is provided by the Owner. Contractor shall coordinate with Owner's Control Contractor for equipment interface.
- B. Contractor shall furnish thermostat for HP-30 and HP-42G. Deliver to Owner for installation.
- C. The control system shall provide the following results to meet the energy code requirements of OEESC through DDC system programming provided by the Owner.
 - 1. Automatic system setback with ramped start up.
 - 2. Minimum 5 degree deadband.
 - 3. Outside air dampers close during setback.
 - 4. Economizer capable of providing partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load.
 - 5. Demand ventilation control to modulate outside air dampers to maintain carbon dioxide levels below sensor setpoint.
 - 6. Individual sensor control for each heat pump unit.
 - 7. Auxiliary heat shall not operate when the heat pump can meet the heating load.

1.03 SHOP DRAWINGS

- A. Provide HVAC equipment submittals to Control Contractor for coordination.

END OF SECTION

SECTION 23 31 00

HVAC DUCTS AND ACCESSORIES

PART 1 GENERAL

1.01 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.

1.02 SHOP DRAWINGS

- A. Provide Shop Drawings for the following:
 - 1. Air System Specialties
 - 2. Diffuser, Grilles, Louvers

PART 2 PRODUCTS

2.01 GENERAL

- A. All ductwork and accessories shall have a composite fire and smoke hazard rating as tested by procedure ASTM-E-84, NFPA 255 and UL-723, not exceeding 25 flame spread, 50 smoke developed ratings.

2.02 DUCTWORK

- A. Metal ducts and plenums: Low pressure duct work (not exceeding 2000 FPM) – G90 galvanized steel ductwork per ASTM A653 complying with Oregon Mechanical Specialty Code, ASHRAE Equipment Volume and SMACNA Low Velocity Duct Construction Manual, latest editions.
 - 1. Supply ducts - 2" WG positive pressure.
 - 2. Return and exhaust ducts - 2" negative pressure.
- B. Exposed duct supports shall be located in the center of joist or structural member. Maximum support spacing shall be 25% less than SMACNA requirements. Provide shop drawings showing support details including lag screw diameter and length, pilot hole size, strapping, and rod for Architect review and approval prior to work.

2.03 AIR SYSTEMS SPECIALTIES

- A. Volume Dampers: Smaller than 14 x 14 use butterfly type with locking quadrants, adjustable handle. Two gauges heavier than duct, minimum of 18 gauge galvanized sheet metal. Larger than 12 x 12 use manually adjustable opposed blade type with maximum 48" sections, controlled by an outside lockable arm. DuroDyne Stampline/Quadline. In non-accessible areas, use DuroDyne AD-38 rod and gear assembly with 8009 concealed regulator. DuroDyne, Young, Ventfabrics, or equal.

- B. Turn Vanes: Non-adjustable 90 degree air turn, minimum 26 gauge galvanized double wall steel blade, minimum 24 gauge galvanized steel side rails. Vanes 2-1/8" on center. Install in all rectangular elbows, bends and tees. H-E-P High Efficiency Profile as manufactured by Aero Dyne Co., DuroDyne, Schuller SuperVane, or equal.
- C. Automatic Dampers: Low leakage, modulating damper, spring loaded to fail closed when used for outside air, open when used for return air or exhaust air. Sixteen gage blades, 8" maximum section. Opposed blade in modulating application, parallel blade in two position application. Maximum leakage of 4 CFM per square foot at 1" water gage per AMCA. Ruskin CD50, Greenheck VCD23, or equal.
- D. Filters: Two inch pleated, disposable, MERV 7 filters with factory frames and supports. Access doors with operable handles, not screws. Provide for all air handlers. Maximum velocity of 350 FPM. Provide clean set in units at completion of work and one spare set. Farr 30/30, American Air Filter, or equal.
- E. Duct Access Doors: Hollow core double construction of same or heavier gauge than ductwork, minimum size 12 X 12 inches. Fire rated as required. Ventlok 100 Series door, hinges, and latches. Ventlok, Cesco, Ruskin, or equal.

2.04 DIFFUSERS, GRILLES

- A. Grilles shall have factory applied flat white enamel prime coat on steel or clear anodized aluminum unless otherwise noted. Maximum NC of 25.
- B. Manufactured by Carnes, NCA, Ruskin, Cesco, Titus, Price, Krueger, Nailor, Pottorf, Anemostat, or approved. See Schedule on Drawings.

2.05 EXHAUST FAN, EF-25

- A. AMCA certified for sound and air performance and UL listed. Direct drive, centrifugal in-line fan with heavy gauge galvanized steel insulated housing, motor cover, and neoprene vibration isolator kit for suspended installation. EC motor minimum 85% efficient, operating range down to 20% of design, and controlled by 0 to 10 VDC input signal. Provide wired and mounted transformer.
- B. Manufactured by Greenheck, Carnes, Penn, Cook, Acme, or equal. See Schedule on Drawings.

2.06 EXHAUST FAN MOTOR, REU-3B

- A. Replace existing 3/4 HP motor with new 3/4 HP EC motor. UL Listed, continuous duty with wiring harness. Modify existing or provide new mounting plate. Minimum 85% efficient, operating range to 20% of design. GE ECM 2.3, Genteq, or equal.

PART 3 EXECUTION

3.01 DUCT CONSTRUCTION

- A. Construct HP unit discharge and inlet ducts of minimum 18 gage sheet metal. Internally line all supply and return ducts except as noted below. Refer to Section 23 07 00 for required nosings.
 - 1. HP-25: 15 feet lined SA and RA duct.
 - 2. HP-31 and HP-33: 15 feet lined SA and RA duct.
 - 3. HP-32: 22 feet lined SA, 10 feet lined RA.
- B. Exposed round and oval duct shall be minimum 18 gage, spiral lock duct/fittings with joints caulked internally and minimum 18 gage rectangular grille/diffuser taps.
- C. EF-25 exhaust duct shall be internally lined within 10 feet of the fan inlet.

3.02 INSTALLATION

- A. Ducts constructed and installed in accordance with Oregon Mechanical Specialty Code, ASHRAE Equipment Volume, SMACNA Duct Construction manual, and NFPA 90A, latest editions. Duct supports shall, strap, trapeze, or rod hangers, galvanized steel sheet, or threaded steel rod unless otherwise shown on drawings. Wire supports are prohibited. Refer to Section 23 05 00 for seismic requirements.
- B. Install ductwork level and plumb. Allow for access to equipment and accessories. All ducts plugged during construction; kept clean.
- C. Provide supports within 24 inches of elbows and 48 inches of branch tees. Locate supports to prevent stresses at duct fittings. Provide appropriate attachments to structure. Coordinate locations with other piping, conduit, and equipment.
- D. Provide turn vanes in all elbows, tees and bends.
- E. All duct dimensions shown are inside dimensions. Where inside duct insulation is required, duct dimensions are to inside face of insulation. See Insulation Specifications.
- F. Seal all longitudinal and transverse joints and seams in sheetmetal ducts with water based solvent system Hardcast Versa-grip, 181Hardcast 1402 3" wide tape, or Hardcast DT Tape and with RTA-50 adhesive, or equal. Use tape and adhesive for rectangular exposed duct. Coordinate with Architect prior to sealing ducts exposed to view.
- G. Provide escutcheons or collars at duct or vent penetrations through exposed surfaces.
- H. Provide balancing damper in ductwork serving each diffuser and grille. Locate damper as far as possible from diffuser or grille. If there is no access to damper, provide concealed regulator. Opposed blade damper as part of diffuser or register may be used with prior approval.
- I. Provide flexible connectors at each side of fans and other rotating equipment. 4" fabric, 2" clearance between metal work.

3.03 DIFFUSER, GRILLE, INSTALLATION

- A. Install secured to ductwork. Install louvers and sidewall grilles flush with the wall, secured to the ductwork.

3.04 CLOSING IN UNINSPECTED WORK

- A. Do not cover up or enclose work until it has been properly and completely inspected and approved.
- B. Should any of the work be covered up or enclosed prior to all required inspections and approvals; uncover the work as required and, after it has been completely inspected and approved, make all repairs and replacements with such materials as are necessary to the approval of the Architect and at no additional cost to the Owner.

3.05 CLEANING UP

- A. Prior to acceptance of the Work, thoroughly clean all exposed portions of the installation. Remove all labels and all traces of foreign substance, using only a cleaning solution approved by the manufacturer of the equipment and being careful to avoid all damage to finished spaces. Remove all debris accumulated by this Work.

END OF SECTION

SECTION 23 81 00

HVAC EQUIPMENT

PART 1 - GENERAL

1.01 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.

1.02 SHOP DRAWINGS

- A. Provide Shop Drawings for all equipment.

PART 2 - PRODUCTS

2.01 PIPING

- A. Gravity Condensate Drain Piping: Type M copper pipe and fittings.
- B. Pumped condensate Drain Piping: Hard vinyl chloride tubing. Schedule 40 PVC plastic pipe sleeve through exterior walls.
- C. Refrigerant Piping: ASTM B280 Type ACR seamless copper tube and fittings, factory cleaned and sealed for refrigerant use. Brazed joints. ASME B31.5 and B31.9.

2.02 ROOFTOP HEAT PUMPS 3 through 5 TON

**HP-1 through HP-24, HP-27, HP-31 through HP-33 TWO STAGE,
(Owner Furnished, Contractor Installed)**

**HP-28, HP-29, HP-37, HP-40, HP-43 through HP-45 SINGLE STAGE,
(Contractor Furnished, Contractor Installed)**

- A. Units shall be factory assembled and tested, packaged heat pump unit meeting ARI standards and UL listing. Cabinet constructed of galvanized steel with weather resistant baked enamel finish, ribbed roof, 1/2 inch thick foil faced insulation with sealed edges, gasketed access panels, tool-less filter access, 2 inch filter racks, and coil guard.
- B. Direct drive fans, high efficiency motors, permanently lubricated bearings, and built-in thermal overload protection. Epoxy polymer coating on aluminum fin evaporator and condenser coils. Removable, double sloped, non-corrosive condensate drain pan full length of coil with primary and secondary connections. Anti-short cycle timer. Indoor fan mounted on rubber mounts.

- C. R-410A refrigerant system with scroll type compressor, automatic reset thermal overload, overtemperature and overcurrent, heating and cooling thermal expansion valve, low pressure switch, service valves, filter dryer, crankcase heater, and sight glass. Defrost system initiated based on coil temperature and timer control. Two stage compressor on HP-1 through 24, HP-27, HP-31, and HP-33. Single stage compressor on HP-28, HP-29, HP-37, HP-40, and HP-43 through HP-45.
- D. UL listed electric heaters with automatically reset high limit control through heating element contactors and overcurrent protection. Electric heater elements constructed of heavy duty nickel chromium. 2 step, either 50%/50% or unbalanced up ratios scheduled.
- E. Units shall have single source power entry and shall be provided DDC ready with a terminal strip interface available for field-provided controls by Owner.
- F. Full perimeter, 11 inch tall, insulated, structurally calculated, vibration isolation roof curb of welded construction with perimeter wood nailer, continuous gasket, seismic clips, springs, and duct supports. Provide seismic restraints calculated to meet OSSC requirements. CanFab 6048-IC11A-CBC/6050-IC11A-CBC, MicroMetl, Thy Curb, or approved equal.
- G. Fully modulating, integrated economizer with barometric relief dampers and outside air dampers that prohibit the entrance of outside air when the unit is off. Factory-provided Belimo 24LF-SR or equal 35 in-lbs spring return actuator, wired back to “DDC ready” terminal strip or wiring compartment. MicroMetl ECD-1213-16-TD/ECD-1235-16-TD, CanFab, or approved equal.
- H. Controls provided by Owner.
- I. Contractor shall take delivery of owner furnished equipment at Contractor’s place of business or at the jobsite. Equipment will be inspected by Owner at delivery. Refer to Division 1.
- J. Warranty: 1 full year parts and labor. Compressors shall carry 5 year parts warranty.
- K. Manufacturer: Carrier, Trane, Lennox, or approved equal. See schedule on drawings for capacities.

**2.03 ROOFTOP HEAT PUMPS, 6 through 15 TON
HP-25 AND HP-41**

- A. Units shall be UL listed, factory assembled and tested, packaged heat pump unit meeting ARI standards. Cabinet constructed of galvanized steel with weather resistant baked enamel finish, ribbed roof for positive drainage, 1/2 inch thick foil faced insulation with sealed edges, gasketed access panels, tool-less filter access, and 2 inch filter racks.
- B. Variable speed direct drive or belt drive indoor fans with high efficiency motors and thermal overload protection. Copper tube coils with aluminum fins, factory leak tested. Removable, double sloped, non-corrosive condensate drain pan with primary and secondary connections. Direct drive outdoor fans shall be statically balanced with permanently lubricated motors having built-in thermal overload. Multi-speed indoor fan to reduce fan operation to 67% when cooling load is less than 50%.

- C. R-410A refrigerant system with scroll type compressor with automatic reset thermal overload, overtemperature and overcurrent protection, thermal expansion valve, low pressure switch, high pressure cutout with discharge line thermostat, service valves, filter dryer, crankcase heater, and sight glass. Defrost system initiated based on coil temperature and timer control.
- D. UL listed electric heaters with automatic reset high limit control through heating element contactors and overcurrent protection. Electric heater elements constructed of heavy duty nickel chromium. Refer to schedule on drawings for minimum number of stages.
- E. Units shall include microprocessor controls with anti-short cycle timing/compressor time delay relay, shall have through the base utility access, single source power entry, and shall be provided DDC ready with a terminal strip interface available for field-provided controls by Owner.
- F. Roof Curbs:
 - 1. HP-25 shall be provided with a full perimeter, structurally calculated, vibration isolation roof curb of welded construction with perimeter wood nailer, continuous gasket, seismic clips, and springs. Provide seismic restraints calculated to meet OSSC requirements. Can-Fab 0403-PRC610HEE-08B, MicroMetl, Thy Curb, or approved equal.
 - 2. HP-41 shall be provided with a full perimeter, 11 inch tall, insulated perimeter, structurally calculated, vibration isolation roof curb of welded construction with perimeter wood nailer, continuous gasket, seismic clips, springs, and duct supports. Provide seismic restraints calculated to meet OSSC requirements. Can-Fab 6010-IC11A-CBC, MicroMetl, Thy Curb, or approved equal.
- G. Economizers:
 - 1. HP-25: Provide fully modulating, integrated economizer with outside air dampers that prohibit the entrance of outside air when the unit is off. Factory-provided Belimo 24NF-SR or equal 60 in-lbs spring return actuator, wired back to “DDC ready” terminal strip or wiring compartment. MicroMetl ECH-PRC610BEL horizontal economizer, CanFab, or approved equal.
 - 2. HP-41: Economizer provided through existing outside air louver and economizer relief fan. See drawings for required automatic dampers.
- H. Control provided by Owner.
- I. Warranty: 1 full year parts and labor. Compressors shall carry 5 year parts warranty.
- J. Manufacturer: Carrier, Trane, Lennox, or approved equal. See schedule on drawings for capacities.

2.04 SPLIT SYSTEM HEAT PUMPS, HP-26

- A. ARI, UL listed. Outdoor unit with scroll compressor and direct driven condenser fan. Current sensitive and thermal sensitive overload devices, high and low limit protections, and external service valves. Provide compressor anti-short cycle timer, evaporator defrost control, expansion valve, and rubber isolators.

- B. Indoor unit cabinet constructed of insulated, galvanized steel with R-4 insulation. Direct drive centrifugal fan with high efficiency EC motor. Coil constructed of aluminum fins mechanically bonded to seamless copper. Condensate drain pan, primary and secondary drain connections. Electric resistance heater equipped with thermal and current sensitive devices, magnetic contactors, control relays. Provide condensate drain pan float switch to switch unit off condensate level rises. Diversitech CC-1 or equal.
- C. Units shall have single source power entry and shall be provided DDC ready with a terminal strip interface available for field-provided controls by Owner.
- D. Outdoor unit curb shall be insulated platform roof curb with perimeter wood nailer, ¾” plywood top, and 20 gage cover. Thy Curb TC-3, CanFab, MicroMetl, or approved equal.
- E. Control provided by Owner.
- F. Manufacturer: Trane, Carrier, Lennox. See schedule on drawings for capacities.

2.05 SPLIT SYSTEM HEAT PUMPS, HP-38, HP-39

- A. ARI, UL listed. Outdoor unit with scroll compressor mounted on vibration isolators. Coated heavy gauge galvanized steel casing with weather resistant baked enamel finish. Copper tube, aluminum fin condenser coil factory pressure tested. Direct drive condenser fan, permanently lubricated motor with current and thermal overloads.
- B. Indoor unit cabinet of 2 inch insulated, double wall, galvanized steel construction. Internally isolated, forward curved fan with permanently lubricated bearings and factory VFD to reduce fan operation to 67% when cooling load is less than 50%. Coil constructed of aluminum fins mechanically bonded to seamless copper. Double sloped, corrosion resistant condensate drain pan full length of coil with primary and secondary connections. Single point power entry and low voltage terminal strip. Two inch filter rack with tool-less entry, condensate overflow switch to shut off unit on rise of condensate, mixed air sensor, and discharge air sensor.
- C. R-410A refrigerant system with single refrigeration circuit, integral subcooling circuit, crankcase heater, thermal and current sensitive overloads, liquid line filter drier, liquid and suction line service valves with gauge ports, external high and low pressure sensors, evaporator defrost control, and discharge temperature limit.
- D. UL listed electric heaters with airflow switch, automatic reset high limit control through heating element contactors and overcurrent protection. Electric heater elements constructed of heavy duty nickel chromium.
- E. Microprocessor controls with integrated anti-short cycle timing/compressor time delay relay. Units shall be provided DDC ready with a terminal strip interface available for field-provided controls by Owner.
- F. Outdoor unit curb shall be vibration isolated, structurally calculated, insulated platform roof curb with perimeter wood nailer, ¾” plywood top, and 20 gage cover. Provide seismic restraints calculated to meet OSSC requirements. ThyCurb TC-3, CanFab, MicroMetl, or approved equal.

- G. Existing economizer automatic dampers and relief fans to be reused.
- H. Control provided by Owner.
- I. Warranty: 1 full year parts and labor. Compressors shall carry 5 year parts warranty.
- J. Manufacturer: Trane, Carrier, Lennox. See schedule on drawings for capacities.

2.06 DUCTLESS SPLIT SYSTEM HEAT PUMPS, HP-30

- A. Provide complete variable capacity, split system heat pump system for automatic changeover heating and cooling. System shall operate with R-410A refrigerant and shall include outdoor unit, controller, indoor units and thermostats. Equipment shall be listed by UL or ETL.
- B. Outdoor unit shall include an accumulator with refrigerant level sensors and controls, a high pressure safety switch, over-current protection, and DC bus protection. The outdoor unit shall be capable of operating in heating down to 0 degrees F ambient temperature with standard low ambient controls including wind baffle. The outdoor unit shall have a high efficiency oil separator plus additional logic controls to ensure adequate oil volume in the compressor is maintained. Refrigerant flow from the outdoor unit shall be controlled by means of an inverter driven scroll compressor to modulate capacity. Compressor shall have a factory mounted crankcase heater, internal thermal overload protection, and vibration isolation.
- C. Refrigerant piping, fittings, connections, branching kits, and accessories shall be sized and installed to meet Manufacturer's requirements.
- D. Indoor units shall include modulating linear expansion devices. The units shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Units shall be hung from structure per Manufacturer's requirements. All units shall have condensate pan, drain, pump, and float switch to shut off unit on rise of condensate level in drain pan. Units without factory pump shall be provided with self-contained condensate removal system with pump, filter, trap and cover for mounting directly below the indoor unit, EDC Limpet or approved equal.
- E. Control by manufacturer's wired, wall mounted thermostat/controller. Controller with 5F deadband, 55 to 85F setpoint range, on/off, temperature setpoint, programming schedule, override control, operating mode, cool/heat changeover, auto daylight savings adjust, and fan control. Daikin BRC1C72 wired remote controllers, Mitsubishi, or approved equal. Furnish to Owner for installation.
- F. Outdoor unit curb shall be insulated platform roof curb with perimeter wood nailer, ¾" plywood top, and 20 gage cover. ThyCurb, CanFab, MicroMetl, or approved equal.
- G. Warranty: 1 full year parts and labor. Compressors shall carry 5 year parts warranty.
- H. Manufacturer: Daikin to match existing.

2.07 DUCTLESS SPLIT SYSTEM INDOOR UNIT, HP-42G

- A. Indoor unit shall include modulating linear expansion device and shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Include condensate pan, drain, and float switch to shut off unit on rise of condensate level in drain pan. Unit shall include a manually adjustable guide vane for side to side airflow control, a motorized air sweep louver for up/down airflow control, and removable, washable return air filter. Factory supplied mounting plate to hang unit from structure per Manufacturer's requirements.
- B. Control by manufacturers wired, wall mounted thermostat/controller. Controller with 5F deadband, 55 to 85F setpoint range, on/off, temperature setpoint, programming schedule, override control, operating mode, cool/heat changeover, auto daylight savings adjust, and fan control. Daikin BRC1C72 wired remote controller or approved equal. Furnish to Owner for installation.
- C. Unit shall be fully compatible with existing Daikin VRF heat recovery system with existing REYQ72PTHY outdoor unit. Installation by factory trained installer. Provide start up services by factory authorized representative.
- D. Manufacturer: Daikin to match existing.

2.08 ROOFTOP HEAT PUMP, HP-3 EDGEWOOD

- A. Factory assembled and tested, packaged heat pump unit meeting ARI standards and UL listing. Cabinet constructed of galvanized steel with cross-ribbed roof for positive drainage and 1/2 inch thick interior insulation. Two inch thick filter rack with access panel operable without tools. Outdoor coil hail guard assembly.
- B. Belt drive supply fans with high efficiency motors, permanently lubricated bearings, and overload protection. Copper tube coils with aluminum fins, factory leak tested. Sloped non-corrosive condensate pan full length of coil with primary and secondary drain connections.
- C. Refrigeration system including two hermetic scroll compressors with automatic reset thermal overload, overtemperature and overcurrent protection, and crankcase heater. Compressors mounted on rubber and shear isolators. TXV, suction line accumulator, low pressure protection, high pressure protection, service valves, filter dryer, and sight glass. Defrost system initiated based on coil temperature and timer control.
- D. UL listed electric heaters with high temperature limit switches and overcurrent protection. Unit shall be capable of simultaneous heating duty and defrost cycle operation when using accessory electric heaters.
- E. Units shall include microprocessor controls, anti-short cycle timing/compressor time delay relay, and single point electrical connection through roof curb and shall be provided DDC ready with a terminal strip interface available for field-provided controls by Owner.
- F. Downflow roof curb is existing, MicroMetl AP597-102.

- G. Provide fully modulating, integrated economizer with low leak outside air dampers that prohibit the entrance of outside air when the unit is off, and power exhaust fan. Factory-provided Belimo 24LF-SR or equal 35 in-lbs spring return actuator, wired back to “DDC ready” terminal strip or wiring compartment. CanFab 1124-MPE, MicroMetl 1682, or approved equal.
- H. Control provided by Owner.
- I. Warranty: 1 full year parts and labor. Compressors shall carry 5 year parts warranty.
- J. Manufacturer: Carrier or approved equal. See schedule on drawings for capacities.

2.09 PIPE CHASE HOUSING

- A. Roof penetration housing of powder coated aluminum welded construction. Gasketed exit seals, aluminum hardware, and flanged curb. Small Vault AL161010, Smart Box AL1001, or equal.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that the work of this section may be installed in accordance with all pertinent codes and regulations and the approved Shop Drawings.
- C. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 INSTALLATION

- A. Install all piping, equipment and accessories with adequate access for service and per manufacturer's recommended instructions. Mechanical Contractor shall coordinate startup of all equipment and systems.
- B. Condensate drain piping for roof top units and refrigerant piping for split system units shall be supported off the roof with UV resistant rubber channel supports, Dura-Blok DBM or equal. Provide cleanouts, tees, and traps in condensate piping systems. Discharge to roof on downslope side of units.
- C. Interior condensate drain piping shall be supported off the floor. Provide cleanouts, tees, and traps. Slope to drain.

- D. Refrigerant piping for split system shall be sized and installed per Manufacturer's recommendations.
 - 1. Use long radius ells for all 90 degree bends. Brazing shall be done using a 2 to 3 psig dry nitrogen purge. Slope piping towards indoor unit at 1 inch per 10 feet. Provide liquid line filter drier, access port (Schrader valves with core), moisture indicating sight glass, and expansion valve with bypass check valve at the indoor unit. Provide gas line access port (Schrader valves with core) and install gas line at indoor coil so gas line drops a minimum of 12 inches below the coil.
 - 2. Pressure test piping systems to 200 psi with dry nitrogen. Soap test all joints to ensure no leaks. Repair and repeat testing as necessary. Evacuate system, pressurized with refrigerant, and repeat leak test.

- E. Secure units per seismic requirements and Manufacturer's recommendations. Secure outdoor units with corrosion resistant fasteners. Units shall be level.

3.03 CLOSING IN UNINSPECTED WORK

- A. Do not cover up or enclose work until it is complete and has passed all required inspections.

- B. Should any of the work be covered up or enclosed prior to all required inspections and approvals; uncover the work as required and, after it has been completely inspected and approved, make all repairs and replacements with such materials as are necessary to the approval of the Architect and at no additional cost to the Owner.

3.04 CLEANING UP

- A. Prior to acceptance of the Work, thoroughly clean all exposed portions of the installation. Remove all labels and all traces of foreign substance, using only a cleaning solution approved by the manufacturer of the equipment and being careful to avoid all damage to finished spaces. Remove all debris accumulated by this Work.

END OF SECTION

SECTION 26 01 26

SUBMITTALS AND SHOP DRAWINGS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Refer to General Divisions for submittal requirements and procedures.

1.02 DEFINITIONS

- A. **Manufacturer's Product Data:** Manufacturer's product data consist of one or more levels of manufacturer's information as described below and as requested in the submittal schedule. The three levels of information include: manufacturer's list, manufacturer's catalog data, and manufacturer's technical and engineering data.
1. **Manufacturer's List:** Manufacturer's list shall include a typewritten list of manufacturer's name, sizes and model or catalog numbers, referenced to the specification section.
 2. **Manufacturer's Catalog Data:** Manufacturer's catalog data shall include standard catalog information marked to indicate specific equipment proposed and point of operation, if appropriate. Include installation instructions.
 3. **Manufacturer's Technical and Engineering Data:** Manufacturer's technical and engineering data shall include materials, dimensions, details, installation instructions, weights, capacities, illustrations, wiring diagrams, control diagrams, piping diagrams, connection diagrams, performance data (including performance curves), mix design, and any other information required for a complete and thorough evaluation of the equipment or items specified, and to verify compliance with specifications. Control diagrams or control schematics, where specified and required by the submittal schedule, shall include a detailed schematic of the proposed control modifications and their interface with existing control equipment, where appropriate, and a manufacturer and model number listing of all proposed control components shown on the control schematic.
- B. **Shop Drawings:** Shop Drawings are construction drawings of items manufactured specifically for this project. Shop Drawings include dimensions, construction details, weights, and additional information to identify the physical features of the system or piece of equipment.
- C. **Samples:** Samples illustrate functional characteristics of the product with integral parts and attachment devices. Samples shall allow evaluation of full range of manufacturer's standard colors, textures, and patterns.
- D. **Certificates, Test Data or Other Information:** Requirements for certificates, test data, or other information will be listed under referenced specification sections.

1.03 SUBMITTALS REQUIRED

A. Product Evaluation Data. The submittal schedule for product evaluation data is as indicated below. Each item requiring a submittal is given the following code:

1. Manufacturer's list
2. Manufacturer's catalog data
3. Manufacturer's technical and engineering data
4. Shop Drawings
5. Samples
6. Certificates
7. Test data
8. Worker's qualifications
9. See individual sections for special requirements

1.04 SUBMITTAL SCHEDULE

<u>Division 26 – Electrical</u>	<u>Codes</u>
Section 26 09 23 - Lighting Control Equipment	2
Section 26 24 16 - Panelboards	2,3
Section 26 27 26 - Wiring Devices	1
Section 26 28 16 - Overcurrent Protective Devices	1
Section 26 29 13 - Motor and Circuit Disconnects	2,3
Section 26 51 13 - Interior Lighting Fixtures, Lamps, and Ballasts	2,3

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 CONTRACT DOCUMENTS

- A. The Contract Documents are complementary. What is required by any one, as affects this Division, shall be as binding as if repeated herein.
- B. Separation of this Division from other Contract Documents shall not be construed as complete segregation of the Work.
- C. Particular attention is called to Advertisement for Bids, Instructions to Bidders, Supplemental Instructions to Bidders, General Conditions, Supplemental General Conditions, Drawings and Specifications, and modifications incorporated in the documents before execution of the Agreement.

1.02 SCOPE OF WORK

- A. General: Provide and install complete and satisfactorily operating electrical systems as specified in this Division, as shown on Drawings, as required, and as reasonably intended. Work generally includes, but is not limited to electrical distribution, lighting, devices, wiring systems and control systems.
- B. Omissions: Omission of expressed reference to any item of labor or material necessary for the proper execution of the work shall not relieve responsibility from providing such additional labor or material.

1.03 EXAMINATION OF SITE

- A. Examine Site of Work before making Bid and ascertain all related physical conditions.
- B. Field verify scale dimensions shown since exact locations, distances and levels will be governed by actual field conditions.
- C. Owner will not be responsible for any loss or unanticipated costs which may be suffered by the successful Bidder as a result of such Bidder's failure to fully inform himself in advance in regard to all conditions pertaining to the Work and character of the Work.

1.04 COORDINATION OF TRADES

- A. Check Drawings of other trades to avert possible installation conflicts. Should major changes from original Drawings be necessary to resolve such conflicts, notify Architect and secure written approval and agreement on necessary adjustments before installation is started.
- B. Check equipment connections and equipment locations on the job for coordination with other Divisions equipment and connections, structure, and the like.

1.05 MINOR DEVIATIONS

- A. Make minor changes in equipment connections and equipment locations as directed or required before rough-in without extra cost.

1.06 SUBSTITUTIONS

- A. Equal material of other manufacturer may be used following Architect's approval of a written request submitted at least 7 working days prior to prebid date.

1.07 RECORD DRAWINGS

- A. Maintain a marked set of prints at job site at all times. Show all changes from contract drawings, whether visible or concealed. Dimension accurately from building lines, floor or curb elevations. Show exact location, elevation, and size of conduit, access panel and doors, and all other information pertinent to the work.
- B. At project completion, submit marked set to Architect for approval.

Comment [KAA1]: For OSU projects change "Architect" to Engineer.

1.08 WARRANTY

- A. Warrant all work, materials, and equipment for one year.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 26 05 01

ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.01 SCOPE

- A. It is the intent of these documents to provide the necessary information and adjustments to the electrical system required to meet Code, and accommodate installation of the new work.
- B. Contractor shall coordinate with the Owner so that work can be scheduled not to interrupt operations, normal activities, building access, access to different areas. The Owner will cooperate to the best of their ability to assist in a coordinated schedule, but will remain the final authority as to time of work permitted.

1.02 EXISTING CONDITIONS:

- A. The locations of existing utilities and equipment are shown in an approximate way only and have not been independently verified by the Owner or its representative. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all utilities and equipment. Replace damaged items with new material to match existing. Promptly notify Owner if utilities are found which are not shown on the drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All materials accumulated during the demolition process are the Owner's property and shall be removed from the job site as directed by the Owner.

PART 3 - EXECUTION

3.01 DEMOLITION

- A. Remove all existing fixtures, clocks, switches, receptacles, and other electrical equipment and devices and associated wiring from walls, ceilings, floors, and other surfaces scheduled for remodeling, relocation, or demolition unless specifically shown as retained or relocated on the Drawings.
- B. Disconnect all existing mechanical equipment scheduled for removal, relocation or abandonment. See mechanical Drawings for scope of work. Remove abandoned cables and unusable raceways. Relabel panels and motor control centers to reflect changes.
- C. Maintain electrical continuity of all existing systems. Remove or relocate electrical boxes, conduit, wiring, equipment, fixtures, etc. as may be encountered in removed or remodeled areas in the existing construction affected by this work. Wiring which serves usable

existing outlets shall be removed and restored clear of the construction or demolition. If existing junction boxes will be made inaccessible, or if abandoned outlets serve as feed through boxes for other existing electrical equipment which is being retained, new conduit and wire shall be provided to bypass the abandoned outlets. If existing conduits pass through partitions or ceiling which are being removed or remodeled, new conduit and wire shall be provided to reroute clear of the construction or demolition and maintain service to the existing load.

- D. Extend circuiting and devices in all existing walls to be furred out.
- E. Existing electrical outlets and light fixtures are denoted by dotted or dashed lines. Verify exact location of existing electrical outlets and light fixtures in the field. Only partial existing electrical shown. Locations of items shown on the Drawings as existing are partially based on as-built and other drawings which may contain errors. The contractor shall verify the accuracy of the information shown prior to bidding and provide such labor and material as is necessary to accomplish the intent of the contract documents.
- F. Remove all abandoned wiring to leave site clean.
- G. Keep outages to occupied areas to a minimum and prearrange all outages with the Owner's representative. Requests for outages shall state the specific dates and hours and the maximum durations, with the outages kept to these specific dates and hours and the maximum durations. This Contractor will be liable for any damages resulting from unscheduled outages or for those not confined to the preapproved times. Outages shall take place at times when the facility is not in operation or occupied by non-essential personnel. Include all costs for overtime labor as necessary to maintain electrical services in the initial bid proposal. Temporary wiring and facilities, if used, shall be removed and the site left clean before final acceptance. Requests for outages must be submitted at least (5) days prior to intended shutdown time.
- H. No circuit breaker or disconnects shall be turned off without prior approval from Owner. Coordinate with the Owner's representative responsible for the area or equipment affected for any electrical interruptions which affect the operation of the remaining portions of the facility.
- I. Verify with the General Contractor a location for storage of materials, supplies, tools, rubbish, etc. prior to start of work.

END OF SECTION

SECTION 26 05 19

LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Wires and Cables
- B. Wire Connections

1.02 REFERENCE STANDARDS

- A. National Fire Protection Association (NFPA)
NFPA 70 National Electrical Code

1.03 DELIVERY, STORAGE AND HANDLING

- A. Protect from weather and damage during storage and handling.

PART 2 - PRODUCTS

2.01 CONDUCTOR AND CABLE MATERIALS

- A. Building Wiring: 98 percent conductivity copper, 600 volt insulation, stranded. Type THHN for interior dry and damp locations. Type THWN or XHHW for wet and exterior locations.
- B. Branch Circuit Wiring: Conductors smaller than No. 12 AWG for power system branch circuits not permitted.
- C. Wire for special areas shall be as specified on the Drawings.

2.02 VARIABLE FREQUENCY DRIVE CABLE

- A. RoHS compliant, UL listed
- B. Three symmetrical bare copper grounds
- C. Two spiral copper tape shields (100% coverage)
- D. Size per VFD manufacturer recommendations
- E. PVC jacketed
- F. Belden symmetrical design or approved

2.03 TWIST-ON CONNECTOR

- A. UL pressure-type, solderless, insulated, wound spring grip twist on connector
- B. Solderless pressure connectors for terminals, taps, and splices

2.04 COMPRESSION ADAPTER

- A. For terminating a single aluminum wire into mechanical connectors, such as a circuit breaker or set screw lugs. Burndy "Hyplug" Type AYP, or approved equal by Anderson, Illsco, Kearney, Mac-Adapt, T&B.

2.05 TERMINAL, CRIMP-ON

- A. Flat, fork tongue, self-insulating
- B. For connection of stranded wire to screw terminals
- C. T & B "Sta-Kon," or approved equal

PART 3 - EXECUTION

3.01 CONDUCTOR AND CABLE INSTALLATION

- A. Make conductor length for parallel feeders identical.
- B. Lace or clip groups of feeder conductors at distribution centers, pullboxes, and wireways.
- C. Provide copper grounding conductors and straps. A ground wire shall be pulled through conduits and used as the equipment grounding conductor.
- D. Install wire and cable in code conforming raceway.
- E. Use wire pulling lubricant for pulling No. 4 AWG and larger wire. UL approved type only.
- F. Install wire in conduit runs after concrete and masonry work is complete and after moisture is swabbed from conduits.
- G. Splice only in accessible junction or outlet boxes. Splice in feeders and services not permitted. Splices or taps in branch circuits permitted only in junction boxes where circuits divide.
- H. Color code conductors to designate neutral, phase, and ground as follows:

CONDUCTOR	120/208 OR 120/240	277/480
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow

Neutral	White	Gray
Ground	Green	Green
Switchlegs	Pink or Tan	Pink or Tan
Travelers	Purple	Purple
Fire Alarm	Red	

- I. Wires shall be factory color coded by integral pigmentation. Colored plastic tape permitted on No. 6 and larger where integral pigmentation impractical. Apply tape in spiral half-lap over exposed portions in manholes, boxes, panels, switchboards and other enclosures.
- J. All circuit conductors shall be identified with circuit number at all terminals, intermediate outlets, disconnect switches, circuit breakers, motor control centers, etc. Both ends of a given conductor shall be identified alike.
- K. DO NOT install wires of different voltage systems in same raceway, box, gutter or other enclosure.
- L. Radius of cable bends shall not be less than 10 times the outer diameter of the cable.

3.02 CONNECTIONS AND SPLICES

- A. Follow manufacturer's instructions using manufacturers recommended tools.
- B. Stripping Insulation: Carefully strip, avoid nicking conductor. No "ringing."
- C. Design: Connectors shall be designed and approved for the purpose used. Connectors between aluminum and copper shall be listed "AL/CU" for the purpose of preventing electrolytic action.
- D. Bare Connectors and Conductor Free Ends: Wrap with insulating rubber or friction tape to equivalent insulation of wire.
- E. Ground Continuity to Metallic Surfaces: Remove any paint coating and polish surface beneath connection.
- F. Copper conductors may be terminated in any approved compression or mechanical connector, including set screws.
- G. No splices or taps permitted in feeder or branch circuit terminating in a single outlet.
- H. Branch circuit splices and taps in junction and outlet boxes: Twist-on connectors.
- I. Conductor and cable copper shall not be reduced at the terminal for making connections.
- J. Slack shall be left at equipment, pullboxes, or outlet boxes to allow for a neat termination.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Electric and power system grounding

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Provide grounds in accordance with National Electrical Code and additional requirements as required herein.

PART 2 - PRODUCTS

2.01 GROUNDING CONDUCTORS

- A. Equipment grounding conductor: Table 250-122.
- B. Material: Copper
- C. Protection: Conductors not in raceway or concealed shall be insulated. Provide conduit where shown or required for physical protection.
- D. Bonding Jumpers: Same requirements

PART 3 - EXECUTION

3.01 POWER SYSTEM GROUNDING

- A. Circuit Grounding: Install grounding bushings, studs, and jumpers at distribution centers, pullboxes, motor control centers, panelboards, and junction boxes.
- B. Ground Connections: Clean surfaces thoroughly before applying ground lugs or clamps. If surface is coated, the coating must be removed down to the bare metal. After the coating has been removed, apply a noncorrosive approved compound to cleaned surface and install lugs or clamps. Where galvanizing is removed from metal, it shall be painted or touched up.
- C. Conduit Systems:
 - 1. Ground all metallic conduit systems.
 - 2. Non-metallic conduit systems shall contain a grounding conductor.
 - 3. Conduit provided for mechanical protection containing only a grounding conductor, bond to that conductor at the entrance and exit from the conduit.
- D. Feeders and Branch Circuits: Install green grounding conductors with feeders and branch circuits as follows:

1. Feeders
 2. Circuits serving preparation and kitchen equipment
 3. Receptacle outlets
 4. Directly connected laboratory equipment
 5. Motors and motor controllers
 6. Fixed equipment and appliances
 7. Items of equipment where the final connection is made with flexible metal conduit shall have a grounding wire
 8. Additional locations and systems as shown
- E. Boxes, Cabinets, Enclosures, and Panelboards:
1. Bond the grounding wires to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground wires pass (except for special grounding systems for intensive care units and other critical units shown).
 2. Provide lugs in each box and enclosure for ground wire termination.
 3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs for terminating the ground wires.
- F. Receptacles - Refer to Section 26 27 26 – WIRING DEVICES.
- G. Ground lighting fixtures to the green grounding conductor of the wiring system when the green ground is provided; otherwise, ground the fixtures through the conduit systems. Fixtures connected with flexible conduit shall have a green ground wire included with the power wires from the fixture through the flexible conduit to the first outlet box.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Raceway Supports

PART 2 - PRODUCTS

2.01 RACEWAY SUPPORTS

- A. Single Runs: Steel rod hangers, galvanized single hole conduit straps, or ring bolt type hangers with specialty spring clips. Plumbers perforated tape or "J-nails" not acceptable.
- B. Multiple Runs: Conduit rack with 25 percent spare capacity. Maximum width per manufacturer's recommendations.
- C. Vertical Runs: Channel support with conduit fittings
- D. All hardware such as inserts, straps, bolts, nuts, screws and washers shall be galvanized or cadmium-plated steel.

2.02 ANCHOR METHODS

- A. Hollow Masonry and Framed Walls: Toggle bolts or spider type expansion anchors
- B. Solid Masonry: Lead expansion anchors or preset inserts
- C. Metal Surfaces: Machine screws, bolts, or welded studs
- D. Wood Surfaces: Wood screws
- E. Concrete Surfaces: Self-drilling anchors or powder-driven studs

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Layout to maintain headroom, neat mechanical appearance, and to support equipment loads required.
- B. Exact location and spacing between supports per manufacturer's recommendations and NEC requirements as minimum.

- C. Conduit shall be installed in such a manner as to prevent the collection of trapped condensation. All runs of conduit shall be arranged so as to be devoid of traps wherever possible.

- D. Conduit risers exposed in wire shafts shall be supported at each floor level by means of approved U-clamp hangers.

END OF SECTION

SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Conduit, Tubing, and Fittings
- B. Flexible Conduit
- C. Electrical boxes and fittings as required for a complete installation

1.02 REFERENCE STANDARDS

- A. National Fire Protection Association (NFPA)
 - 1. NFPA 70 National Electrical Code--Chapter 3

PART 2 - PRODUCTS

2.01 MATERIALS AND COMPONENTS

- A. Conduit and Tubing: Galvanized steel rigid threaded conduit, electrical metallic tubing, intermediate metallic conduit, Schedule 40 PVC.
- B. Flexible Conduit: Steel armor, flexible plastic jacketed type with liquidtight connectors (liquidtight flexible metallic conduit).
- C. Fittings:
 - 1. General: Approved for purpose. Water, concrete tight where required.
 - 2. Galvanized Rigid Steel Conduit (GRC): Threaded - no pressure type. Bushings with factory insulated throat.
 - 3. Electrical Metallic Tubing (EMT): Connectors and couplings to be case steel. Preinsulated connectors and couplings shall be compression, setscrew type. All connectors shall have insulated throats.
 - 4. Flexible Metallic Conduit: Clamp type, galvanized malleable iron with insulated throat.
 - 5. Liquidtight Flexible Metallic Conduit: Continuous copper ground in core; approved watertight.
- D. Expansion Joints: Offset or sliding type with bending straps and clamps. Approved for purpose.

2.02 TYPE

- A. Utilize GRC or IMC in concrete with concrete-tight connectors or exterior with watertight connectors.

- B. Utilize electrical metallic tubing concealed in interior spaces or exposed in unfinished, interior where not subject to physical damage.
- C. Utilize surface metal raceways for exposed runs in finished areas. Paint to match wall finish.
- D. Make connections to motors and equipment with flexible metallic conduit or liquidtight flexible metallic conduit. Use liquidtight type in damp locations. Minimum size 1/2-inch for motor connections. Use 3/8-inch only for fixture and control wiring. Provide sufficient length of flexible conduit to avoid transmission of vibration. Sizes not noted on the Drawings shall be as required by the NEC.
- E. Utilize schedule 40 PVC with rigid steel elbows and risers under slab or underground.

2.03 OUTLET BOXES

- A. Minimum Box: 4-inch box, 1-1/2-inches deep. Provide raised covers on bracket surface mounted outlets, plaster rings on flush outlets.
- B. Flush Switch and Receptacle Outlets for One or Two Devices: 4-inch square box, 1-1/2-inches or more deep, with single or two-gang plaster ring.
- C. Three or More Devices at One Location: Use one piece gang boxes with device cover, install one device per gang.
- D. Provide galvanized steel interior outlet wiring boxes, of the type, shape and size, including depth of box, to suit each respective location and installation; constructed with stamped knockouts in back and sides, and with threaded holes with screws for securing box covers or wiring devices.
- E. Provide outlet box accessories as required for each installation, including mounting brackets, wallboard hangers, extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes, compatible with outlet boxes being used and meeting requirements of individual wiring situations. Choice of accessories is Installer's option.
- F. Outlet Box Plate Covers:
 - 1. Flush Mounting: Bevelled, pressure formed, type 302 stainless steel, match device installed.
 - 2. Surface Mounting: Bevelled, steel, pressure formed

2.04 WEATHERPROOF OUTLET BOXES

- A. Provide corrosion-resistant cast metal weatherproof outlet wiring boxes, of the type, shape and size, including depth of box, with threaded conduit ends, cast metal face plate with spring-hinged waterproof cap suitably configured for each application, including face plate gasket and corrosion proof fasteners.
- B. Weatherproof boxes to be constructed to have smooth sides, gray finish.
- C. Boxes used in contact with soil shall be cast iron alloy with gasketed screw cover and water-tight hubs.

- D. Weatherproof Plates: Cast metal, gasketed, for switches and receptacles provide spring loaded doors.

2.05 PULLBOXES

- A. Pullboxes and Junction Boxes: Sheet metal (indoors) or cast metal (exterior or damp locations) construction, conforming to National Electrical Code, with screw-on cover.
- B. Flush Mounted Pullboxes: Provide overlapping covers with flush-head retaining screws, finished in light gray enamel.
- C. Box volumes shall meet NEC for size and number of entering conduits.

PART 3 - EXECUTION

3.01 RACEWAY INSTALLATION

- A. Install conduit concealed in all areas excluding mechanical and electrical rooms, connections to motors, connections to surface cabinets, underfloor spaces, and above suspended ceilings.
- B. For exposed runs, attach surface mounted conduit with clamps.
- C. Coordinate installation of conduit in masonry work.
- D. Install conduit free from dents and bruises. Plug ends to prevent entry of dirt or moisture.
- E. Clean out conduit before installation of conductor.
- F. Alter conduit routing to avoid structural obstructions, minimizing crossovers. Bends and offsets shall be avoided where possible, but when necessary shall be made with an approved hickey or conduit bending machine. The use of a pipe tee or a vise for bending conduit will not be permitted.
- G. Provide UL approved expansion fittings complete with grounding jumpers where conduits cross building expansion joints and for long runs where conduit expansion may be excessive. Provide bends or offsets in conduit adjacent to building expansion joints where conduit is installed above suspended ceilings.
- H. Route all exposed conduits parallel or perpendicular to building lines.
- I. Allow minimum of 6 inches clearance at flues, steam pipes, and heat sources.
- J. Vertical Runs: Straight and plumb
- K. Raceways Running in Groups: Run at same relative elevation, properly spaced and supported.
- L. Dissimilar Metals: Avoid contact with pipe runs of other systems.

- M. Lengths and Bends: Maximum number of bends in any run shall be the equivalent of four quarter bends (360 degrees total). Maximum length of any run shall be 300 feet, less 50 feet for each equivalent quarter bend. Junction and pull boxes shall be provided to maintain these limits.
- N. Provide waterproof seal for all exterior wall and underground raceway penetrations.
- O. All empty raceways shall be provided with pull string or #12 conductor.

3.02 BOX INSTALLATION

- A. Locate outlet boxes flush in areas other than mechanical rooms, electrical rooms, and above suspended ceilings.
- B. For boxes mounted in exterior walls make sure that there is insulation behind outlet boxes to prevent condensation in boxes.
- C. Coordinate location and mounting heights with built-in units. Adjust outlet mounting height to agree with required location for equipment served.
- D. Locate pullboxes and junction boxes above suspended ceilings or in electrical rooms, utility rooms, or storage areas.
- E. Support: Secure boxes independent of entering conduits, by attaching directly to structure with bar hanger, blocking or flat side bracket.
- F. Identify each junction and pullbox with system description including branch circuit numbers of enclosed circuits.
- G. Conduit shall be securely fastened to all sheet metal outlet, junction, and pullboxes with galvanized locknuts, and bushing.
- H. Do not mount boxes back-to-back. Boxes on opposite sides of wall shall be separated by at least 3 inches.

END OF SECTION

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Permanent Identification of all electrical system components.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Identification shall conform to the latest edition of the National Electrical Code (NEC), Articles 110-21 and as a minimum requirement.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Laminated Plastic:
 - 1. Three layer, black front and back with white core
 - 2. Engraved through outer layer to show white characters on black background
 - 3. Beveled edges
 - 4. Other colors as specified
- B. Panelboard Directory Card: Fiberboard neatly typed for newly installed panels. Circuit changes to existing panels shall be noted on the directory card by hand printing in ink. When more than five changes have been made on the directory card, a new card shall be typed.

PART 3 – EXECUTION

3.01 ITEMS TO BE IDENTIFIED

- A. Motor starters, power panels, lighting panels and the disconnecting devices contained therein
- B. Disconnecting devices that are located in the area and not part of the items listed in 3.01 (A)
- C. Control panels, starters, pushbutton stations, pilot lights and other control devices
- D. Transformers
- E. Remote control devices
- F. Conductors at both device and terminal strip terminations for control and instrumentation cables and conductors

- G. Other items as specified or noted

3.02 USE OF NAMEPLATES AND TAGS

- A. Panel designations, as described in paragraph 3.04 (A), and disconnecting devices in motor control centers shall be identified by nameplates that are engraved or etched. Nameplates that are engraved or etched shall have a black background with white letters. Letters for panel designations shall be a minimum of 1/2 inch high and letters for disconnect devices, mentioned in this paragraph, shall be smaller than the panel designation but have a minimum height of 3/8 inch.
- B. Disconnect devices in lighting panels and power panels shall be identified on the panelboard directory card.
- C. All wiring shall be identified with self-laminating, machine made thermal transfer labels.

3.03 APPLYING NAMEPLATES AND TAGS

- A. Nameplates that are engraved or etched, shall be attached with screws.
- B. Panelboard directory cards shall be placed in holders, provided for this purpose, located inside the panel doors.

3.04 IDENTIFICATION ON NAMEPLATES AND TAGS

- A. The voltage designation shall also be shown on the nameplate.
- B. Nameplates for disconnecting devices contained in panels and motor control centers shall show the equipment name and location by floor and column number. Voltage designation shall not be included when the voltage is the same as for the panel or motor control center.
- C. Nameplates on disconnect devices located in the area but not part of a panel or motor control center shall have the equipment name, power source identification, and voltage designation. Nameplates for disconnect devices located remotely from the equipment shall also show the equipment location by floor and column number.
- D. Nameplates on items listed in paragraph 3.01 (C) shall have the equipment name while the individual switches and lights shall have the function (such as start, stop, on, off, etc.).
- E. Panelboard directory cards shall list the circuit numbers and show the equipment name and location supplied by the circuits. Equipment locations shall be shown by floor and column numbers or by room numbers.

END OF SECTION

SECTION 26 09 23

LIGHTING CONTROL EQUIPMENT

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Provide lighting control equipment:
 - 1. Automatic wall switches
 - 2. Motion sensors

1.02 QUALITY ASSURANCE

- A. Minimum Standards:
 - 1. UL 916 Energy Management Equipment
 - 2. NEMA enclosure standards

1.03 SUBMITTALS

- A. Shop Drawings:
 - 1. System diagram, including lighting control panel and all accessories.
 - 2. Switch input wiring

PART 2 - PRODUCTS

2.01 LIGHT LEVEL SENSOR

- A. Light level sensor shall use an internal photodiode and a Fresnel lens system to measure light levels uniformly across 60 degree field of view.
- B. Light level sensor shall be capable of controlling standard electronic dimming ballasts directly by supplying 2-10 VDC to ballast. Each light level sensor shall be capable of controlling up to 50 ballasts.
- C. Adjustments:
 - 1. Light level shall be adjustable from 10 to 150 footcandles.
 - 2. At least two rate of change speeds, 10 seconds and 60 seconds, shall be selectable.
- D. Light level sensor shall not protrude more than 0.75 inches from ceiling.
- E. Acceptable product: Watt Stopper LS-30, or approved

2.02 AUTOMATIC WALL SWITCH

- A. Automatic wall switch shall be completely self-contained and shall replace standard toggle switch. Motion sensor shall sense motion by using both passive infrared, and sound technology.

- B. Switch shall sense motion in room and switch 120 or 277 V electronic or magnetic ballasts using zero crossing circuitry.
- C. Time delay and sensitivity shall be adjustable.
- D. Switch shall be immune to RFI, EMI, and voltage fluctuations.
- E. Switch shall have manual on / automatic off mode.
- F. Switch shall not require a neutral connection.
- G. Acceptable products: Sensorswitch WSD-PST with switch or approved.

2.03 DUAL ULTRASONIC / INFRARED CEILING MOTION SENSOR

- A. Motion sensor shall sense motion by using passive infrared and ultrasound sensors.
- B. X Time delay shall be adjustable.
- C. Sensor shall be immune to false activation due to air movement.
- D. Switch shall be immune to RFI, EMI, and voltage fluctuations.
- E. Acceptable products: Sensorswitch CM-PDT, or approved.

2.04 MOTION SENSOR POWER PACK

- A. Power pack shall be self-contained DC power supply and relay module. Relay shall be capable of switching 20 A ballast load using zero crossing circuitry. Power supply shall provide DC output to motion sensor.
- B. Voltage to match fixtures controlled.
- C. Power pack and ceiling motion sensor from same manufacturer.
- D. Acceptable product: Sensorswitch or approved.

2.05 LIGHTING CONTROL RELAYS

- A. Normal Power: Track mounted, 20A SPDT, 120 Volt track mounted relay. Functional Devices RIBM2401SB.
- B. Emergency Power: UL 924 rated. Track mounted, 20A SPDT, 120 Volt track mounted relay. Functional Devices ESRM2401B.
- C. Provide matching track, rail, and enclosure.

2.06 EMERGENCY SHUNT RELAY

- A. Normally-closed electrically-held relay to automatically shunt manually controlled emergency lighting during a power outage.

- B. 120 or 277 volt coil. 20 amp 120/277 volt contact rating.
- C. ETL listed to UL 916 and UL 924
- D. Acceptable product: Lighting Controls & Design, Inc. GR 2001ES or approved

PART 3 - EXECUTION

3.01 INSTALLATION

- A. System shall be installed as shown on Drawings.
- B. Motion sensor manufacturer shall verify Drawings to ensure coverage is adequate.
- C. At Owner's request, return once within 60 days to adjust sensitivity of all motion sensors and to adjust programming of lighting control system.

3.02 WARRANTY

- A. Lighting control system shall have a 2 year warranty.
- B. Light level sensors, automatic wall switches, and ceiling motion sensors shall have a 5 year warranty.

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Provide panelboards incorporating switching and protective devices of the number, rating and type specified herein and shown in Panel Schedules.

1.02 REFERENCE STANDARDS

- A. National Fire Protection Agency (NFPA)
 - 1. NFPA 70 National Electrical Code
- B. Underwriters' Laboratory (UL)
 - 1. U.L. 67 Panelboards
 - 2. U.L. 869 Service Disconnects

1.03 QUALITY ASSURANCE

- A. Coordination: Panelboard breakers shall be coordinated with feeder breakers in switchboard.
- B. Acceptable Manufacturers: Cutler-Hammer, Square D, Siemens

PART 2 - PRODUCTS

2.01 CONSTRUCTION

- A. Box:
 - 1. Material: Galvanized code gauge steel
 - 2. Size: 20-inch minimum width; 4-inch minimum gutter space on all sides.
 - 3. Mounting Studs: Minimum 4 interior
 - 4. Knockouts: Individual knockouts by manufacturer or field-cut by Contractor. No concentric knockouts.
 - 5. Finish: Except for box, all exterior and interior steel surfaces properly cleaned and finished with industry standard gray baked enamel paint over a rust-inhibiting phosphatized primer coating approved by the paint manufacturer, except panelboards exposed in finished spaces shall have factory finish to match adjacent surfaces.
- B. Bussing:
 - 1. Material: Copper
 - 2. Tap Arrangement: Phase sequence type, permitting a two or three pole breaker to be installed at any location.
 - 3. Short Circuit Bracing: Fully rated, 10,000 amperes RMS symmetrical minimum for 240V AC Panels, and minimum 14,000 amperes RMS Symmetrical for 480V AC Panels, or as otherwise noted.

4. Phase Bussing: Full height without reduction
 5. Neutral Bussing:
 - a. Full size, unless otherwise noted
 - b. Suitable lug for each outgoing feeder requiring a neutral connection.
 6. All bolts used to connect current-carrying parts together shall be accessible for tightening from the front of the panel.
 7. Wiring terminals: Compression or set screw type for copper conductors; bolted to bus.
- C. Trim:
1. Material: Code gauge steel
 2. Flush Panels: 3/4-inch minimum overlap all around
 3. Surface Panels: Same width and height as box
 4. Mountable by screwdriver, without need for special tools.
 5. Tamper-proof: Trim shall not be removable with door closed. Adjustable indicating trim clamps shall be concealed inside door.
 6. Trim shall have piano hinge down one side and shall be openable by removing crews. Dead front cover shall not open with trim.
 7. Doors:
 - a. Shall cover all device handles, except panels having individual metal clad externally operable dead front units.
 - b. Hinges: Concealed, 5-knuckle, steel
 - c. Over 48-inches in Height: Shall have auxiliary fasteners at top and bottom of door in addition to flush latch (3-point).
 - d. Latches:
 - i. Flush, not protruding beyond front of door
 - ii. Spring-loaded door pull
 - e. Locks: Equip latches with flush locks keyed alike.
- D. NEMA 1 unless otherwise noted or otherwise required per NEC for location installed.

2.02 CIRCUIT BREAKERS

- A. Main Breaker:
1. Where required, main breakers shall be individually mounted separate from branch breakers.
 2. Covered by a metal plate, except for the operating handle.
 3. Connection from the load side to the panel bus shall be bus bar. Insulated wire not permitted.
 4. Where used as service disconnect, breaker and panelboard shall be listed for use as service entrance equipment.
- B. Branch Breakers:
1. Connection to Bus: Bolt-on
- C. Other requirements as noted elsewhere in these Specifications and as per NEC.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Provide mounting brackets, busbar drillings, and filler pieces for unused spaces.

- B. Prepare and affix typed directory to inside cover of panelboard indicating loads controlled by each circuit as required elsewhere in these Specifications.
- C. Provide panelboards flush in areas other than mechanical rooms, electrical rooms, and above removable ceilings.
- D. Conduit shall be securely fastened to all panelboards and sheet metal outlet, junction, and pull boxes with galvanized locknuts, and one bushing installed in accordance with standard practice. The full number of threads shall project through to permit the bushing to be drawn tight against the end of the conduit, after which the locknut shall be made up sufficiently tight to draw each into firm electrical contact with the box.
- E. Keys: Collect all panel keys. Combine all keys on one key ring and submit at time of Substantial Completion.
- F. Provide handle ties per NEC for breakers serving circuits with shared neutral conductors.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Wall Switches
- B. Receptacles
- C. Ground Fault Receptacles

1.02 REFERENCE STANDARDS

- A. American National Standards Institute (ANSI)
 - 1. 467 Grounding and Bonding Equipment (ANSI/UL467)
 - 2. 498 Attachment Plugs and Receptacles (ANSI/UL498)
 - 3. C73 Series Dimensions of Attachment Plugs and Receptacles
- B. Federal Specification (FS)
 - 1. W-C-596D and E Specification for Electrical Power Connector, Plug, Receptacle and Cable Outlet.
- C. National Electrical Manufacturer's Association (NEMA)
 - 1. WD 1-79 General Purpose Wiring Devices
- D. National Fire Protection Association (NFPA)
 - 1. NFPA 70 National Electrical Code
- E. Underwriters' Laboratory (UL)
 - 1. UL-20 Standard for Snap Switches

1.03 QUALITY ASSURANCE

- A. Receptacles shall be Industry Class 5362.
- B. Acceptable Manufacturers: Hubbell, P&S, Sierra, Bryant, Arrow-Hart, Leviton, GE, or approved.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Switches: 120/277 Volt. AC Quiet, slow make, slow break design, toggle handle, with totally enclosed case, rated 20 ampere, specification grade. Provide matching two-pole, three-way and four-way switches.

- B. Switch and Pilot Light: Toggle action type with red handle, integral long-life neon pilot light, rated at 15 ampere, 120 volts.
- C. Duplex Receptacles: Full gang size, polarized, duplex, parallel blade, U-grounding slot, specification grade, rated at 20 amperes, 125 volts (unless otherwise noted), designed for split feed service.
- D. Ground Fault Receptacles: Specification grade duplex receptacle with integral ground fault circuit interrupter. Test and reset buttons. Matching wall plate.
- E. Wall Plates: Satin stainless steel, Type 302. Nominal .040-inch thick. Match device configuration.
- F. Nameplates: Provide engraved or embossed plastic nameplates for receptacles other than standard duplex receptacles indicating voltage, phase, amperes, circuit and panel.
- G. Color: Provide gray switches and receptacles in all areas.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Furnish and install wiring devices of number, rating and type shown.
- B. Devices to include appropriate outlet box, cover, wall plate and other necessary installation materials for a complete operating outlet.
- C. Mount switches 42 inches (to center line of faceplate) above floor except as otherwise noted on the Drawings.
- D. Coordinate switch mounting location with architectural detail.
- E. Mount receptacles vertically at 15 inches (to bottom of faceplate) above finished floor, with grounding pole at top.
- F. Coordinate receptacle height with benches and counters.
- G. When mounting receptacle above bench or counter, mount horizontally with grounding pole at left.
- H. Back wiring wells may be used for receptacles.
- I. Grounding: Install a separate green or bare wire between the receptacle strap grounding (green) screw and a screw into the outlet box. Self-grounding strap not approved as grounding means.

END OF SECTION

SECTION 26 28 16

OVERCURRENT PROTECTIVE DEVICES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Fuses
- B. Circuit Breakers

1.02 APPLICABLE REGULATIONS

- A. Underwriters' Laboratories (UL)
 - 1. UL 489-72 Molded Case Circuit Breakers and Circuit Breaker Enclosures
 - 2. UL 198 E Class R Fuses
 - 3. UL 198.2 High Interrupting - Capacity Fuses, Current Limiting Type
 - 4. UL 869 Service Disconnects
- B. National Fire Protection Association (NFPA)
 - 1. NFPA 70 National Electrical Code

PART 2 - PRODUCTS

2.01 FUSES

- A. Feeder, Branch Circuit and Service Entrance Fuses: 600 amperes and below, UL Class J or RK1 current limiting type, 600 volt 200,000 ampere interrupting capacity.
- B. Motor and Inductive Circuit Fuses: UL class RK5 time delay current limiting type, 600 volt, 200,000 ampere interrupting capacity.
- C. Control Circuit Fuses: UL Class J or R current, limiting type, 600V.

2.02 MOLDED CASE CIRCUIT BREAKERS

- A. Circuit Breakers:
 - 1. Connection to Bus: Bolt-on
 - 2. Thermal-magnetic, molded case, with inverse time current overload and instantaneous magnetic tripping unless otherwise shown.
 - 3. Quick-make, quick-break, with tripped indication clearly shown by breaker handle taking a position between ON and OFF.
 - 4. Multi-pole breakers shall have a common internal trip. No handle ties between single pole breakers.
 - 5. Contacts: T-rated, for heavy duty switching applications
 - 6. Breakers feeding convenience outlets shall have sensitive instantaneous trip settings of not more than 10 times the breaker trip rating to prevent repeated arcing shorts resulting from frayed appliance cords.

7. Additions to existing panelboards and switchboards shall match or be compatible with existing.
8. Provide handle ties per NEC for breakers serving circuits with shared neutral conductors.
9. Where used as service disconnects, breakers shall be listed for use as service entrance equipment.

PART 3 - EXECUTION

3.01 FUSE INSTALLATION

- A. Label each switch to indicate type and rating of fuse installed.
- B. All fuses shall be selected to provide selective system coordination.
- C. Provide 10% (3 minimum) spare fuses of each size and rating used.

3.02 CIRCUIT BREAKER INSTALLATION

- A. Label each breaker located in switchboard or separate enclosure to indicate load served.
- B. Adjust settings on breakers to operate properly under actual field conditions and to provide selective system coordination.
- C. Update directory in panelboards which have new breakers installed.

END OF SECTION

SECTION 26 29 13

MOTOR AND CIRCUIT DISCONNECTS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Provide and install motor disconnects as shown and as required by Codes.
- B. Provide and install circuit disconnects as shown and as required by Codes.
- C. Disconnects to include mounting stands, brackets, plates, supports, and required hardware and accessories for complete installation.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Conform to National Electrical Code and to applicable inspection authority.
- B. Provide circuit and motor disconnects in the proper enclosure as required by NEC for the location installed unless more stringent requirements otherwise noted on the Drawings or herein.

1.03 REFERENCE STANDARDS

- A. Underwriters' Laboratory (UL)
 - 1. Annual Product Directories
 - 2. UL-98 Enclosed Switches
- B. National Electrical Manufacturer's Association (NEMA)
 - 1. NEMA KS-1 Enclosed Switches

PART 2 - PRODUCTS

2.01 COMPONENTS

- A. Motor and circuit disconnects shall have an Underwriters' Laboratory label.
- B. Three-Phase Disconnect Switches: Three-pole heavy duty quick make, quick break 600 volt. Number of poles and ampacity as noted or required by Code. Fusible where noted with fuse clips suitable for dual element fuses unless current limiting fuses are noted. Short circuit rating sufficient to withstand the available fault current or let-through current before the fuse melts without damage or changes in rating.
- C. Compression or set-screw lugs approved for use with copper wire.
- D. ON/OFF Positions: Clearly marked, lockable in "OFF" position.
- E. Cover Interlock:

1. Prevents switch from being opened when "on."
 2. Prevents closing switch when cover is open.
 3. Defeater to permit authorized personnel to open door and inspect switch when "on," or operate with cover open.
- F. Enclosure for Dry, Indoor Locations: NEMA 1 minimum. Enclosures for outdoor locations: NEMA 3R minimum. Others as required for location installed.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install motor and circuit disconnects as recommended by manufacturer and as required by Code and UL.
- B. Maintain Code clearances
- C. Provide a nameplate on each motor and circuit disconnect identifying the equipment item served. Where disconnect is to be installed in existing motor control center replace existing nameplate with new nameplate identifying new equipment item served.

END OF SECTION

SECTION 26 51 13

INDOOR LIGHTING FIXTURES, LAMPS AND BALLASTS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. This Section includes supply and installation of luminaires, supports and accessories; and supply of plaster frames, trim rings and backboxes for plaster, tile, drywall or concrete ceilings.
- B. Provide and install lamps in all light fixtures. Refer to lighting fixture schedule.

1.02 REFERENCE STANDARDS

- A. National Electrical Manufacturer's Association (NEMA)
 - 1. NEMA LE1: Fluorescent Luminaires

1.03 COORDINATION

- A. Confirm compatibility and interface of other materials with luminaire and ceiling system. Report discrepancies to the Engineer/Architect, and defer ordering until clarified.
- B. Supply plaster frames, trim rings and backboxes to other trades.
- C. Coordinate with Division 23 to avoid conflicts between luminaires, supports, fittings, and mechanical equipment.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Refer to Fixture Schedule

2.02 BALLASTS

- A. Linear Fluorescent Electronic Ballast
 - 1. Program start, universal voltage, extreme system
 - 2. THD < 10%
 - 3. Ballast Power Factor > 99%
 - 4. 0 degree F minimum lamp starting temperature
 - 5. Operating input voltage +/- 20%
 - 6. Operating input frequency 50/60 Hz
 - 7. Audible noise rating "A" or better
 - 8. Output frequency > 40 KHz with no visible flicker
 - 9. Lamp current crest factor < 1.5
 - 10. Constant light output for line voltage variation of +/- 10%
 - 11. Ballast factor 0.71
 - 12. No PCBs

13. 5 year warranty + \$15.00 labor allowance.
 14. Meets FCC Class A specifications for EMI/RFI
 15. Meets ANSI C62.41 Cat A for transient protection
 16. UL listed
 17. Acceptable product: Osram Sylvania Xtreme System Low Ballast Factor, Advance, or approved.
- B. Compact Fluorescent Electronic Ballast
1. Program rapid start
 2. THD < 10%
 3. Ballast Power Factor > 99%
 4. 0 degree F minimum lamp starting temperature
 5. Operating input voltage +/- 10%
 6. Operating input frequency 50/60 Hz
 7. Audible noise rating “A” or better
 8. Output frequency > 25 KHz with no visible flicker
 9. Lamp current crest factor < 1.5
 10. Constant light output for line voltage variation of +/- 10%
 11. Ballast factor > 0.95
 12. No PCBs
 13. 5 year warranty + \$10.00 labor allowance
 14. Meets ANSI C62.41 Cat A for transient protection
 15. UL listed (Osram/Sylvania)
 16. Acceptable product: Sylvania Quicktronic Professional or approved

2.03 LED LIGHT FIXTURES

- A. General:
1. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified.
 2. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant.
 3. LED drivers shall include the following features unless otherwise indicated:
 - a. Minimum efficiency: 85% at full load.
 - b. Minimum Operating Ambient Temperature: -20° C. (-4° F)
 - c. Input Voltage: 120 - 277V (±10%) at 60 Hz.
 - d. Integral short circuit, open circuit, and overload protection.
 - e. Power Factor: ≥ 0.95.
 - f. Total Harmonic Distortion: ≤ 20%.
 - g. Comply with FCC 47 CFR Part 15.
 4. LED modules shall include the following features unless otherwise indicated:
 - a. Independently tested to IES LM-79 and LM-80 requirements.
 - b. Minimum CRI 80 and color temperature 4000° K unless otherwise specified in LIGHTING FIXTURE SCHEDULE.
 - c. Minimum Rated Life: 50,000 hours per IES L70.
 - d. Light output lumens as indicated in the LIGHTING FIXTURE SCHEDULE.
- B. LED Downlights:
1. Housing, LED driver, and LED module shall be products of the same manufacturer.
- C. LED Troffers:

1. LED drivers, modules, and reflector shall be accessible, serviceable, and replaceable from below the ceiling.
2. Housing, LED driver, and LED module shall be products of the same manufacturer.

2.04 FLUORESCENT LUMINAIRES

- A. Ballast to be listed at www.ceel.org
- B. Prime coat and finish in high reflectance baked white enamel, two coats minimum on exposed and reflective surfaces, giving reflectance of 85 percent. Paint after fabrication.
- C. Reflective plates: 22-gauge (0.80 mm) metal
- D. Provide 20-gauge (0.90 mm) steel housing.
- E. Provide Hinged Frames with Catches; removable for cleaning without tools. Support lay-in lenses on four sides with flip ends on short dimension.
- F. Provide gasketing, stops, and barriers to form light traps and prevent light leaks.
- G. Design luminaire to dissipate ballast and lamp heat.
- H. Use formed or ribbed backplates, endplates, reinforcing channels.
- I. Suitable for mounting on low density ceilings, where applicable.

2.05 RECESSED LUMINAIRES

- A. Recessed Incandescent Luminaires: Prewired type with junction box forming an integral part of the assembly.
- B. Supply recessed luminaire complete with trim type required for ceiling system installed. Before ordering, confirm ceiling construction details and architectural finish for each area.

2.06 PENDANTS/CABLE HANGERS

- A. Swivel sockets permitting normal fixture motion and self-adjustment. Adjustable to provide fixture height alignment.
- B. One piece, white finish, with matching canopies.
- C. Fixtures shall be factory counter-weighted and balanced to provide level hanging. Weights shall not be visible.
- D. Cable hangers shall be adjustable for a minimum of 18”.

2.07 LAMP TYPE AND COLOR

- A. Refer to Lighting Fixture Schedule.
- B. All lamps of each type and color shall be by the same manufacturer.

2.08 LINEAR FLUORESCENT LAMPS

- A. Low mercury, TCLP compliant, 85 CRI, 5000K color temperature
- B. Minimum of 3100 Initial Lumens.
- C. Lamps to be listed at www.ceel.org
- D. Acceptable manufacturers: Osram Sylvania F032/850/XPS/ECO3, GE, Philips

2.09 COMPACT FLUORESCENT LAMPS

- A. Low mercury, TCLP compliant 81 CRI, 4100K color temperature.
- B. Acceptable manufacturers: GE, Philips, Osram Sylvania

PART 3 - EXECUTION

3.01 COORDINATION

- A. Refer to Reflected Ceiling Plans for exact locations with respect to ceiling construction.
- B. Consult Finish Schedule for ceiling and wall construction and finish.
- C. Prior to ordering lighting fixtures, coordinate style of mounting with ceiling construction and trim details for ceiling system finally selected.

3.02 SURFACE MOUNTING

- A. Attach with means that will draw fixtures snugly to finished surface without bending or tipping. Twist-on clips with studs not allowed on exposed "T" grid ceilings, except where specified. Support from channel above ceiling framing members with bolt at each corner of fixture.

3.03 PENDANTS

- A. Support from structure per paragraph titled "SUPPORT".
- B. Provide steel, stranded safety cable between fixture and structure to support fixture in the event of a pendant breakage.

3.04 SUPPORT

- A. Suspended ceiling:
 - 1. Positively attach all light fixtures to the suspended ceiling system. The attachment device shall have a capacity of 150% of the lighting fixture weight acting in any direction.
 - 2. Support grid with No. 12 minimum gage hangers attached to the grid members within 3 inches of the corner of each fixture, attached to structure above.

3. Attach two No. 12 minimum hangers from the fixture housing to the structure above. These wires may be slack.
 4. Where suspended fixtures do not align with grid, provide “bridging” above grid and support from structure.
 5. Support pendent-hung lighting fixtures directly from the structure above with No. 9 minimum wire or approved alternate support.
- B. Support all other fixtures from structure by method rated at least five times support weight.
- 3.05 ACCESS
- A. Recessed fixtures shall have code accessible supply. Use reach-through type fixtures in non-accessible ceilings or other suitable means. Coordinate with ceiling installer.
- 3.06 FIRE RATED CEILINGS
- A. Where a ceiling carries a fire rating, recessed fixtures shall carry UL rating for use in protective enclosures. Coordinate installation of protective enclosures to provide sufficient air space for heat dissipation. 3 inch minimum all around.
- 3.07 CLEAN-UP
- A. At time of acceptance, fixtures and lamps shall be clean, with visible labels removed. Touch-up any blemishes.
- B. Remove ballast leakage and dispose of cleaning materials in accordance with EPA regulations.
- 3.08 FIXTURES AS RACEWAYS
- A. Code Reference: NEC 410-31
- B. Through-Wiring: In continuous rows of fluorescent lighting, a connection to a single point in the row indicates that the branch circuit conductors are to be routed through the fixture wiring compartments and a connection made to each ballast.
- 3.09 LAMP INSTALLATION
- A. Install lamps in accordance with manufacturer's instructions.
- 3.10 EXTRA STOCK
- A. Provide extra lamps of all types, based on initial lamping quantity: Incandescent 25%, all others 10%. Where a fraction occurs, round up to next larger integer.
- 3.11 BURNOUT REPLACEMENT
- A. Make replacements from extra stock as required until 90 days after Substantial Completion date. Deliver remaining lamps to Owner.

END OF SECTION

