CONSTRUCTION DOCUMENTS

UNIVERSITY OF OREGON
RILEY RESIDENCE HALL FIRE PROTECTION

SYSTEMS WEST ENGINEERS, INC.

411 High Street
Eugene, Oregon 97401-2427
541.342.7210
systemswestengineers.com

MAY 9, 2014
P010.01

PROJECT MANUAL
DOCUMENTS

SWE #P010.01

UNIVERSITY OF OREGON
RILEY RESIDENCE HALL
FIRE PROTECTION

MAY 9, 2014

Owner Representative:
University of Oregon Campus Planning,
Design, & Construction
1220 University of Oregon
Eugene, Oregon 97403-1220
Contact: George Bleekman
Project Manager
Phone (541) 346-2625
bleekman@uoregon.edu

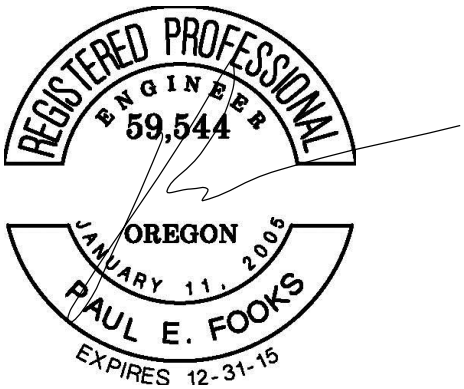
Civil Engineer:
Capital Engineering and Consulting, LLC.
2235 Polk Street
Eugene, Oregon 97401
Contact: Tina Guard
Civil Engineer
Phone (541) 510-4225
tlg@capitalengineering.com

Structural Engineer:
Hohbach-Lewin, Inc.
Structural Engineers
296 East 5th Avenue, Suite 302
Eugene, Oregon 97401
Contact: Vikki Boucier
Project Manager
Phone (541) 349-1701
Fax (541) 349-1702
vbourcier@hohbach-lewin.com

Architect:
gLAs Architects
1415 Pearl Street
Eugene, Oregon 97401
Contact: Trace Ward
Principal Architect
Phone (541) 686-2014
Fax (541) 686-2017
tracew@glas-arch.com

Mechanical/Electrical/Plumbing Engineer:
Systems West Engineers, Inc.
411 High Street
Eugene, Oregon 97401
Contact: Paul Fooks, PE
Project Engineer
Phone (541) 342-7210
Fax (541) 342-7220
pfooks@systemswestengineers.com

Fire Protection Consultant:
Omlid & Swinney
157 S. 47th Street
Springfield, Oregon 97478
Contact: Mike Tennent
Phone (541) 510-4225
Fax (541) 741-0347
miket@omlidandswinney.com



BIDDING & CONTRACTING REQUIREMENTS

DIVISION 1 – GENERAL REQUIREMENTS

DIVISION 2 – EXISTING CONDITIONS

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

OREGON UNIVERSITY SYSTEM

NOTICE OF RETAINER CONTRACT OPPORTUNITY

THIS OPPORTUNITY IS ONLY AVAILABLE TO SELECT CONTRACTORS WITH A CURRENT OREGON UNIVERSITY SYSTEM (OUS) RETAINER CONTRACT FOR CONSTRUCTION RELATED SERVICES.

The State of Oregon, acting by and through the State Board of Higher Education on behalf of the University of Oregon ("Owner") is accepting sealed bids for a public improvement project at University of Oregon Facilities Services Capital Construction office until **4:00** PM, Pacific Time, June 4, 2014 ("Closing Date and Time") for the University of Oregon Riley Residence Hall Fire Protection project located on the campus of the University of Oregon, in Eugene, Oregon ("Project"). The Project is generally described as labor and materials necessary for existing fire protection system upgrade and extension to provide full fire sprinkler system coverage in the facility, as shown on the Contract Documents Project Manual and Drawings.

A mandatory pre-bid conference will be conducted at 3pm May 20, 2014. Bidders shall meet with Owner's Representative at Riley Hall, in parking lot near the south west corner of the building for that purpose. Attendance will be documented through a sign-in sheet prepared by the Owner's Representative. Prime bidders who arrive more than 5 minutes after start of time of the meeting (as stated in the solicitation and by the Owner's Representative's watch) or after the discussion portion of the meeting (whichever comes first) shall not be permitted to sign in and will not be permitted to submit a bid on the Project.

Bids will be received on a lump-sum basis for all of the work. **Bid packets may be obtained on the OUS Bid and Business Opportunities website (http://secure.ous.edu/bid/).**

All bidders must comply with requirements of the prevailing wage law in ORS 279C.800 through ORS 279C.870. All bidders must be registered with the Construction Contractor's Board at the time of bid submission. No bid will be considered unless fully completed in the manner provided in the "Instructions to Bidders" upon the Bid Form provided and accompanied by Bid Security. OUS encourages bids from Minority, Women, and Emerging Small Businesses.

OREGON STATE BOARD OF HIGHER EDUCATION

By: Jamie Moffitt, Vice President for Finance and Administration

OREGON UNIVERSITY SYSTEM

STANDARD RETAINER CONTRACT

INSTRUCTIONS TO BIDDERS

Table of Contents

INSTRUCTIONS TO BIDDERS

Oregon Administrative Rules ("OAR") Chapter 580, Divisions 61 and 63 govern this OUS procurement process.

Article 1. Definitions

1.1. Capitalized words used herein but not defined shall have the meaning set forth in the OUS Retainer General Conditions and OAR 580-061-0010. The following terms used herein shall have the meaning set forth below:

"Bid Form"- refers to OUS Contract Form B-5 provided by Owner to be completed by Bidder.

"Project Manual"- The Project Manual includes, but is not necessarily limited to the following: the Advertisement for Bids or Notice of Contracting Opportunity, these Instructions to Bidders, Supplemental Instructions to Bidders, Bid Form, OUS Retainer Contract General Conditions, Supplemental General Conditions (if any), Sample Retainer Contract Supplement, Performance Bond, Payment Bond, and the Plans and Specifications.

Article 2. Scope of Work

2.1 The Work contemplated in this document shall be for the Owner in connection with the Project described in the Project Manual.

Article 3. Examination of Site and Conditions

3.1 Before making a Bid, the Bidder shall examine the Work site to ascertain its physical condition. The Bidder shall be responsible for being fully informed as to the quality, quantity and sources of supply of the materials listed on the Project Manual. Failure to comply with this Section will not release Contractor from entering into the Contract nor excuse Contractor from performing the Work in strict accordance with the terms of the Contract Documents.

3.2 The Owner will not be responsible for any loss or unanticipated costs which may arise as a result of Contractor's failure to be fully informed in advance with regard to all conditions pertaining to the Work and the character of the Work required.

3.3. No statement made by any officer, agent, or employee of the Owner in relation to the physical conditions pertaining to the Work site or quality, quantity, and supply of materials will be binding on the Owner, unless included in writing in the Project Manual or an Addendum.

Article 4. Substitute Materials Approval Process

4.1 Prior to submitting a Bid including a Substitution, the Bidder must first seek approval of the Substitution from the Architect (or Engineer, as appropriate hereafter) by submitting a written request for approval at least three calendar days prior to the Closing Date and Time. The Bidder submitting the request shall be responsible for its timely delivery.

4.2 Substitution approval requests shall be accompanied by samples, records of performance, certified copies of tests by impartial and recognized laboratories, and such other information as the Architect may request.

4.3 Within a reasonable time after receiving such a request the Owner (or Architect if so designated) will consider

whether the Substitution sought by Bidder is of equal value, utility, as the designated product in the Project Manual. If the requested Substitution is approved an Addendum to the Project Manual shall be issued. A copy of each Addendum will be posted on the OUS Bid and Business Opportunities website (http://secure.ous.edu/bid) and shall become a part of the Project Manual.

4.4 When the Architect approves a Substitution by Addendum, it is with the understanding that the Contractor guarantees the substituted article or material to be equal or better than the one specified.

Article 5. Interpretation of Project Manual

5.1 A Bidder in doubt as to the meaning of any part of the Project Manual may submit a written request for an interpretation to the Architect at any time prior to three calendar days prior to the Closing Date and Time.

5.2 Any interpretation of the Project Manual will be made only by a duly issued Addendum. The Owner will not be responsible for any other explanation or interpretation of the Project Manual nor for any other approval of a particular manufacturer's process or item.

5.3 To establish a basis of quality, certain processes, types of machinery and equipment or kinds of materials may be specified in the Project Manual either by description of process or by designating a manufacturer by name and referring to a brand or product designation or by specifying a kind of material. Whenever a process is designated or a manufacturer named, brand or item designation given, or whenever a process or material covered by patent is designated or described, it shall be understood that the words "or approved equal" follow such name, designation or description, whether they do so or not.

Article 6. Execution of the Bid Form

6.1 The Bid Form relates to Bids on a specific Project Manual. Only the amounts and information asked for on the Bid Form furnished by the Owner will be considered as the Bid. Each Bidder shall Bid upon the Work exactly as set forth in the Bid Form. The Bidder shall include in the Bid a sum to cover the cost of all items contemplated by the Project Manual. Bids that fail to address alternates set forth on the Bid Form may be considered non-responsive.

6.2 Each Bid Form must: 1) Be completed in accordance with these instructions; 2) Include the appropriate signatures as noted on the Bid Form; 3) Include numbers pertaining to base Bids stated both in writing and in figures; and 4) Include the Bidder's typed or clearly printed address.

6.3 When Bidding on an alternate for which there is no charge, the Bidder shall write the words "No Charge" in the space provided on the Bid Form. If one or more alternates is shown on the Bid Form, the Bidder shall indicate whether each is "add" or "deduct."

Article 7. Prohibition of Alterations to Bid

7.1 Bids which are incomplete, or contain ambiguities or conditions not provided for in the Bid Form, may be rejected.

Article 8. Submission of Bid

8.1 Each Bid shall be sealed in an envelope, properly addressed to the appropriate project representative of the Owner, showing on the outside of the envelope the name of the Bidder and the name of the project. Bids will be received at the time and place stated in the Advertisement for Bids.

Article 9. Bid Closing and Opening of Bids

9.1 All Bids must be received by the Owner before the Closing Date and Time. Any Bids received after the Closing Date and Time will be rejected and returned to the Bidder unopened.

Article 10. Acceptance or Rejection of Bids by Owner

10.1 Unless all Bids are rejected, the Owner will award the Contract based on the lowest responsive Bid from a responsible Bidder. If that Bidder does not execute the Contract, the Contract will be awarded to the next lowest responsible Bidder or Bidders in succession.

10.2 The procedures for Contract awards shall be in compliance with the provisions of OARs adopted by the Owner.

10.3 The Owner reserves the right to reject all Bids and to waive minor informalities.

10.4 In determining the lowest Bidder, the Owner reserves the right to take into consideration any or all authorized base Bids as well as alternates or combinations indicated in the Bid Form.

10.5 If Owner has not accepted a Bid within 30 calendar days after the opening of the Bids, each of the three lowest Bidders may withdraw the Bid submitted.

Article 11. Withdrawal of Bid

11.1 At any time prior to the Closing Date and Time a Bidder may withdraw its Bid. This will not preclude the submission of another Bid by such Bidder prior to the Closing Date and Time.

11.2 After the Closing Date and Time, no Bidder will be permitted to withdraw its Bid within the time period specified in Article 10 for award and execution, except as provided for in that Article.

Article 12. Execution of Contract, Agreement, Performance Bond and Payment Bond

12.1 The Owner will provide the successful Bidder with Contract Documents within 10 calendar days after the award of the Contract. The Bidder shall be required to execute the Contract as provided, including a Performance Bond and a Payment Bond from a surety company licensed to do surety business in the State of Oregon, within 20 calendar days after the award of the Contract. The Contract Documents shall be delivered to the Owner in the manner stated in the Notice of Award.

Article 13. Recyclable Products

13.1 Contractors must use recyclable products to the maximum extent economically feasible in the performance of the Contract.

OREGON UNIVERSITY SYSTEM

STANDARD RETAINER CONTRACT

BID FORM

OUS CAMPUS: UNIVERSITY OF OREGON

PROJECT: University of Oregon Riley Residence Hall Fire Protection

BID CLOSING DATE: 4:00 PM PDT, June 4, 2014

FROM: _____
Name of Contractor

TO: The State of Oregon, acting by and through the Oregon State Board of Higher Education, on behalf of the University of Oregon ("Owner")
(campus or office name and address)

Capital Construction
1295 Franklin Boulevard
1276 University of Oregon
Eugene, OR 97403-1276

1. The Undersigned (*check one of the following and insert information as requested*):

____a. An individual doing business under an assumed name registered under the laws of the State of _____; or

____b. A partnership registered under the laws of the State of _____;
or

____c. A corporation organized under the laws of the State of _____; or

____d. A limited liability corporation/company organized under the laws of the State of _____;

hereby proposes to furnish all material and labor and perform all Work hereinafter indicated for the above project in strict accordance with the Contract Documents for the Basic Bid as follows:

_____ Dollars ($_____)

and the Undersigned agrees to be bound by each of the following documents:

• Notice of Retainer Contract Opportunity

• Instructions to Bidders
• Supplemental Instructions to Bidders, if any
• OUS Retainer Contract General Conditions
• UO Supplemental Retainer Contract General Conditions
• Sample Retainer Contract Supplement
• Performance Bond and Payment Bond
• Plans and Specifications
• Prevailing Wage Rates
• Payroll and Certified Statement Form
(found at http://egov.oregon.gov/BOLI/WHD/PWR/W_PWR_Forms.shtml)

• Any ADDENDA numbered ____ through____, inclusive *(fill in blanks).*

4. The work shall be completed within the time stipulated and specified in Division 1, Section 01 10 00 Summary of Work, of the Specifications.

5. The Undersigned certifies that: (1) This Bid has been arrived at independently and is being submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment or services described in the invitation to bid designed to limit independent bidding or competition; and (2) The contents of the Bid have not been communicated by the Undersigned or its employees or agents to any person not an employee or agent of the Undersigned and will not be communicated to such person prior to the official opening of the Bid.

6. The undersigned **HAS, HAS NOT** (*circle applicable status*) paid unemployment or income taxes in Oregon within the past 12 months and **HAS, HAS NOT** (*circle applicable status*) a business address in Oregon.

7. The Undersigned agrees, if awarded a contract, to comply with the provisions of ORS 279C.800 through 279C.870 pertaining to the payment of the prevailing rates of wage.

8. Contractor's CCB registration number is _____. As a condition to submitting a bid, a Contractor must be registered with the Oregon Construction Contractors Board in accordance with ORS 701.035 to 701.055, and disclose the registration number. Failure to register and disclose the number will render the bid unresponsive and it will be rejected, unless contrary to federal law.

9. The successful Bidder hereby certifies that all subcontractors who will perform construction work as described in ORS 701.005(2) were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time the subcontractor(s) made a bid to work under the Contract.

10. The successful Bidder hereby certifies that, in compliance with the Worker's Compensation Law of the State of Oregon, its Worker's Compensation Insurance provider is _____, Policy No. _____, and that Contractor shall submit Certificates of Insurance as required.

11. Contractor's Project Manager for this project is: _____,

Office Phone: _____ Cell Phone: _____.

12. The Undersigned certifies that it has not discriminated against minority, women, or emerging small businesses in obtaining any subcontracts for this project.

13. The Undersigned agrees, if awarded the Contract, to execute and deliver to Owner, within twenty (20) calendar days after receiving the Contract Documents, an Agreement Form and a satisfactory Performance Bond and Payment Bond, each in an amount equal to one hundred (100) percent of the Contract sum, using forms provided by the Owner. The surety requested to issue the Performance Bond and Payment Bond will be:

_____.

(name of surety company - not insurance agency)

The Undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the Undersigned's ability to supply a Performance Bond and Payment Bond each in the amount of the Contract.

14. In determining the lowest Bidder, the Owner reserves the right to take into consideration any or all authorized base Bids as well as alternates or combinations indicated in the Bid Form.

By signature below, Contractor agrees to be bound by this Bid.

NAME OF FIRM _____

ADDRESS _____

_____

FEDERAL TAX ID _____

TELEPHONE NO _____

FAX NO _____

SIGNATURE 1) _____
Sole Individual

or 2) _____
Partner

or 3) _____
Authorized Officer of Corporation

(SEAL)

_____
Attested: Secretary of Corporation

Payment information will be reported to the IRS under the name and taxpayer ID # provided above. Information not matching IRS records could subject Contractor to 31 percent backup withholding.

***** END OF BID *****

OREGON UNIVERSITY SYSTEM

RETAINER SUPPLEMENTAL GENERAL CONDITIONS

To The

GENERAL CONDITIONS
FOR RETAINER CONTRACTS

Supplement No. _____
Project Name _____

The following modify the July 1, 2012 Oregon University System "General Conditions for Retainer Contracts ("OUS Retainer General Conditions") for the above referenced Retainer Contract Supplement. Where a portion of the OUS Retainer General Conditions is modified by these Supplemental General Conditions, the unaltered portions shall remain in effect.

Section A.1, Definition for "Overhead" is deleted and replaced with the following:

OVERHEAD, means those items which may be included in the Contractor's markup (general and administrative expense and profit) and that shall not be charged as Direct Cost of the Work or General Conditions, including without limitation such Overhead expenses as wages or salary of personnel primarily at the Contractor's principle place of business, Contractor's office costs and supplies at Contractor's principal place of business, and Commercial General Liability Insurance and Automobile Liability Insurance.

Section B.4 is hereby deleted and replaced with the following:

Contractor shall obtain and pay for all necessary permits, licenses and fees, except for those specifically excluded in the Retainer Supplemental General Conditions, for the construction of the Work, for temporary obstructions, enclosures, opening of streets for pipes, walls, utilities, environmental Work, etc., as required for the project. Contractor shall be responsible for all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities. Notwithstanding the first sentence of this paragraph, Owner shall pay for the following: Plan check fees and permit fees required for the general building permit, systems development charges, and building department inspection fees. Notwithstanding the foregoing, however, Contractor shall obtain all permits, licenses and fees required for the construction of the Work.

Section K.2 is hereby deleted and replaced with the following:

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals") for review by the Owner prior to submission of any pay request for more than 75% of the Work. Owner's receipt of the O & M Manuals shall be a condition precedent to any payment thereafter due. The O & M Manuals shall contain a complete set of all submittals, all product data as required by the specifications, training information, telephone list and contact information for all consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and shop drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds. The Owner shall review and return one O & M Manual for any modifications or adjustments required. Prior to submission of its final pay request, Contractor shall deliver two complete and approved sets of O & M Manuals in paper form and one complete and approved set in electronic form to the Owner and Owner's receipt of the O & M Manuals shall be a condition precedent to Owner's obligation to make final payment.

Section K.4 is hereby deleted and replaced with the following:

As part of the Work, and prior to submission of the final application for payment, the Contractor shall schedule with the Owner and provide training sessions for all equipment and systems as required by the Contract Documents. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner to provide its personnel with adequate notice. The O & M Manual shall be used as a basis for training. In addition to any off-site training required by the Contract Documents, training shall include a formal session conducted at the Work site after the equipment and/or system is completely installed and operational in its normal operating environment.

OREGON UNIVERSITY SYSTEM

GENERAL CONDITIONS FOR RETAINER CONTRACTS

July 1, 2012

INSTRUCTIONS: The attached **Oregon University System General Conditions for Retainer Contracts ("OUS Retainer General Conditions")** apply to all designated retainer contracts. Changes to the OUS Retainer General Conditions (including any additions, deletions or substitutions) should only be made by attaching Retainer Supplemental General Conditions. The text of these OUS Retainer General Conditions should not otherwise be altered.

TABLE OF SECTIONS

SECTION E
PAYMENTS

E.1 SCHEDULE OF VALUES
E.2 APPLICATIONS FOR PAYMENT
E.3 PAYROLL CERTIFICATION REQUIREMENT
E.4 DUAL PAYMENT SOURCES
E.5 RETAINAGE
E.6 FINAL PAYMENT

SECTION F
JOB SITE CONDITIONS

F.1 USE OF PREMISES
F.2 PROTECTION OF WORKERS, PROPERTY, AND THE PUBLIC
F.3 CUTTING AND PATCHING
F.4 CLEANING UP
F.5 ENVIRONMENTAL CONTAMINATION
F.6 ENVIRONMENTAL CLEAN-UP
F.7 FORCE MAJEURE

SECTION G
INDEMNITY, BONDING AND INSURANCE

G.1 RESPONSIBILITY FOR DAMAGES/INDEMNITY
G.2 PERFORMANCE AND PAYMENT SECURITY, PUBLIC WORKS BOND
G.3 INSURANCE

SECTION H
SCHEDULE OF WORK

H.1 CONTRACT PERIOD
H.2 SCHEDULE
H.3 PARTIAL OCCUPANCY OR USE

SECTION I
CORRECTION OF WORK

I.1 CORRECTIONS OF WORK BEFORE FINAL PAYMENT
I.2 WARRANTY WORK

SECTION J
SUSPENSION AND/OR TERMINATION OF THE WORK

J.1 OWNER'S RIGHT TO SUSPEND THE WORK
J.2 CONTRACTOR'S RESPONSIBILITIES
J.3 COMPENSATION FOR SUSPENSION
J.4 OWNER'S RIGHT TO TERMINATE CONTRACT
J.5 TERMINATION FOR CONVENIENCE
J.6 ACTION UPON TERMINATION

SECTION K
CONTRACT CLOSE-OUT

K.1 RECORD DOCUMENTS
K.2 OPERATION AND MAINTENANCE MANUALS
K.3 COMPLETION NOTICES
K.4 TRAINING
K.5 EXTRA MATERIALS
K.6 ENVIRONMENTAL CLEAN-UP
K.7 CERTIFICATE OF OCCUPANCY
K.8 OTHER CONTRACTOR RESPONSIBILITIES
K.9 SURVIVAL

OREGON UNIVERSITY SYSTEM
GENERAL CONDITIONS FOR RETAINER CONTRACTS
("OUS Retainer General Conditions")

SECTION A
GENERAL PROVISIONS

A.1 DEFINITION OF TERMS

In the Contract Documents the following terms shall be as defined below:

AMENDMENT, means a writing which, when fully executed by the Parties to this Contract, constitutes a change to a Contract Document. Amendments to Supplements (hereinafter a "Supplement Amendment") shall be issued in accordance with the changes provisions of Section D and, if applicable, establish a Contract Price or Contract Time adjustment.

APPLICABLE LAWS, means federal, state and local laws, codes, rules, regulations and ordinances applicable to the Work and to the Contract.

ARCHITECT/ENGINEER, means the Person appointed by the Owner to make drawings and specifications and, to provide contract administration of the Work contemplated by the Contract to the extent provided herein or by supplemental instruction of Owner (under which Owner may delegate responsibilities to the Architect/Engineer), in accordance with ORS Chapter 671 (Architects) or ORS Chapter 672 (Engineers) and administrative rules adopted thereunder.

CHANGE ORDER, means a written order issued by the Owner to be later included as an Amendment. A Change Order shall not be effective until codified as an Amendment.

CLAIM, means a demand by Contractor pursuant to Section D.3 for review of the denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, submitted in accordance with the requirements and within the time limits established for review of Claims in these OUS Retainer General Conditions.

CONSTRUCTION CHANGE DIRECTIVE, means a written order by the Owner to the Contractor requiring a change in the Work within the general scope of the Contract Documents, issued under the changes provisions of Section D.

CONTRACT, means the written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

CONTRACT DOCUMENTS, means the Solicitation Document and addenda thereto, Instructions to Offerors, Supplemental Instructions to Offerors, the OUS Retainer Contract, OUS Retainer General Conditions, Retainer Supplemental General Conditions, if any, the accepted Offer, Plans, Specifications, Supplements, Amendments, and Construction Change Directives .

CONTRACT PERIOD, as set forth in the Contract Documents, means the total period of time beginning with the full execution of a Supplement and, if applicable, the issuance of a Notice to Proceed and concluding upon Final Completion.

CONTRACT PRICE, means the total of the awarded Offer amount, as increased or decreased by the price of approved alternates, as indicated in the Contract Documents.

CONTRACT TIME, means any incremental period of time allowed under the Contract to complete any portion of the Work as reflected in the project schedule.

CONTRACTOR, means the Person awarded the Contract for the Work contemplated.

DAYS, are calendar days, including weekdays, weekends and holidays, unless otherwise specified.

DIRECT COSTS, means, unless otherwise provided in the Contract Documents, the cost of materials, including sales tax, cost of delivery; cost of labor, including social security, Medicare and unemployment insurance, and fringe benefits required by agreement or custom; worker's compensation insurance; project specific insurance (including, without limitation, Builder's Risk Insurance and Builder's Risk Installation Floater); bond premiums, rental cost of equipment, and machinery required for execution of the Work; and the additional costs of field personnel directly attributable to the Work.

FINAL COMPLETION, means the final completion of all requirements under the Contract, including Contract Closeout as described in Section K but excluding Warranty Work as described in Section I.2, and the final payment and release of all retainage, if any, released.

FORCE MAJEURE, means an act, event or occurrence caused by fire, riot, war, acts of God, nature, sovereign, or public enemy, strikes, freight embargoes or any other act, event or occurrence that is beyond the control of the party to this Contract who is asserting Force Majeure.

MWESB REPORT, means an accurate report by the Contractor to the Owner identifying all Minority, Women and Emerging Small Business (MWESB) enterprises, as those terms are defined in ORS 200.005, receiving contracts throughout the course of the Work. An initial MWESB report is required (see Section E.2.9) and MWESB Reports are required annually (see Section E.2.9) and as a condition of final payment (see Section K.1). The initial report shall include the total number of contracts and subcontracts awarded to MWESB enterprises and the dollar value of their respective contracts and subcontracts. The annual reports shall include the total number of contracts and subcontracts awarded to MWESB enterprises, the dollar value of each, and the expenditure toward each contract and subcontract during the previous twelve (12) months. The final report shall include the total number of contracts and subcontracts awarded to MWESB enterprises and the dollar value of their respective contracts and subcontracts including all Supplements and Amendments incorporated during the course of the project. The reports shall only include enterprises certified with the State of Oregon as MWESB enterprises and shall include individual identification of each enterprise as a Minority business enterprise, a Women business enterprise, and/or an Emerging Small Business Enterprise, as applicable.

NOTICE TO PROCEED, means the official written notice from the Owner stating that the Contractor is to proceed with the Work defined in the Contract Documents. Notwithstanding the Notice to Proceed, Contractor shall not be authorized to proceed with the Work until all initial Contract requirements, including the Contract, performance bond and payment bond, and certificates of insurance, have been fully executed and submitted to Owner in a suitable form.

OFFER, means a bid in connection with Instructions to Bidders or a proposal in connection with a Request for Proposals.

OFFEROR, means a bidder in connection with Instructions to Bidders or a proposer in connection with a Request for Proposals.

OVERHEAD, means those items which may be included in the Contractor's markup (general and administrative expense and profit)

and that shall not be charged as Direct Cost of the Work, including without limitation such Overhead expenses as wages or salary of personnel above the level of foreman (i.e., superintendents and project managers), expenses of Contractor's offices and supplies at the job site (e.g. job trailer) and at Contractor's principal place of business and including expenses of personnel staffing the job site office and Contractor's principal place of business, and Commercial General Liability Insurance and Automobile Liability Insurance.

OWNER, means the State of Oregon acting by and through the Oregon State Board of Higher Education, in its own right or on behalf of one of its institutions as identified in the Solicitation Document, also known as the Oregon University System (OUS). Owner may elect, by written notice to Contractor, to delegate certain duties to more than one party, including without limitation, to an Architect/Engineer. However, nothing in these OUS Retainer General Conditions is intended to abrogate the separate design professional responsibilities of Architects under ORS Chapter 671 or of Engineers under ORS Chapter 672.

PERSON, means a natural person or entity doing business as a sole proprietorship, a partnership, a joint venture, a corporation, a limited liability company or partnership, or any other entity possessing the legal capacity to contract.

PLANS, means the drawings which show the location, type, dimensions, and details of the Work to be done under the Contract.

PUNCH LIST, means the list of Work yet to be completed or deficiencies which need to be corrected in order to achieve Final Completion of the Contract.

RECORD DOCUMENT, means the as-built Plans, Specifications, testing and inspection records, product data, samples, manufacturer and distributor/supplier warranties evidencing transfer of ownership to Owner, operational and maintenance manuals, shop drawings, Construction Change Directives, MWESB Reports, correspondence, certificate(s) of occupancy, and other documents listed in Subsection B.9.1 of these OUS Retainer General Conditions, recording all Services performed.

SOLICITATION DOCUMENT, means Instructions to Bidders or Offerors or a Request for Proposal or a Request for Quotes.

SPECIFICATION, means any description of the physical or functional characteristics of the Work, or of the nature of a supply, service or construction item. Specifications may include a description of any requirement for inspecting, testing or preparing a supply, service or construction item for delivery and the quantities or qualities of materials to be furnished under the Contract. Specifications generally will state the results or products to be obtained and may, on occasion, describe the method and manner of doing the Work to be performed. Specifications may be incorporated by reference and/or may be attached to the Contract.

SUBCONTRACTOR, means a Person having a direct contract with the Contractor, or another Subcontractor, to perform one or more items of the Work.

SUBSTANTIAL COMPLETION, means the date when the Owner accepts in writing the construction, alteration or repair of the improvement to real property constituting the Work or any designated portion thereof as having reached that state of completion when it may be used or occupied for its intended purpose. Substantial Completion of facilities with operating systems occurs only after thirty (30) continuous Days of successful, trouble-free operation of the operating systems as provided in Section K.4.2.

SUBSTITUTIONS, means items that in function, performance, reliability, quality, and general configuration are the same or better than the product(s) specified. Approval of any substitute item shall be solely determined by the Owner. The decision of the Owner is final.

SUPPLEMENT, means a writing which, when fully executed by the Parties thereto, constitutes written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

RETAINER SUPPLEMENTAL GENERAL CONDITIONS, means those conditions that remove from, add to, or modify these OUS Retainer General Conditions. Retainer Supplemental General Conditions may be included in the Solicitation Document or may be a separate attachment to the Contract.

WORK, means the furnishing of all materials, equipment, labor, transportation, services and incidentals necessary to successfully complete any individual item or the entire Contract and the carrying out of duties and obligations imposed by the Contract Documents.

A.2 SCOPE OF WORK

The Work contemplated under this Contract includes all labor, materials, transportation, equipment and services for, and incidental to, the completion of all construction work in connection with the project described in the Contract Documents. The Contractor shall perform all Work necessary so that the project can be legally occupied and fully used for the intended use as set forth in the Contract Documents.

A.3 INTERPRETATION OF CONTRACT DOCUMENTS

A.3.1 Unless otherwise specifically defined in the Contract Documents, words which have well-known technical meanings or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Contract Documents are intended to be complementary. Whatever is called for in one, is interpreted to be called for in all. However, in the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following descending order of precedence:

(a) Contract Supplements, Amendments and Construction Change Directives, with those of later date having precedence over those of an earlier date;

(b) The Retainer Supplemental General Conditions;

(c) The OUS Retainer Contract;

(d) The OUS Retainer General Conditions;

(e) Division One (General Requirements) of the Specifications;

(f) Detailed Schedules of finishes, equipment and other items included in the Specifications;

(g) Plans and Specifications (other than Division One and the Detailed Schedules to the Specifications);

(h) Large-scale drawings on Plans;

(i) Small-scale drawings on Plans;

(j) Dimension numbers written on Plans which shall prevail and take precedence over dimensions scaled from Plans;

(k) The Solicitation Document, and any addenda thereto;

(l) The accepted Offer.

A.3.2 In the case of an inconsistency between Plans and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Owner's interpretation in writing.

A.3.3 If the Contractor finds discrepancies in, or omissions from the Contract Documents, or if the Contractor is in doubt as to their

meaning, the Contractor shall at once notify the Owner. Matters concerning and interpretation of requirements of the Contract Documents will be decided by the Owner, who may delegate that duty in some instances to the Architect/Engineer. Responses to Contractor's requests for interpretation of Contract Documents will be made in writing by Owner (or the Architect/Engineer) within any time limits agreed upon or otherwise with reasonable promptness. Interpretations and decisions of the Owner (or Architect/Engineer) will be consistent with the intent of and reasonably inferable from the Contract Documents. Contractor shall not proceed without direction in writing from the Owner (or Architect/Engineer).

A.3.4 References to standard specifications, manuals, codes of any technical society, organization or association, to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws or regulations in effect in the jurisdiction where the project is occurring on the first published date of the Solicitation Document, except as may be otherwise specifically stated.

A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

A.4.1 It is understood that the Contractor, before submitting an Offer, has made a careful examination of the Contract Documents; has become fully informed as to the quality and quantity of materials and the character of the Work required; and has made a careful examination of the location and conditions of the Work and the sources of supply for materials. The Owner will in no case be responsible for any loss or for any unanticipated costs that may be suffered by the Contractor as a result of the Contractor's failure to acquire full information in advance in regard to all conditions pertaining to the Work. No oral agreement or conversation with any officer, agent, or personnel of the Owner, or with the Architect/Engineer either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

A.4.2 Should the Plans or Specifications fail to particularly describe the materials, kind of goods, or details of construction of any aspect of the Work, Contractor shall have the duty to make inquiry of the Owner and Architect/Engineer as to what is required prior to performance of the Work. Absent Specifications to the contrary, the materials or processes that would normally be used to produce first quality finished Work shall be considered a part of the Contract requirements.

A.4.3 Any design errors or omissions noted by the Contractor shall be reported promptly to the Owner, including without limitation, any nonconformity with Applicable Laws.

A.4.4 If the Contractor believes that adjustments to cost or Contract Time is involved because of clarifications or instructions issued by the Owner (or Architect/Engineer) in response to the Contractor's notices or requests for information, the Contractor must submit a written request to the Owner, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt by Contractor of the clarifications or instructions issued. If the Owner denies Contractor's request for additional compensation, additional Contract Time, or other relief that Contractor believes results from the clarifications or instructions, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process. If the Contractor fails to perform the obligations of Sections A.4.1 to A.4.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

A.5 INDEPENDENT CONTRACTOR STATUS

The service or services to be performed under this Contract are those of an independent contractor as defined in ORS 670.600. Contractor represents and warrants that it is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

A.6 RETIREMENT SYSTEM STATUS AND TAXES

Contractor represents and warrants that it is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under this Contract. Contractor will not be eligible for any benefits from these Contract payments of federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual. Unless the Contractor is subject to backup withholding, Owner will not withhold from such payments any amount(s) to cover Contractor's federal or state tax obligations.

A.7 GOVERNMENT EMPLOYMENT STATUS

A.7.1 If this payment is to be charged against federal funds, Contractor represents and warrants that it is not currently employed by the Federal Government. This does not preclude the Contractor from holding another contract with the Federal Government.

A.7.2 Contractor represents and warrants that Contractor is not an employee of the State of Oregon for purposes of performing Work under this Contract

SECTION B
ADMINISTRATION OF THE CONTRACT

B.1 OWNER'S ADMINISTRATION OF THE CONTRACT

B.1.1 The Owner shall administer the Contract as described in the Contract Documents (1) during construction (2) until final payment is due and (3) during the one-year period for correction of Work. The Owner will act as provided in the Contract Documents, unless modified in writing in accordance with other provisions of the Contract. In performing these tasks, the Owner may rely on the Architect/Engineer or other consultants to perform some or all of these tasks.

B.1.2 The Owner will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. The Owner will not make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner will neither have control over or charge of, nor be responsible for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work.

B.1.3 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized, the Owner and Contractor shall communicate with each other about matters arising out of or relating to the Contract. Communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

B.1.4 Based upon the Architect/Engineer's evaluations of the Contractor's Application for Payment, or unless otherwise stipulated by the Owner, the Architect/Engineer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

B.2 CONTRACTOR'S MEANS AND METHODS; MITIGATION OF IMPACTS

B.2.1 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.

B.2.2 The Contractor is responsible to protect and maintain the Work during the course of construction and to mitigate any adverse impacts to the project, including those caused by authorized changes, which may affect cost, schedule, or quality.

B.2.3 The Contractor is responsible for the actions of all its personnel, laborers, suppliers, and Subcontractors on the project. The Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of persons who are unfit or unskilled for the tasks assigned to them.

B.3 MATERIALS AND WORKMANSHIP

B.3.1 The intent of the Contract Documents is to provide for the construction and completion in every detail of the Work described. All Work shall be performed in a professional manner and unless the means or methods of performing a task are specified elsewhere in the Contract Documents, Contractor shall employ methods that are generally accepted and used by the industry, in accordance with industry standards.

B.3.2 The Contractor is responsible to perform the Work as required by the Contract Documents. Defective Work shall be corrected at the Contractor's expense.

B.3.3 Work done and materials furnished shall be subject to inspection and/or observation and testing by the Owner to determine if they conform to the Contract Documents. Inspection of the Work by the Owner does not relieve the Contractor of responsibility for the Work in accordance with the Contract Documents.

B.3.4 Contractor shall furnish adequate facilities, as required, for the Owner to have safe access to the Work including without limitation walkways, railings, ladders, tunnels, and platforms. Producers, suppliers, and fabricators shall also provide proper facilities and access to their facilities.

B.3.5 The Contractor shall furnish Samples of materials for testing by the Owner and include the cost of the Samples in the Contract Price.

B.4 PERMITS

Contractor shall obtain and pay for all necessary permits, licenses and fees, except for those specifically excluded in the Retainer Supplemental General Conditions, for the construction of the Work, for temporary obstructions, enclosures, opening of streets for pipes, walls, utilities, environmental Work, etc., as required for the project. Contractor shall be responsible for all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities.

B.5 COMPLIANCE WITH GOVERNMENT REGULATIONS

B.5.1 Contractor shall comply with Applicable Laws pertaining to the Work and the Contract. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following, as applicable:
(i) Title VI and VII of Civil Rights Act of 1964, as amended; (ii) Section 503 and 504 of the Rehabilitation Act of 1973, as amended; (iii) the Health Insurance Portability and Accountability Act of 1996; (iv) the Americans with Disabilities Act of 1990, as amended; (v) ORS Chapter 659A; as amended; (vi) all regulations and administrative rules established pursuant to the foregoing laws; and (vii) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations.

B.5.2 Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations, and

(a) Contractor shall not discriminate against Disadvantaged, Minority, Women or Emerging Small Business enterprises, as those terms are defined in ORS 200.005, or a business enterprise that is owned or controlled by or that employs a disabled veteran, as that term s defined in ORS 408.225, in the awarding of subcontracts.

(b) Contractor shall maintain, in current and valid form, all licenses and certificates required by Applicable Laws or this Contract when performing the Work.

B.5.3 Unless contrary to federal law, Contractor shall certify that it shall not accept a bid from Subcontractors to perform Work as described in ORS 701.005 under this Contract unless such Subcontractors are registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time they submit their bids to the Contractor.

B.5.4 Unless contrary to federal law, Contractor shall certify that each landscape contractor, as defined in ORS 671.520(2), performing Work under this Contract holds a valid landscape contractor's license issued pursuant to ORS 671.560.

B.5.5 The following notice is applicable to Contractors who perform excavation Work. ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503)232-1987.

B.5.6 Failure to comply with any or all of the requirements of B.5.1 through B.5.5 shall be a breach of Contract and constitute grounds for Contract termination. Damages or costs resulting from such noncompliance shall be the responsibility of Contractor.

B.6 SUPERINTENDENCE

Contractor shall keep on the site, during the progress of the Work, a competent superintendent and any necessary assistants who shall be satisfactory to the Owner and who shall represent the Contractor on the site. Directions given to the superintendent by the Owner shall be confirmed in writing to the Contractor.

B.7 INSPECTION

B.7.1 Owner shall have access to the Work at all times.

B.7.2 Inspection of the Work will be made by the Owner at its discretion. The Owner will have authority to reject Work that does not conform to the Contract Documents. Any Work found to be not in conformance with the Contract Documents, in the

discretion of the Owner, shall be removed and replaced at the Contractor's expense.

B.7.3 Contractor shall make or obtain at the appropriate time all tests, inspections and approvals of portions of the Work required by the Contract Documents or by Applicable Laws or orders of public authorities having jurisdiction. 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. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work. The Contractor shall give the Owner timely notice of when and where tests and inspections are to be made so that the Owner may be present for such procedures. 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 Owner.

B.7.4 As required by the Contract Documents, Work done or material used without required inspection or testing and/or without providing timely notice to the Owner may be ordered removed at the Contractor's expense.

B.7.5 If directed to do so any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore such portions of Work to the standard required by the Contract. If the Work uncovered is unacceptable or was done without required testing or inspection or sufficient notice to the Owner, the uncovering and restoration shall be done at the Contractor's expense. If the Work uncovered is acceptable and was done with sufficient notice to the Owner, the uncovering and restoration will be paid for pursuant to a Supplement Amendment.

B.7.6 If any testing or inspection reveals 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 Owner's and Architect/Engineer's services and expenses, shall be at the Contractor's expense.

B.7.7 When the United States government participates in the cost of the Work, or the Owner has an agreement with other public or private organizations, or if any portion of the Work is being performed for a third party or in close proximity to third party facilities, representatives of these organizations shall have the right to inspect the Work affecting their interests or property. Their right to inspect shall not make them a party to the Contract and shall not interfere with the rights of the parties of the Contract. Instructions or orders of such parties shall be transmitted to the Contractor, through the Owner.

B.8 SEVERABILITY

If any provision of this Contract is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

B.9 ACCESS TO RECORDS

B.9.1 Contractor shall keep, at all times on the Work site, one record copy of the complete Contract Documents, including the Plans, Specifications, Construction Change Directives and addenda, in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar submittals, and shall at all times give the Owner access thereto.

B.9.2 Contractor shall retain and the Owner and its duly authorized representatives shall have access, for a period not less than ten (10) years, to all Record Documents, financial and accounting records, and other books, documents, papers and records of Contractor which are pertinent to the Contract, including records pertaining to Overhead and indirect costs, for the purpose of making audit, examination, excerpts and transcripts. If for any reason, any part of the Work or this Contract shall be subject to litigation, Contractor shall retain all such records until all litigation is resolved and Contractor shall continue to provide Owner and/or its agents with full access to such records until such time as all litigation is complete and all periods for appeal have expired and full and final satisfaction of any judgment, order or decree is recorded and Owner receives a record copy of documentation from Contractor.

B.10 WAIVER

Failure of the Owner to enforce any provision of this Contract shall not constitute a waiver or relinquishment by the Owner of the right to such performance in the future nor of the right to enforce any other provision of this Contract.

B.11 SUBCONTRACTS AND ASSIGNMENT

B.11.1 Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound by the terms and conditions of these OUS Retainer General Conditions, and to assume toward the Contractor all of the obligations and responsibilities which the Contractor assumes toward the Owner thereunder, unless (1) the same are clearly inapplicable to the subcontract at issue because of legal requirements or industry practices, or (2) specific exceptions are requested by Contractor and approved in writing by Owner. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with sub-subcontractors at any level.

B.11.2 At Owner's request, Contractor shall submit to Owner prior to their execution either Contractor's form of subcontract, or the subcontract to be executed with any particular Subcontractor. If Owner disapproves such form, Contractor shall not execute the form until the matters disapproved are resolved to Owner's satisfaction. Owner's review, comment upon or approval of any such form shall not relieve Contractor of its obligations under this Agreement or be deemed a waiver of such obligations of Contractor.

B.11.3 Contractor shall not assign, sell, or transfer its rights, or delegate its responsibilities under this Contract, in whole or in part, without the prior written approval of the Owner. No such written approval shall relieve Contractor of any obligations of this Contract, and any transferee shall be considered the agent of the Contractor and bound to perform in accordance with the Contract Documents. Contractor shall remain liable as between the original parties to the Contract as if no assignment had occurred.

B.12 SUCCESSORS IN INTEREST

The provisions of this Contract shall be binding upon and shall accrue to the benefit of the parties to the Contract and their respective permitted successors and assigns.

B.13 OWNER'S RIGHT TO DO WORK

Owner reserves the right to perform other or additional work at or near the project site with other forces than those of the Contractor. If such work takes place within or next to the project site, Contractor shall coordinate work with the other contractors or forces, cooperate with all other contractors or forces, carry out the Work in a way that will minimize interference and delay for all forces involved, place and

dispose of materials being used so as not to interfere with the operations of another, and join the Work with the work of the others in an acceptable manner and perform it in proper sequence to that of the others. The Owner will resolve any disagreements that may arise between or among Contractor and the other contractors over the method or order of doing all work (including the Work). In case of unavoidable interference, the Owner will establish work priority (including the Work) which generally will be in the sequence that the contracts were awarded.

B.14 OTHER CONTRACTS

In all cases and at any time, the Owner has the right to execute other contracts related to or unrelated to the Work of this Contract. The Contractor of this Contract shall fully cooperate with any and all other contractors without additional cost to the Owner in the manner described in section B.13.

B.15 GOVERNING LAW

This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflict of laws.

B.16 LITIGATION

Any Claim between Owner and Contractor that arises from or relates to this Contract and that is not resolved through the Claims Review Process in Section D.3 shall be brought and conducted solely and exclusively within the Circuit Court of Marion County for the State of Oregon; provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this section be construed as a waiver by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR, BY EXECUTION OF THIS CONTRACT, HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION B.16.

B.17 ALLOWANCES

B.17.1 The Contractor shall include in the Contract Price 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.

B.17.2 Unless otherwise provided in the Contract Documents:

(a) when finally reconciled, allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

(b) 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 Price but not in the allowances;

(c) whenever costs are more than or less than allowances, the Contract Price shall be adjusted accordingly by Amendment. The amount of the Amendment shall reflect (i) the difference between actual costs and the allowances under Section B.17.2(a) and (2) changes in Contractor's costs under Section B.17.2(b).

(d) Unless Owner requests otherwise, Contractor shall provide to Owner a proposed fixed price for any allowance work prior to its performance.

B.18 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

B.18.1 The Contractor shall prepare and keep current, for the Architect's/Engineer's approval (or for the approval of Owner if approval authority has not been delegated to the Architect/Engineer), a schedule and list of submittals which is coordinated with the Contractor's construction schedule and allows the Architect/Engineer reasonable time to review submittals. Owner reserves the right to finally approve the schedule and list of submittals. Submittals include, without limitation, Shop Drawings, Product Data, and Samples which are described below:

(a) Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor (including any sub-subcontractor), manufacturer, supplier or distributor to illustrate some portion of the Work.

(b) 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.

(c) Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

B.18.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review of submittals by the Architect/Engineer 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, or for approval of safety precautions or, unless otherwise specifically stated by the Architect/Engineer, of any construction means, methods, techniques, sequences or procedures, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect/Engineer's review of the Contractor's submittals shall not relieve the Contractor of its obligations under the Contract Documents. The Architect/Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component. Informational submittals upon which the Architect/Engineer is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect/Engineer without action.

B.18.3 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect/Engineer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents 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. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect/Engineer without action.

B.18.4 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

B.18.5 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/Engineer.

B.18.6 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/Engineer's review or approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect/Engineer in writing of such deviation at the time of submittal and (i) the Architect/Engineer has given written approval to the specific deviation as a minor change in the Work, or (ii) a Supplement Amendment or Construction Change Directive has been executed by Owner 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/Engineer's review or approval thereof.

B.18.7 In the event that Owner elects not to have the obligations and duties described under this Section B.18 performed by the Architect/Engineer, or in the event no Architect/Engineer is employed by Owner on the project, all obligations and duties assigned to the Architect/Engineer hereunder shall be performed by the Owner.

B.19 SUBSTITUTIONS

The Contractor may make Substitutions only with the consent of the Owner, after evaluation by the Owner and only in accordance with a Supplement Amendment or Construction Change Directive. Substitutions shall be subject to the requirements of the bid documents. By making requests for Substitutions, the Contractor: represents that the Contractor has personally investigated the proposed substitute product; represents that the Contractor will provide the same warranty for the Substitution that the Contractor would for the product originally specified unless approved otherwise; certifies that the cost data presented is complete and includes all related costs under this Contract including redesign costs, and waives all claims for additional costs related to the Substitution which subsequently become apparent; and will coordinate the installation of the accepted Substitution, making such changes as may be required for the Work to be completed in all respects.

B.20 USE OF PLANS AND SPECIFICATIONS

Plans, Specifications and related Contract Documents furnished to Contractor by Owner or Owner's Architect/Engineer shall be used solely for the performance of the Work under this Contract. Contractor and its Subcontractors and suppliers are authorized to use and reproduce applicable portions of such documents appropriate to the execution of the Work, but shall not claim any ownership or other interest in them beyond the scope of this Contract, and no such interest shall attach. Unless otherwise indicated, all common law, statutory and other reserved rights, in addition to copyrights, are retained by Owner.

B.21 FUNDS AVAILABLE AND AUTHORIZED

Owner reasonably believes at the time of entering into this Contract that sufficient funds are available and authorized for expenditure to finance the cost of this Contract within the Owner's appropriation or limitation. Contractor understands and agrees that, to the extent that sufficient funds are not available and authorized for expenditure to finance the cost of this Contract, Owner's payment of amounts under this Contract attributable to Services performed after the last day of the current biennium is contingent on Owner receiving from the Oregon Legislative Assembly appropriations, limitations or other expenditure authority sufficient to allow Owner, in the exercise of its reasonable administrative discretion, to continue to make payments under this Contract.

B.22 NO THIRD PARTY BENEFICIARIES

Owner and Contractor are the only parties to this Contract and are the only parties entitled to enforce its terms. Nothing in this Contract gives, is intended to give, or shall be construed to give or provide any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Contract.

SECTION C
WAGES AND LABOR

C.1 MINIMUM WAGE RATES ON PUBLIC WORKS

Contractor shall comply fully with the provisions of ORS 279C.800 through 279C.870. Documents establishing those conditions, as determined by the Commissioner of the Bureau of Labor and Industries (BOLI), are included as attachments to or are incorporated by reference in the Contract Documents. Pursuant to ORS 279C.830(1)(d), Contractor shall pay workers at not less than the specified minimum hourly rate of wage, and shall include that requirement in all subcontracts. If the Work is subject to both the state prevailing wage rate law and the federal Davis-Bacon Act, Contractor shall pay the higher of the applicable state or federal prevailing rate of wage. Contractor shall provide written notice to all workers of the number of hours per day and days per week such workers may be required to work.

C.2 PAYROLL CERTIFICATION AND FEE REQUIREMENTS

C.2.1 In accordance with ORS 279C.845, the Contractor and every Subcontractor shall submit written certified statements to the Owner, on the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed on the project and further certifying that no worker employed on the project has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of the Contractor or the Subcontractor that the Contractor or Subcontractor has read the certified statement, that the Contractor or Subcontractor knows the contents of the certified statement, and, that to the Contractor's or Subcontractor's best knowledge and belief, the certified statement is true. 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. Certified statements for each week during which the Contractor or Subcontractor has employed a worker on the project shall be submitted once a month, by the fifth business day of the following month. The Contractor and Subcontractors shall preserve the certified statements for a period of ten (10) years from the date of completion of the Contract.

C.2.2 Pursuant to ORS 279C.845(7),the Owner shall retain 25 percent of any amount earned by the Contractor on this public works project until the Contractor has filed the certified statements required by section C.2.1. The Owner shall pay to the Contractor the amount retained under this subsection within 14 days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.

C.2.3 Pursuant to ORS 279C.845(8), the Contractor shall retain 25 percent of any amount earned by a first-tier Subcontractor on this public works project until the first-tier Subcontractor has

filed with the Owner the certified statements required by C.2.1. Before paying any amount retained under this subsection, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 days after the first-tier Subcontractor files the required certified statement the Contractor shall pay the first-tier Subcontractor any amount retained under this subsection.

C.2.4 In accordance with statutory requirements and administrative rules promulgated by the Commissioner of the Bureau of Labor and Industries, the fee required by ORS 279C.825(1) will be paid by Owner to the Commissioner.

C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS

C.3.1 As a condition to Owner's performance hereunder, the Contractor shall:

C.3.1.1 Make payment promptly, as due, to all persons supplying to Contractor labor or materials for the prosecution of the Work provided for in this Contract.

C.3.1.2 Pay all contributions or amounts due the State Industrial Accident Fund from such Contractor or Subcontractor incurred in the performance of the Contract.

C.3.1.3 Not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished. Contractor will not assign any claims that Contractor has against Owner, or assign any sums due by Owner, to Subcontractors, suppliers, or manufacturers, and will not make any agreement or act in any way to give Subcontractors a claim or standing to make a claim against the Owner.

C.3.1.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

C.3.2 As a condition to Owner's performance hereunder, if Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor of a Subcontractor by any person in connection with the project as such claim becomes due, the proper officer(s) representing the Owner may pay the claim and charge the amount of the payment against funds due or to become due Contractor under this Contract. Payment of claims in this manner shall not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claims.

C.3.3 Contractor shall include in each subcontract for property or services entered into by the Contractor and a first-tier subcontractor, including a material supplier, for the purpose of performing a construction contract, a payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under its subcontract within ten (10) Days out of such amounts as are paid to the Contractor by the public contracting agency under such contract.

C.3.4 All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its Subcontractors complies with these requirements.

C.4 PAYMENT FOR MEDICAL CARE

As a condition to Owner's performance hereunder, Contractor shall promptly, as due, make payment to any person, 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, all sums of which the Contractor agrees to pay for such services and all moneys and sums which the Contractor has collected or deducted from the wages of personnel pursuant to any law, contract or agreement for the purpose of providing or paying for such services.

C.5 HOURS OF LABOR

As a condition to Owner's performance hereunder, no person shall be employed to perform Work under this Contract for more than ten (10) hours in any one day or forty (40) hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, Contractor shall pay the employee at least time and a half pay:

(a) For all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work week is five consecutive Days, Monday through Friday; or

(b) For all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four consecutive Days, Monday through Friday; and

(c) For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

This section C.5 will not apply to Contractor's Work under this Contract to the extent Contractor is currently a party to a collective bargaining agreement with any labor organization.

This Section C.5 shall not excuse Contractor from completion of the Work within the time required under this Contract.

SECTION D
CHANGES IN THE WORK

D.1 CHANGES IN WORK

D.1.1 The terms of this Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever, without prior written agreement and then only after any necessary approvals have been obtained. A Supplement or Amendment is required, which shall not be effective until its execution by the parties to this Contract and all approvals required by public contracting laws have been obtained.

D.1.2 It is mutually agreed that changes in Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of construction. Within the general scope of this Contract, the Owner may at any time, without notice to the sureties and without impairing the Contract, require changes consistent with this Section D.1. All changes to the Work shall be documented and Amendments shall be executed under the conditions of the Contract Documents. Such changes may include, but are not limited to:

(a) Modification of specifications and design.
(b) Increases or decreases in quantities.
(c) Increases or decreases to the amount of Work.
(d) Addition or elimination of any Work item.
(e) Change in the duration of the project.
(f) Acceleration or delay in performance of Work.
(g) Deductive changes.

Deductive changes are those that reduce the scope of the Work, and shall be made by mutual agreement whenever feasible. In cases of suspension or partial termination under Section J, Owner reserves the right to unilaterally impose a deductive change and to self perform such Work, for which the provisions of B.13 (Owner's Right to Do Work) shall then apply. Adjustments in compensation shall be made under the provisions of D.1.3, in which costs for deductive changes shall be based upon a Direct Costs adjustment together with the related

percentage markup specified for profit, Overhead and other indirect costs, unless otherwise agreed to by Owner.

D.1.3 The Owner and Contractor agree that adjustments to or deletions from the Work shall be administered and compensated according to the following:

(a) Unit pricing may be utilized at the Owner's option when unit prices or solicitation alternates were provided that established the cost for adjustments to Work, and a binding obligation exists under the Contract on the parties covering the terms and conditions of the adjustment to Work.

(b) If the Owner elects not to utilize unit pricing, or in the event that unit pricing is not available or appropriate, fixed pricing may be used for adjustments to or deletions from the Work. In fixed pricing the basis of payments or total price shall be agreed upon in writing between the parties to the Contract, and shall be established before the Work is done whenever feasible. Notwithstanding the foregoing, the mark-ups set forth in D.1.3(c) shall be utilized in establishing fixed pricing, and such mark-ups shall not be exceeded. Cost and price data relating to adjustments to or deletions from the Work shall be supplied by Contractor to Owner upon request, but Owner shall be under no obligation to make such requests.

(c) In the event that unit pricing and fixed pricing are not utilized, then adjustments to or deletions from the Work shall be performed on a cost reimbursement basis for Direct Costs. Such Work shall be compensated on the basis of the actual, reasonable and allowable cost of labor, equipment, and material furnished on the Work performed. In addition, the following markups shall be added to the Contractor's or Subcontractor's Direct Costs as full compensation for profit, Overhead and other indirect costs for Work directly performed with the Contractor's or Subcontractor's own forces:

On Labor.....	15%
On Equipment.....	10%
On Materials.....	10%

(d) When adjustments to or deletions from the Work under D.1.3(c) are invoiced by an authorized Subcontractor at any level, each ascending tier Subcontractor or Contractor will be allowed a supplemental mark-up on each piece of subcontract Work covered by a an Amendment as follows:

$0.00 - $5,000.00	10%, and then
Over $5,000.00	5%

Payments made to the Contractor shall be complete compensation for Overhead, profit, and all costs that were incurred by the Contractor or by other forces furnished by the Contractor, including Subcontractors, for adjustments to or deletions from the Work pursuant to a Supplement Amendment. Owner may establish a maximum cost for additional Work under this Section D.1.3, which shall not be exceeded for reimbursement without additional written authorization from Owner in the form of a Supplement Amendment. Contractor shall not be required to complete such additional Work without additional authorization.

D.1.4 Any necessary adjustment of Contract Time that may be required as a result of adjustments to or deletions from the Work must be agreed upon by the parties before the start of the revised Work unless Owner authorizes Contractor to start the revised Work before agreement on Contract Time adjustment. Contractor shall submit any request for additional compensation (and additional Contract Time if Contractor was authorized to start Work before an adjustment of Contract Time was approved) as soon as possible but no later than thirty (30) Days after receipt of Owner's request for additional Work . If Contractor's request for additional compensation or adjustment of Contract Time is not made within the thirty (30) Day time limit, Contractor's requests pertaining to that additional Work shall be barred. The thirty (30) Day time limit for making requests shall not be extended for any reason, including without limitation Contractor's claimed inability to determine the amount of additional compensation or adjustment of Contract Time, unless an extension is granted in writing by Owner. If the Owner denies Contractor's request for additional compensation or adjustment of Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process. No other reimbursement, compensation, or payment will be made, except as provided in Section D.1.5 for impact claims.

D.1.5 If any adjustment to Work under Section D.1.3 causes an increase or decrease in the Contractor's cost of, or the Contract Time required for the performance of any other part of the Work under this Contract, Contractor shall submit a written request to the Owner, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt of Owner's request for adjustments to or deletions from the Work by Contractor.

The thirty (30) Day time limit applies to claims of Subcontractors, suppliers, or manufacturers who may be affected by Owner's request for adjustments to or deletions from the Work and who request additional compensation or an extension of Contract Time to perform; Contractor has responsibility for contacting its Subcontractors, suppliers, or manufacturers within the thirty (30) Day time limit, and including their requests with Contractor's requests. If the request involves Work to be completed by Subcontractors, or materials to be furnished by suppliers or manufacturers, such requests shall be submitted to the Contractor in writing with full analysis and justification for the adjustments to compensation and Contract Time requested. The Contractor shall analyze and evaluate the merits of the requests submitted by Subcontractors, suppliers, and manufacturers to Contractor prior to including those requests and Contractor's analysis and evaluation of those requests with Contractor's requests for adjustments to compensation or Contract Time that Contractor submits to the Owner. Failure of Subcontractors, suppliers, manufacturers or others to submit their requests to Contractor for inclusion with Contractor's requests submitted to Owner within the time period and by the means described in this section shall constitute a waiver of these Subcontractor claims. The Owner will not consider direct requests or claims from Subcontractors, suppliers, manufacturers or others not a party to this Contract. The consideration of such requests and claims under this section does not give any Person, not a party to the Contract the right to bring a claim against Owner, whether in this claims process, in litigation, or in any dispute resolution process.

If the Owner denies the Contractor's request for adjustment to compensation or Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

D.1.6 No request or Claim by the Contractor for additional costs or an adjustment of Contract Time shall be allowed if made after receipt of final payment application under this Contract. Final payment application must be made by Contractor within the time required under Section E.6.4.

D.1.7 It is understood that changes in the Work are inherent in construction of this type. The number of changes, the scope of those changes, and the effect they have on the progress of the original Work cannot be defined at this time. The Contractor is notified that numerous changes may be required and that there will be no compensation made, unless and only to the extent otherwise provided in the Contract Documents, to the Contractor

directly related to the number of changes. Each change will be evaluated for extension of Contract Time and increase or decrease in compensation based on its own merit.

D.2 DELAYS

D.2.1 Delays in construction include "Avoidable Delays", which are defined in Section D.2.1.1, and "Unavoidable Delays", which are defined in Section D.2.1.2. The effect of Avoidable Delays is described in Section D.2.2 and the effect of Unavoidable Delays is described in Section D.2.3.

D.2.1.1 Avoidable Delays include any delays other than Unavoidable Delays, and include delays that otherwise would be considered Unavoidable Delays but that:

(a) Could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.

(b) Affect only a portion of the Work and do not necessarily prevent or delay the prosecution of neither other parts of the Work nor the completion of the whole Work within the Contract Time.

(c) Do not impact activities on the accepted critical path schedule.

(d) Are associated with the reasonable interference of other contractors employed by the Owner that do not necessarily prevent the completion of the whole Work within the Contract Time.

D.2.1.2 Unavoidable Delays include delays other than Avoidable Delays that are:

(a) To the extent caused by any actions of the Owner, or any other employee or agent of the Owner, or by separate contractor employed by the Owner.

(b) To the extent caused by any site conditions which differ materially from what was represented in the Contract Documents or from conditions that would normally be expected to exist and be inherent to the construction activities defined in the Contract Documents. The Contractor shall notify the Owner immediately of differing site conditions before the area has been disturbed. The Owner will investigate the area and make a determination as to whether or not the conditions differ materially from either the conditions stated in the Contract Documents or those which could reasonably be expected in execution of this particular Contract. If Contractor and the agrees that a differing site condition exists, any adjustment to compensation or Contract Time will be determined based on the process set forth in Section D.1.5 for adjustments to or deletions from Work. If the Owner disagrees that a differing site condition exists and denies Contractor's request for additional compensation or Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

(c) To the extent caused by Force Majeure acts, events or occurrences that could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.

(d) To the extent caused by adverse weather conditions. Any adverse weather conditions must be substantiated by documentary evidence that weather conditions were abnormal for the specific time period claimed, could not have been anticipated by the Contractor, and adversely impacted the project in a manner that could not be avoided by rescheduling the Work or by implementing measures to protect against the weather so that the Work could proceed. A rain, windstorm, high water, or other natural phenomenon for the specific locality of the Work, which might reasonably have been anticipated from the previous 10-year historical records of the general locality of the Work, shall not be construed as abnormal. The parties agree that rainfall greater than the following levels cannot be reasonably anticipated:

(i) Daily rainfall equal to, or greater than, 0.50 inch during a month when the monthly rainfall exceeds the normal monthly average by twenty-five percent (25 %) or more.

(ii) daily rainfall equal to, or greater than, 0.75 inch at any time.

The Office of the Environmental Data Service of the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce nearest the project site shall be considered the official agency of record for weather information.

D.2.2 Contractor shall not be entitled to additional compensation or additional Contract Time for Avoidable Delays.

D.2.3 In the event of Unavoidable Delays, based on principles of equitable adjustment, Contractor may be entitled to the following:

(a) Contractor may be entitled to additional compensation or additional Contract Time, or both, for Unavoidable Delays described in Section D.2.1.2 (a) and (b).

(b) Contractor may be entitled to additional Contract Time for Unavoidable Delays described in Section D.2.1.2(c) and (d).

In the event of any requests for additional compensation or additional Contract Time, or both, as applicable, arising under this Section D.2.3 for Unavoidable Delays, other than requests for additional compensation or additional Contract Time for differing site conditions for which a review process is established under Section D.2.1.2 (b), Contractor shall submit a written notification of the delay to the Owner within two (2) Days of the occurrence of the cause of the delay. This written notification shall state the cause of the potential delay, the project components impacted by the delay, and the anticipated additional Contract Time extension or the additional compensation, or both, as applicable, resulting from the delay. Within seven (7) Days after the cause of the delay has been mitigated, or in no case more than thirty (30) Days after the initial written notification, the Contractor shall submit to the Owner, a complete and detailed request for additional compensation or additional Contract Time, or both, as applicable, resulting from the delay. If the Owner denies Contractor's request for additional compensation or adjustment of Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

If Contractor does not timely submit the notices required under this Section D.2, then unless otherwise prohibited by law, Contractor's Claim shall be barred.

D.3 CLAIMS REVIEW PROCESS

D.3.1 All Contractor Claims shall be referred to the Owner for review. Contractor's Claims, including Claims for adjustments to compensation or Contract Time, shall be submitted in writing by Contractor to the Owner within five (5) Days after a denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, provided that such initial request has been submitted in accordance with the requirements and within the time limits

established in these OUS Retainer General Conditions. Within thirty (30) Days after the initial Claim, Contractor shall submit to the Owner a complete and detailed description of the Claim (the "Detailed Notice") that includes all information required by Section D.3.2. Unless the Claim is made in accordance with these time requirements, it shall be waived by Contractor.

D.3.2 The Detailed Notice of the Claim shall be submitted in writing by Contractor and shall include a detailed, factual statement of the basis of the Claim, pertinent dates, Contract provisions which support or allow the Claim, reference to or copies of any documents which support the Claim, the dollar value of the Claim, and the Contract Time adjustment requested for the Claim. If the Claim involves Work to be completed by Subcontractors, the Contractor will analyze and evaluate the merits of the Subcontractor claim prior to forwarding it and that analysis and evaluation to the Owner. The Owner will not consider direct claims from Subcontractors, suppliers, manufacturers, or others not a party to this Contract. Contractor agrees that it will make no agreement, covenant, or assignment, nor will it commit any other act that will permit or assist any Subcontractor, supplier, manufacturer, or other to directly or indirectly make a claim against Owner.

D.3.3 The Owner will review all Claims and take one or more of the following preliminary actions within ten (10) Days of receipt of the Detailed Notice of a Claim: (1) request additional supporting information from the Contractor; (2) inform the Contractor and Owner in writing of the time required for adequate review and response; (3) reject the Claim in whole or in part and identify the reasons for rejection; (4) based on principles of equitable adjustment, recommend approval of all or part of the Claim; or (5) propose an alternate resolution.

D.3.4 The Owner's decision shall be final and binding on the Contractor unless appealed by written notice to the Owner within fifteen (15) Days of receipt of the decision. The Contractor must present written documentation supporting the Claim within fifteen (15) Days of the notice of appeal. After receiving the appeal documentation, the Owner shall review the materials and render a decision within thirty (30) Days after receiving the appeal documents.

D.3.5 The decision of the Owner shall be final and binding unless the Contractor delivers to the Owner its request for mediation, which shall be a non-binding process, within fifteen (15) Days of the date of the Owner's decision. The mediation process will be considered to have commenced as of the date the Contractor delivers the request. Both parties acknowledge and agree that participation in mediation is a prerequisite to commencement of litigation of any disputes relating to the Contract. Both parties further agree to exercise their best efforts in good faith to resolve all disputes within sixty (60) Days of the commencement of the mediation through the mediation process set forth herein.

In the event that a lawsuit must be filed within this sixty (60) Day period in order to preserve a cause of action, the parties agree that, notwithstanding the filing, they shall proceed diligently with the mediation to its conclusion prior to actively prosecuting the lawsuit, and shall seek from the Court in which the lawsuit is pending such stays or extensions, including the filing of an answer, as may be necessary to facilitate the mediation process. Further, in the event settlements are reached on any issues through mediation, the plaintiff shall promptly cause to be entered by the Court a stipulated general judgment of dismissal with prejudice, or other appropriate order limiting the cope of litigation as provided in the settlement.

D.3.6 Should the parties arrive at an impasse regarding any Claims or disputed Claims, it is agreed that the parties shall participate in mediation as specified in Section D.3.5. The mediation process will be considered to have been commenced as of the date one party delivers to the other its request in writing to mediate. The mediator shall be an individual mutually acceptable to both parties, but in the absence of agreement each party shall select a temporary mediator and the temporary mediators shall jointly select the permanent mediator. Each party shall pay its own costs for the time and effort involved in mediation. The cost of the mediator shall be split equally between the two parties. Both parties agree to exercise their best effort in good faith to resolve all disputes in mediation. Participation in mediation is a mandatory requirement of both the Owner and the Contractor. The schedule, time and place for mediation will be mutually acceptable, or, failing mutual agreement, shall be as established by the mediator. The parties agree to comply with Owner's administrative rules governing the confidentiality of mediation, if any, and shall execute all necessary documents to give effect to such confidentiality rules. In any event, the parties shall not subpoena the mediator or otherwise require the mediator to produce records, notes or work product, or to testify in any future proceedings as to information disclosed or representations made in the course of mediation, except to the extent disclosure is required by law.

D.3.7 Unless otherwise directed by Owner, Contractor shall proceed with the Work while any Claim, or mediation or litigation arising from a Claim, is pending. Regardless of the review period or the final decision of the Owner, the Contractor shall continue to diligently pursue the Work as identified in the Contract Documents. In no case is the Contractor justified or allowed to cease or Delay Work, in whole or in part, without a written stop work order from the Owner.

SECTION E
PAYMENTS

E.1 SCHEDULE OF VALUES

The Contractor shall submit, at least ten (10) Days prior to submission of its first application for progress payment, a schedule of values ("Schedule of Values") for the contracted Work. This schedule shall provide a breakdown of values for the contracted Work and will be the basis for progress payments. The breakdown shall demonstrate reasonable, identifiable, and measurable components of the Work. Unless objected to by the Owner, this schedule shall be used as the basis for reviewing Contractor's applications for payment. If objected to by Owner, Contractor shall revise the schedule of values and resubmit the same for approval of Owner.

E.2 APPLICATIONS FOR PAYMENT

E.2.1 Owner shall make progress payments on the Contract monthly as Work progresses, in accordance with the requirements of this Section E.2. Applications for payment shall be based upon estimates of Work completed and the Schedule of Values. As a condition precedent to Owner's obligation to pay, all applications for payment shall be approved by the Owner. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. Owner shall pay to Contractor interest for overdue invoices at the rate of two-thirds of one percent per month on the progress payment, not including retainage, due the Contractor. Overdue invoices will be those that have not been paid within forty five (45) days from the latest of:

(a) The date of the receipt of the accurate invoice;

(b) The date Owner receives the correct application for payment if no invoice is received;

(c) The date all goods and services have been received; or

(d) The date a Claim is made certain by agreement of the parties or by operation of law.

Notwithstanding the foregoing, in instances when an application for payment is filled out incorrectly, or when there is any defect or impropriety in any submitted application or when there is a good faith dispute, Owner shall so notify the Contractor within fifteen (15) Days stating the reason or reasons the application for payment is defective or improper or the reasons for the dispute. A defective or improper application for payment, if corrected by the Contractor within seven (7) Days of being notified by the Owner, shall not cause a payment to be made later than specified in this section unless interest is also paid. Payment of interest will be postponed when payment on the principal is delayed because of disagreement between the Owner and the Contractor.

Owner reserves the right, instead of requiring the Contractor to correct or resubmit a defective or improper application for payment, to reject the defective or improper portion of the application for payment and pay the remainder of the application for such amounts which are correct and proper.

Owner, upon written notice to the Contractor, may elect to make payments to the Contractor only by means of Electronic Funds Transfers (EFT) through Automated Clearing House (ACH) payments. If Owner makes this election, the Contractor shall arrange for receipt of the EFT/ACH payments.

E.2.2 Contractor shall submit to the Owner an application for each payment and, if required, receipts or other vouchers showing payments for materials and labor including payments to Subcontractors. Contractor shall include in its application for payment a schedule of the percentages of the various parts of the Work completed, based on the Schedule of Values which shall aggregate to the payment application total, and shall include, on the face of each copy thereof, a certificate in substantially the following form:

"I, the undersigned, hereby certify that the above bill is true and correct, and the payment therefore, has not been received.

Signed: _____
Dated: _____"

E.2.3 Generally, applications for payment will be accepted only for materials that have been installed. Under special conditions, applications for payment for stored materials will be accepted at Owner's sole discretion. Such a payment, if made, will be subject to the following conditions:

(a) The request for stored material shall be submitted at least thirty (30) Days in advance of the application for payment on which it appears. Applications for payment shall be entertained for major equipment, components or expenditures only.

(b) The Contractor shall submit applications for payment showing the quantity and cost of the material stored.

(c) The material shall be stored in a bonded warehouse and Owner shall be granted the right to access the material for the purpose of removal or inspection at any time during the Contract Period.

(d) The Contractor shall name the Owner as co-insured on the insurance policy covering the full value of the property while in the care and custody of the Contractor until it is installed. A certificate noting this coverage shall be issued to the Owner.

(e) Payments shall be made for materials and equipment only. The submitted amount in the application for payment shall be reduced by the cost of transportation from the storage site to the project site and for the cost of an inspector to verify delivery and condition of the goods at the storage site. The cost of storage and inspection shall be borne solely by the Contractor.

(f) Within sixty (60) Days of the application for payment, the Contractor shall submit evidence of payment covering the material and/or equipment stored and of payment for the storage site.

(g) Payment for stored materials and/or equipment shall in no way indicate acceptance of the materials and/or equipment or waive any rights under this Contract for the rejection of the Work or materials and/or equipment not in conformance with the Contract Documents.

(h) All required documentation shall be submitted with the respective application for payment.

E.2.4 The Owner reserves the right to withhold all or part of a payment, or may nullify in whole or part any payment previously made, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss because of:

(a) Work that is defective and not remedied, or that has been demonstrated or identified as failing to conform with Applicable Laws or the Contract Documents,

(b) third party claims filed or evidence reasonably indicating that such claims will likely be filed unless security acceptable to the Owner is provided by the Contractor;

(c) failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment (in which case Owner may issue checks made payable jointly to Contractor and such unpaid persons under this provision, or directly to Subcontractors and suppliers at any level under Section C.3.2.1);

(d) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;

(e) damage to the Work, Owner or another contractor;

(f) reasonable evidence that the Work will not be completed within the Contract Time required by the Contract, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

(g) failure to carry out the Work in accordance with the Contract Documents; or

(h) assessment of liquidated damages, when withholding is made for offset purposes.

E.2.5 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

(a) Take that portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Price allocated to that portion of the Work in the Schedule of Values, less retainage as provided in Section E.5. Pending final determination of cost to the Owner of changes in the Work, no amounts for changes in the Work can be included in applications for payment until the Contract Price has been adjusted by a Supplement Amendment;

(b) Add that portion of the Contract Price 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 pursuant to Section E.2.3, suitably stored off the site at a location agreed upon in writing), less retainage as provided in Section E.5;

(c) Subtract the aggregate of previous payments made by the Owner; and

(d) Subtract any amounts for which the Owner has withheld or nullified payment as provided in the Contract Documents.

E.2.6 Contractor's applications for payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier.

E.2.7 The Contractor warrants to Owner 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 payments are received from the Owner shall 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 financing, labor, materials and equipment relating to the Work.

E.2.8 If Contractor disputes any determination by Owner with regard to any application for payment, Contractor nevertheless shall continue to expeditiously perform the Work. No payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or shall relieve Contractor of any of its obligations hereunder.

E.2.9 Contractor shall submit its initial MWESB Report within ten (10) Days of Contractor's execution of the Contract, or if there will be a Guaranteed Maximum Price (GMP) Amendment, then within ten (10) Days of Contractor's execution of the GMP Amendment. Contractor shall submit annual MWESB Reports on June 30 of each year the Contract is active. Contracts (or GMP Amendments) first executed by Contractor within ninety (90) Days before June 30 of the year of execution by Contractor may at the discretion of Owner be exempt from submitting the annual MWESB Report otherwise due on that June 30. The final MWESB Report shall be filed with the application for final payment. Timely receipt of MWESB Reports by Owner shall be a condition precedent to Owner's obligation to pay any progress payments or final payment otherwise due.

E.3 PAYROLL CERTIFICATION REQUIREMENT

Owner's receipt of payroll certification pursuant to Section C.2 of this Contract shall be a condition precedent to Owner's obligation to pay any progress payments or final payment otherwise due.

E.4 DUAL PAYMENT SOURCES

Contractor shall not be compensated for Work performed under this Contract from any state agency other than the agency that is a party to this Contract.

E.5 RETAINAGE

E.5.1 Retainage shall be withheld and released in accordance with the requirements set forth in OAR 580-063-0045.

E.5.1.1 Owner may reserve as retainage from any progress payment an amount not to exceed five percent of the payment. As Work progresses, Owner may reduce the amount of retainage on or may eliminate retainage on any remaining monthly Contract payments after 50 percent of the Work under the Contract is completed if, in the Owner's discretion, such Work is progressing satisfactorily. Elimination or reduction of retainage shall be allowed only upon written application by the Contractor, which application shall include written approval of Contractor's surety; except that when the Work is 97-1/2 percent completed the Owner may, at its discretion and without application by the Contractor, reduce the retained amount to 100 percent of the value of the Work remaining to be done. Upon receipt of written application by the Contractor, Owner shall respond in writing within a reasonable time.

E.5.1.2 Contractor may request in writing:

(a) to be paid amounts which would otherwise have been retained from progress payments where Contractor has deposited acceptable bonds and securities of equal value with Owner or in a custodial account or other mutually-agreed account satisfactory to Owner, with an approved bank or trust company to be held in lieu of the cash retainage for the benefit of Owner;

(b) for construction projects over $1,000,000, that retainage be deposited in an interest bearing account, established through the State Treasurer for state agencies, in a bank, savings bank, trust company or savings association for the benefit of Owner, with earnings from such account accruing to the Contractor; or

(c) that the Owner allow Contractor to deposit a surety bond for the benefit of Owner, in a form acceptable to Owner, in lieu of all or a portion of funds retained, or to be retained. Such bond and any proceeds therefrom shall be made subject to all claims in the manner and priority as set forth for retainage.

When the Owner has accepted the Contractor's election of option (a) or (b), Owner may recover from Contractor any additional costs incurred through such election by reducing Contractor's final payment. Where the Owner has agreed to Contractor's request for option (c), Contractor shall accept like bonds from Subcontractors and suppliers on the project from which Contractor has required retainages.

E. 5.1.3 The retainage held by Owner shall be included in and paid to the Contractor as part of the final payment of the Contract Price. The Owner shall pay to Contractor interest at the rate of two-thirds of one percent per month on the final payment due Contractor, interest to commence forty five (45) Days after the date which Owner receives Contractor's final approved application for payment and Work under the Contract has been completed and accepted and to run until the date when final payment is tendered to Contractor. The Contractor shall notify Owner in writing when the Contractor considers the Work complete and deliver to Owner its final application for payment and Owner shall, within fifteen (15) Days after receiving the written notice and the application for payment, either accept the Work or notify the Contractor of Work yet to be performed on the Contract. If Owner does not within the time allowed notify the Contractor of Work yet to be performed to fulfill contractual obligations, the interest provided by this subsection shall commence to run forty five (45) Days after the end of the 15-Day period.

E.5.1.4 Owner will reduce the amount of the retainage if the Contractor notifies the controller of the Owner that the Contractor has deposited in an escrow account with a bank or trust company, in a manner authorized by the Owner, bonds and securities of equal value of a kind approved by the Owner and such bonds and securities have in fact been deposited.

E.5.1.5 Contractor agrees that if Contractor elects to reserve a retainage from any progress payment due to any Subcontractor or supplier, such retainage shall not exceed five percent of the payment, and such retainage withheld from Subcontractors and suppliers shall be subject to the same terms and conditions stated in Subsection E.5 as apply to Owner's retainage from any progress payment due to Contractor.

E.6 FINAL PAYMENT

E.6.1 Upon completion of all the Work under this Contract, the Contractor shall notify the Owner, in writing, that Contractor has completed Contractor's obligations under the Contract and shall prepare its application requesting final payment. Upon receipt of such notice and application for payment, the Owner will inspect the Work, and, if acceptable, submit to the Owner a recommendation as to acceptance of the completed Work and the final estimate of the amount due the Contractor. If the Work is not acceptable, Owner will notify Contractor within fifteen (15) Days of Contractor's request for final payment. Upon approval of this final application for payment by the Owner and compliance by the Contractor with provisions in Section K, and Contractor's satisfaction of other provisions of the Contract Documents as may be applicable, the Owner shall pay to the Contractor all monies due under the provisions of these Contract Documents.

E.6.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner (1) 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 thirty (30) Days' prior written notice has been given to the Owner, (2) 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, (3) consent of surety, if any, to final payment and (4), 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.

E.6.3 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.

E.6.4 Contractor agrees to submit its final payment application within ninety (90) Days after Substantial Completion, unless written extension is granted by Owner. Contractor shall not delay final payment application for any reason, including without limitation nonpayment of Subcontractors, suppliers, manufacturers or others not a party to this Contract, or lack of resolution of a dispute with Owner or any other person of matters arising out of or relating to the Contract. If Contractor fails to submit its final payment application within ninety (90) Days after Substantial Completion, and Contractor has not obtained written extension by Owner, all requests or Claims for additional costs or an extension of Contract Time shall be waived.

SECTION F
JOB SITE CONDITIONS

F.1 USE OF PREMISES

Contractor shall confine equipment, storage of materials and operation of Work to the limits indicated by Contract Documents, Applicable Laws, permits or directions of the Owner. Contractor shall follow the Owner's instructions regarding use of premises, if any.

F.2 PROTECTION OF WORKERS, PROPERTY AND THE PUBLIC

F.2.1 Contractor shall maintain continuous and adequate protection of all of the Work from damage and shall protect the Owner, workers and property from injury or loss arising in connection with this Contract. Contractor shall remedy acceptably to the Owner any damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by authorized representatives or personnel of the Owner. Contractor shall adequately protect adjacent property as provided by law and the Contract Documents.

F.2.2 Contractor shall take all necessary precautions for the safety of all personnel on the job site or otherwise engaged in the undertaking of the Work and shall comply with the Contract Documents, best practices and all applicable provisions of federal, state and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for protection of workers and the public against any hazards created by construction. Contractor shall designate a responsible employee or associate on the Work site, whose duty shall be the prevention of accidents. The name and position of the person designated shall be reported to the Owner. The Owner has no responsibility for Work site safety. Work site safety shall be the responsibility of the Contractor.

F.2.3 Contractor shall not enter upon private property without first obtaining permission from the property owner or its duly authorized representative. Contractor shall be responsible for the preservation of all public and private property along and adjacent to the Work contemplated under the Contract and shall use every precaution necessary to prevent damage thereto. In the event the Contractor damages any property, the Contractor shall at once notify the property owner and make, or arrange to make, full restitution. Contractor shall, immediately and in writing, report to the Owner, all pertinent facts relating to such property damage and the ultimate disposition of the claim for damage.

F.2.4 Contractor shall be responsible for protection of adjacent work areas including impacts brought about by activities, equipment, labor, utilities, vehicles and materials on the site.

F.2.5 Contractor shall at all times direct its activities in such a manner as to minimize adverse effects on the environment. Handling of all materials shall be conducted so no release will occur that may pollute or become hazardous.

F.2.6 In an emergency affecting the safety of life or limb or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by the Owner. Any compensation claimed by the Contractor on account of emergency work shall be determined in accordance with section D.

F.3 CUTTING AND PATCHING

F.3.1 Contractor shall be responsible for coordinating all cutting, fitting, or patching of the Work to make its several parts come together properly and fit to receive or be received by work of other contractors or Subcontractors shown upon, or reasonably implied by, the Contract Documents.

F.3.2 Contractor shall be responsible for restoring all cut, fitted, or patched surfaces to an original condition; provided, however, that if a different condition is specified in the Contract Documents, then Contractor shall be responsible for restoring such surfaces to the condition specified in the Contract Documents.

F.4 CLEANING UP

From time to time as may be prudent or ordered by the Owner and, in any event, immediately after completion of the Work, the Contractor shall, at its own expense, clean up and remove all refuse and unused materials of any kind resulting from the Work. If Contractor fails to do so within twenty-four hours after notification by the Owner the work may be done by others and the cost charged to the Contractor and deducted from payment due the Contractor.

F.5 ENVIRONMENTAL CONTAMINATION

F.5.1. Contractor shall be held responsible for and shall indemnify, defend (with counsel of Owner's choice),and hold harmless Owner from and against any costs, expenses, damages, claims, and causes of action, (including attorney fees), or any of them, resulting from all spills, releases, discharges, leaks and disposal of environmental pollution, including storage, transportation, and handling during the performance of the Work or Contractor's obligations under the Contract which occur as a result of, or are contributed by, the negligence or actions of Contractor or its personnel, agents, or Subcontractors or any failure to perform in accordance with the Contract Documents (except to the extent otherwise void under ORS 30.140). Nothing in this section F.5.1 shall limit Contractor's responsibility for obtaining insurance coverages required under Section G.3 of this Contract, and Contractor shall take no action that would void or impair such coverages.

F.5.1.1 Contractor agrees to promptly dispose of such spills, releases, discharge or leaks to the satisfaction of Owner and regulatory agencies having jurisdiction in a manner that complies with Applicable Laws. Cleanup shall be at no cost to the Owner and shall be performed by properly qualified and, if applicable, licensed personnel.

F.5.1.2 Contractor shall obtain the Owner's written consent prior to bringing onto the Work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any Applicable Laws. Notwithstanding such written consent from the Owner, the Contractor, at all times, shall:

(a) properly handle, use and dispose of all environmental pollutants and hazardous substances or materials brought onto the Work site, in accordance with all Applicable Laws;

(b) be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the Work site; and

(c) promptly clean up and remediate, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all Applicable Laws.

F.5.2 Contractor shall report all reportable quantity releases, as such releases are defined in Applicable Laws, including but not limited to 40 CFR Part 302, Table 302.4 and in OAR 340-142-0050 , to applicable federal, state, and local regulatory and emergency response agencies. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the Owner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, as a minimum:

(a) Description of items released (identity, quantity, manifest numbers, and any and all other documentation required by law.)

(b) Whether amount of items released is EPA/DEQ reportable, and, if so, when reported.

(c) Exact time and location of release, including a description of the area involved.

(d) Containment procedures initiated.

(e) Summary of communications about the release between Contractor and members of the press or Stat, local or federal officials other than Owner.

(f) Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.

(g) Personal injuries, if any, resulting from, or aggravated by, the release.

F.6 ENVIRONMENTAL CLEAN-UP

F.6.1 Unless disposition of environmental pollution is specifically a part of this Contract, or was caused by the Contractor (reference F.5 Environmental Contamination), Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the Work required by this Contract. "Hazardous substance(s)" means any hazardous, toxic and radioactive materials and those substances defined as "hazardous substances," "hazardous materials," "hazardous wastes," "toxic substances," or other similar designations in any federal, state, or local law, regulation, or ordinance, including without limitation asbestos, polychlorinated biphenyl (PCB), or petroleum, and any substances, materials or wastes regulated by 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substance(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a risk or danger to the health or well being of Contractor's or any Subcontractor's work force, property or the environment.

F.6.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the project site, Owner shall arrange for the proper disposition of such hazardous substance(s).

F.7 FORCE MAJEURE

A party to this Contract shall not be held responsible for delay or default due to Force Majeure acts, events or occurrences unless they could have been avoided by the exercise of reasonable care, prudence, foresight, and diligence by that party. The Owner may terminate this Contract upon written notice after determining that delay or default caused by Force Majeure acts, events or occurrences will reasonably prevent successful performance of the Contract.

SECTION G
INDEMNITY, BONDING, AND INSURANCE

G.1 RESPONSIBILITY FOR DAMAGES / INDEMNITY

G.1.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under this Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, employees, guests, visitors, invitees and agents.

G.1.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner, Architect/Engineer, Architect/Engineer's

consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to, (a) any damage, injury, loss, expense, inconvenience or delay described in this Section G.1., (b) any accident or occurrence which happens or is alleged to have happened in or about the project site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects, (c) any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract, (d) the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or any one of 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 (except to the extent otherwise void under ORS 30.140), and (e) any lien filed upon the project or bond claim in connection with the Work. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section G.1.2.

G.1.3 In claims against any person or entity indemnified under Section G.1.2 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 G.1.2 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.

G.2 PERFORMANCE AND PAYMENT SECURITY; PUBLIC WORKS BOND

G.2.1 When the Contract Price is $100,000 or more (or $50,000 or more in the case of Contracts for highways, bridges and other transportation projects), the Contractor shall furnish and maintain in effect at all times during the Contract Period a performance bond in a sum equal to the Contract Price and a separate payment bond also in a sum equal to the Contract Price. Contractor shall furnish such bonds even if the Contract Price is less than the above thresholds if otherwise required by the Contract Documents.

G.2.2 Bond forms furnished by the Owner and notarized by awarded Contractor's surety company authorized to do business in Oregon are the only acceptable forms of performance and payment security, unless otherwise specified in the Contract Documents.

G.2.3 Before execution of the Contract the Contractor shall file with the Construction Contractors Board, and maintain in full force and effect, the separate public works bond required by Oregon Laws 2005, Chapter 360, and OAR 839-025-0015, unless otherwise exempt under those provisions. The Contractor shall also include in every subcontract a provision requiring the Subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work, unless otherwise exempt, and shall verify that the Subcontractor has filed a public works bond before permitting any Subcontractor to start Work.

G.3 INSURANCE

G.3.1 Primary Coverage: Insurance carried by Contractor under this Contract shall be the primary coverage. The coverages indicated are minimums unless otherwise specified in the Contract Documents.

G.3.2 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under this Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than the minimum amount required by statute for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation coverage by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

G.3.3 Builder's Risk Insurance:

G.3.3.1 Builder's Risk: During the term of this Contract, for new construction the Contractor shall obtain and keep in effect Builder's Risk insurance on an all risk forms, including earthquake and flood, for an amount equal to the full amount of the Contract, plus any changes in values due to modifications, Change Orders and loss of materials added. Such Builder's Risk shall include, in addition to earthquake and flood, theft, vandalism, mischief, collapse, transit, debris removal, and architect's fees "soft costs" associated with delay of project due to insured peril. Any deductible shall not exceed $50,000 for each loss, except the earthquake and flood deductible which shall not exceed 2 percent of each loss or $50,000, whichever is greater. The deductible shall be paid by Contractor if Contractor is negligent. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear.

G.3.3.2 Builder's Risk Installation Floater: For Work other than new construction, Contractor shall obtain and keep in effect during the term of this Contract, a Builder's Risk Installation Floater for coverage of the Contractor's labor, materials and equipment to be used for completion of the Work performed under this Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contract. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear. Owner may waive this requirement at their sole and absolute discretion.

G.3.3.3 Such insurance shall be maintained until Owner has occupied the facility.

G.3.3.4 A loss insured under the Builder's Risk insurance shall be adjusted by the Owner and made payable to the Owner as loss payee. 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. The Owner shall have power to adjust and settle a loss with insurers.

G.3.4 General Liability Insurance:

G.3.4.1 Commercial General Liability: Upon issuance of a Supplement, Contractor shall obtain, and keep in effect at Contractor's expense for the term of the Supplement, Commercial General Liability Insurance covering bodily injury and property damage in the amount of $1,000,000 per claim and $2,000,000 per occurrence in a form satisfactory to Owner. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the

indemnities provided under this Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis.

G.3.4.2 Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Automobile Liability Insurance covering owned, and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than $1,000,000 per claim and $2,000,000 per occurrence. Contractor and its Subcontractors shall be responsible for ensuring that all non-owned vehicles maintain adequate Automobile Liability insurance while on site.

G.3.4.3 Owner may adjust the insurance amounts required in Section G.3.4.1 and G.3.4.2 based upon institution specific risk assessments through the issuance of Supplemental General Conditions and a Supplement.

G.3.4.4 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this Contract for a duration of 36 months or the maximum time period available in the marketplace if less than 36 months. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for 36 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Contract. Owner's receipt of the policy endorsement evidencing such coverage shall be a condition precedent to Owner's obligation to make final payment and to Owner's final acceptance of Work or services and related warranty (if any).

G.3.4.5: Umbrella Liability (if required by Owner through issuance of Supplemental General Conditions): Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Umbrella liability Insurance over and above the general liability, automobile liability and workers' compensation coverage if required by Owner in specified limits at time of requirement.

G.3.4.6 Pollution Liability (if required by Owner through issuance of Supplemental General Conditions): Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Pollution liability Insurance in minimum amounts of $3,000,000 naming Owner as "additional insured," as noted in the "additional insured section below.

G.3.5 Additional Insured: The general liability insurance coverage, professional liability, umbrella, and pollution liability if required, shall include the Owner as additional insureds but only with respect to the Contractor's activities to be performed under this Contract.

If Contractor cannot obtain an insurer to name the Owner as additional insureds, Contractor shall obtain at Contractor's expense, and keep in effect during the term of this Contract, Owners and Contractors Protective Liability Insurance, naming the Owner as additional insureds with not less than a $2,000,000 limit per occurrence. This policy must be kept in effect for 36 months following Final Completion. As evidence of coverage, Contractor shall furnish the actual policy to Owner prior to execution of the Contract.

G.3.6 Notice of Cancellation or Change: If the Contractor receives a non-renewal or cancellation notice from an insurance carrier affording coverage required herein, or receives notice that coverage no longer complies with the insurance requirements herein, Contractor agrees to notify Owner by fax within five (5) business days with a copy of the non-renewal or cancellation notice, or written specifics as to which coverage is no longer in compliance. When notified by Owner, the Contractor agrees to stop Work pursuant to this Contract, unless all required insurance remain in effect. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the Owner and its institutions, divisions, officers, and employees.

Owner shall have the right, but not the obligation, of prohibiting Contractor from entering the Work site until a new certificate(s) of insurance is provided to Owner evidencing the replacement coverage. The Contractor agrees Owner reserves the right to withhold payment to Contract until evidence of reinstated or replacement coverage is provided to Owner.

G.3.7 Certificate(s) of Insurance: As evidence of the insurance coverage required by this Contract, the Contractor shall furnish certificate(s) of insurance to the Owner prior to execution of the Contract. The certificate(s) will specify all of the parties who are additional insureds or loss payees for this contract. Insurance coverage required under this Contract shall be obtained from insurance companies or entities acceptable to the Owner and that are eligible to provide such insurance under Oregon law. Eligible insurers include admitted insurers that have been issued a certificate of authority from the Oregon Department of Consumer and Business Services authorizing them to conduct an insurance business and issue policies of insurance in the state of Oregon, and certain non-admitted surplus lines insurers that satisfy the requirements of applicable Oregon law and which are subject to approval by the Owner. The Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder. Any deductible, self-insured retention and/or self-insurance in excess of $50,000 shall be subject to approval by the Owner in writing and shall be a condition precedent to the effectiveness of any Supplement.

G.3.8 Retainer Contract Program: For the OUS Retainer Contract Program the term "Contract" as used in this Section G in the phrases "keep in effect during the term of this Contract" and "prior to execution of the Contract" shall mean each Retainer Contract Supplement issued under the Retainer Contract.

SECTION H
SCHEDULE OF WORK

H.1 CONTRACT PERIOD

H.1.1 Time is of the essence. The Contractor shall at all times carry on the Work diligently, without delay and punctually fulfill all requirements herein. If required by the Contract Documents, Contractor shall commence Work on the site within fifteen (15) Days of Notice to Proceed, unless directed otherwise.

H.1.2 Unless specifically extended by Supplement Amendment , all Work shall be complete by the date contained in the Contract Documents. The Owner shall have the right to accelerate the completion date of the Work, which may require the use of overtime. Such accelerated Work schedule shall be an acceleration in performance of Work under Section D.1.2 (f) and shall be subject to the provisions of Section D.1.

H.1.3 The Owner shall not waive any rights under the Contract by permitting the Contractor to continue or complete in whole or in part the Work after the date described in Section H.1.2 above.

H.2 SCHEDULE

H.2.1 Contractor shall provide, by or before the pre-construction conference, the initial as-planned schedule for review and acceptance by the Owner. The submitted schedule must illustrate Work by project components, t labor trades, and long

lead items broken down by building and/or floor where applicable. If Owner shall so elect, Contractor shall provide the schedule in CPM format showing the graphical network of planned activities, including i) a reasonably detailed list of all activities required to complete the Work; ii) the time and duration that each activity will take to completion; and iii) the dependencies between the activities. Schedules lacking adequate detail, or unreasonably detailed, will be rejected. The schedule shall include the following: Notice to Proceed or the date the Work commences, if no Notice to Proceed is issued by Owner, Substantial Completion, and Final Completion. Schedules shall be updated monthly, unless otherwise required by the Contract Documents, and submitted with the monthly application for payment. Acceptance of the Schedule by the Owner does not constitute agreement by the Owner as to the Contractor's sequencing, means, methods, or durations. Any positive difference between the Contractor's scheduled completion and the Contract completion date is float owned by the Owner. Owner reserves the right to negotiate the float if it is deemed to be in Owner's best interest to do so. In no case shall the Contractor make a claim for delays if the Work is completed within the Contract Time but after Contractor's scheduled completion.

H.3 PARTIAL OCCUPANCY OR USE

H.3.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have reasonably accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, insurance or self-insurance, maintenance, heat, utilities, and damage to the Work, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents with respect to such portion of the Work. Approval by the Contractor to partial occupancy or use shall not be unreasonably withheld. Immediately prior to such partial occupancy or use, the Owner and Contractor 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. 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.

SECTION I
CORRECTION OF WORK

I.1 CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects, and that the Work will conform to the requirements of the Contract Documents. Work failing to conform to these requirements shall be deemed defective. Contractor shall promptly remove from the premises and replace all defective materials and equipment as determined by the Owner, whether incorporated in the Work or not. Removal and replacement shall be without loss or expense to the Owner, and Contractor shall bear the cost of repairing all Work destroyed or damaged by such removal or replacement. Contractor shall be allowed a period of no longer than thirty (30) Days after Substantial Completion for completion of defective (Punch List) work. At the end of the thirty-day period, or earlier if requested by the Contractor, Owner shall arrange for inspection of the Work by the Architect/Engineer. Should the work not be complete, and all corrections made, the costs for all subsequent reinspections shall be borne by the Contractor. If Contractor fails to complete the Punch List work within the thirty (30) Day period, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand without affecting Contractor's obligations.

I.2 WARRANTY WORK

I.2.1 Neither the final certificate of payment nor any provision of the Contract Documents shall relieve the Contractor from responsibility for defective Work and, unless a longer period is specified, Contractor shall correct all defects that appear in the Work within a period of one year from the date of issuance of the written notice of Substantial Completion by the Owner except for latent defects which will be remedied by the Contractor at any time they become apparent. The Owner shall give Contractor notice of defects with reasonable promptness. Contractor shall perform such warranty work within a reasonable time after Owner's demand. If Contractor fails to complete the warranty work within such period as Owner determines reasonable, or at any time in the event of warranty work consisting of emergency repairs, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand, without affecting Contractor's obligations. The Contractor shall perform the warranty Work by correcting defects within twenty-four (24) hours of notification by Owner, unless otherwise specified in the Contract Documents. Should the Contractor fail to respond within the specified response time, the Owner may, at its option, complete the necessary repairs using another contractor or its own forces. If Owner completes the repairs using Owner's own forces, Contractor shall pay Owner at the rate of one and one-half (1½) times the standard hourly rate of Owner's forces, plus related overhead and any direct non-salary costs. If Owner completes the repairs using another contractor, Contractor shall pay Owner the amount of Owner's direct costs billed by the other contractor for the work, plus the direct salary costs and related overhead and direct non-salary expenses of Owner's forces who are required to monitor that contractor's work. Work performed by Owner using Owner's own forces or those of another contractor shall not affect the Contractor's contractual duties under these provisions, including warranty provisions.

I.2.2 Nothing in this Section I.2 provision shall negate guarantees or warranties for periods longer than one year including without limitation such guarantees or warranties required by other sections of the Contract Documents for specific installations, materials, processes, equipment or fixtures.

I.2.3 In addition to Contractor's warranty, manufacturer's warranties shall pass to the Owner and shall not take effect until such portion of the Work covered by the applicable warranty has been accepted in writing by the Owner.

I.2.4 The one-year period for correction of Work shall be extended with respect to portions of Work performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work, and shall be extended by corrective Work performed by the Contractor pursuant to this Section, as to the Work corrected. The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

I.2.5 Nothing contained in this Section I.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the period for correction of Work as described in this Section I.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.

I.2.6 If the Owner prefers to accept Work which 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 Price will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

SECTION J
SUSPENSION AND/OR TERMINATION OF THE WORK

J.1 OWNER'S RIGHT TO SUSPEND THE WORK

J.1.1 The Owner has the authority to suspend portions or all of the Work due to the following causes:

(a) Failure of the Contractor to correct unsafe conditions;

(b) Failure of the Contractor to carry out any provision of the Contract;

(c) Failure of the Contractor to carry out orders;

(d) Conditions, in the opinion of the Owner, which are unsuitable for performing the Work;

(e) Time required to investigate differing site conditions;

(f) Any reason considered to be in the public interest.

J.1.2 The Owner shall notify Contractor and the Contractor's Surety in writing of the effective date and time of the suspension, and Owner shall notify Contractor and Contractor's surety in writing to resume Work.

J.2 CONTRACTOR'S RESPONSIBILITIES

J.2.1 During the period of the suspension, Contractor is responsible to continue maintenance at the project just as if the Work were in progress. This includes, but is not limited to, protection of completed Work, maintenance of access, protection of stored materials, temporary facilities, and clean-up.

J.2.2 When the Work is recommenced after the suspension, the Contractor shall replace or renew any Work damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete the project in every respect as though its prosecution had been continuous and without suspension.

J.3 COMPENSATION FOR SUSPENSION

J.3.1 Depending on the reason for suspension of the Work, the Contractor or the Owner may be due compensation by the other party. If the suspension was required due to acts or omissions of Contractor, the Owner may assess the Contractor actual costs of the suspension in terms of administration, remedial work by the Owner's forces or another contractor to correct the problem associated with the suspension, rent of temporary facilities, and other actual costs related to the suspension. If the suspension was caused by acts or omissions of the Owner, the Contractor may be due compensation which shall be defined using Section D, Changes in Work. If the suspension was required through no fault of the Contractor or the Owner, neither party shall owe the other for the impact.

J.4 OWNER'S RIGHT TO TERMINATE CONTRACT

J.4.1 The Owner may, without prejudice to any other right or remedy, and after giving Contractor seven (7) Days' written notice and an opportunity to cure, terminate the Contract in whole or in part under the following conditions:

(a) If Contractor should, voluntarily or involuntarily, seek protection under the United States Bankruptcy Code and Contractor as debtor-in-possession or the Trustee for the estate fails to assume the Contract within a reasonable time;

(b) If Contractor should make a general assignment for the benefit of Contractor's creditors;

(c) If a receiver should be appointed on account of Contractor's insolvency;

(d) If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the Contract Documents, or otherwise fail to perform the Work in a timely manner;

(e) If Contractor should repeatedly fail to make prompt payment to Subcontractors or for material or labor, or should disregard laws, ordinances or the instructions of the Owner; or

(f) If Contractor is otherwise in breach of any part of the Contract.

(g) If Contractor is in violation of Applicable Laws, either in the conduct of its business or in its performance of the Work.

J.4.2 At any time that any of the above occurs, Owner may exercise all rights and remedies available to Owner at law or in equity, and, in addition, Owner may take possession of the premises and of all materials and appliances and finish the Work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive further payment until the Work is completed. If the Owner's cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall pay the difference to the Owner.

J.5 TERMINATION FOR CONVENIENCE

J.5.1 Owner may terminate the Contract in whole or in part whenever Owner determines that termination of the Contract is in the best interest of Owner or the public.

J.5.2 The Owner shall provide the Contractor with seven (7) Days prior written notice of a termination for Owner's or for public convenience. After such notice, the Contractor shall provide the Owner with immediate and peaceful possession of the premises and materials located on and off the premises for which the Contractor received progress payment under Section E. Compensation for Work terminated by the Owner under this provision will be according to Section E. In no circumstance shall Contractor be entitled to lost profits for Work not performed due to termination.

J.6 ACTION UPON TERMINATION

J.6.1 Upon receiving a notice of termination, and except as directed otherwise by the Owner, Contractor shall immediately cease placing further subcontracts or orders for materials, services, or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent they relate to the Work terminated and, with the prior written approval of the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts and orders.

J.6.2 As directed by the Owner, Contractor shall, upon termination, transfer title and deliver to the Owner all Record Documents, information, and other property that, if the Contract had been completed, would have been required to be furnished to the Owner.

I.6.3 Upon Owner's notice of termination pursuant to either Section J.4 or J.5, if Owner shall so elect, Contractor shall assign the Owner such subcontracts and orders as Owner shall specify. In the event Owner elects to take assignment of any such subcontract or order, Contractor shall take such action and shall execute such documents as Owner shall reasonably require for the effectiveness of such assignment and Contractor shall ensure that no contractual arrangement between it and its subcontractors or suppliers of any tier or sub-tier shall prevent such assignment.

SECTION K
CONTRACT CLOSE OUT

K.1 RECORD DOCUMENTS

As a condition of final payment (refer also to section E.6), Contractor shall comply with the following: Contractor shall provide Record Documents for the entire project to Owner. Record Documents shall depict the project as constructed and shall reflect each and every change, modification, and deletion made during the construction. Record Documents are part of the Work and shall be provided prior to the Owner's issuance of final payment. Record Documents include all modifications to the Contract Documents unless otherwise directed, and accurate MWESB Reports.

K.2 OPERATION AND MAINTENANCE MANUALS

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals") for review by the Owner prior to submission of any pay request for more than 75% of the Work. Owner's receipt of the O & M Manuals shall be a condition precedent to any payment thereafter due. The O & M Manuals shall contain a complete set of all submittals, all product data as required by the specifications, training information, telephone list and contact information for all consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and shop drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds. The Owner shall review and return one O & M Manual for any modifications or adjustments required. Prior to submission of its final pay request, Contractor shall deliver three (3) complete and approved sets of O & M Manuals to the Owner and Owner's receipt of the O & M Manuals shall be a condition precedent to Owner's obligation to make final payment.

K.3 COMPLETION NOTICES

K.3.1 Contractor shall provide Owner written notice of both Substantial and Final Completion. The certificate of Substantial Completion shall state the date of Substantial Completion, the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and the time within which the Contractor shall finish all items on the Punch List accompanying the Certificate. Both completion notices must be signed by the Contractor and the Owner to be valid. The Owner shall provide the final signature on the notices. The notices shall take effect on the date they are signed by the Owner.

K.3.2 Substantial Completion of a facility with operating systems (e.g., mechanical, electrical, HVAC) shall be that degree of completion that has provided a minimum of thirty (30) continuous Days of successful, trouble-free operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the Owner. All equipment contained in the Work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the Substantial Completion date. The Contractor may request that a Punch List be prepared by the Owner with submission of the request for the Substantial Completion notice.

K.4 TRAINING

As part of the Work, and prior to submission of the final application for payment, the Contractor shall schedule with the Owner training sessions for all equipment and systems as required by the Contract Documents. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner to provide its personnel with adequate notice. The O & M Manual shall be used as a basis for training. Training shall be a formal session held after the equipment and/or system is completely installed and operational in its normal operating environment.

K.5 EXTRA MATERIALS

As part of the Work, Contractor shall provide spare parts, extra maintenance materials, and other materials or products in the quantities specified in the Contract Documents prior to final payment. Delivery point for extra materials shall be designated by the Owner.

K.6 ENVIRONMENTAL CLEAN-UP

As part of the Final Completion notice, or as a separate written notice submitted with or before the notice of Final Completion, the Contractor shall notify the Owner that all environmental and pollution clean-up, remediation and closure have been completed in accordance with all Applicable Laws and pursuant to the authority of all agencies having jurisdiction, and Contractor shall provide Owner with any and all documentation related to the same, including but not limited to directives, orders, letters, certificates and permits related to or arising from such environmental pollution. The notice shall reaffirm the indemnification given under Section F.5.1 above. Contractor's completion of its obligations under this Section K.6 and Owner's receipt of documents evidencing such completion shall be a condition precedent to Owner's obligation to make final payment.

K.7 CERTIFICATE OF OCCUPANCY

Owner's receipt of an unconditioned certificate of occupancy from the appropriate state and/or local building officials shall be a condition precedent to Owner's obligation to make final payment, except to the extent failure to obtain an unconditional certificate of occupancy is due to the fault or neglect of Owner.

K.8 OTHER CONTRACTOR RESPONSIBILITIES

The Contractor shall be responsible for returning to the Owner all property of Owner issued to Contractor during construction such as keys, security passes, site admittance badges, and all other pertinent items. Upon notice from Owner, Contractor shall be responsible for notifying the appropriate utility companies to transfer utility charges from the Contractor to the Owner. The utility transfer date shall not be before Substantial Completion and may not be until Final Completion, if the Owner does not take beneficial use of the facility and the Contractor's forces continue with the Work.

K.9 SURVIVAL

All warranty and indemnification provisions of this Contract, and all of Contractor's other obligations under this Contract that are not fully performed by the time of Final Completion or termination, shall survive Final Completion or any termination of the Contract.

OREGON UNIVERSITY SYSTEM

STANDARD PUBLIC IMPROVEMENT CONTRACT

PERFORMANCE BOND

Bond No._____
Solicitation _____
Project Name _____

_____(Surety #1)	Bond Amount No. 1:	$_____
_____(Surety #2)*	Bond Amount No. 2:*	$_____
* *If using multiple sureties*	Total Penal Sum of Bond:	$_____

We, _____as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the State of Oregon, acting by and through the State Board of Higher Education, on behalf of the OUS (OUS), the sum of (Total Penal Sum of Bond)

_____

(Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the OUS, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein,

and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the OUS, and _____(name of institution and any other Owner agency), and members thereof, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond, nor shall the State of Oregon or the OUS, be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 351, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this _____ day of _____, 20__.

PRINCIPAL: _____

By_____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each surety if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each surety bond]

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____ _____
Phone Fax

OREGON UNIVERSITY SYSTEM

STANDARD PUBLIC IMPROVEMENT CONTRACT

PAYMENT BOND

Bond No. _____
Solicitation _____
Project Name _____

_____(Surety #1)	Bond Amount No. 1:	$ _____
_____(Surety #2)*	Bond Amount No. 2:*	$ _____
** If using multiple sureties*	Total Penal Sum of Bond:	$ _____

We, _____, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto the State of Oregon, acting by and through the State Board of Higher education, on behalf of the Oregon University System (OUS), the sum of (Total Penal Sum of Bond) _____ _____
(Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into a contract with the OUS, the plans, specifications, terms and conditions of which are contained in above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the OUS and _____ (name of institution and any other Owner agency), and members thereof, its officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or

claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or prosecuted against the State on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond, nor shall the State of Oregon, or the OUS be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 351, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this _____day of _____, 20__.

PRINCIPAL: _____

By _____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____
Phone Fax

RETAINER CONTRACT SUPPLEMENT
OUS RETAINER CONTRACT FOR CONSTRUCTION RELATED SERVICES

Supplement No.
Project Name
Owner's Project Manager

This Retainer Contract Supplement dated (the "Supplement") is entered into between:

"Contractor":

Federal Tax ID No.

and "Owner": The State of Oregon, acting by and through the State Board of Higher Education, on behalf of:

(collectively, the "Parties") pursuant to the Retainer Contract for Construction Related Services between the Parties terminating June 30, 2014 (the "Retainer Contract"). Capitalized terms have the meaning defined in the OUS Retainer General Conditions unless otherwise defined in the Retainer Contract or herein.

1. DESCRIPTION OF THE PROJECT. The project to which this Supplement pertains is described as follows: (the "Project").

2. WORK TO BE PERFORMED. Contractor shall perform the following work on the Project : (the "Work"). Contractor will perform the Work according to the terms and conditions of this Supplement and the Contract Documents, which are incorporated herein by this reference.

3. SCHEDULE. Contractor shall perform the Work according to the following schedule: (the "Schedule").

4. COMPENSATION. Owner shall compensate Contractor for Work ☐ (a) in the firm, fixed-price amount of $; or ☐ (b) on a time and materials basis subject to a maximum not-to-exceed price of $ _____; in accordance with the requirements of the OUS Retainer General Conditions. If the Work is performed on a time and materials basis, Contractor's listing of wage rates, material unit costs and overhead charges for the Work is attached to this Supplement.

The cost of the Work under this Supplement, even if this Supplement is later amended to include additional work, must not exceed the greater of $1,000,000 or the maximum allowable under

OAR 580-063-0030.

5. TERM. This Supplement is effective on the date it has been signed by every Party hereto and all approvals required by Applicable Law have been obtained (the "Effective Date"). No Work shall be performed or payment made prior to the Effective Date. Contractor shall perform its obligations in accordance with the Contract Documents, unless this Supplement is earlier terminated or suspended.

6. PERFORMANCE AND PAYMENT BONDS. The performance and payment bond requirements for this Project are as follows (check one of the following):

☐ As a condition precedent to the effectiveness of this Supplement and to Owner's obligation to make payment for the Work, Contractor shall provide the Owner with a performance bond and a separate payment bond in a sum equal to the Contract Price stated in Section 4 of this Supplement.

☐ This Project has a Contract price of $100,000 or less, and Owner has determined that performance and payment bonds will not be required for this Project.

7. MINIMUM WAGE RATES.

☐ Prevailing Wage Rates requirements do not apply to this Project because the maximum compensation for all Owner-contracted Work does not exceed $50,000.

☐ Prevailing Wage Rates requirements apply to this Project because the maximum compensation for all Owner-contracted Work is more than $50,000. Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates and the required public works bond, as outlined in Sections C.1, C.2 and G.2.3 of the OUS Retainer General Conditions. The Bureau of Labor and Industries (BOLI) wage rates and requirements set forth in the following BOLI booklet (and any listed amendments to that booklet), which are incorporated herein by reference, apply to the Work authorized under this Supplement:

PREVAILING WAGE RATES for Public Works Contracts in Oregon, ____, 20__, as amended _____, 20__ **[delete "as amended _____, 20__" if there have been no amendments since last rate change]**, which can be downloaded at the following web address:

[http://www.boli.state.or.us/BOLI/WHD/PWR/pwr_book.shtml]

The Work will take place in _____ County, Oregon.

8. TAX COMPLIANCE CERTIFICATION. Contractor hereby certifies and affirms, under penalty of perjury as provided in ORS 305.385(6), that, to the best of Contractor's knowledge, Contractor is not in violation of any of the tax laws described in ORS 305.380(4). For purposes of this certification, "tax laws" means a state tax imposed by ORS 320.005 to 320.150 and 403.200 to 403.250, ORS Chapters 118, 314, 316, 317, 318, 321 and 323; the elderly rental assistance program under ORS 310.630 to 310.706; and local taxes administered by the Oregon Department of Revenue under ORS 305.620.

9. INSURANCE REQUIREMENTS.

☐ Contractor shall comply with and obtain the insurance coverage amounts stated in the OUS Retainer General Conditions.

☐ The Owner has determined that the Contractor shall obtain insurance in the amount described in the Retainer Supplemental General Conditions, attached hereto.

10. KEY PERSONS. ☐ If checked here, the following provision is incorporated into this Supplement:

The Parties agree that certain Contractor personnel are specifically valuable to the Project ("Key Persons"). Key Persons shall not be replaced during the Project without the written consent of Owner, which shall not be unreasonably withheld. If Contractor intends to substitute personnel, Owner shall receive the request at least 15 days prior to the effective date of substitution. When replacements have been approved by Owner, Contractor shall provide a transition period of at least 10 working days during which the original and replacement personnel shall be working on the Project concurrently. Upon authorization for the replacement of a Key Person, all subsequent substitutions of that Key Person shall require Owner's written consent in accordance with this Section. The Key Persons for this Project are the following:

Project Executive: _____ shall be Contractor's Project Executive, and will provide oversight and guidance throughout the Project term.

Project Manager: _____ shall be Contractor's Project Manager and will participate in all meetings throughout the Project term.

Job Superintendent: _____ shall be Contractor's on-site Job Superintendent throughout the Project term.

Project Engineer: _____ shall be Contractor's Project Engineer, providing assistance to the Project Manager, and subcontractor and supplier coordination throughout the Project term.

11. OTHER TERMS. Except as specifically modified by this Supplement, all terms of the Retainer Contract remain unchanged.

12. EXECUTION AND COUNTERPARTS. This Supplement may be executed in several counterparts, each of which shall be an original, all of which shall constitute but one and the same instrument.

Contractor hereby confirms and certifies that the representations, warranties, and certifications contained in the Retainer Contract remain true and correct as of the Effective Date of this Supplement.

IN WITNESS HEREOF, the Parties have duly executed this Supplement as of the dates indicated below.

, Contractor

The State of Oregon, acting by and through

	the State Board of Higher Education, on behalf of , Owner
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

RETAINER CONTRACT SUPPLEMENT AMENDMENT
OUS RETAINER CONTRACT FOR CONSTRUCTION RELATED SERVICES

Supplement No.:
Amendment No.:
Project Name:

This Amendment dated to the Retainer Contract Supplement is entered into between:

"Contractor":

Federal Tax ID No.

and "Owner": The State of Oregon, acting by and through the State Board of Higher Education, on behalf of:

(collectively the "Parties") pursuant to the Retainer Contract for Construction Related Services between the Parties expiring June 30, 2014 (the "Retainer Contract"). Capitalized terms have the meaning defined in the OUS Retainer General Conditions unless otherwise defined in the Contract Documents.

1. SERVICES: The Work described in the Retainer Contract Supplement is being amended as follows**:** .

2. SCHEDULE. The schedule contained in Section 3 of the Retainer Contract Supplement is hereby replaced in its entirety with the following schedule: .

3. COMPENSATION. Section 4 of the Retainer Contract Supplement, is hereby replaced in its entirety with the following:

"Owner will compensate Contractor for Work ☐ (a) in the firm, fixed-price amount of $; or ☐ (b) on a time and materials basis subject to a maximum not-to-exceed price of $_____; in accordance with the requirements of the OUS Retainer General Conditions. If the Project is done on a time and materials basis, Contractor's listing of wage rates, material unit costs and overhead charges for the Work is attached to this Supplement.

The total cost of Work including the original amount contemplated in the Supplement and the additional amount contemplated in this Amendment, must not exceed the greater of $1,000,000 or the maximum allowable under OAR 580-063-0030."

4. TERM. This Amendment is effective on the date it has been executed by the Parties and all required approvals have been obtained (the "Effective Date"). No Work will be performed or payment made prior to the Effective Date.

5. TAX COMPLIANCE CERTIFICATION. Contractor hereby certifies and affirms, under penalty of perjury as provided in ORS 305.385(6), that, to the best of Contractor's knowledge, Contractor is not in violation of any of the tax laws described in ORS 305.380(4). For purposes of this certification, "tax laws" means a state tax imposed by ORS 320.005 to 320.150 and 403.200 to 403.250, ORS Chapters 118, 314, 316, 317, 318, 321 and 323; the elderly rental assistance program under ORS 310.630 to 310.706; and local taxes administered by the Oregon Department of Revenue under ORS 305.620.

6. EXECUTION AND COUNTERPARTS. This Amendment may be executed in several counterparts, each of which shall be an original, all of which shall constitute but one and the same instrument.

Contractor hereby confirms and certifies that the representations, warranties and certifications contained in the Retainer Contract and the Retainer Contract Supplement remain true and correct as of the Effective Date of this Amendment.

IN WITNESS HEREOF, the Parties have duly executed this Amendment as of the dates indicated below.

, Contractor	The State of Oregon, acting by and through the State Board of Higher Education, on behalf of , Owner
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

PREVAILING WAGE RATES

for

Public Works Contracts in Oregon

OREGON BUREAU OF LABOR AND INDUSTRIES

Brad Avakian
Commissioner
Bureau of Labor and Industries

Effective: January 1, 2014
http://www.oregon.gov/boli/WHD/PWR/Pages/January_2014_Index.aspx
As Amended: April 1, 2014
http://www.oregon.gov/boli/WHD/PWR/docs/April_1_2014_Amendment.pdf

CapCon MWESB Project Contract Report

File Version 4.10.13

Created: September 15, 2011/Updated 4/3/12

Purpose of File:

Each Fiscal year, the OUS campuses are required to report data to the State Legislature on Minority, Women and Emerging Small Business Contractors and Sub-Contractors who provide goods and services. Various statistics are calculated, based on the data input being provided by the contractors. This file is for the collection of the data for each project by contract. Each University will compile statistics associated with all of their contracts during each fiscal year. Once consolidated at the University level, the information is sent to OUS who in turn consolidates all of the information from the seven institutions and reports it to the Legislature.

General Information on how to use the file:

You will fill this form out at least twice for your project. Small projects that do NOT span over the end of a fiscal year (June 30 – July 1) will require two submittals (An Initial and a Final). Any project spanning over the end of a fiscal year will require three submittals (Initial, Year-End and Final). For larger projects that span over multiple fiscal years, the Year-End report will need to be submitted multiple times.

The first Submittal will always be the "Initial" report which is due within 10 days of the execution of the contract or in the case of a CM/GC contract, the establishment of an Early Work Amendment or Guaranteed Maximum Price Amendment.

At the end of every fiscal year, you are required to submit a "Year-End" report.

At the completion of the project you are required to submit a "Final" report.

2) The areas shaded in gray in the OVERALL PROJECT DATA section are for input by the Contractor. The gray portion of the "Individual Contractor/Sub-Contractor Data Entry Matrix" is also an area intended for Contractor input.

3) For some items, a drop-down box is provided. This is to maintain the consistency of data used to sort information.

4) For other items, simply type in the information. If the type of information typed in is incorrect, you will get an error message or your results may look incorrect. For example, when you enter a date, simply type it: 8/17/11. You do not need to spell out the month.

Saving your file:

1) FILE NAMING CONVENTION – All files submitted to the campus shall be named as defined by the following naming convention: (filename = FYXX_ContractNumber_SubmissionStatus)

FYXX = XX refers to the two digit extension of the year. Example "FY12" for Fiscal Year 2012.

Include an underscore between the FYXX and the Contract Number. There should be no blanks in the filename.

ContractNumber = Insert the number that is established on the front of your contract with the campus.

Include an underscore between the Contract Number and the Submission Status. There should be no blanks in the filename.2) SubmissionStatus = "I" for Initial; "Y" for Year end; "F" for Final. This should correspond with what you select at the top of the report as explained in item 1 of "Filling Out the Form" below.

Filling Out the Form:

1) Use the drop-down box adjacent to the REPORT BEING SUBMITTED heading to pick the corresponding report you are submitting for your project. This will establish highlighted headings (in light green) in the "Individual C/S-C Data Entry Matrix" & OPERALL PROJECT DATA sections that define for you which columns or rows should be completely filled out prior to submission.

2) Next, fill in the information in the OVERALL PROJECT DATA section. Again, rows highlighted in green will tell you which cells to fill in based upon the type of report being submitted. Only fill in the cells that are highlighted. The top 5 cells should remain the same for the duration of the reporting on the project. Cell B-11 should also remain unchanged after the initial submittal. Cells B-14 thru B-16 may change over the life of the project if you add additional sub-contractors as the project progresses.

3) Once you have completed the OVERALL PROJECT DATA section, begin entering each sub-contractor in the "Individual C/S-C Data Entry Matrix table. Columns F, J, K & L are drop-down selections in the table area. Just pick the appropriate response for these columns. There are "notes" that pop up as you select cells in the columns that helps explain what information is needed for each column.

4) **IMPORTANT:** Use the tab key to move across the columns. This is necessary in order to avoid generating false information in the cells so that calculations occur appropriately.

5) The first two rows of the Matrix are formatted to receive information. They will be identified in bright red when you make the selection of the type of form you are submitting (Cell B-1). To add another row that is properly formatted (like the rows above it), simply press the tab key when you get to the last column in the row you just filled in.

6) To change information in a cell, simply type over it or press the Delete key on your keyboard. Using other methods to change data can cause unwanted results. For example, copy and paste can add unwanted data. Using the spacebar to delete information actually leaves behind a space—which is a character—which will cause math errors.

7) You must have a State of Oregon Certification Number OR indicate that a contractor is self-identifying as a MWESB. If you have not filled in one of these, then the Name of the Contractor will remain bright red (which is an error symbol).

8) All cells in the CALCULATED REPORTING DATA section are automatically generated formulas and cannot be changed.

9) Columns to be completed are as follows:

Name of MWESB General/ Subcontractor: List each MWESB used on the project (all tiers). If you as the General, are an MWESB contractor, submit your information in the first row.

State of Oregon MWESB Certification Number: This is the number provided when a contractor or subcontractor applies for and receives this certification. Enter this number.

Self-Identified or Other Certified: If a sub-contractor indicates that they are a women, minority or emerging small business, but doesn't have certification, indicate here by identifying with a "Yes" by picking it from the drop-down box.

Initial Sub-Contract Value: This is the value of the subcontract-with the specific contractor listed, not to be confused with the value of the overall construction contract between the Contractor and the Owner. Once this number is entered, it should not change on subsequent submittals of the form.

Sub-Contract value billed within the fiscal year (July 1-June 30): This is the value for work performed during the year being reported. If your reporting requirements span multiple years due to the size of your project, this information may be replaced by new information for subsequent years.

Final Sub-Contract Value: This is the final value of the sub-contract, including any additions or deductions that occur over the course of the project.

MORE THAN ONE OF THE FOLLOWING CATEGORIES CAN BE SELECTED:

Minority-Owned: Certified by the State of Oregon or self-identifying; select Yes from the drop-down if it applies or leave blank if it does not.

Women-Owned: Certified by the State of Oregon or self-identifying; select Yes from the drop-down if it applies or leave blank if it does not.

Emerging Small Business: Certified by the State of Oregon or self-identifying; select Yes from the drop-down if it applies or leave blank if it does not apply.

10) Check your work prior to submitting the document to make sure that all cells in (light green) highlighted rows or columns are completed. If you do not have light green highlights showing up on your document, please return to #1 in this section and follow the directions given. REMEMBER TO SAVE YOUR FILE AGAIN NOW.

Submitting your Form:

Follow the directions as provided by the campus you are contracted with to submit this document. Typically you should be given an E-mail address within your contract transmittal or cover letter for which to submit the file.

Oregon University System

CapCon MWESB Subcontractor Report

REPORT BEING SUBMITTED	

OVERALL PROJECT DATA

Reporting Period	2011
Campus	
General Contractor's Name	
Contract Number	
Project Name	
Contract Execution Date (Date Contract was Signed by the Owner)	
Date of Final Payment Application	
Initial Total Contract Value	
Total Contract Value billed within the fiscal year (July 1 - June 30)	
Final Total Contract Value	
Total Number of Subcontractors Used on Project	
Total Number of First-Tier Subcontractors Used on Project	
Number of First-Tier MWESB Subcontractors	

CALCULATED REPORTING DATA (Self Calculating - No Data Entry)

Number of MWESB Subcontractors	0
% MWESB Subcontractors	
% First-Tier MWESB Subcontractors	

CERTIFIED MWESB TOTALS

Value Awarded to MWESB Contractors	$0.00
% Value Awarded to MWESB Contractors	
Value - **minority-owned** MWESB subcontractors	$0.00
% - **minority-owned** MWESB subcontractors	
Value - **women-owned** MWESB subcontractors	$0.00
% - **women-owned** MWESB subcontractors	
Value - **emerging small business** MWESB subcontractors	$0.00
% - **emerging small business** MWESB subcontractors	

SELF-IDENTIFIED or OTHER CERTIFIED MWESB TOTALS

Value - **self-identified or other certified** subcontractors	$0.00
% - **self-identified or other certified** subcontractors	

OVERALL PROJECT CONTRACT HISTORY

% Value Awarded to MWESB Contractors at Initial Contract	#DIV/0!
% Value Awarded to MWESB Contractors at Final Contract	#DIV/0!

FOR OFFICIAL USE ONLY:

Date Received by the Campus	
Initials of Campus staff who checked the document	

CapCon MWESB Subcontractor Report

Name of MWESB General/ Subcontractor/ Supplier	State of Oregon MWESB Certification Number	Self-Identified or Other Certified	Initial Sub-Contract Value	Sub-Contract value billed within the fiscal year (July 1-June 30)	Final Sub-Contract Value	Minority-Owned	Women-Owned	Emerging Small Business

SECTION 01 10 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

A. Work covered by Contract Documents

B. Contractors Use of Premises

C. Contract method

D. Concurrent Work

E. Site Examination

F. Changes to the Work

G. Potentially Hazardous Products

H. Preparation

I. Material Handling

J. Quality of Work

K. Testing

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Overall Project Description: Riley Hall is an existing off-campus University of Oregon three-story residence hall, with approximately 37,000 square feet. The work covered in the contract documents includes, but is not limited to, all necessary labor and materials to upgrade and extend existing fire protection system to provide a full coverage fire sprinkler system in the facility. Installation will include ceiling and wall cutting and patching, creating numerous structural penetrations, painting, and coordination with owner's fire alarm contractor.

B. Contractor's Duties:
   1. Provide and pay for labor, materials, tools, equipment, superintendence, temporary facilities and services necessary for proper execution and completion of the work.
   2. Comply with building codes, ordinances and regulations of public authorities.
   3. Pick up project permit from City, arrange for required inspections, and provide approved inspection reports to Owner per Section 01 77 00. Owner will pay all plan check, systems development, and general project permit fees. Subcontractors are responsible for submitting and paying for specialty permits.

C. Milestones:
   1. Start Date for Contractor Work on-site: June 30, 2014
   2. Project Substantial Completion Date: August 29, 2014
   3. Final date for on-site work/staging: September 16, 2014

D. Do not commence Work until after execution of the Agreement, and receipt of Notice to Proceed from Owner.

1.03 CONTRACTORS USE OF PREMISES

A. Contractor shall limit use of the premises for work and storage to allow for:
   1. Public access around the facility.
   2. Owner access to the facility.
   3. Security.
   4. Safe entry and exit for vehicles and pedestrians.
B. Coordinate operations with the Owner's Representative during the construction period.
C. Limit Contractor's employee parking to locations designated at the Pre-construction Conference.
D. Site visits for the purpose of dimensional verification and coordination will be allowed before the on-site Work start date but must be coordinated with the Owner's Representative.
E. Building main service shutdowns are to be coordinated with the Owner 72 hours in advance. Coordinate duration and scheduling of the shutdown with the Owner's Representative.
F. Contractor shall coordinate access to premises with Owner's Representative for execution of the work. Emergency situations may cause the temporary suspension of the work.
G. Confine operations at site to areas permitted by Owner's Representative.
H. Do not unreasonably encumber Site with materials or equipment. Contractor shall move any stored products, under Contractor's control, which interfere with operations of Building.
I. Do not load structure with weight that will endanger structure.
J. Assume full responsibility for protection and safekeeping of products and equipment stored on premises.
K. Obtain and pay for use of additional storage or work areas required for operations.

1.04 CONTRACT METHOD

A. Work will be constructed under a single retainer supplement.

1.05 CONCURRENT WORK

A. Fire Alarm Modifications:
   1. Existing fire alarm system annunciation improvements will take place concurrently with fire sprinkler work under this project.
   2. Coordinate use of space with contractor(s) performing alarm system components and wiring installation throughout facility.

1.06 SITE EXAMINATION

A. Data in these Specifications and on the Drawings are as accurate as possible, but are not guaranteed. Bidders are encouraged to visit the site, familiarize themselves with all existing conditions and be prepared to carry out the work within the existing limitations. The Contractor shall verify locations, levels, distances, conditions of finishes, and features related to the improvements that may affect the work. No allowances will be made in the Contractor's behalf for any extra expense resulting from failure or neglect in determining the conditions under which work is to be performed.

1.07 CHANGES TO THE WORK

A. Changes to the work may be initiated by Engineer, Owner, or Contractor. Contractor is not to proceed with any changes to the work until request has been made in writing. Changes shall be made in accordance with Section 01 26 00 Contract Clarification and Modification Procedures.

1.08 POTENTIALLY HAZARDOUS PRODUCTS

A. The Owner attempts to maintain a safe and healthy environment for students and staff. The Contractor is therefore required to follow Owner guidelines controlling the use of potentially hazardous products and to use these products in a safe manner.
B. MSDS information is required for all potentially hazardous products. The Owner's Project Manager will review these and determine what, if any, mitigation procedures will be required.
C. Contractor is to maintain and post copies of all MSDS information at the project site and adhere to the required controls.
D. Contractor is to ensure that work area by students and teachers is restricted. The Owner will provide signage appropriate for this purpose. The Contractor is to construct and maintain appropriate barriers.

1.09 PREPARATION

A. Inspect existing conditions, project requirements and the Contract Documents. Verify that materials and equipment being furnished meet requirements specified.

1.10 MATERIAL HANDLING

A. If, in the opinion of the Contractor, lifting devices are necessary for the proper and efficient movement of materials, comply with these requirements;
   1. Use only experienced personnel.
   2. Remove equipment as soon as possible after task is ended.

1.11 QUALITY OF WORK

A. Unless otherwise specified, perform the Work using workers skilled in the particular type of work involved.
B. Should the Owner, in writing, deem anyone on the Work incompetent or unfit for the assigned duties, dismiss the worker immediately or reassign the worker to a different task requiring a lesser degree of competence.
C. Work shall be first class in every respect and Work performed shall be according to the best trade practices.
D. The Contractor shall maintain effective supervision on the project during any time Work is being performed. The Superintendent shall be the same person throughout the project and shall attend the Pre-construction Conference.

1.12 TESTING

A. The Owner reserves the right to perform any testing as may be required to determine compliance with the Project Manual. Costs for such testing will be the Owner's responsibility unless testing indicates noncompliance. Cost for such testing indicating noncompliance shall be borne by the Contractor. Non-complying Work shall be corrected and testing will be repeated until the Work complies with the Project Manual. Contractor will pay costs for retesting non-complying Work.
B. The Contractor shall cooperate in every respect with the activities of the testing agency.

2.01 **PART 2 - PRODUCTS**

A. THIS PART NOT USED

3.01 **PART 3 - EXECUTION**

A. THIS PART NOT USED

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Requirements and procedures associated with product substitutions after bid date.

1.02 ALLOWANCE OF SUBSTITUTIONS

A. After effective date of Agreement, the Engineer in consultation with the Owner may, at its option, consider formal requests from the Contractor for substitution of products in place of those specified when submitted in accordance with the requirements of this section. One or more of the following conditions must also be documented:
   1. The substitution must be required for compliance with final interpretation of code requirements or insurance regulations.
   2. The substitution must be due to the unavailability of the specified product(s), through no fault of the Contractor.
   3. The substitution may be requested when specified products cannot be obtained in time to avoid delay of completion of all work due to no fault of the Contractor, and then only if a request is submitted within 30 days of the start of Contract Time.
   4. The substitution may be requested when subsequent information discloses the inability of the specified product(s) to perform properly or to fit in the designated space.
   5. The substitution may be due to the manufacturer's or fabricator's refusal to certify or guarantee performance of the specified product as required.
   6. The substitution may be requested when it is clearly seen, in the judgment of the Owner, that a substitution would be substantially to the Owner's best interest in terms of cost, time or other considerations.

1.03 SUBSTITUTION REQUESTS

A. Prepare one (1) request for each substitution item proposed for consideration. Requests will not be accepted from anyone other than Contractor.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Minimum information to be all manufacturers product data as defined in Section 01 33 00, paragraph 1.04C, or same information provided as submittal requirements of like products if it exceeds minimum. All variations of the proposed substitute and other related work from that specified will be identified in the request and available maintenance, repair and replacement service will be indicated. Engineer may require Contractor to furnish, at Contractor's expense, additional data about the proposed substitute.

C. Request constitutes a representation that Contractor:
   1. Has investigated proposed product and determined that it meets or exceeds, in all respects, the specified product quality and will perform the functions and achieve the results called for by the design.
   2. Shall provide the same warranty for substitutions as for specified product.
   3. Shall coordinate installation and make all other changes which may be required for work to be complete in all respects, including changes required by suppliers, subcontractors, and others providing related work.
   4. Shall complete the work within the Contract time.

D. Each request will contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by Engineer in evaluating the proposed substitute.

E. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals without separate written request.

1.04 APPROVAL OF SUBSTITUTION REQUEST

A. Within seven (7) days of receiving a complete substitution request, Engineer in consultation with Owner will evaluate the request and notify the Contractor of its acceptance or not.

B. Engineer after consultation with Owner shall be the sole judge of acceptability and decision of Engineer shall be final.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 26 00

CONTRACT CLARIFICATION AND MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Requests for Information

B. Proposals for changes in work

C. Field Orders

D. Change Orders

E. Construction Change Directives

1.02 DEFINITIONS

A. Requests for Information (RFIs): Contractor request for interpretations of the Contract Documents.

B. Field Order: Written order, instruction, or project manual interpretation issued by Engineer to Contractor which authorizes minor changes to Work which do not alter Contract Sum or Contract Time.

C. Change Order: As defined in the General Conditions and signed by Owner, Contractor, and Engineer.

D. Construction Change Directive: Written order to Contractor signed by Owner, Contractor, and Engineer which authorizes changes in the Work which affect the Contract Sum or Contract Time. A Construction Change Directive will be issued involving changes in the Work which, if not processed quickly, might delay the project. A Construction Change Directive will be followed by a Change Order.

1.03 REQUESTS FOR INFORMATION

A. All questions requiring a clarification of the contract drawings or specifications shall be provided by e-mail or in writing to the Engineer from the Contractor in the form of a Request for Information (RFI). All other verbal communication or correspondence regarding contract drawings or specifications shall not be considered binding.

B. Engineer will respond within five (5) days of receipt of the RFI.

C. Format:
1. RFI may be delivered either as hard copy or by e-mail.
2. RFI provided in Contractor format but will include as a minimum.
   a. Name of Company
   b. Name of Project
   c. Name of person initiating the RFI
   d. RFI number
   e. Date Issued
   f. Detailed question that references specific drawing or specification section in question.

g. Contractor's recommended solution if appropriate
h. Space for the Engineer to respond
i. Potential Impact on Project Sum
j. Potential Impact on Project Time

1.04 PROPOSALS FOR CHANGE IN WORK

A. Proposals for changes to the Work may be initiated by the Owner or Engineer or by the Contractor. The proposals will result in a Field Order or Change Order if a Change in Work is found to be necessary. Proposals are for information only and are not an instruction or authorization to execute the change or an order to stop work in progress.

B. Owner or Engineer Initiated Proposals: Contractor shall provide sufficient substantiating data to allow the Engineer to evaluate the proposal including the following:
1. Cost data for new work including:
   a. Labor required
   b. Materials required
   c. Taxes, insurance, and bonds
   d. Overhead and profit
2. Cost data for work to be deleted including:
   a. Labor required
   b. Materials required
   c. Taxes, insurance, and bonds
   d. Overhead and profit
3. Changes to contract time:
   a. New project staging requirements.
   b. New product delivery times
4. All other justifying documentation considered necessary by Engineer to allow adequate evaluation of proposal.

C. Contractor Initiated Proposals: In addition to proposal requirements listed in 01 26 00-1.04B, provide the following information:
1. Description of proposal change
2. Reason for making change
3. Effect on work of other Contractors
4. Effect on work by Owner
5. Effect on construction phasing

1.05 FIELD ORDER

A. If evaluation of a proposal indicates that a Construction Change is appropriate but does not affect Contract Sum or Contract Time, Engineer will issue a Field Order. The Contractor shall distribute a copy of the Field Order to the appropriate sub-contractors and shall coordinate all associated work.

B. Format: Field Orders will be issued on form provided by Engineer.

1.06 CHANGE ORDERS

A. Format: Change Orders will be issued on form provided by Engineer.

B. A change orders will be issued if:
1. Evaluation of a proposal indicates that a Construction Change is appropriate and that the change affects the Contract Sum or Contract Time.

2. Work has been completed under a Construction Change Directive (CCD) or Directives. Where multiple Directives have been issued, a single Change Order may be issued to account for all work provided.

C. Four copies of the Change Order will be prepared by the Engineer and forwarded to the Contractor.

D. An authorized representative of the Contractor will sign each copy and return all copies to the Engineer.

E. The Engineer will review and sign each copy and forward all copies to the Owner.

F. An authorized representative of the Owner will sign each copy and return two copies to the Engineer.

G. The Engineer will return one copy to the Contractor.

1.07 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directives (CCDs) will be issued on form provided by Engineer.

B. If a Construction Change is identified which must be processed quickly to avoid delay of the project, a Construction Change Directive may be issued.

C. The Construction Change Directive will include:
1. The method of determining the Change in Contract Sum.
2. An estimated increase (decrease) in Contract Sum.
3. The method of determining the Change in Contract Time.
4. An estimated increase (decrease) in Contract Time.

D. The Construction Change Directive will be signed by the Owner and will serve as authorization to proceed with the described change in work.

E. If the change in work involves an increase in Contract Sum and the estimated increase is approached before the additional or changed work is complete, the Contractor must stop work associated with the change until an additional Construction Change Directive or Change Order is issued.

F. Simultaneously to completing work under a Construction Change Directive, the Contractor shall prepare a proposal as previously described detailing the exact change in Contract Sum and Contract Time associated with the work in question. The proposal will be reviewed by the Engineer and Owner, and a Change Order will be issued if the changes in Contract Sum and Contract Time are agreeable.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 CHANGES TO WORK

A. Contractor shall not begin any work not expressly shown or described in the Contract Documents without a written Field Order, Change Order, or Construction Change Directive.

END OF SECTION

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

A. General Conditions

B. Supplementary Conditions

1.02 FORMAT

A. AIA G702 - Application and Certificate for Payment.

B. AIA G703 - Continuation Sheet.

C. Payment request is to include the Contractor's Federal Tax Identification number.

1.03 PREPARATION OF APPLICATIONS

A. Type required information or use media-driven printout.

B. Execute certification by signature of authorized officer and notarize.

C. Use data on accepted Schedule of Values. Provide dollar value in each column for each line item for materials installed. Application for payment for stored materials will be accepted at Owner’s sole discretion subject to conditions stated in General Conditions.

D. List each approved Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.

E. Prepare Application for Final Payment as specified in Section 01 77 00.

1.04 SUBMITTAL PROCEDURES

A. Submit to Engineer under transmittal letter.

B. Submit original plus two copies of each Application for Payment at time stipulated in pre-construction conference.

C. Submit with two copies of updated progress schedule; no payment will be certified without submission of updated schedules.

1.05 SUBSTANTIATING DATA

A. When Engineer requires substantiating information, submit data justifying line item amounts in question.

B. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 31 13

PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Coordination of the Contract

B. Coordination of the work under this Contract.

C. Coordination of the work and division of responsibility of each subcontractor under this Contract.

1.02 DESCRIPTION

A. Coordinate scheduling, submittals, and work of the various sections of specifications to assure efficient and orderly sequence of installation of construction elements with provisions for accommodating items to be installed later.

B. Coordinate and assign responsibility for completing various parts of the work to the appropriate subcontractor.

1.03 COORDINATION OF SUBMITTALS

A. Schedule and coordinate submittals specified in Section 01 33 00. Contractor fully responsible for providing all submittals within time periods allotted.

B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

C. Coordinate request for substitutions to assure compatibility of space of operating elements and affect on work of other sections.

1.04 COORDINATION AND ASSIGNMENT OF RESPONSIBILITY TO SUBCONTRACTORS

A. Work under this Contract, including furnishing all equipment and materials and their proper installation, is specified under various sections in Divisions 1 through 28. Divisions are, in general, divided by trade. It is not the intent of these Specifications to imply that work specified under a particular Division must be performed by the trade normally associated with that Division.

B. The contractor shall assign responsibility for furnishing and for installing various material and equipment as specified herein to the appropriate subcontractors and trades, and shall determine the division of responsibility when there is interdependent work. This includes, but is not limited to, such items as:
   1. Furnishing and installing conduit for control wiring to equipment.
   2. Furnishing and installing power wiring to equipment.
   3. Cutting and patching for various subcontractors.

C. Contractor shall assume full responsibility for settling any disputes or conflicts concerning interdependent work or work that is looked upon as belonging to more than one trade.

D. Prepare master schedule to record responsibilities under each section of Divisions 1 through 28 of this specification for actions which directly relate to mechanical and electrical work, including submittals and temporary utilities. Coordinate electrical power characteristics and control wiring requirements for each item of equipment and review such characteristics and requirements with both the mechanical and electrical subcontractors prior to ordering any equipment.

E. Distribute copies of schedule to engineer and to each concerned entity, subcontractor or trade.

1.05 COORDINATION OF EQUIPMENT SHUTDOWN WITH OWNER

A. Coordinate existing system or equipment shut-down with Owner's schedule, use, input. See Specification Section 01 35 00.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Pre-Construction Conference

B. Project Progress Meetings

C. Related:
1. Documents affecting work of this Section include, but are not necessarily limited to General Conditions, Supplementary General Conditions, and Sections in Division 1 of these specifications.
2. Some of the items mentioned in this Section are described further in other pertinent Sections of these specifications.

1.02 PRE-CONSTRUCTION CONFERENCE

A. Schedule Pre-Construction Conference within seven (7) days after "notice to proceed." Representatives of the Owner, Engineer, and Contractor shall be in attendance.

B. Minimum Agenda:
1. List of subcontractors
2. Distribution of Contract Documents
3. Tentative construction schedule
4. Coordination of Contractor and subcontractors
5. Designation of responsible personnel
6. Critical work sequencing
7. Processing of observation reports, change orders, and applications for payment.
8. Submittals.
9. Use of construction site
10. Coordination with work of others
11. Delivery and storage
12. Safety and emergency procedures
13. Security procedures; keys
14. Parking requirements
15. Hazardous materials

C. Location of meeting to be at the site or at a location determined by the Owner’s Authorized Representative.

1.03 PROJECT PROGRESS MEETINGS

A. Project progress meetings will be held at site approximately once a week or as otherwise directed by the Owner’s Authorized Representative during period of construction.

B. Representatives of Owner, Engineer, Contractor, and major subcontractors shall attend.

C. Contractor shall prepare meeting agenda, related to the Installation Contract, preside at meeting, prepare minutes of meeting and shall distribute copies of minutes within 3 days to Owner’s Authorized Representative, Engineer, meeting participants, and other affected parties.

D. Minimum Agenda:

1. Review and approve previous meeting minutes.
2. Review work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which impede construction schedule.
5. Review off-site fabrication and delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to Construction Schedule.
8. Progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules.
11. Pending changes and substitutions.
12. Review proposed changes for effect on Construction Schedule and on completion date.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project schedule

B. Schedule of values

C. Product evaluation data

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 PROCEDURES

A. Deliver submittals to Engineer at address listed on title sheet of project manual. Transmit each item by cover letter or with approved transmittal form referencing the project, the Owner, and the Contractor.

B. Engineer will require 10 days for review of submittal documents.

C. Revise and resubmit. Resubmittals shall be complete substitutions of original submittals unless specifically noted otherwise.

D. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

E. Submittal information required in Section 01 33 00 - 1.04 below must be provided regardless of whether the proposed item or work is in exact accordance with the specification requirements.

F. No item requiring approved submittal information shall be delivered to the site or installed, or any associated work performed until required submittals have been approved for compliance with the Contract Documents by the Engineer. Any item delivered to the site or installed, or any work performed without an approved submittal, which is deficient in any way, shall be removed from the site without expense to the Owner.

1.04 SUBMITTALS REQUIRED

A. Project Schedule:
1. A progress schedule for the proposed work, as outlined in the General Conditions and specified hereunder, shall be prepared and submitted for review.
2. Coordination: Contractor shall meet with Owner's representatives prior to preparing schedule to ascertain specific Owner scheduling requirements.
3. Submit three (3) copies of completed schedule for review. Upon Engineer's signed approval work may commence.
4. Format: Horizontal bar chart or CPM format at Contractor's option.
   a. Provide a separate time bar for work in each building in the contract. Provide a continuous vertical line to identify the beginning work day of each week.
   b. Within each time bar, indicate estimated completion percent increments.
   c. Coordinate construction schedule with the schedule of values, list of subcontractors, submittal schedule, payment requests, and other schedules.
   d. Indicate Substantial Completion date.
5. Schedule shall be continually updated. Submit revised schedule with each application for payment.

B. Schedule of Values:
1. A schedule of values for the proposed work, as outlined in the General Conditions and specified hereunder, shall be prepared and submitted for review.
2. Submit three (3) copies of schedule of values for review.
3. Prepare schedule of values using AIA form G703, columns A, B and C.
4. Applications for payment will not be accepted until the schedule of values has been approved by signature of Engineer.

C. Product Evaluation Data and Shop Drawings
1. Submit product evaluation data within 30 days of contract execution. Multiple submission or submission other than in one complete assembled document is not acceptable except where prior written approval is obtained. Where approval is obtained allowing the Contractor to submit after 30 days, a list of data remaining to be submitted and a date of submittal for each item shall be provided to the Engineer.
2. Manufacturer's product data shall be submitted as follows:

a. Submittal format: Electronic and hard-copy. Provide electronic submittals of submittal information to the Engineer. A minimum of one hard-copy of the information must be submitted as well. The hard-copy will not be returned.
   i. Electronic submittal package formatted as follows:
      (i) Provide full extent of submitted data in a single electronic file on a CD-ROM or via FTP transfer.
      (ii) File format: Adobe PDF, or universal equivalent.
      (iii) Scanned information: Minimum 400 dpi.
      (iv) Provide index referencing specification sections.
      (v) Bookmark individual sections.
b. Submittals for manufacturer's product data shall be in sufficient detail to establish conformance with specified requirements.
c. Minimum scale for shop drawings shall be 1/4" = 1'0" or larger if required for clarity.

4. Samples shall be submitted as follows:
   a. Submit two samples unless otherwise specified in individual specification sections.
   b. Include identification on each sample.
5. Certificates, test data, or other information shall be submitted as detailed in individual specification sections.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 35 00

SPECIAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Protection of work

B. Security

C. Furnishings to remain in work area.

1.02 PROTECTION OF WORK

A. Protect from damage any existing finishes, equipment, and adjacent work which is scheduled to remain.

1.03 SECURITY

A. The Contractor shall take all reasonable precautions to maintain building and site security during construction. The Contractor shall be responsible for all loss or damage from theft or vandalism resulting from inadequate security.

1.04 FURNISHINGS TO REMAIN IN WORK AREA

A. Owner will move staff, equipment, and materials to temporary location to facilitate the work as specified in Section 01 10 00 - SUMMARY OF WORK. Items of equipment, furnishings, and material not required for use by the Owner will remain at their present locations. Contractor shall take all precautions to protect Owner equipment, furnishings, and other materials left in work space from damage. Contractor is responsible for all damage to Owner equipment, furnishings, and materials resulting from work.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Testing and Inspection Services

1.02 REFERENCE STANDARDS

A. ASTM C 1077 – Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation: 2009.

B. ASME E 329 – Standard Specification for Agencies Engaged in Construction Inspection and/or Testing: 2009.

C. ASTM E 543 – Standard Specification for Agencies Performing Nondestructive Testing: 2009.

1.03 SUBMITTALS

A. Submittals are for Engineer's information as Contract Administrator for the limited purpose of assessing conformance with the contract documents, or for Owner's information.

B. Test Reports: After each test/inspection, promptly submit two copies of report to Engineer and to Contractor.
   1. Include:
      a. Date issued
      b. Project information including project title and Engineers job number.
      c. Name of inspector
      d. Date and time of sampling or inspection
      e. Identification of product and related specification section
      f. Location in project
      g. Type, date, and results of test/inspection
      h. Conformance with contract documents
      i. Interpretation of results when requested by Engineer

1.04 TESTING AND INSPECTING AGENCIES

A. Owner will employ and pay for services of an independent agency to provide specified testing and inspection services.

B. Employment of an independent agency does not relieve Contractor of obligation to perform work in strict accordance with Contract Documents.

C. Contractor shall perform all work in accordance with reference standards noted in paragraph 1.02.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 EXECUTION OF TESTING AND INSPECTION SERVICES

A. See individual specifications for testing and inspection services required.

B. Comply with the Oregon Structural Specialty Code for products and systems used.

C. Testing Agency Duties
1. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Verify compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
5. Perform additional tests and inspections required by Engineer.
6. Submit reports of all tests/inspections specified.

D. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of the Contractor.
4. Agency has no authority to stop the work.

E. Contractor Responsibilities
1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturer's facility when required.
3. Provide incidental labor and facilities:
   a. To provide access to Work to be tested/inspected.
   b. To obtain and handle samples at the site or at source of products to be tested/inspected.
   c. To facilitate testing/inspection
   d. To provide storage and curing of test samples.
4. Repair test holes to match original conditions.
5. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
6. Employ services of an independent qualified testing laboratory or arrange with Owner's agency for additional samples, tests, and inspections beyond those required by Contract Documents, and pay for such services.

F. Retesting: At the direction of the Engineer, retesting required because of non-conformance with Contract Documents will be provided by the same testing agency and will be paid for by the Contractor. Payment will be charged to the Contractor by deducting testing charges from the Contract Price.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Staging Areas and Materials Storage

B. Electricity, Lighting

C. Water

D. Sanitary Facilities

E. Barriers

F. Cleaning during Construction

G. Parking

H. Field Offices and Sheds

I. Removal

1.02 STAGING AREAS AND MATERIALS STORAGE

A. Areas for staging and material storage as designated by Owner.

1.03 ELECTRICITY, LIGHTING

A. Connect to existing service, provide branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords. Owner will pay costs of energy used.

B. Provide lighting for construction operations.

1.04 WATER

A. Connect to existing facilities; extend branch piping with outlets located so that water is available by use of hoses. Owner will pay for water used.

1.05 SANITARY FACILITIES

A. Designated existing facilities may be used during construction operations; maintain in sanitary condition.

1.06 BARRIERS

A. Provide as required to prevent public entry to construction areas, to provide for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades as required by governing authorities for public rights-of-way and for public access to existing building.

1.07 CLEANING DURING CONSTRUCTION

A. Control accumulation of waste materials and rubbish; periodically dispose of off-site. Contractor shall provide trash receptacles and pay for servicing.

B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.08 PARKING

A. On site vehicle parking limited to those areas designated by Owner.

1.09 FIELD OFFICES AND SHEDS

A. Contractor and subcontractors provide portable field offices at site or within the building for their own use and as necessary for performance of the work.

B. Provide sheds as necessary for storage of tools, materials, and equipment.

C. Location of exterior field buildings or interior office spaces to be designated by Owner.

1.10 REMOVAL

A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of two feet; grade site as indicated. Restore existing facilities used during construction to specified or to original condition.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Products

B. Workmanship

C. Transportation and Handling

D. Manufacturer's Instructions

E. Storage and Protection

1.02 PRODUCTS

A. Products include material, equipment, and systems.

B. Comply with specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.

D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.03 WORKMANSHIP

A. Contractor shall perform all work in accordance with contract documents manufacturer's instructions, codes, and recognized industry standards. Work determined to be of inferior quality by Owner's representative shall be replaced at no expense to Owner.

1.04 TRANSPORTATION AND HANDLING

A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.05 MANUFACTURER'S INSTRUCTIONS

A. Perform work in accordance with Manufacturer's instructions.

B. Do not omit preparatory or installation procedures required by Manufacturer, unless specifically modified or exempted by Contract Documents.

C. When Contract Documents require work to comply with Manufacturer's instructions, obtain and distribute such instructions to parties performing work including two copies to Engineer. Maintain one set at job site during installation and until acceptance.

D. Handle, install, connect, clean, condition, and adjust products in strict accordance with such instructions and in conformance with specified requirements.

E. Should job conditions or specified requirements conflict with Manufacturer's instructions, notify Engineer immediately. Do not proceed with work without clear instructions.

1.06 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

E. After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 61 50

DELEGATED DESIGN REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. For certain components of the Work of the Contract the Contractor is required to provide engineering design and obtain necessary approval of regulatory agencies. The Contractor shall be responsible for the design, calculations, submittals, permits, fabrication, transportation and installation of these Delegated Design components. The Contractor is responsible to submit all Delegated Design documents required for approvals by regulatory agencies for each item of delegated design work.

B. The Engineer's review of Submittals: For design intent and shall neither lessen nor shift the responsibility from the Contractor or their subcontractor, to the Owner [or the Engineer]. The Owner shall not be responsible to pay for any delays, additional products, additional hours of work or overtime, restocking or rework required due to failure by the Contractor or subcontractor to coordinate their work with the work of other trades on the Project.

C. Follow the requirements of the Authority Having Jurisdiction over the Work current at the time of submission. The Contractor is responsible to coordinate and submit all material required by the AHJ so review and process of submittals and permits will not adversely affect the construction schedule. Each Delegated Design item requiring review by the AHJ must be provided by the Contractor and all fees and costs associated therewith shall be the Contractor's responsibility at no additional cost to the Owner.

D. Components of the Work to which delegated design requirements apply: As required in individual technical Sections of the specifications.

1.02 DEFINITIONS

A. Applicant: The Contractor or the designated subcontractor. Delegation of design work by the Contractor shall not relieve the Contractor of final responsibility for compliance of the Work with the Contract.

B. Delegated Design Work: Design services and certifications provided by a Professional Engineer registered as such in the State where the Project is located related to systems, materials or equipment required for the Work to satisfy design and performance criteria established by the Contract Documents. Delegated Design does not include professional services the Contractor needs to fulfill their responsibilities under the Contract including but not limited to construction means, methods and sequence.

C. Seal: Certification that builder design plans, computations and specifications were designed and prepared under the direct supervision of the Architect or Engineer whose name appears thereon.

D. Approval Stamp: Certification obtained by the Contractor that the Building Official has reviewed a submittal, and finds it acceptable with respect to applicable regulatory requirements.

1.03 DESIGN REQUIREMENTS

A. The Contract Documents indicate the general configuration and the appearance required for the completed work. Details of many, but not all conditions are shown; final resolution of details shall be the responsibility of the Contractor such that the completed installation is durable and complies with the design and performance requirements. Deviations from assembly details indicated shall not alter the appearance of the completed work as determined by the Engineer. Complete design of a given assembly including but not limited to modifications to standard components shall be considered within the scope required by the Contract and shall not be used as a basis for Claims or modifications to the Contract.

B. Components and assemblies included in the Delegated Design work that are subject to imposed loads due to gravity, seismic event, wind, or thermal differential shall be engineered by the Contractor to accommodate and resolve each load condition with damage occurring neither to the assembly nor any abutting or adjacent assemblies. Delegated Design work shall conform to the requirements of Code and directives of Authorities Having jurisdiction (AHJ) over the Work.

1. Differential Movement, Expansion, and Contraction: Accommodated to provide optimal performance prevent stress and deformation of components due thermal differentials.

1.04 SUBMITTALS

A. Document compliance with design and performance requirements. Provide calculations, details, fabrication and assembly information, and demonstrate coordination with supporting work and other components to be integrated into Delegated Design Assemblies. Submittals required to be prepared under the control of the Delegated Design Engineer shall bear their professional stamp and signature.

B. Submittals not stamped and signed by the Delegated Design Engineer, incomplete submittals, and submittals that have not been reviewed by the Contractor will not be reviewed by the Engineer.

C. Delegated Design Summary Sheet: List entities to whom the Contractor has delegated responsibility for the work and the registered engineer's name and contact information.

D. Delegated Design Documents: Prepared under the direct supervision and control of the Delegated Design Engineer for the subject work, who shall stamp and sign drawings, calculations and other documentation as required. Provide all documentation necessary for complete and concise documentation for the Delegated Design work. Show all members, dimensions, connections, materials used. Indicate how the component or assembly is attached to the main structure, reactions associated with those connections.

1.05 QUALITY ASSURANCE

A. Delegated Design Submittals: Approved by Regulatory Authorities and the Owner/Engineer prior to starting fabrication of the work regardless of whether a building permit has been previously issued.

B. Except for field quality assurance testing specified to be performed by the Owner, provide laboratory and field tests to establish performance characteristics of Delegated Design work at no additional Cost to the Owner.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 SCHEDULE

A. The following Sections contain requirements for Delegated Design components.
   1. Section 21 13 13 Wet Pipe Suppression System

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of work.

B. Structural Beam Penetrations

1.02 COORDINATION OF WORK

A. See Section 01 10 00 - SUMMARY OF WORK.

B. It is the responsibility of the Contractor to provide cutting and patching to allow the installation of materials and equipment as specified under Divisions 1 through 28 or to assign the responsibility for cutting and patching to the appropriate trade or subcontractor.

C. Areas to be patched as a result of demolition work are shown on Drawings. Additional patching may be required. It is the Contractor's responsibility to coordinate with all trades to ensure that all repair and refinishing work necessary for the completion of the project is accomplished.

1.03 DESCRIPTION

A. Execute cutting, fitting, and patching to complete work and to:
1. Provide openings in structural and non-structural elements for penetrations of mechanical and electrical work.
2. Provide openings in exterior walls for equipment installation.
3. Fit the several parts together, to integrate with other work.
4. Uncover work to install ill-timed work.
5. Remove and replace defective and non-conforming work.
6. Remove samples of installed work for testing where requested.

1.04 STRUCTURAL FLOOR AND BEAM PENETRATIONS

A. Coordinate required beam penetration locations for installing fire sprinkler system, as shown on Drawings, prior to drilling operations.

B. Utilize x-ray equipment for locating existing steel reinforcement inside structural beams and floors at each penetration location.

1.05 SUBMITTALS

A. Submit written request in advance of cutting or alteration which affects:
1. Structural integrity of any element of the 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. Include in request:
   a. Necessity for cutting or alteration.
   b. Description of proposed work and products to be used.
   c. Alternates to cutting and patching.
   d. Date and time work will be executed.

B. Structural Floor and Beam Penetration Shop Drawings:
   1. Prepare Shop Drawings and submit to Engineer for review. Shop Drawings must include the following information:
      a. Structural beam penetration locations
      b. Pipe size at each location
      c. Hole sizes
      d. Existing beam size, or floor thickness
   2. Do not begin construction of structural penetrations before approved submittal is returned.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Match those provided in original installation. 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

3.01 INSPECTION

A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

B. After uncovering, inspect conditions affecting performance of work.

C. Beginning of cutting or patching means acceptance of existing conditions by contractor.

3.02 PREPARATION

A. Provide supports to assure structural integrity of surroundings; devices and methods to protect other portions of project from damage.

B. Provide protection from elements for areas which may be exposed by work; maintain excavations free of water.

3.03 PERFORMANCE

A. Cut openings, pockets, and chases neatly. Use carborundum saws or approved means or devices. Saw cut pavement with vertical straightline joints. Locate cuts at existing joint, reveal, or other pattern mark.

B. Execute work by methods to avoid damage to other new or existing work, and which will provide proper surfaces to receive patching and finishing.

C. Fit work airtight in interior walls, watertight in exterior walls, to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

D. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection or previous joint; for an assembly, refinish entire unit.

E. Repaint surfaces to match existing surfaces to nearest break.

F. Patch openings left in floors, walls, or ceilings from pipe or conduit removed to match existing walls or floors.

3.04 ADJUSTMENTS

A. Where partitions or foundations are removed, patch floors, walls, and ceilings with finish materials to match existing.
   1. Where removal of partitions results in adjacent spaces becoming one, rework floors and ceilings to provide smooth lanes without breaks, steps, or bulkheads.
   2. Where extreme change of grade of 2-inches or more in 8 feet occurs, request instructions from Engineer as to method of making transition.

3.05 TRANSITION FROM EXISTING TO NEW WORK

A. When new work abuts or finishes flush with existing work, make a smooth and workmanlike transition. Patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.
   1. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface per Owner's approval.

3.06 CLEANING

A. Perform final cleaning as specified in Section 01 74 23.
   1. Maintain all areas including contract occupied areas in a clean, hazard free condition.
   2. Clean spillage, overspray, and heavy collection of dust in Owner occupied areas immediately.

B. At completion of work of each trade, clean area and make surfaces ready for work of successive trades.

C. At completion of alterations work in each area, provide final cleaning and return space to a condition suitable for use.

END OF SECTION

SECTION 01 74 23

FINAL CLEANING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Final cleaning of project

1.02 DESCRIPTION

A. Perform exterior and site cleaning. Provide final cleaning of interior areas. All to be accomplished prior to Substantial Completion of the work.

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS

A. Use materials which will not create hazards to health or property, and which will not damage surfaces.

B. Use only materials and methods recommended by manufacturer of materials being cleaned.

PART 3 - EXECUTION

3.01 CLEANING

A. In addition to removal of debris and cleaning specified in other sections, clean interior and exterior exposed-to-view surfaces.

B. Remove temporary protection and labels not required to remain.

C. Clean finishes free of dust, stains, films, and other foreign substances.

D. Clean and damp mop, resilient and hard-surface floor as specified.

E. Vacuum clean carpeted and similar soft surfaces.

F. Clean surfaces of equipment; remove excess lubrication.

G. Clean plumbing fixtures to a sanitary condition.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDED

A. Closeout Procedures

1.02 DEFINITIONS

A. Substantial Completion: In addition to the definitions of Substantial Completion included in the General Conditions, Substantial Completion is further defined to include system approval by Fire Marshall and FM Global representative, operator training, and receipt of draft operations and maintenance manuals.

1.03 CLOSEOUT PROCEDURES

A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.

B. When Contractor considers work has reached final completion, submit written certification of the following items:
1. Contract Documents have been reviewed.
2. Work has been inspected by Contractor for compliance with Contract Documents.
3. Work is complete in accordance with Contract Documents and is ready for inspection.
4. Each system has been tested and verified operational.

C. In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted contract sum, previous payments, and sum remaining due.

D. Owner will issue a final change order reflecting approved adjustments to Contract sum not previously made by change order.

E. Contractor will deliver the items listed below to the Owner and obtain receipts for same.
1. Extra paint: See Sections 099113 and 099123.
2. Extra sprinkler heads: See Section 21 13 13.

1.04 RE-INSPECTION OF WORK

A. If re-inspection for Substantial Completion or Final Completion is required, the cost to Owner of all Engineers' re-inspection services will be deducted from the Contract Sum.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Compilation of product data and related information required for maintenance of products.

B. Preparation of operation and maintenance data and instructions for systems and equipment.

C. Submittal of operation and maintenance data.

1.02 SUBMITTALS

A. Submit two draft hard copies, and matching electronic pdf of project operating and maintenance manuals furnished under the Contract to the Engineer prior to payment request for more than 75% of the work. Electronic file may be conveyed on thumb drive, FTP site, or CD-Rom.

B. Hard Copy Format:
1. Bind manuals in 3-inch, three-ring, high quality vinyl covered binders, clearly indexed and provided with thumb tabs for each item or product.
2. Index tabs shall match submittal schedule and include any additional information required for operations and maintenance, whether in submitted schedule or not.

C. Electronic Format: Provide index referencing specification sections.
1. File format: Adobe or universally equivalent PDF.
2. Scanned information: Minimum 200 dpi.
3. Provide index and bookmarks referencing specification sections.
4. Provide sub level bookmarks for individual products.

D. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Engineer, Sub-consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

E. Manuals shall contain all project submittals, including products, and training.
1. For each item of mechanical, electrical, or other operating equipment, including:
   a. Schematic diagrams of all control systems.
   b. Circuit directories for each electrical and communications panelboard.
   c. Manufacturer's instructions for installation, startup, operation, inspection, and maintenance.
   d. Lubrication schedules
   e. Performance capacity
   f. Catalog data sheets
   g. Parts list
   h. Maintenance schedules
   i. List of recommended spare parts
   j. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 60 00.

F. Maintenance instructions shall indicate routine-type work with step-by-step instructions that should be performed to ensure long life and proper operations. Recommended frequency of performance shall also be included.

G. Mark the model actually provided where the literature covers more than one model. Include four copies of all submittal data corrected to "as-built" conditions within the manual.

H. Provide a composite summary table indicating each item of equipment listed in the operations and maintenance manual and its required maintenance and time period. This summary table shall be the first section in the O&M manual.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 78 36

WARRANTIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Preparation and submittal of warranties and bonds.

1.02 WARRANTIES AND BONDS REQUIRED

A. Warranties and bonds required for specific products or work as detailed in individual specification sections.

1.03 FORM AND TIME OF SUBMITTAL OF WARRANTIES AND BONDS

A. Provide duplicate, notarized copies. Execute contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.

B. Submit material prior to final application for payment. For equipment put into use with Owner's permission during construction, submit within ten (10) days after first operation. For items of work delayed materially beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Maintenance and submittal of record documents and samples.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. In addition to requirements in general conditions, maintain at the site one record copy of:
1. Contract drawings
2. Specifications
3. Addenda
4. Change orders and other modifications to the contract.
5. Reviewed Shop Drawings, product data, and samples.
6. Field test records
7. Inspection certificates

B. Store record documents and samples apart from documents used for construction. Provide files, racks, and secure storage for record documents and samples.

C. Label and file record documents and samples in accordance with section number listings in Table of Contents of this project manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

D. Maintain record documents in a clean, dry and legible condition. Do not use record documents for construction purposes.

E. Keep record documents and samples available for inspection by Engineer.

1.03 RECORDING

A. Record information on a set of blueline opaque drawings, provided by Owner.

B. Use felt tip marking pens for recording information: Red for additions, green for deletions.

C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.

D. Contract drawings and Shop Drawings: Legibly mark each item to record actual construction, including:

E. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

F. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.

G. Field changes of dimension and detail.

H. Changes made by modifications.

I. Changes to control diagrams and schematics.

J. Details not on original contract drawings such as conduit and wiring runs.

K. References to related product data, Shop Drawings, and modifications.

L. Specifications: Legibly mark each item to record actual construction, including:
1. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
2. Changes made by Addenda and modifications.

M. Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records required by individual specifications sections.

1.04 SUBMITTALS

A. Prior to final completion deliver record drawings and samples to Owner.

B. Transmit with cover letter in duplicate, listing:
1. Date
2. Project title and number
3. Contractor's name, address, and telephone number
4. Number and title of each record document
5. Signature of contractor or authorized representative

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 02 41 00

DEMOLITION AND SALVAGE

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Demolition

B. Removed Material

C. Coordination with Existing to Remain

D. Protection

1.02 DEMOLITION

A. Perform demolition work required for completion of new work, as shown on drawings, and as specified herein. Demolition plans and specifications generally show the extent of demolition required. They do not relieve contractor of responsibility for all demolition required to complete the work under this Contract.

B. Completely remove all piping, wiring, conduit, and other devices associated with the equipment not to be re-used in the new work. This includes all pipe, valves, fittings, insulation, and all hangers including the top connection and any fastenings to building structural systems. Seal all openings after removal of equipment, pipes, ducts, and other penetrations in roof, walls, floors, in an approved manner and in accordance with plans and specifications where specifically covered. Structural integrity of the building system shall be maintained.

C. Perform only that demolition work necessary and required for completion of new work.

D. All demolition work other than minor work to be reviewed with and approved by Owner prior to starting.

E. In addition to demolition shown, cut, move or remove items as necessary to provide access, to allow alterations and new work to proceed, or items that abandoned and serve no useful purpose. Include such items as:
   1. Repair or removal of hazardous or unsanitary conditions.
   2. Removal of unsuitable or extraneous materials not marked for salvage, and debris such as rotted wood, rusted metals, and deteriorated concrete.
   3. Removal of abandoned items and items serving no useful purpose as a result of the work of this contract such as abandoned piping, conduit and wiring. Remove items back to active piping mains or junction boxes.

1.02 REMOVED MATERIAL

A. Salvage all pieces of equipment which are removed as a result of new work, and which are not intended for reuse to Owner unless specifically waived by Owner. If waived by Owner, equipment shall become the property of the Contractor and shall promptly be removed from the work site.
   1. All removed material not to be salvaged to the Owner or reused shall become property of the Contractor, and shall be promptly removed from site. Do not store or permit debris to accumulate on site.

2. Care should be taken when removing salvaged equipment to avoid damage and to maintain equipment in an operational condition. Contractor is responsible and shall pay for all damages to salvaged equipment found to be non-operational after delivery to Owner.

1.03 COORDINATION WITH EXISTING TO REMAIN

A. When demolition work affects the support, access to, or operation of existing equipment or materials, Contractor shall provide new support, access means, and any other modifications necessary to maintain existing systems fully maintainable, operational, and in compliance with regulatory codes.

1.04 PROTECTION

A. Protect workers, passers-by, and neighboring property from injury and damage. Protect existing building services including roofing and flashing from damage. Protect access and egress in public areas. Provide temporary guardrails and barricades to assure safe access through adjacent areas of construction. Protect existing utilities and active services to all operating systems indicated or not.

PART 2 - PRODUCTS

2.01 THIS PART NOT USED

PART 3 - EXECUTION

3.01 THIS PART NOT USED

END OF SECTION

SECTION 07 84 00

FIRESTOPPING

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Provide firestopping systems with fire-resistance rating indicated by reference to UL designations as listed in its "Fire Resistance Directory," or to designations of another testing agency acceptable to authorities having jurisdiction.

B. Provide through-penetration firestopping systems with F-ratings indicated, as determined according to ASTM E 814 but not less than fire-resistance rating of construction penetrated.
   1. Provide through-penetration firestopping systems with T-rating as well as F-rating, as determined according to ASTM E 814, where indicated.

1.02 SUBMITTALS

A. Submittals: Product Data and product certificates signed by manufacturer certifying that products furnished comply with requirements.

1.03 DESIGN REQUIREMENTS

A. For exposed firestopping, provide products with flame-spread indexes of less than 25 and smoke-developed indexes of less than 450, as determined according to ASTM E 84.

PART 2 - PRODUCTS

2.01 FIRESTOPPING SYSTEMS

A. Any through-penetration firestop system that is rate classified by UL for the application and with F-rating indicated may be used.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install firestopping system to comply with requirements listed in testing agency's directory for indicating fire-resistance rating.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:
   1. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
   2. Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1.02 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.03 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Preconstruction field test reports.

D. Compatibility and adhesion test reports.

E. Product test reports.

1.04 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates according to the method in ASTM C 1193 that is appropriate for the types of Project joints.

1.05 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.03 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Low Modulus, fast curing, nonsag, silyl-terminated polyether (STPe):
   1. Products:
      a. BASF, Sonneborn Products; Sonolastic 150 with VLM Technology.

   2. NS (nonsag).
   3. Uses Related to Exposure: NT (nontraffic).
   4. Uses related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

E. Interior Joint Caulking, Single-Component Neutral- and Basic-Curing Silicone Sealant:

   1. Products:
      a. Dow Corning Corporation; 799.
      b. Tremco; Spectrem 2.
      c. GE Silicones; SilPruf SCS2000.
      d. Sonneborn, Division of ChemRex Inc.; Omniseal.
      e. Pecora Corporation; 895.
   2. Type and Grade: S (single component) and NS (nonsag).
   3. Class: 50.
   4. Use Related to Exposure: NT (nontraffic).
   5. Uses Related to Joint Substrates: O.
   6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.

2.04 LATEX JOINT SEALANTS

A. Latex Sealant Caulk: Comply with ASTM C 834, Type O P, Grade NF.

B. Products:
   1. Pecora Corporation; AC-20+.
   2. Sonneborn, Division of ChemRex Inc.; Sonolac.
   3. Tremco; Tremflex 834.

2.05 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.06 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.
   a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.02 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION

SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:
   1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
   2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

1.03 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

1.04 COORDINATION

A. Fastener Installation: Coordinate with General Contractor for location of slab reinforcing before fastening to slabs.

PART 2- PRODUCTS

2.01 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
   1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.

2.02 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch diameter wire.

B. Wire Hangers: ASTM A 641, Class 1 zinc coating, soft temper, 0.162-inch diameter.

C. Flat Hangers: Steel sheet.

D. Furring Channels (Furring Members):
   1. Steel Studs: ASTM C 645.
      a. Minimum Base-Metal Thickness: 0.0179 inch.
      b. Depth: 3-5/8 inches or as indicated on Drawings.

2. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
   a. Minimum Base Metal Thickness: 0.0179 inch.

2.03 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.
   1. Minimum Base-Metal Thickness: 0.0179 inch

B. Slip-Type Head Joints: Where indicated, provide one of the following:
   1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
   1. Minimum Base-Metal Thickness: 0.0179 inch.

D. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
   1. Minimum Base Metal Thickness: 0.0179 inch.
   2. Depth: 7/8 inch.

2.04 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
   1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.02 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:
   1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
      a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

C. Seismic Bracing: Sway-brace suspension systems with hangers used for support.

D. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.03 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
   a. Install two studs at each jamb, unless otherwise indicated.
   b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
   c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

C. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION

SECTION 09 23 00

GYPSUM PLASTERING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:
1. Gypsum plasterwork on expanded-metal lath and solid- plaster bases.
2. Patching of existing gypsum plaster.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

1.03 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For gypsum plaster assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1.04 PROJECT CONDITIONS

A. Comply with ASTM C 842 requirements or gypsum plaster manufacturer's written recommendations, whichever are more stringent.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.

2.02 EXPANDED-METAL LATH

A. Expanded-Metal Lath: ASTM C 847, cold-rolled carbon-steel sheet, ASTM A 653, G60Z, hot-dip galvanized zinc coated.
1. Recycled Content: Provide steel products with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
2. Paper Backing: Kraft paper factory bonded to back of lath.
3. Diamond-Mesh Lath:Self-furring, 2.5 lb/sq. yd.

2.03 GYPSUM BASE FOR VENEER PLASTER

A. Gypsum Base for Veneer Plaster: ASTM C 588.
1. Type X: 3/8 inch thick, to match existing adjacent.

2.04 ACCESSORIES

A. General: Comply with ASTM C 841 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Zinc and Zinc-Coated (Galvanized) Accessories:
   1. Cornerbeads: Fabricated from zinc-coated (galvanized) steel.
      a. Small-nose style; use unless otherwise indicated.
   2. Casing Beads: Fabricated from zinc-coated (galvanized) steel; square-edged style; with expanded flanges.

2.05 MISCELLANEOUS MATERIALS

A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Bonding Compound: ASTM C 631.

C. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.

D. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 841.

2.06 BASE-COAT PLASTER MATERIALS

A. Base-Coat Plasters, General: ASTM C 28.

B. Aggregates for Base-Coat Plasters: ASTM C 35.

2.07 FINISH-COAT PLASTER MATERIALS

A. Gypsum Gauging Plaster: ASTM C 28
   1. Products:
      a. National Gypsum Company; Gauging Plaster (Super-White).
      b. United States Gypsum Co.; Red Top Gauging Gypsum Plaster.
      c. Or approved.

2.08 PLASTER MIXES

A. General: Comply with ASTM C 842 and manufacturer's written instructions for applications indicated.

B. Base-Coat Mixes over Expanded-Metal Lath: For three-coat plasterwork, as follows:
   1. Scratch Coat: Gypsum wood-fibered plaster; neat or with job-mixed sand.
   2. Brown Coat: Gypsum neat plaster with job-mixed sand or ready-mixed plaster.

C. Finish-Coat Mix for Textured Finishes: Gypsum ready-mixed finish plaster.

PART 3- EXECUTION

3.01 INSTALLATION, GENERAL

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

3.02 INSTALLING METAL LATH

B. General: Install according to ASTM C 841.

C. Expanded-Metal Lath:
1. Partition Framing and Vertical Furring: Install flat diamond-mesh lath.
2. Flat-Ceiling and Horizontal Framing: Install flat diamond-mesh lath.

3.03 INSTALLING ACCESSORIES

A. General: Install according to ASTM C 841.

D. Cornerbeads: Install at external corners.

E. Casing Beads: Install at terminations of plasterwork, except where plaster passes behind and is concealed by other work and where metal screeds, bases, or frames act as casing beads.

3.04 PLASTER APPLICATION

A. General: Comply with ASTM C 842.

F. Finish Coats:
1. Provide float finish, unless otherwise indicated.
2. Provide textured finish where required to match existing adjacent surface.
   a. Textured Finish: Match existing adjacent.

3.05 CUTTING AND PATCHING

A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing (check cracking), dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION

SECTION 09 24 00

PORTLAND CEMENT PLASTERING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:
   1. Exterior and interior portland cement plasterwork (stucco) on metal lath.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type of textured finish coat indicated; 12 by 12 inches, and prepared on rigid backing.

1.03 QUALITY ASSURANCE

A. Mockups: Before plastering, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Install mockups for each type of finish indicated.
   2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.04 PROJECT CONDITIONS

A. Comply with ASTM C 926 requirements.

B. Exterior Plasterwork: Apply plaster when ambient temperature is greater than 40^{o}F.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Products: Subject to compliance with requirements, provide one of the products specified.

2.02 METAL LATH

A. Expanded-Metal Lath: ASTM C 847 with ASTM A 653, G60, hot-dip galvanized zinc coating.
   1. Diamond-Mesh Lath: Self-furring.
      a. Weight: 2.5 lb/sq. yd..

B. Paper Backing: FS UU-B-790, Type I Grade B, Style 1a vapor-retardant paper.
   1. Provide paper-backed lath at exterior locations.

2.03 ACCESSORIES

A. General: Comply with ASTM C 1063 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Zinc and Zinc-Coated (Galvanized) Accessories:
   1. Foundation Weep Screed: Fabricated from hot-dip galvanized steel sheet, ASTM A 653, G60 zinc coating.
   2. Cornerite: Fabricated from metal lath with ASTM A 653, G60, hot-dip galvanized zinc coating.
   3. External-Corner Reinforcement: Fabricated from metal lath with ASTM A 653, G60, hot-dip galvanized zinc coating.
   4. Cornerbeads: Fabricated from zinc-coated (galvanized) steel.
      a. Small-nose style; use unless otherwise indicated.
   5. Casing Beads: Fabricated from zinc-coated (galvanized) steel; square-edged style; with expanded flanges.
   6. Control Joints: Fabricated from zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.

2.04 MISCELLANEOUS MATERIALS

A. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in portland cement plaster.

C. Bonding Compound: ASTM C 932.

D. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.

E. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 1063.

F. Isolation Strip at Exterior Walls:
   1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), unperforated.

2.05 PLASTER MATERIALS

A. Portland Cement: ASTM C 150, Type II.
   1. Color for Finish Coats: Gray.

B. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.

C. Sand Aggregate: ASTM C 897.
1. Color for Job-Mixed Finish Coats: White.

D. Ready-Mixed Finish-Coat Plaster: Mill-mixed portland cement, aggregates, coloring agents, and proprietary ingredients.
1. Products:
a. California Stucco Products Corp.; Conventional Portland Cement Stucco.
b. ChemRex; Thoro Stucco.
c. United States Gypsum Co.; Oriental Exterior Finish Stucco.

2.06 PLASTER MIXES

A. General: Comply with ASTM C 926 for applications indicated.
1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd.of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

B. Portland Cement Base-Coat Mixes:
1. Over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:
a. Scratch Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material (sum of separate volumes of each component material).
b. Brown Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 3 to 5 parts aggregate per part of cementitious material (sum of separate volumes of each component material).

C. Portland Cement Job-Mixed Finish-Coat Mixes: For cementitious materials, mix 1 part portland cement and 1-1/2 to 2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material (sum of separate volumes of each component material).

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

B. Prepare solid-plaster bases that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.02 INSTALLING METAL LATH

A. Expanded-Metal Lath: Install according to ASTM C 1063.
1. On Solid Surfaces, Not Otherwise Furred: Install self-furring diamond-mesh lath.

3.03 INSTALLING ACCESSORIES

A. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External Corners:
   1. Install lath-type external-corner reinforcement at exterior locations.
   2. Install cornerbead at interior and exterior locations.

C. Control Joints: Install control joints at locations indicated on Drawings.

3.04 PLASTER APPLICATION

A. General: Comply with ASTM C 926.

B. Plaster Finish Coats: Apply to provide float finish to match Architect's sample.

3.05 CUTTING AND PATCHING

A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing (check cracking), dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION

SECTION 09 51 13

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.03 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent testing agency.

B. Seismic Standard: Comply with the following:
1. Standard for Ceiling Suspension Systems Requiring Seismic Restraint: Comply with ASTM E 580.
2. CISCA's Guidelines for Systems Requiring Seismic Restraint: Comply with CISCA's "Guidelines for Seismic Restraint of Direct-Hung Suspended Ceiling Assemblies--Seismic Zones 3 & 4."
3. Comply with Section 9.6 of ASCE 7.
4. Comply with Section 1705.1.4.3 of 2010 Oregon State Structural Specialty Code for Design Category “D”.

C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Preinstallation Conference: Conduct conference at Project site.

1.04 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Acoustical Ceiling Panels: Full-size panels equal to 5.0 percent of quantity installed.

PART 2 - PRODUCTS

2.01 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
   1. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641, Class 1 zinc coating, soft temper.
   1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch diameter wire.

E. Seismic perimeter stabilizer bars, seismic struts, and seismic clips.

F. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.02 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING (SAP)

A. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong Cortega Minaboard or a comparable product by one of the following, to match existing adjacent:
   1. Celotex
   2. USG Interiors, Inc.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:
   1. Type and Form: Type III, mineral base with painted finish; Form 2, water felted.

C. Color: White.

D. LR: Not less than 0.8.

E. NRC: Not less than 0.55, Type E-400 mounting per ASTM E 795.

F. CAC: Not less than 33.

G. Edge/Joint Detail: Square

H. Thickness: 5/8 inch.

I. Modular Size: 24 by 24 inches.

2.03 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong Prelude 15/16" or a comparable product by one of the following:
   1. BPB USA.
   2. Chicago Metallic Corporation.
   3. Ecophon CertainTeed, Inc.
   4. USG Interiors, Inc.

B. Color: White.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Comply with UBC Standard 25-2 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not

permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

3.02 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage qualified independent testing and inspection agency to perform field tests and inspections indicated below and prepare test reports.
1. Payment for these services will be made by Owner.

B. Suspended Ceiling Systems and their Anchorages: Confirm compliance with manufacturer's standards for installation under requirements of Seismic Design Category D.

END OF SECTION

SECTION 09 51 15

ACOUSTICAL PLANK CEILINGS
(CEMENTITIOUS WOOD FIBER CEILINGS)

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Cementitious wood fiber plank acoustical ceiling system.

B. Related Sections:
1. Section 092216: Non-Structural Metal Framing.

1.02 REFERENCES

A. ASTM International:
1. ASTM C635 Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E1264 Standard Classification for Acoustical Ceiling Products.

B. Ceilings and Interior Systems Construction Association (CISCA):
1. CISCA Code of Practices.
2. X

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:
1. Provide acoustical ceiling assembly designed and tested to provide surface burning characteristics (ASTM E84) as follows:
   a. Flamespread: 0.
   b. Smoke Developed: 0.
2. Provide acoustical ceiling system which has been manufactured, fabricated and installed to provide Noise Reduction Coefficient (NRC) rating as follows:
   a. 0.40

1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit manufacturer’s product data and installation instructions.

C. Samples: Submit selection and verification samples: 6 inch × 6 inch sample for each wood fiber ceiling unit required, showing full range of exposed texture to be expected in completed work.

D. Quality Assurance/Control Submittals: Submit the following:
1. Certificates: Submit manufacturer’s certificate that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size and complexity.

B. Regulatory Requirements and Approvals:
   1. International Code Council (ICC):
      a. ICC-ES Evaluation Report ESR-1112.

C. Pre-installation Meetings: At project site.

1.06 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirement Section.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
   1. Provide labels indicating brand name, style, size and thickness.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
   1. Prevent soiling, physical damage or wetting.
   2. Store cartons open at each end to stabilize moisture content and temperature.

1.07 PROJECT/SITE CONDITIONS

A. Environmental Requirements:
   1. Do not install ceiling panels until building is closed in and HVAC system is operational.
   2. Locate materials onsite at least 24 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.
   3. Maintain the following conditions in areas where acoustical materials are to be installed 24 hours before, during and after installation:
      a. Relative Humidity: 65 - 75%.
      b. Uniform Temperature: 55 - 70 degrees F (13 - 21 degrees C).

1.08 MAINTENANCE

A. Extra Materials: Provide 10% additional material for use by owner in building maintenance and repair.

B. Provide new unopened cartons of extra materials, packaged with protective covering for storage and identified with appropriate labels.

PART 2 - PRODUCTS

2.01 ACOUSTICAL CEILING PLANK SYSTEM

A. Manufacturer: Tectum Inc.
   1. Contact: 105 South Sixth Street, Newark, OH 43055; Telephone: (888) 977-9691, (740) 345-9691; Fax: (800) 832-8869; E-mail: info@tectum.com; website: www.tectum.com.

B. Acoustical ceiling systems, including the following:
   1. Tectum Full-Span Corridor Panels:
      a. Material: Aspen wood fibers bonded with inorganic hydraulic cement.
      b. Thickness: 1 inch.
      c. Length: 45 inches (Verify prior to ordering).
      d. Width: 23 ¾ inches.
      e. Color: Factory painted white.
      f. Mounting Style: Direct Attached.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: None.

2.03 ACCESSORIES

A. Provide accessories as follows:
   1. Tectum Painted Head Drywall Screws (For use with Direct-Attached Ceiling Panels):
      a. Material: Steel.
      b. Length: 2¼ inches.
      c. Color: White.
   2. Tectum Molding:
      a. Material: Plastic.
   3. Tectum Touch-Up Paint:
      a. Color: White.

PART 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Comply with the instructions and recommendations of the ceiling system manufacturer.

B. Install materials in accordance with governing regulations, fire resistance rating requirements and industry standards applicable to work.
   1. Comply with CISCA Code of Practices.

3.02 EXAMINATION

A. Site Verification of Conditions:
   1. Examine surfaces scheduled to receive suspended or directly attached acoustical units for unevenness, irregularities and dampness that would affect quality and execution of work.
   2. Do not proceed with installation of ceiling system until unacceptable conditions are corrected.

3.03 INSTALLATION

A. General: Do not begin installation until materials sufficient to complete an entire room are received and prepared for installation.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders.

C. Do not use universal splices or other splices that would obstruct passage of recessed lighting fixtures through grid openings or limit fixture relocation upon flanges of ceiling grids.

D. Install wall moldings at the perimeter of each acoustical ceiling area and at locations where edge of units would otherwise be exposed.
   1. Secure moldings to supporting construction by fastening with screw anchors into the substrate, through holes drilled in vertical leg. Space holes not more than 3 inches from each end and not more than 16 inches on center along each molding.
   2. Level moldings with ceiling suspension system, to a level tolerance of 1/8 inch in 12 feet.
   3. Miter corners of moldings accurately to provide hairline joints, securely connected to prevent dislocation. Cope exposed flanges of intersecting suspension system members, so that flange faces will be flush.
   4. Provide reveal edge at walls, other abutting vertical surfaces.

E. Field paint cut edges to match surface color and sheen.

F. Arrange acoustical units and orient directionally patterned units, if any, in manner shown on reflected ceiling plans.

3.04 CLEANING

A. Clean exposed surfaces of acoustical ceilings, trim, edge moldings and suspension members to comply with manufacturer's instructions for cleaning.

B. Touch up any minor finish damage.

C. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.05 PROTECTION

A. Protect installed work from damage due to subsequent construction activity, including temperature and humidity limitations and dust control, so that the work will be without damage and deterioration at the time of acceptance by the Owner.

END OF SECTION

SECTION 09 65 19

RESILIENT TILE FLOORING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Vinyl composition floor tile - patching at select.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

C. Samples: Full-size units of each color and pattern of floor tile required.

D. Maintenance data.
1. Include wax application procedures.

1.03 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.04 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer in spaces to receive floor tile.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic for 48 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

1.05 EXTRA MATERIALS

A. Provide extra materials described below which match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Vinyl Composition Floor Tile: 2 unopened boxes.

PART 2 - PRODUCTS

2.01 VINYL COMPOSITION FLOOR TILE (VCT)

A. Products: Subject to compliance with requirements, provide products by one of the following:
1. Armstrong World Industries, Inc.; Standard Excelon.
2. Azrock.
3. Congoleum Corporation; Commercial Flooring.
4. Mannington Mills, Inc.; Essentials.
5. Tarkett, Inc.; Expressions.
6. Match existing at locations of patching.

B. Tile Standard: ASTM F 1066, Class 2, through-pattern tile.

C. Wearing Surface: Smooth.

D. Thickness: 0.125 inch.

E. Size: 12 by 12 inches.

F. Colors and Patterns: As selected by Architect from full range of industry colors.
1. Match existing adjacent as possible.
2. Armstrong 51904 Sterling as a field color in areas where a field color is not already established.

2.02 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
a. Vinyl Composition Floor Tile Adhesives: Not more than 50 g/L.
b. Healthguard Thin-Spread Tile Adhesive by W.F. Taylor Co., Inc., or approved.

C. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

PART 3 - EXECUTION

3.01 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.
1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform tests recommended by floor covering manufacturer and as follows. Proceed with installation only after substrates pass testing.
   a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours, or as required by warranty

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until they are same temperature as space where they are to be installed.
1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.02 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
1. Lay tiles square with room axis.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
1. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern).
2. Follow color patterning drawings provided by Architect for corridors.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

G. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.03 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.

B. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor tile surfaces before applying liquid floor polish.
1. Apply three coat(s), type as recommended by Flooring manufacturer.

C. Cover floor tile until Substantial Completion.

END OF SECTION

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
   1. Existing concrete and cement plaster surfaces.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each finish and for each color and texture required.

C. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.03 QUALITY ASSURANCE

A. MPI Standards:
   1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
   2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
      a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
      b. Other Items: Architect will designate items or areas required.
   2. Final approval of color selections will be based on benchmark samples.
      a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.04 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
   1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.01 PAINT, GENERAL

A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: To match existing. Coordinate with Owner.

2.02 PRIMERS/SEALERS

A. Quick-Drying Alkyd Metal Primer: MPI #76.

B. Bonding Primer: MPI #17.

C. Alkali-Resistant Primer: MPI #3

2.03 ALKYD WATER-BASED ENAMELS

A. Quick-Drying Enamel (Semigloss): Alkyd Water-based (Semigloss): MPI #167. Glidden Lifemaster Oil, or approved.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION AND APPLICATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.03 EXTERIOR PAINTING SCHEDULE

A. Galvanized-Metal Substrates:
1. Latex System: MPI EXT 5.3K.
a. Prime Coat: Cementitious galvanized-metal primer.
b. Intermediate Coat: Alkyd Water-based Enamel (Semigloss): MPI #167..
c. Topcoat: Alkyd Water-based Enamel (Semigloss): MPI #167..

B. Stucco/Concrete Substrates:
1. Latex System: MPI EXT 9.1B.
a. Prime Coat: Alkali-resistant primer.
b. Intermediate Coat: Alkyd Water-based Enamel (Semigloss): MPI #167.

END OF SECTION

SECTION 09 91 23

INTERIOR PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
   1. Steel
   2. Gypsum board
   3. Plaster
   4. Concrete

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each finish and for each color and texture required.

C. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.03 QUALITY ASSURANCE

A. MPI Standards:
   1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
   2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
      a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft.
      b. Other Items: Architect will designate items or areas required.
   2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
   3. Final approval of color selections will be based on benchmark samples.
      a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.04 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.01 PAINT, GENERAL

A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: To match existing adjacent surfaces. Coordinate with Owner for specific colors.

2.02 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50. Dulux Lifemaster, or approved.

2.03 METAL PRIMERS

A. Rust-Inhibitive Primer (Water Based): MPI #107.

2.04 ALKYD, WATER-BASED PAINTS

A. Alkyd Water-based (Semigloss): MPI #167. Glidden Lifemaster Oil, or approved.

2.05 INDUSTRIAL ENAMELS

A. Light Industrial Enamel: MPI #153. PPG Pitt-Tech DTM, or approved.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Gypsum Board and Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
   1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION AND APPLICATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
   1. Mechanical Work:
      a. Uninsulated metal piping.
      b. Pipe hangers and supports.
      c. Tanks that do not have factory-applied final finishes.
   2. Electrical Work:
      a. Electrical equipment that is indicated to have a factory-primed finish for field painting.

E. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

F. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.03 INTERIOR PAINTING SCHEDULE

A. Steel Substrates (Exposed Fire Sprinkler Piping):
   1. W.B. Light Industrial Coating: MPI INT 5.1B.
      a. Prime Coat: Rust-inhibitive primer (MPI 107).
      b. Intermediate Coat: W.B. Light Industrial Coating (MPI 153).
      c. Topcoat: W.B. Light Industrial Coating (MPI 153)).

B. Galvanized Steel Trims
   1. W.B. Alkyd: MPI INT 5.3L.
      a. Prime Coat: Non-Cementitious Primer (MPI 135).
      b. Intermediate Coat: Alkyd, Water Based (MPI 167).

c. Topcoat: Alkyd, Water Based (MPI 167).

C. Gypsum Board and Plaster Substrates:

1. Institutional Low-Odor/VOC System: MPI INT 9.2M.
   a. Prime Coat: Interior latex primer/sealer (MPI 50).
   b. Intermediate Coat: Alkyd, Water Based (MPI 167).
   c. Topcoat: Alkyd, Water Based (MPI 167).

D. Concrete Substrates:

1. Institutional Low-Odor/VOC Latex System: MPI INT 3.1M.
   a. Prime Coat: Interior latex primer/sealer.
   b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
   c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).

END OF SECTION

SECTION 20 05 00

GENERAL MECHANICAL PROVISIONS

PART 1 - GENERAL

1.01 CONTRACT DOCUMENTS

A. General mechanical requirements specified in Division 20 apply to all work performed in Divisions 21, 22, and 25.

B. The Contract Documents are complementary. What is required by any one, as affects this Division, shall be as binding as if repeated herein.

1.02 DEFINITIONS

A. Authority Having Jurisdiction (AHJ): The governmental agency or sub-agency which regulates the construction process.

B. Owner's Authorized Representative (OAR): Owner's representative with authority to act on Owner's behalf.

1.03 COORDINATION

A. Contractor shall coordinate all work in Divisions 20 through 25 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 Owner's Authorized Representative.

1.04 SUBMITTALS AND SHOP DRAWINGS

A. Provide in accordance with SECTION 01 33 00 – SUBMITTAL PROCEDURES.

1.05 QUALITY ASSURANCE

A. All materials and equipment provided hereunder shall be installed and started in complete conformance with the manufacturer's recommendations.

1.06 DESIGN REQUIREMENTS

A. Equipment and systems provided hereunder shall be rated to provide performance specified and scheduled on drawings at the elevation of the project site.

1.07 CODES, STANDARDS

A. Applicable codes and standards shall determine minimum requirements for materials, methods, and labor practices not otherwise stated herein.

1.08 TEMPORARY SERVICES

A. Provide in accordance with SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS as required for completion of work. Provide additional filters as required to keep areas clean during construction.

1.09 OPERATIONS AND MAINTENANCE MANUALS

A. Bind manuals in three-ring, high quality vinyl covered binders, clearly indexed and provided with thumb tabs for each item or product. Include a directory of all subcontractors and maintenance contractors with names, addresses, and telephone numbers, indicating the area of responsibility for each. Index tabs shall match submittal schedule and include any additional information required for operations and maintenance, whether in submitted schedule or not.

B. Maintenance instructions shall indicate routine-type work with step-by-step instructions that should be performed to ensure long life and proper operations. Recommended frequency of performance shall also be included.

1.10 RECORD DRAWINGS

A. Provide record "as-built" drawings in accordance with Division 1 requirements. Show all deviations from Contract Drawings and location of underground lines by accurate dimensions from building lines. Show depth of all stub outs and underground lines. Dimension all concealed piping from column grids or building lines. Transfer all information to reproducible transparencies as required at the completion of the project.

1.11 DEMONSTRATION

A. General: After installation is complete, demonstrate to Engineer and Owner's Authorized Representative satisfaction as being complete and operational and entirely in conformance with Contract Documents.

1.12 TRAINING

A. Instruct Owner in proper operation and maintenance of equipment and systems. Instruction shall generally include topics listed in manufacturer's operations and maintenance manual. Operator instructions shall cover all aspects of manual, automatic, and safety controls. Contractor shall also instruct the Owner in the general configuration of systems and location of equipment and components.

PART 2 - PRODUCTS

2.01 PRODUCTS AND 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.

2.02 SPECIAL TOOLS AND LUBRICANTS

A. Furnish and turn over to Owner, special tools not readily available commercially, that are required for disassembly or adjustment of equipment and machinery furnished.

B. Grease Guns with Attachments for Applicable Fittings: Provide one for each type of grease required for motor or other equipment.

C. Lubricants: Provide a minimum of one quart of oil, and one pound of grease, of equipment manufacturer's recommended grade and type, in unopened containers and properly identified as to use for each different application.

2.03 ESCUTCHEONS/WALL PLATES

A. Construction: Light gauge aluminum or steel. Two pieces with hinge and snap closure. Set screw for securing to pipe.

B. Finish: Primed and painted, for top paint coating on site.

C. Size:
1. Inner diameter: sized for pipe at installation location.
2. Outside diameter: sufficient to cover opening/sleeve.

2.04 GALVANIZED REPAIR COMPOUND

A. Mil. Spec. DOD-P-21035B, paint form.

2.05 PIPING INSULATION

A. Glass Fiber Insulation (GF)
1. Acceptable Manufacturers: Certainteed, John Manville, Knuaf, Owens-Corning
2. Type: Preformed fiberglass insulation with factory applied vapor barrier facing.
3. Insulation: ASTM C 547 Type 1
4. Conductivity: Maximum 0.27 BTU-in/(hr-ft^2-^{o}F) at 100 ^{o}F mean temperature.
5. Jacket: ASTM C 1136
6. Maximum Operating Temperature: Pipe surface - 800^{o}F, ambient - 150^{o}F.
7. Basis of Design: John Mansville, Mirco-lok

PART 3 - EXECUTION

3.01 ACCESS TO EQUIPMENT AND ACCESSORIES

A. Install equipment with sufficient access for service. Where not conveniently accessible by other means, provide adequately sized access doors for valves, dampers, motors, belts, and all other mechanical equipment requiring access for removal or maintenance. Type, size and exact location of access doors shall be coordinated with Architect prior to work.

B. Provide clearances for maintenance access as indicated on drawings or as recommended by manufacturer. If access requirements shown on drawings conflict with manufacturer's recommendations, provide larger clearance of the two.

C. If equipment location shown on drawings does not allow required access, notify Architect/ Engineer prior to start of work.

D. Apply and install all items in accordance with manufacturer's written instructions. Refer conflicts between the manufacturer's instructions and the contract drawings and specifications to Architect/Engineer for resolution prior to starting work.

3.02 ARRANGEMENT AND INSTALLATION OF EQUIPMENT AND PIPING

A. Coordinate location of piping, sleeves, inserts, hangers, ductwork and equipment. Locate piping, sleeves, inserts, hangers, ductwork and equipment clear of windows, doors, openings, lights, electrical outlets, and other services and utilities. Follow manufacturer's published recommendations for installation methods not otherwise specified.

B. Operating Personnel Access and Observation Provisions: Select and arrange all equipment and systems to provide clear view and easy access, without use of portable

ladders, for maintenance and operation of all devices including, but not limited to: all equipment items, valves, filters, strainers, transmitters, sensors, control devices. All gauges and indicators shall be clearly visible by personnel standing on the floor or on permanent platforms. Do not reduce or change maintenance and operating space and access provisions that are shown on the drawings.

3.03 RIGGING

A. Design is based on use of available structure without modification except as specifically shown. Existing openings in building structures are planned to accommodate design scheme.

3.04 CLEANING SYSTEMS

A. General: After all equipment, pipes and duct systems are installed, system shall be thoroughly cleaned. Remove all stickers and tags from equipment or fixtures. Clean all piping systems prior to installation of insulation or painting.

3.05 START UP

A. The Mechanical Contractor shall be responsible for proper operation of all systems and shall coordinate startup procedures, calibration and system checkout. System operational problems shall be diagnosed and corrected as required for system operation prior to Substantial Completion inspection.

B. Verify that piping has been flushed and cleaned prior to startup.

3.06 LUBRICATION

A. Lubricate all devices requiring lubrication prior to initial operation. Field check all devices for proper lubrication.

B. Equip all devices with required lubrication fittings or devices.

C. All lubrication points shall be accessible without disassembling equipment, except to remove access panels.

3.07 ESCUTCHEONS/WALL PLATES

A. Install where shown on exposed pipe through walls, floors, or ceilings, and as detailed on Drawings (including Architectural).
B. Secure product to pipe and/or mounting surface.

3.08 PIPING INSULATION

A. Install in accordance with manufacturer's recommendations and as specified.

B. General
1. Pressure tests of joints and connections shall be completed and work approved before application of insulation.
2. Surfaces shall be clean and dry with all foreign materials, such as dirt, oil, loose scale and rust removed.
3. Except for specific exceptions, insulate entire specified piping systems including piping, fittings, valves and accessories.

4. Insulation shall be installed in accordance with manufacturer's recommendations and in a neat and professional manner. Insulation shall have smooth and even surfaces, jackets and facings drawn tight, and smoothly cemented down at all laps. Finish all exposed ends and other surfaces with insulating cement.
5. Insulation shall be continuous through all sleeves and openings, except at fire partition.
6. Vapor barriers shall be continuous and uninterrupted throughout systems with operating temperature of 60^{o}F and below.
7. Insulate piping individually.

C. Insulation Thickness, Domestic Cold Water: 0.5 inches.

END OF SECTION

SECTION 20 05 23

GENERAL DUTY VALVES FOR MECHANICAL SERVICE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Ball valves

PART 2 - PRODUCTS

2.01 BALL VALVES

A. Acceptable Manufacturers: Crane, Powell, or Milwaukee

B. Water Service
1. Full port, brass body, stainless steel ball and stem, Teflon seals, blowoff stem, 400 psig WOG rates. Threaded.
2. Accessories:
   a. Union on one end.
   b. Provide stem extension to allow operation without interfering with pipe insulation.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install valves and accessories in accordance with manufacturer's instructions.

B. Locate valves where shown on Drawings.

END OF SECTION

SECTION 20 05 53

IDENTIFICATION FOR MECHANICAL EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Piping Identification

B. Valve Identification

C. Equipment Identification

1.02 REFERENCES

A. ANSI A 13.1, Scheme for the Identification of Piping Systems

PART 2 - PRODUCTS

2.01 PIPING IDENTIFICATION

A. Acceptable Manufacturer: Seton, Brady, MSI

B. Label Description:
1. Semi-rigid plastic snap-around type with printed piping identification on colored background
2. Letter size: Conform to ANSI A 13.1
3. Letter and background color: Conform to University of Oregon Construction Standards.
4. Direction arrow on each label indicating direction of flow
5. Legend Wording: Match piping description shown on Symbols list

2.02 VALVE IDENTIFICATION

A. Acceptable Manufacturer: Seton, Brady, MSI

B. Valves identified by distinguishing numbers and letters as shown on valve chart.

C. Valve Tag:
1. Material: Polished brass or aluminum.
2. Identification: 1/4-inch high letters, 1/2-inch high numbers. Black filled.
3. 1-1/2 inch diameter
4. Attachment: Smooth ply brass wire, brass "S" hook, or brass chain.
5. Legend Wording: Match piping abbreviation shown on Symbols list. Number valves sequentially by system type. Coordinate with existing numbering sequence where appropriate.

D. Valve Directory:
1. Valve identification number for each valve
2. Location of each valve
3. Exposed or concealed
4. Purpose of each valve
5. Valves size

6. Valve manufacturer and model number
7. Normal position of each valve

2.03 EQUIPMENT IDENTIFICATION

A. Nameplates:
1. Aluminum: 2-1/2" x 3/4" high. Black enamel background. Etched or engraved natural aluminum lettering.
2. Plastic: Laminated black-white-black phenolic plastic. Engraved to show white lettering on black background, except for labels attached to ceiling grid or located within finished spaces shall have black lettering on white background. Gothic letters minimum 3/16-inches high.

B. Name of unit and number designation as scheduled on drawings.

PART 3 - EXECUTION

3.01 GENERAL

A. Ensure surfaces are clean, dry, and free of debris before attaching nameplates.

B. Provide a color coded "dot" to walls or ceilings wherever equipment, valves, or other devices are concealed.

Fire Protection	Red

3.02 PIPE IDENTIFICATION

A. Provide labels for piping. Labels shall be visible from walkways and service locations and/or floor level.

3.03 VALVE IDENTIFICATION

A. Identify all valves specified in Divisions 20 through 25.

B. Valve Charts: One copy in each O&M manual and one copy framed and permanently mounted in mechanical room.

C. Continue existing numbering sequence for new valves installed in existing buildings.

3.04 EQUIPMENT IDENTIFICATION

A. Equipment nameplates shall include the following information at a minimum:
1. Plan identification tag
2. Area or zone served
3. Capacity specified at designed operating conditions
4. Actual capacity as balanced at site operating conditions
5. All new installations of evaporator coil housing and condenser units shall have tags that state who installed the unit, a warranty contact phone number and warranty date, start to finish.

B. Provide labels for all scheduled equipment. Place labels in a conspicuous place. Nameplate either aluminum or plastic permanently attached to equipment. Provide identical identification plate on starter and on disconnects.

3.05 TEMPORARY IDENTIFICATION

A. Temporarily identify piping during installation. Paint, chalk or other similar method allowed.

END OF SECTION

SECTION 21 13 13

WET-PIPE SUPPRESSION SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Provide complete wet-pipe fire suppression system.

1.02 DESIGN REQUIREMENTS

A. The fire suppression system shall comply with the rules, regulations, and ordinances of the Authority Having Jurisdiction and the following referenced standards:
   1. NFPA 13 - Standard for Installation of Fire Sprinkler Systems
   2. University insurance carrier, FM Global design and installation requirements, including, but not limited to:
      i. FM Global Property Loss Prevention Data Sheet 2-0, Installation Guidelines for Automatic Sprinklers
      ii. FM Global Property Loss Prevention Data Sheet 2-8, Earthquake Protection for Water-Based Fire Protection Systems
   3. Exceptions for FM Global design requirements include use of concealed ceiling and wall type sprinkler heads.

B. Design shall be performed and stamped by a Professional Engineer registered in fire protection design if required by the Authority Having Jurisdiction.

C. Hazard Classifications, as defined by NFPA 13 and by Authority Having Jurisdiction.

1.03 SYSTEM DESCRIPTION

A. Provide wet pipe sprinkler system for full coverage of entire building with zoning arrangement as shown on drawings.

B. Areas Subject to Freezing: Provide dry type sprinkler heads or glycol loops in areas where the ambient temperature will fall below 40^{o}F and are subject to freezing, as shown on Drawings.

1.04 QUALITY ASSURANCE

A. Contractor shall have five-years experience in design and installation of equipment and systems similar to that specified hereunder. Contractor shall have office location or full time personnel that can provide response time of one hour or less following call for emergency service.

B. The system designer shall be responsible for verifying site conditions, design requirements, and work being performed by other trades as related to the suppression system design. Design shall accommodate work being performed by other trades. Contractor shall identify areas of the building which will be subject to freezing.

C. Piping system shall be concealed above ceilings, except where shown on drawings or where no existing ceilings are installed. Piping routing modifications from construction documents must be approved by the Engineer.

D. Sprinkler head locations changes from construction documents must be approved by the Engineer.

E. Contractor shall obtain water service test data including static pressure, residual pressure/water flow available at the project site.

1.05 SUBMITTALS

A. Product Data: Submit manufacturer's technical literature and installation instructions for products and materials.

B. Fabrication Drawings: Prepare scaled drawings for fire protection piping, heads, valves, and accessories including pipe sizes, locations, elevations, slope of horizontal runs, wall and floor penetrations and connections. Identify system components which are located in areas of the building which are subject to freezing.

C. Calculations: Prepare hydraulic calculations of fire protection systems. Utilize a 10% safety factor above incoming system pressure to account for water system seasonal pressure fluctuations. Submit copy of calculations for approval.

D. Submittal Process:
1. Submit preliminary drawings showing exposed piping and sprinkler layout to Engineer for approval.
2. Upon approval by Engineer, submit drawings to Authority Having Jurisdiction.
3. Upon approval by Authority Having Jurisdiction, submit final drawings with approval stamp to Engineer.

E. Certificate of Installation: Submit certification upon completion of fire protection piping work confirming that the work was tested in accordance with NFPA 13 and FM Global (except as noted herein) requirements, and that the system is fully complete and operational.

PART 2 - PRODUCTS

2.01 GENERAL

A. All products shall be UL listed and FM approved (except as noted herein).

2.02 PIPE AND FITTINGS

A. Automatic Fire Sprinkler (F), buried:
1. Pipe: ANSI A21.51, AWWA C1510-70, Class 52 ductile iron, 150 psi cement lined factory encased with 8 mil polyethylene tube or sheet.
2. Fittings: ANSI A21.10 mechanical joint, AWWA C110, 250 psi., fittings to be double field wrapped with 2", 0 mil vinyl tape, 50% overlap.
3. Fittings restrained with 2000 psi concrete thrust blocks in accordance with NFPA.

B. Automatic Fire Sprinkler (F), above grade:
1. Black steel. ASTM A-135, Grade B, black, schedule 10 steel pipe or ASTM A53 Type E, Grade B, black, schedule 40 standard weight steel pipe.
2. Weight: Schedule as required in NFPA No. 13.
3. Fittings: Threaded, malleable iron threaded, 150 lb. ANSI B16.3 or grooved joint.

C. Automatic Fire Sprinkler, Anti-Freeze Pipe (AF), above grade:
1. Hot dip galvanized piping and fittings. ASTM A-795.

D. Drain piping:
1. Piping: ASTM A53, Schedule 40 black steel
2. Fittings, Unions, and Equipment Connections:
a. Up to 2 inches - ANSI B16.3, malleable-iron, 150 lb., black threaded

2.03 SPRINKLER HEADS

A. General:
1. UL Listed and FM approved (except concealed head types).
2. Provide temperature rating in accordance with NFPA 13 and FM Global.
3. Provide accessory escutcheons for sidewall heads through structural beams sized to cover edges of penetrations. Finish to match/complement head finish.
4. Provide standard or extended coverage, as shown on Drawings.

B. Acceptable Manufacturers: Reliable, Standard, Tyco, Viking, or approved.

C. Semi-recessed Wet Pendent:
1. Finish: Chrome head and escutcheon.
2. Application: Acoustical tile and hard ceiling areas.

D. Upright:
1. Finish: Exposed, standard brass head.
2. Application: Exposed piping and concealed spaces.

E. Wet Pendent:
1. Finish: Exposed, standard chrome; concealed, standard brass.
2. Application: Exposed piping and concealed spaces.

F. Semi-recessed Wet Pendent, Concealed:
1. Finish: Concealed cover plate/cup with custom color.
2. Application: Finished ceilings, where indicated on Drawings.

G. Semi-recessed Wet Sidewall, Concealed:
1. Finish: Concealed cover plate/cup with custom color.
2. Application: Residence rooms, where indicated on Drawings.

H. Recessed Dry Pendent: Water seal located near connection end to prevent vertical pipe from filling.
1. Finish: Standard brass.
2. Application: Areas subject to freezing, where indicated on Drawings.

I. Recessed Dry Sidewall: Water seal located near connection end to prevent horizontal pipe from filling.
1. Finish: Standard brass.
2. Application: Areas subject to freezing, where indicated on Drawings.

J. Spare Sprinklers and Cabinet:
1. Provide additional spare sprinkler heads of type and quantity as required by NFPA 13 and FM Global.
2. Provide storage cabinet with red enamel finish labeled "EXTRA FIRE SPRINKLER HEADS." Size to hold number of sprinklers provided.

3. Provide label in cabinet listing heads inventory and a brief description of where installed.

2.04 VALVES

A. O S &Y Gate Valves
1. 2-Inch and Smaller: All bronze, O.S. and Y gate valve. Cast-iron handwheel. Factory Mutual approved or Underwriter Laboratories labeled. 175 psi WSP. Similar to Kennedy Fig. 66.
2. 2-1/2-inch and Larger: Iron body, bronze trim, O.S. and Y gate valve. Factory Mutual approved or Underwriters Laboratories labeled. 175 psi WSP. Similar to Kennedy Fig. 68.

B. Swing Check Valves
1. 2-1/2-inch and Larger: Iron body, bronze mounted, swing check valve with replaceable ductile iron clapper. Grooved ends. MSS-SP-71. 300 psi maximum working pressure. Similar to Tyco CV-1F.

C. Alarm Check Valves
1. Iron body, bronze mounted, variable pressure type with retarding chamber.
2. Provide basic trimmings for alarm test by pass, gages, drain connections, mounting supports for retarding chamber, and drip funnel. Provide pressure sensitive alarm switch to actuate the fire alarm system. Similar to Tyco AV-1-300.

D. Butterfly Valves: 2-Inch and Larger for Fire Protection Service: MSS-SP-67 up to 12-inches, cast-iron lugged body, bronze dies, stainless steel trim. Replaceable Buna-N-Seat. 175 WOG. Gear operators mounted on key stems. Totally enclosed, lifetime lubricated and gasketed. High strength body, position indicator, travel adjustment screws, ductile iron segment gears, high strength worm gears, handle wheel operators. Similar to Grinnell Series 8000.

E. Ball Valves
1. 1/4-inch to 1-inch: Full flow port, cast-bronze body. Teflon seals, removable handle ball valve. WW-V-35, Type II, Class A, 150 WSP. Ends to match connected pipe. Similar to Grinnell Fig. No. 3700.
2. 1-1/4-inch to 2-inch: Full flow port, cast-bronze body. Teflon seals, removable handle ball valve. WW-V-35, Type II, Class A, 125 WSP. Ends to match connected pipe. Similar to Grinnell Fig. No. 3500.

2.05 SPECIALTIES

A. Supervisory Switches: Provide where required by NFPA. Weatherproof die-cast aluminum with 3/4-inch tapped conduit entrance and necessary facilities for attachment to valve. Red baked enamel finish. Tamper-proof and arranged so that switch operates if housing cover is removed or if unit is removed from mounting. Similar to Potter, Viking, or approved.

B. Water Flow Switch: Integral, mechanical, non-coated, non-accumulative retard type for use as tamper indication. SPDT contact. Adjustable from 0-60 seconds. Similar to Grinnell, Star, Viking, or approved.

C. Combination Fire Sprinkler Zone Station: Self-contained assembly consisting of water flow switch, drain valve, inspectors test valve, sight flow indicator, and pressure gauge. Tyco or as approved.

D. Electric Alarm Bell: Wall-mounted, outdoor, 10-inch diameter, 24 volt, red finish. Label "Fire Alarm".

E. Wet Sprinkler System Expansion Tank:
1. Acceptable Manufacturer's: Amtrol Fire-X-Trol.
2. General: Vertical tank, diaphragm, system piping connection, Schrader valve air charge connection, base ring, lifting rings.
3. Diaphragm: Butyl rubber, compatible with antifreeze solution.
4. Tank: Fabricated steel. Galvanized or epoxy coated.
5. Size: as required for application.
6. Certifications
   a. FM Approved.
   b. 125 psi working pressure in accordance with ASME Boiler and Pressure Vessel Code Section VII. Provide ASME U-1 certification form.

F. Anti-Freeze Solution:
1. Type: Non-toxic, factory pre-mixed solution, with maximum concentration of 38% propylene glycol, or 48% glycerin by volume.
2. Product listed for use in fire sprinkler systems.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Drawings show the location of sprinkler zones, types of systems, and sprinkler heads. Piping mains shown on Drawings are in approximate locations. In general, sprinkler shall be located in the quarter point, or center of ceiling panels and symmetrically within rooms. Coordinate head locations with existing lights and grilles. Exposed sprinkler main routing down corridors shown on Drawings is not symmetrical due to existing light locations. Provide additional heads than shown on Drawings, as required.

B. Provide fire sprinkler guards on the following exposed sprinkler heads: janitor closets, mechanical rooms, 2nd & 3rd floor residence hallways.

C. Install pipe parallel to building structural system and in a neat and professional manner.

D. Route drain piping to points of discharge outside where shown on Drawings.

E. Provide seismic bracing as required by NFPA 13 & FM Global requirements.

F. Install express drains from zone stations

G. Mechanical joints: plain end couplings are not permitted.

H. Signage:
1. Provide signage by alarm bell on exterior wall, where shown on Drawings, above existing FDC:
   a. Wording: "Sprinkler Fire Alarm: When alarm bell rings, Dial 911".

I. Flush existing re-used FDC in accordance with NFPA 25.

3.02 PAINTING

A. Painting by Division 9.

3.03 TESTS

A. Perform tests as required by Authority Having Jurisdiction.

B. Perform hydrostatic of all piping, with pressures and duration, as follows:
   1. Existing piping: 125 psi or 50 psi above system static pressure and maintain for four hours.
   2. New piping: 200 psi for two hours.

C. Provide duplicate test certificates and approvals by the Authority Having Jurisdiction to Engineer.

3.04 RECORD DRAWINGS.

A. Provide as-built drawings in accordance with SECTION 01 78 39 – PROJECT RECORD DOCUMENTS.

END OF SECTION

SECTION 22 11 02

PLUMBING PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Plumbing Piping Systems

B. Mechanical Seals

PART 2 – PRODUCTS

2.01 SANITARY WASTE, VENT PIPING (W, V)

A. Steel Pipe: Up to 1-1/2 inches:
1. ASTM A53, Type E, Grade B, galvanized, standard weight (Schedule 40).
2. Threaded Fittings: ANSI B16.3, malleable-iron, 150 lb. galvanized.

B. Cast Iron: 2-inches and larger:
1. Hubless Cast-Iron Pipe and Fittings: Cast-Iron Soil Pipe Institute Standard 301, service weight.
2. Sealing Sleeve: ASTM C 564, neoprene sealing sleeve for hubless cast iron pipe and fittings.
3. Shield and Clamping Assembly: Cast-Iron Soil Pipe Institute, Standard 310, stainless steel corrugated shield and clamping bands.

2.02 PUMPED STORM WASTE (PSW)

A. ASTM A53, Type E, Grade B, galvanized, standard weight (Schedule 40), made in U.S.A.

B. Fittings: Threaded, ANSI B16.3, malleable-iron, 150 lb. galvanized.

2.03 POTABLE WATER PIPING (CW)

A. Seamless copper water tube, Type L, ASTM B 88 hard drawn:

B. Fittings:
1. ANSI B16.22: Wrought copper and bronze solder joint pressure fittings.
2. ANSI B16.18: Cast bronze solder joint pressure fittings
3. Joining: Solder up to 1-1/4 inches. Braze 1-1/2 inches and larger.

C. Solder Materials :
1. Solder Filler Alloy: ASTM B 32, 95-5 Tin-antimony (Sb5).
2. Flux: Fed. Spec. FS-0-F-506C, non-corrosive flux

D. Brazing Materials:
1. Brazing Filler Metals: AWS A5.8, Classification BCuP-5
2. Brazing Filler Alloys: ASTM B260-52T, Sil-Fos (15% silver, 80% copper)
3. Flux: Silver brazing flux, non-corrosive

2.04 MECHANICAL SEALS

A. Mechanical Seals:

1. Type: Interlocking rubber links assembled with bolts, to fill annular space around pipe for a waterproof seal.

2. Manufacturer: Thunderline, Metraflex, or approved. Similar to Thunderline Corp. "Link-Seal".

PART 3 - EXECUTION

3.01 INSTALLATION

A. Piping Layout:
1. Give special attention to appearance of complete installation.
2. Make provision for expansion and contraction during normal operation.
3. Run parallel to wall of building.
4. Keep free of contact with building construction or installed items.
5. Cut pipe from measurements taken at the site, not from drawings.

B. Steel Piping:
1. Threaded Joints:
   a. Cut threads full and clean with sharp dies.
   b. Ream ends of pipe after threading and before assembly to remove burrs.
   c. Leave not more than three pipe threads exposed at each connection.
   d. Use joint compound or thread tape on male thread only in making joints.
   e. Keep free of contact with building construction or installed items.

C. Copper Tubing:
1. Brazed and Solder Joints:
   a. Ream or file pipe to remove burrs.
   b. Clean and polish contact surfaces of joint.
   c. Apply flux to both male and female ends.
   d. Insert end of tube into fittings full depth of socket.
   e. Bring joint to temperature in as short of time as possible.
   f. Form continuous bead around entire circumference of joint.

3.02 DRAINAGE

A. Where possible, arrange piping so that systems can be completely drained.

3.03 TESTING

A. Sanitary Waste and Vent Piping:
1. Water Test: Either in system entirely or in sections. Entire system, openings in piping tightly closed, except highest and system filled with water to point of overflow. If in sections, each opening tightly plugged except highest opening of section under test, and each section filled with water. No section tested with less than ten foot head of water. Water kept in system, or in the portion under test, for at least fifteen minutes before inspection starts. System tight at all joints.

2. Air Test: Test at 5 psi. Pressure held without introduction of additional air for at least fifteen minutes.

B. Potable Water Piping:
1. Water Test: Entire system shall be tested and proven water-tight under a water pressure not less than the working pressure under which it is to be used. Clean domestic water shall be used as test medium. Piping shall withstand the test without leaking for a period of not less than 15 minutes.
2. Air Test: 50 psi air pressure may be substituted for the water test. Piping shall withstand the test without leaking for a period of not less than 15 minutes.

3.04 MECHANICAL SEALS

A. Provide mechanical seal between fire service pipe and existing wall penetration where shown on Drawings.

END OF SECTION

SECTION 22 11 04

PLUMBING PUMPS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Submersible sump pumps

1.02 PERFORMANCE REQUIREMENTS

A. Pump and motor combination shall be non-overloading at all points on pressure-capacity curve.

PART 2 - PRODUCTS

2.01 FLOOR-MOUNT SUBMERSIBLE SUMP PUMP

A. Acceptable Manufacturers: Weil, Paco or approved.

B. Description: Complete, stand-alone, submersible sump pump complete with pump, motor, controls. Suitable for clear and gray water use. Capable of passing ½-inch solids. Similar to Weil 1409.

C. Pump Construction:
1. Casing: Cast Iron
2. Impellor: Bronze
3. Strainer: 304 stainless steel
4. Hardware: Stainless steel

D. Motor:
1. Single seal, carbon against ceramic
2. Air-filled, hermetically sealed
3. Motor shell: Cast iron
4. Insulation: Class F

E. Shaft: 300 Series Stainless steel

F. Tethered Float Switches:
1. Type: Tethered switch encapsulated in float for pump operation and high level alarm output, with 10 foot cord and mounting clamps.
2. Manufacturer: Similar to Weil 8230.

G. Electrical: Equipped with 15 foot power cord with 3 conductor grounded plug.

H. Control: Diaphragm Level Control Switch: Switch plugs into standard 115 V receptacle. Pump plugs into switch module. Module equipped with test button and green light to indicate power to pump motor.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Support piping adjacent to pump so that pump weight is distributed equally between inlet and outlet piping.

B. For horizontal installations requiring a reducer for pump connection, install eccentric reducer with level top to prevent air accumulation.

3.02 ADJUST

A. Start-up and operate pump. Take amperage reading and turn off immediately if above nameplate value and report to Engineer.

B. Set float switch high water alarm for activation at 18" above vault floor.

C. Adjust to eliminate excessive noise and vibration. Check adjacent vibration isolators to ensure that vibration is not transmitted to structure.

END OF SECTION

SECTION 22 12 00

PLUMBING SPECIALTIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Backflow Prevention Valves

B. Trap Primer Valves

PART 2 - PRODUCTS

2.01 BACKFLOW PREVENTION VALVES

A. Reduced Pressure Backflow Preventor: ASSE, AWWA, and USC approved. Two independent spring-loaded check valves with differential pressure relief valve located between check valves. Pressure relief valve to open to maintain pressure between check valves, minimum of 2 psi less than inlet pressure. All parts accessible for testing and service without removing device from line. Two non-rising stem gate valve shutoffs. Febco, Watts or approved.
   1. 2-Inch and Smaller: Bronze body. Elastomer seat disc. Threaded end connections. Similar to Febco Mod 825Y.
   2. Accessories: Air gap drain funnel. Cast-iron or bronze. Designed to mount directly on backflow preventer assembly and to provide code approved air gap. Adequate area for overflow in event of major backflow discharge.

2.02 TRAP PRIMER VALVES

A. Type: Electronic activated solenoid valve trap primer for delivering metered amount of water to trap.

B. Description: Assembly consisting of brass body solenoid valve, type L copper piping, physical air gap, and 1/2" NPT fittings.

C. Capacity: One trap.

D. Electrical: 115V, 1 phase, less than 0.5 A. Six foot electrical cord.

E. Manufacturer: Precision Plumbing Products, Josam, Mifab, Sioux Chief, or approved. Similar to Precision Plumbing Products Solo-Prime.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Reduced Pressure Backflow Preventer Assemblies: Install with horizontal flow attitude. Locate to prevent freezing. Coordinate device location with serving utility to ensure utility access requirements are observed. Ensure that piping system downstream of device has adequate expansion compensation to prevent damage due to thermal expansion. Provide supports for devices 3 inches and larger. Provide air gap drain fitting for each assembly. Provide galvanized steel air gap drain piping to floor drain.

B. Trap Primer Valves: Provide primer connection for each floor drain plumbing trap. Primer valves accessible after building completion. Isolation ball valve in piping to trap. Slope primer piping from trap seal primer valve to trap served.

END OF SECTION

SECTION 22 42 00

COMMERCIAL PLUMBING FIXTURES

PART 1 - GENERAL

NOT USED

PART 2 - PRODUCTS

2.01 DRAINS

A. Acceptable Manufacturers:
1. Josam, J.R. Smith, Wade, Watts

B. Hub Drains (HD-1)
1. General: Hub drains consists of a cast iron soil pipe hub connected to a deep seal P-trap with primer tapping.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Accurately plumb, horizontal and in-line. Exposed top or globe valve accessibly located when building is completed; locate behind or below fixture served; otherwise in branch piping as approved. Cast brass or 17-gauge fixture traps with cleanout plugs.

B. Drains: Examine floor rough-in to receive drain for unevenness, irregularities and incorrect dimensions that would affect quality and execution of installation. Do not install until rough-in is sufficient for proper installation. Coordinate installation of drain with other trades to insure watertight seal.

3.02 PROTECTION

A. Fixture damaged during construction replaced with new and perfect fixtures without expense to Owner. Protect fixture and trim finish during construction with suitable covering.

END OF SECTION

SECTION 25 10 00

BUILDING AUTOMATION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Work hereunder includes adding fire protection backflow preventer vault water level high level monitoring to existing Building Automation System (BAS)

1.02 RELATED SECTIONS

A. SECTION 25 90 00 - AUTOMATIC CONTROLS SEQUENCE OF OPERATIONS

1.03 SUBMITTALS PRIOR TO STARTING WORK

A. Submit in accordance with SECTION 01 33 00 – SUBMITTAL PROCEDURES within 6 weeks of project award.

1.04 CLOSEOUT SUBMITTALS

A. Submit in accordance with SECTION 01 78 39 - PROJECT RECORD DOCUMENTS.

PART 2 - PRODUCTS

2.01 BUILDING AUTOMATION SYSTEM ACCEPTABLE MANUFACTURERS

A. Alerton, installed by Environmental Controls Corporation.

2.02 WORKSTATION GRAPHICS

A. Update existing BAS graphics with location of monitored equipment location and alarm status indication.

2.03 WIRING AND RACEWAYS

A. Provide wiring in accordance with Division 26. See Drawings for location where raceway installation is being provided by Division 26 between backflow preventer vault and existing controls panel.

B. All insulated wire to have copper conductor. UL labeled for 90 degree C service.

2.04 RELAYS AND SWITCHES

A. Current Status Switches for Constant Load Devices
   1. Acceptable Manufacturer: Hawkeye or approved equal.

2. General: Factory programmed current sensor to detect motor undercurrent situations such as belt or coupling loss on constant loads. Sensor shall store motor current as operating parameter in non-volatile memory. Push-button to clear memory.
3. Visual LED indicator for status.
4. Split core sensor, induced powered from monitored load and isolated to 600 VAC rms. Sensor shall indicate status from 2.5 A to 135 A.
5. Normally open current sensor output. 0.1A at 30 VAC/DC.
6. Similar to Hawkeye Model 908.

PART 3 – EXECUTION

3.01 COORDINATION

A. Coordinate with controls specified in other sections or divisions. Other sections or divisions include controls and control devices to be part of or interfaced with the control system specified in this section. Integration and coordination with these controls shall be as follows.
   1. All communications media and equipment required to interface with equipment specified in other sections provided hereunder unless specifically stated otherwise.
   2. Coordinate and resolve any compatibility issues arising between control products provided hereunder and those provided under other sections or divisions.

3.02 WORKMANSHIP

A. Install all equipment in accordance with manufacturers' recommendations.

B. Install equipment, piping, and wiring/raceway parallel to building lines wherever possible.

C. Provide sufficient slack and flexible connections in wiring and pneumatic tubing to allow for vibration of piping and equipment.

D. Install all equipment in readily accessible locations as defined by Chapter 1, Article 100, Part A of the National Electric Code.

3.03 GENERAL WIRING

A. All control and interlock wiring shall comply with national and electrical codes and Division 26. Where requirements of this section differ from those in Division 26, the requirements of this section shall take precedence.

B. See Division 26 for locations where conduit has been coordinated for installation for use by this section.

3.04 COMMUNICATION WIRING

A. Install in accordance with 3.03 above.

B. Follow manufacturers' recommendations for all communications cabling including but not limited to maximum pulling, tension, and bend radius.

C. Do not install communications cabling in a raceway or enclosure containing Class 1 or other Class 2 wiring.

3.05 IDENTIFICATION OF HARDWARE AND WIRING

A. Label all wiring and cabling, including wiring and cabling terminating within factory-fabricated panels, within 2 inches of termination with the BAS address or termination number.

3.06 RELAYS AND SWITCHES

A. Current Status Switches:
1. Provide current status switch to monitor status of all motor-driven equipment where status is required.
2. Wrap power conductor through current transformer multiple times to amplify current signal where required.
3. Provide enclosure adjacent to existing motor starter when space in starter is not adequate to house current status switch.

3.07 PROGRAMMING

A. Provide programming for the system as required to perform the sequence of operation. See SECTION 25 90 00 – SEQUENCE OF OPERATION. Provide all other programming necessary for proper operation of the system but not specified including but not limited to time delays, and alarm notifications.

B. All control setpoints and loop tuning parameters accessible for review and adjustment at workstation graphics or through workstation menus without requiring modification of program code.

3.08 GRAPHICS

A. Update existing graphics with new fire protection vault sump pump. Include alarm description listed in Sequence of Operations on notification screen.

3.09 CONTROL SYSTEM CHECKOUT AND TESTING

A. Contractor shall completely test and verify specified control system performance. Compile test results and include with written certification.

3.10 OPERATION AND MAINTENANCE MANUALS

A. Provide updates for existing Owner’s operation and maintenance manuals.

END OF SECTION

SECTION 25 90 00

AUTOMATIC CONTROLS SEQUENCE OF OPERATIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Description of Control Sequences

1.02 WORK INCLUDED

A. The control system will consist of all necessary devices and software to provide the sequences of operation described herein.

1.03 DESIGN REQUIREMENTS

A. Control setpoints shall be adjustable from the Operator Workstation without modification of control programming or use of proprietary software. All setpoints which are necessary for normal operation and optimization of system performance as required by Owner shall be adjustable, and shall include, but not limited to: time delay settings and alarming parameters.

B. Where BAS network communications are provided to networkable control systems or equipment, Contractor shall configure accessible points for control, monitoring, and alarm as required to provide specified sequences and as directed by the Owner's Authorized Representative for trending and monitoring.

C. All cascade control sequences and closed control loops shall have proportional-integral action and derivative capability, except where approved otherwise.

D. Provide BAS alarm functions and configuration as detailed in plans and specifications, and as directed by Owner's Authorized Representative. Alarm functions may include:
1. Visual display on workstation graphic
2. Audible alarm at workstation computer
3. Listing in workstation alarm log
4. "Pop-up" alarm notification at workstation computer

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 SUMP PUMP (SP-3)

A. Monitor sump pump power status and high level alarm. Upon closure high level alarm contacts or loss of power or communications signal, set and maintain alarm until acknowledged by operator.
1. Include the following notification with alarm: "HIGH WATER ALARM (PUMP FAILURE): FIRE SERVICE BACKFLOW PREVENTER VAULT NEAR MAIN FIRE PROTECTION WATER SERVICE CONNECTION AT EAST 11TH AVENUE AND PATTERSON STREET."

B. BAS Input/Output Points List:

1. Provide all control points required to perform the automatic control sequence described above, which as a minimum shall include all points listed below.

BAS Points List	Equipment Connection
Digital Inputs	
SP-3 power	
High water alarm	

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 Engineer for approval.

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 surfaces scheduled for modificationws, unless specifically shown as retained or relocated on the Drawings.

B. 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.

C. 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.

D. Remove all abandoned wiring to leave site clean.

E. 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 un-scheduled 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.

F. 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.

G. 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. Deliver new wire to Site in new standard coils or reels with approved tag denoting length, wire size, insulation type and manufacturer's name.

B. 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. Motor control wires shall be No. 14 minimum.

D. Wire for special areas shall be as specified on the Drawings.

2.02 TWIST-ON CONNECTOR

A. UL pressure-type, solderless, insulated, wound spring grip twist on connector

B. Solderless pressure connectors for terminals, taps, and splices

2.03 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.

2.04 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

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.

B. NEC references below are based on the 2011 edition

PART 2 - PRODUCTS

2.01 GROUNDING CONDUCTORS

A. Size: 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. Receptacles - Refer to Section 26 27 26 – WIRING DEVICES.

F. 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.

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: Electrical metallic tubing, intermediate metallic conduit.

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. 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.

D. Expansion Joints: Offset or sliding type with bending straps and clamps. Approved for purpose.

2.02 TYPE

A. Utilize electrical metallic tubing concealed in interior spaces or exposed in unfinished, interior where not subject to physical damage.

B. Utilize surface metal raceways for exposed runs in finished areas. Paint to match wall finish.

C. Make connections to motors and equipment with flexible metallic conduit or liquidtight flexible metallic conduit.

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. 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.

D. 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.

E. 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 WEATHERPROOF JUNCTION AND PULL BOXES

A. Provide galvanized sheet steel junction and pull boxes, with screw-on covers; of the type, shape and size, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

2.06 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. Locate pullboxes and junction boxes above suspended ceilings or in electrical rooms, utility rooms, or storage areas.

D. Support: Secure boxes independent of entering conduits, by attaching directly to structure with bar hanger, blocking or flat side bracket.

E. Identify each junction and pullbox with system description including branch circuit numbers of enclosed circuits.

F. Conduit shall be securely fastened to all sheet metal outlet, junction, and pullboxes with galvanized locknuts, and bushing.

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. Remote control devices

E. Conductors at both device and terminal strip terminations for control and instrumentation cables and conductors

F. Other items as specified or noted

3.02 USE OF NAMEPLATES AND TAGS

A. Disconnect devices in lighting panels and power panels shall be identified on the panelboard directory card.

B. 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 27 26

WIRING DEVICES

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Receptacles

B. 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. 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.

B. Ground Fault Receptacles: Specification grade duplex receptacle with integral ground fault circuit interrupter. Test and reset buttons. Matching wall plate.

C. Wall Plates: Satin stainless steel, Type 302. Nominal .040-inch thick. Match device configuration.

D. Nameplates: Provide engraved or embossed plastic nameplates for receptacles other than standard duplex receptacles indicating voltage, phase, amperes, circuit and panel.

E. 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 receptacles vertically at 15 inches (to bottom of faceplate) above finished floor, with grounding pole at top.

D. Coordinate receptacle height with benches and counters.

E. When mounting receptacle above bench or counter, mount horizontally with grounding pole at left.

F. Back wiring wells may be used for receptacles.

G. 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. Circuit Breakers

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI)

B. Federal Specifications (FS)

C. Institute of Electrical and Electronic Engineers, Inc. (IEEE)

D. National Electrical Manufacturer's Association (NEMA)

1.03 APPLICABLE REGULATIONS

A. Underwriters' Laboratories (UL)

B. National Fire Protection Association (NFPA)
1. NFPA 70 National Electrical Code

PART 2 - PRODUCTS

2.01 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.

PART 3 - EXECUTION

3.01 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.

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. Compression or set-screw lugs approved for use with copper wire.

C. Enclosure for Dry, Indoor Locations: NEMA 1 minimum. Enclosures for outdoor locations: NEMA 3R minimum. Others as required for location installed.

2.02 SHUNT TRIP FUSED DISCONNECT SWITCHES/CIRCUIT BREAKER DISCONNECT SWITHCES

A. Provide shunt trip mechanism capable of remote and/or automatic disconnecting operation in elevator machine rooms.

B. Shunt trip module UL or FM listed and rated at 120 volt operation for remote signal from fire alarm system.

C. Provide switch tested and approved to operate with the shunt trip module.

D. Provide auxiliary contact interlocked with disconnect handle for control of battery lowering device.

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 31 23 33

TRENCHING AND BACKFILL

PART 1 - GENERAL

1.01 CONTRACT CONDITIONS

A. Work of this section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

1.02 SECTION INCLUDES

A. Excavation and fills, including compaction of on-site private fire protection water distribution system.

1.03 REFERENCED SPECIFICATIONS

A. ODOT Standard Specifications (current edition).

1.04 WORK INCLUDED BUT SPECIFIED ELSEWHERE

A. Products and construction within the City of Eugene right-of-way shall conform to the current Oregon Standard Specifications for Construction published by ODOT and the Oregon Chapter of APWA and City of Eugene Amendments.

1.05 DEFINITIONS

A. Rock: Material that cannot be removed by one-yard shovel, by backhoe with 9,500 lb. digging force, by pick and shovel, or by 200 HP Crawler fitted with normal excavating equipment. Ripper attachment as might be hooked into seam is not considered “normal” excavating equipment.

B. Unstable Soil: Soft, loose, wet, or disturbed ground that is incapable of supporting material, equipment, personnel, or structure.

1.06 SUBMITTALS

A. Comply with Section 01 33 00, unless otherwise indicated.

B. Product Data: Manufacturer's specifications and technical data including performance, construction, and manufacturing information.

C. Field Quality Control submittals as specified in Part 3 of this Section.
   1. Field Tests
   2. Special Inspections for Code Compliance

1.07 QUALITY REQUIREMENTS

A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.

B. Installer's Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.

C. Product/Material Qualifications:
   1. Design Data: Compaction testing shall be in accordance with Section 01 40 00, QUALITY CONTROL.

2. Test reports: Provide imported material gradation test reports. Provide material compaction test reports.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Delivery, Storage and Protection: Comply with manufacturer's recommendations.
1. Protect from damage by the elements and construction procedures.

1.09 ADVANCE NOTICES

A. Notify Engineer at least 48 hours before starting work of this section.

1.10 COORDINATION

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

PART 2 - PRODUCTS

2.01 CRUSHED ROCK

A. Imported, clean, 3/4" - 0 crushed rock or crushed gravel, free from foreign material and meeting the requirements of ODOT Standard Specifications (current edition) 02630.

B. To be used for Pipe Base Material, Pipe Zone Material, and Trench Backfill.

2.02 CONTROLLED DENSITY FILL

A. Controlled Density Fill (CDF) shall be a mixture of cement, fly ash, aggregates, water and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing and excavatable material which will result in a hardened, dense, non-settling fill.

B. Mix Design: Mix design shall conform to the following. The weights shown are only an estimate of the amount to be used per cubic yard of CDF. The actual amounts may vary from those shown if approved by the Engineer. The Contractor shall submit additional data to be approved by the Engineer.

	Proportions per Cubic Yard
Maximum Compressive Strength	100 - 250 psi
Maximum Mixing Water	30 - 50 gal
Cement	30 - 50 lbs
Fly Ash	200 - 350 lbs
Dry Aggregate	2700 - 3200 lbs

C. CDF used to fill abandoned pipe: The Contractor shall submit certified engineering data, for the proposed mixture to be used, for the following:
1. 30 and 90 day unconfined compressive strength (C') tests as described in ASTM D4832 with the following exception: cylinders will not be capped.
2. Yield and dry unit weight additional (ASTM D6103)
3. Flowability (ASTM D6023)
4. Removability (Removability Modules RE=<1.0)
5. Mixture's components and sources (company and location). Previous test results, on the same mixtures using the same components, will satisfy this requirement.

2.03 TRACER WIRE

A. Electrically conductive tracer wire, 18 gauge, insulated copper or heavier, green in color, or other approved material. To be placed full length of trench with non - metallic pipe.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

A. Prior to starting work of this section, verify that existing grades and field conditions agree with drawings. Notify Engineer of deviations.

B. Do not start work of this section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.

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 of this section.

3.02 PROTECTION

A. Monuments: Carefully maintain bench marks, monuments, and other reference points. If disturbed or destroyed, replace as directed.

B. Existing Utilities: Existing utilities shall be field located. Protect active utility lines encountered. Repair or replace utility lines damaged by work of this section.

C. Pavement Cleaning: Maintain pavements and walkways clean at all times.

D. Dust Control: Protect persons and property against damage and discomfort caused by dust; water as necessary and when directed.

E. Other Work and Adjacent Property: Protect against damage caused by work of this section.

3.03 GENERAL REQUIREMENTS

A. Contractor shall do all trenching and excavating necessary or required for proper construction of the work and placement or installation of materials. Tunneling or jacking shall not be used unless approved in writing by the Engineer.

B. Cutting Pavements: Cut vertical, straight - line joints using power saw designed for cutting pavements. Cut minimum one foot beyond each side of trench.

C. Obstructions: Remove all obstructions encountered within the trench area or adjacent thereto. If requested by Contractor, Engineer may make minor changes in trench alignment to avoid major obstructions, provided such alignment changes can be made without adversely affecting the intended function of the facility. Contractor shall pay any additional costs resulting from such alignment changes.

D. Trenching: Minimum trench width to be 12 inches greater than outside diameter of pipe. Maximum trench width at top of trench shall not be limited except where excess width of excavation would cause damage or create damage to adjacent structures or facilities.

E. Line and Grade: Excavate trench to lines and grades shown on the drawings or as established by the Engineer with proper allowances for pipe thickness and special bedding when required.

F. Shoring: Shore trench when necessary to prevent caving during excavation in unstable material, or to protect adjacent structures, property, workers, and the public or as required by local, state, or federal agencies. Shoring shall be removed, as the backfilling is done, in a manner that will not damage pipe or permit voids in the backfill. It shall be the sole responsibility of the Contractor to see that safety requirements are met.

G. Temporary Stockpiling of Excavated Material: Locate at least 2 feet from trench edges. Place excavated material only within approved areas. Do not obstruct roadways, bikeways, or pedestrian walkways. Conform to all federal, state and local codes governing the safe loading of excavated materials adjacent to trenches.

H. Excess Excavation: Where excavation, through Contractor's error, is carried to levels lower than those shown on drawings, backfill with specified bedding material to proper levels at Contractor's expense.

I. Drainage: At all times keep trenches dry. Provide and operate pumping equipment necessary to keep excavations free from standing water. Dispose of water in manner to prevent damage to adjacent property and as required by governing jurisdiction.

J. If rock or unstable soil are encountered, notify Engineer. Removal of rock or unstable soil will be paid for as an addition to the contract.

3.04 EXCAVATION

A. Excavate trenches to the line and grades shown on the drawings.

3.05 BACKFILL

A. Backfilling shall not commence until after pipe, conduit, structures, and other equipment and appurtenances placed in trench or similar excavations have been properly constructed or installed, as applicable, and inspected. Backfill shall be placed in such a manner as not to disturb, damage, or subject such facilities to unbalanced loads or forces. Make fills as soon as feasible after Engineer's review and acceptance.

B. Pipe Base: Place required thickness of Pipe Base Material over full width of trench. Provide uniform bearing under entire length of each pipe.

C. Pipe Zone: Place required thickness of Pipe Zone Material over full width of trench.

D. Above Pipe Zone: Backfill full width of trench to paving subgrade elevation or to within depth of loam in landscaped areas with Trench Backfill.

E. Compaction: Trench backfill shall be compacted in maximum 24 inch lifts to:
1. 98 percent compaction under pavement areas per ASTM D698 at an optimum moisture content of ±2 percent.
2. 90 percent compaction elsewhere per ASTM D698 at an optimum moisture content of ±2 percent.
3. Water settling of trench backfill will not be considered an acceptable compaction procedure.

3.06 MAINTENANCE OF TRENCH BACKFILL

A. Contractor shall maintain all backfilled trench surfaces until all work has been completed and accepted. Such maintenance shall include, but not be limited to, addition of appropriate backfill material above the pipe zone to keep backfilled trench surface smooth, free from ruts and potholes, and suitable for traffic flow.

3.07 ABANDONING PIPE IN PLACE (FOR UNDER AND WITHIN 2 FEET OF BUILDING)

A. When required, all abandoned pipes shall be plugged at each end and filled with a controlled density fill (CDF). The CDF shall be pumped into each pipe segment from the downstream end. The material's flow characteristics will be such to allow free flow and total fill to pipe crown. If the pipe contains water, the CDF may be used to displace water.

B. The CDF material shall be protected from freezing. Filling of each pipe segment shall be as continuous as possible.

C. Field testing for flowability (ASTM D6023) each batch of CDF for a uniform 8 inch diameter spread or as approved by Engineer to achieve total pipe fill.

D. Contractor shall monitor CDF filling to assure pipes are filled to the crown. Verification of total pipe fill to be submitted to Engineer. Verification procedure to be approved by Engineer prior to start of filling process.

3.08 DISPOSAL OF WASTE MATERIAL AND EXCESS EXCAVATION

A. Remove from site excess material and that unsuitable for backfilling.

3.09 SETTLEMENT

A. Any settlement in trench backfill which occurs during the warranty period and is attributable to construction procedures, such as improper removal of shoring or insufficient compaction, shall be corrected by the contractor at his own expense. Any piping or facilities damaged by such settlement shall be restored to their original condition at the Contractor's expense.

3.10 FIELD QUALITY CONTROL

A. Refer to Section 01 40 00 for responsibilities for arranging, supervising, and payment of field quality control requirements.

B. Field Tests:
   1. Material compaction testing:
      a. Trench Compaction: A minimum of one field density test shall be conducted on compacted material for every 100 linear feet, or fraction thereof, of trench and for every 3 feet, or fraction thereof, of fill placed.
   2. Imported material gradation testing.

C. Field Inspections: Notify Engineer prior to work of this section.

D. Special Inspections for Code Compliance: Obtain building inspector approvals.

3.11 CLEANING

A. Upon completion of the work of this section promptly remove from the working area all scraps, debris, and surplus material.

3.12 PROTECTION

A. Protect all work installed under this section.

B. Replace, at no additional cost to Owner, any damaged work of this section.

END OF SECTION

SECTION 33 10 00

WATER UTILITIES

PART 1 - GENERAL

1.01 CONTRACT CONDITIONS

A. Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this specification and accompanying drawings.

1.02 SECTION INCLUDES

A. Private on-site water distribution system improvements, including fire protection water distribution system.

1.03 WORK INCLUDED BUT SPECIFIED IN OTHER SECTIONS

A. Section 31 23 33 - Trenching and Backfill

1.04 REFERENCED SPECIFICATIONS

A. ASTM Standards (current edition)

B. AWWA Standards (current edition)

C. NFPA Standards (current edition)

1.05 SUBMITTALS

A. Comply with Section 01 33 00, unless otherwise indicated.

B. Product Data: Manufacturer's specifications and technical data including performance, construction, and fabrication information.
   1. Submit for valves, valve boxes, backflow preventers and backflow preventer vault.
   2. Submit buoyancy calculations for backflow preventer vault. Use a factor of safety of 1.5 and assume groundwater level at 0 ft below finished grade.
   3. Contractor shall provide the Architect with 6 sets of shop drawings complying with Eugene Fire Department private water system review checklist. After Architect's review, submit three copies of shop drawings to Fire Department for review and approval. Shop drawings shall incorporate all information required by the private water system review checklist including, but not limited to, the following: pipe sizes, materials, locations, depth of bury; fire hydrant types and locations; fire department connection types and locations; indicate pipe restraint type (thrust blocking or mechanical joint restraint), size, and locations.

C. Field Quality Control submittals as specified in Part 3 of this Section:
   1. Field Tests
   2. Special Inspections for Code Compliance

D. Closeout Requirements: Comply with Section 01 77 00 and Section 01 78 39.
   1. Provide record documents.

1.06 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.

B. Installer's Qualifications: Firm with not less than 5 years experience in installation of systems similar in complexity to those required for this project.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Deliver products in original, unopened packaging with legible manufacturer's identification.

B. Storage and Protection: Comply with manufacturer's recommendations.
1. Protect from damage by the elements and construction procedures.

1.08 ADVANCE NOTICES

A. Notify Engineer at least 48 hours before starting work of this section.

1.09 COORDINATION

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

PART 2 - PRODUCTS

2.01 FIRE PROTECTION WATER PIPE AND FITTINGS (4 INCH AND LARGER) (UNLESS OTHERWISE NOTED)

A. Polyvinyl Chloride Plastic Pipe:
1. Pipe: PVC, AWWA C900 (4" to 12"), DR 18.
2. Fittings: Gray or Ductile iron, mechanical joint, conforming to AWWA C110 or AWWA C153, with exterior asphaltic seal coat and cement mortar lining per AWWA C104 or Fusion Bonded Epoxy in accordance with AWWA C116.
3. Joints:
   a. Unless otherwise specified: Gasket, push-on joints unless otherwise specified, conforming to ASTM D3139.
   b. Mechanical Joints: AWWA C110, with gasket joints per AWWA C111 and corrosion resistant bolts.

B. Restrained Joints: Provide as indicated on the drawings according to the following:
1. Mechanical Joints: UL and FM approved, ductile iron mechanical joint follower gland with restraining wedges secured to pipe by torque limiting twist-off nuts, EBBA Iron Sales "Mega Lug" Series 2000 PV or Romac "Romagrip".
2. Push-On Joints: Clamp ring and fire-bolt assembly with ductile iron ring and corrosion resistant bolts. Uni-Flange Series 1350.

2.02 GATE VALVES FOR FIRE PROTECTION SYSTEM

A. Shall be iron body, class 125, flexible wedge disc, non-rising stem, stuffing box repackable under pressure, UL listed and FM approved, rated working pressure of 150 psi minimum **and conforming to AWWA C515-01**. Crane, Kennedy, or Grinnell. Similar to Kennedy Model **7561** or Kennedy Model **7572**.

2.03 VALVE BOXES

A. Cast iron conforming to ASTM A48 (latest revision), rated for H20 traffic loading, with a rust protective coating; cover marking "water"; bury depth as required on drawings. Olympic Foundry, Inc. VB910.

2.04 BACKFLOW PREVENTERS

A. Fire Protection System:
1. Double check detector backflow preventer, 6 inch, maximum working pressure of 175 psi, with OS&Y valves, UL listed and FM approved. Febco, Conbraco, or approved (meeting UO and EWEB requirements). Provide with watertight plugs or caps on test cocks.

2.05 BACKFLOW PREVENTER VAULT (BELOW GRADE)

A. Vault:
1. Vault: Precast reinforced concrete vault per ASTM C-875, rated for H20 traffic loading, size appropriate to selected backflow preventer and conforming with details, joints and openings grouted watertight, Utility Vault, Hanson, or approved.
2. Ladder: Provide galvanized ladder meeting OSHA requirements and capable of extending 42 inches above top of vault. Ladder to be permanently mounted when vault depth exceeds 4 feet.
3. Access Hatch: Galvanized hinged access hatch, 3' ± by 6' ± minimum opening size, traffic rated for H20 loading, locking latches, spring assisted doors

B. Permanent Dewatering System
1. Sump Pump: See Division 22
2. Discharge Piping:
a. Routing: Route piping from sump pump discharge through vault, holding tight to sides of vault. Extend piping through vault side through a weep hole to be drilled through the nearest curb as detailed on drawings.
b. Pipe: 2" diameter PVC Schedule 40 per ASTM D1784 with solvent cement joints.
c. Check Valve / Union: Thermoplastic industrial ball check type manufactured per ASTM F 1970, Spears True Union 2000 or approved. Locate valve 12-18 inches above pump discharge elevation or as recommended by pump manufacturer.

C. Temporary Dewatering System:
1. Provide temporary dewatering of vault until permanent dewatering system is installed.

D. Vault High Water Alarm:
1. Float Switch and High Water Alarm: See Division 22.
2. Wiring and Connections: See Division 26.
3. Signs: Provide engraved plastic signs. Location and text of sign as follows:
a. Backflow Preventer Vault: Mount sign on inside of vault wall above float switch at a location visible from the access hatch. Sign text :
b. HIGH WATER ALARM FLOAT SWITCH TIED TO BUILDING B.A.S. AS POINT. NOTIFY CPS CONTROL ROOM PRIOR TO DISTURBING OR TESTING.

2.06 BALL DRIP

A. Ball drip shall have brass body, inlet and outlet threads, and have automatic operation.

2.07 MECHANICAL JOINT RESTRAINT RESTRAINED JOINTS

A. Mechanical Joints: At MJ Fittings: Ductile iron mechanical joint follower gland with restraining wedges secured to pipe by torque-limiting twist-off nuts. EBBA iron sales "Mega Lug" Series 2000 PV or Romac “Romagrip”. At Push-on Joints: Clamp-ring and fire-bolt assembly with ductile iron ring and corrosion resistant bolts. Uni-flange series 1350.

2.08 CONCRETE

A. Concrete shall be ready-mixed and have a compressive strength of 3,000 psi at 28 days. Maximum size of aggregate shall be 1½ inches.

2.09 OTHER MATERIALS

A. Recommended by Manufacturer and subject to Engineer's review and acceptance. Provide all materials required to complete and make water system operational.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

A. Prior to installation, carefully inspect trench, excavations and base to verify that all such work is complete to the point where this installation may properly commence.

B. Do not install work of this Section until all unsatisfactory conditions have been corrected. Commencing work implies acceptance of existing conditions.

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 of this section.

3.02 TRENCHING AND BACKFILL

A. Trenching and backfill shall conform to the requirements of Section 31 23 33, TRENCHING AND BACKFILL.

3.03 PIPE INSTALLATION

A. Installation shall be in accordance with the manufacturer's recommendations. All pipe ends and interiors shall be thoroughly cleaned of all foreign matter and shall be kept clean during installation. When work is not in progress, all open ends of pipe and fittings shall be securely closed so that no trench water, earth, animal life or other substance may enter.

B. Cutting of pipe to be done in a neat and workmanlike manner by method which will not damage pipe and as recommended by manufacturer.

C. Install piping within 0.02 feet of indicated grade and location.

D. All ductile iron pipe joints and fittings shall be fully covered with asphaltic coating.

3.04 THRUST BLOCKS AND MECHANICAL JOINT RESTRAINT

A. Install at all changes of directions and fittings as shown on the drawings.

B. Install mechanical joint restraint at fittings and pipe joints where thrust blocks cannot bear on undisturbed soils.

3.05 VALVES, FITTINGS AND CAPS

A. Shall be set and joined to the pipe as shown on the drawings. All pipe shall be supported to prevent stress on valves. All dead ends shall be closed with plugs or caps that are suitably restrained to prevent blowing off under test pressure.

3.06 VALVE BOXES

A. Shall be provided for every valve. Box shall be centered along axis of the operating nut of the valve and shall be set so as not to transmit shock or stress to the valve or valve operator. Keep box free of debris.

B. Set rim flush with adjacent finished surfaces unless otherwise noted.

3.07 DOUBLE CHECK DETECTOR BACKFLOW PREVENTER AND VAULT

A. Install on compacted gravel base, level, plumb, square with adjacent construction, with rim flush with adjacent surfaces in accordance with manufacturers recommendations. Chain gate valves in open position with galvanized chain and padlock. Comply with EWEB installation requirements.

B. EWEB to provide and install detector meter on backflow preventer and remote reader in vault at property line. Coordinate vault requirements with EWEB. Coordinate work and schedule with EWEB.

C. Construct drain line from vault through adjacent curb as a weephole as indicated on drawings. Locate drain so that drain extends level from vault to daylight.

D. Manufactured pipe supports to be installed and adjusted appropriately to support backflow preventer at the required elevations.

3.08 WORK BY UTILITY COMPANY

A. Initiate detector meter and remote reader by EWEB.

B. Owner to pay EWEB costs directly.

3.09 FIELD QUALITY CONTROL

A. Refer to Section 01 40 00 for responsibilities for arranging, supervising, and payment of field quality control requirements.

B. Field Tests:
1. Hydrostatic tests as described below.
2. Disinfection Tests.

C. Field Inspections: Notify Engineer prior to work of this section.

D. Special Inspections for Code Compliance:
1. Test hydrostatically. All testing, acceptance, and documentation shall comply with Oregon State Plumbing Specialty Code (current edition) and NFPA and AWWA specifications as applicable.
2. Prior to testing partially backfill or provide other means of restraint to prevent any movement during the test.
3. Observance: Plumbing inspector and Fire Department to observe fire line testing. Contractor shall notify plumbing inspector and Fire Department at least 48 hours prior to testing.
4. Obtain plumbing inspector and fire marshal approvals and submit to Engineer.

3.10 FLUSHING AND DISINFECTION

A. Flushing:

1. Contractor shall flush and clean all parts of all completed system. All pipe and structures shall be clean and free of all construction debris, rocks, gravel, mud, sand, silt, and other foreign material, and as directed by the Engineer.

B. Disinfection:
1. Disinfect all domestic water supply piping and appurtenances in accordance with AWWA C651 and Oregon State Health Department requirements.
2. Provide written certification from a firm specializing in disinfection that the disinfection has been successfully completed.
3. Dispose of test water in accordance with all governing rules and regulations.

3.11 CLEANING

A. Upon completion of the work of this section promptly remove from the working area all scraps, debris and surplus material.

3.12 PROTECTION

A. Protect all Work installed under this section.

B. Replace, at no additional cost to Owner, any damaged work of this section.

END OF SECTION