NEW GEOTHERMAL POWER PLANT

3201 CAMPUS DRIVE
KLAMATH FALLS, OR 97601

PROJECT MANUAL

OCTOBER 25, 2012

OWNER: **OREGON INSTITUTE OF TECHNOLOGY**
3201 CAMPUS DRIVE
KLAMATH FALLS, OR 97601

DESIGN-BUILDER: **Batzer Construction, Inc.**
P.O. Box 4460 190 Ross Lane
Medford, Oregon 97501
541. 773.7553

ARCHITECT: **Gary R. Caperna, Architect**
P.O. Box 4460 190 Ross Lane
Medford, Oregon 97501 541. 773.7553

SECTION 00 0101
PROJECT TITLE PAGE

OREGON TECH NEW GEOTHERMAL POWER PLANT

PROJECT LOCATION:
3201 CAMPUS DRIVE
KLAMATH FALLS, OR 97601

OWNER:
OREGON INSTITUTE OF TECHNOLOGY
3201 CAMPUS DRIVE
KLAMATH FALLS, OR 97601

DESIGN-BUILDER:
BATZER CONSTRUCTION, INC.
P.O. BOX 4460 190 ROSS LANE
MEDFORD, OR 97501

ARCHITECT:
GARY R. CAPERNA, ARCHITECT
P.O. BOX 4460 190 ROSS LANE
MEDFORD, OR 97501

END OF PROJECT TITLE PAGE

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SEALS PAGE

ARCHITECT:

STRUCTURAL ENGINEER:

MECHANICAL ENGINEER:

ELECTRICAL ENGINEER:

CIVIL ENGINEER:

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1.02 RELATED DOCUMENTS

A. Document 00 1113 - Advertisement for Bids.

B. Document 00 4100 - Bid Form.

C. Document 00 4323 - Alternates Form.

D. Document 00 7300 - Supplementary Conditions:

INVITATION

2.01 BID SUBMISSION

A. Bids signed and under seal, executed, and dated will be received at the office of Batzer Construction, Inc. at 190 N. Ross Lane, Medford, OR 97501 before 2:00 p.m. local standard time on the Ninth day of November, 2012.
   1. Facsimile submissions are acceptable; FAX Number: 541-770-5361.
   2. Accepting bids at www.Batzerinc.com.

B. Offers submitted after the above time shall be returned to the bidder unopened.

C. Submit required Supplements To Bid Forms within 24 hours after closing time for receiving bids.

D. Amendments to the submitted offer will be permitted if received in writing prior to bid closing and if endorsed by the same party or parties who signed and sealed the offer.

2.02 INTENT

A. The intent of this Bid request is to obtain an offer to perform work to complete a New Geothermal Power Plant located at Oregon Institute of Technology, Klamath Falls, OR for a Stipulated Sum contract, in accordance with the Contract Documents.

2.03 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

A. Work of this proposed Contract comprises building construction, including general construction, structural, mechanical, and electrical Work.

B. Location: Oregon Institute of Technology located at 3201 Campus Drive, Klamath Falls, OR 97601.

2.04 CONTRACT TIME

A. Perform the Work in (135) calendar days. The bidder may suggest a revision to the Contract Time with a specific adjustment to the Bid Amount.

BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 DEFINITIONS

A. Bid Documents: Contract Documents supplemented with Invitation To Bid, Instructions to Bidders, Information Available to Bidders, Bid Form Supplements To Bid Forms and Appendices identified.

B. Contract Documents: Defined in General Conditions of the Contract and Batzer Construction Subcontract Form including issued Addenda.

C. Bid, Offer, or Bidding: Act of submitting an offer under seal.

D. Bid Amount: Monetary sum identified by the Bidder in the Bid Form.

3.02 CONTRACT DOCUMENTS IDENTIFICATION

A. The Contract Documents are identified as Project Number 9622-12, as prepared by Architect who is located at 190 N. Ross Lane, Medford, OR 97501, and with contents as identified in the Table of Contents.

3.03 AVAILABILITY

A. Bid Documents may be obtained at the office of Architect which is located at 190 N. Ross Lane, Medford, OR 97501.

B. One sets of Bid Documents can be obtained by Sub-bidders upon receipt of a non-refundable deposit, by certified check, in the amount of $200.00 for one set.

C. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.

3.04 EXAMINATION

A. Bid Documents may be viewed at the office of Architect which is located at 190 N. Ross Lane, Medford, OR 97501.

B. Bid Documents are on display at the offices of the following construction plan rooms:
   1. Medford Builders Exchange.
   2. Klamath Builders Exchange.
   3. ISQFT. Call Batzer Construction, Inc. for access.
   4. OUS Procurement Gateway Website: https://secure.ous.edu/bid/.

C. Upon receipt of Bid Documents verify that documents are complete. Notify Architect should the documents be incomplete.

D. Immediately notify Architect upon finding discrepancies or omissions in the Bid Documents.

3.05 INQUIRIES/ADDENDA

A. Direct questions to Gary Caperna, Architect, telephone: 541-773-7553, or James Hammell, P.E., telephone: 201-264-6594.

B. Addenda may be issued during the bidding period. All Addenda become part of the Contract Documents. Include resultant costs in the Bid Amount.

C. Verbal answers are not binding on any party.

D. Clarifications requested by bidders must be in writing not less than 7 days before date set for receipt of bids. The reply will be in the form of an Addendum, a copy of which will be forwarded to known recipients .

3.06 PRODUCT/ASSEMBLY/SYSTEM SUBSTITUTIONS

A. Where the Bid Documents stipulate a particular product, substitutions will be considered up to 5 business days before receipt of bids.

B. When a request to substitute a product is made, Architect may approve the substitution and will issue an Addendum to known bidders.

C. The submission shall provide sufficient information to determine acceptability of such products.

D. Provide complete information on required revisions to other work to accommodate each proposed substitution.

E. Provide products as specified unless substitutions are submitted in this manner and accepted.

F. See Section 01 6000 - Product Requirements for additional requirements.

SITE ASSESSMENT

4.01 SITE EXAMINATION

A. Examine the project site before submitting a bid.

1. Each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions thereto relating to construction and labor, and should fully inform himself as to the site and the difficulties and restrictions attending the performance of the Contract. The Contractor will not be given extra payments for conditions which can be determined by examination of site and documents.

B. The bidder is required to contact Batzer Construction, Inc. at the following address and phone number in order to arrange a date and time to visit the project site: 190 N. Ross Lane, Medford, OR 97501; tel: 541-773-7553.

QUALIFICATIONS

5.01 EVIDENCE OF QUALIFICATIONS

A. To demonstrate qualification for performing the Work of this Contract, bidders may be requested to submit written evidence of financial position, license to perform work in the State and must possess current BOLI Bond. All Electrical and Boiler (Mechanical) Subcontractors must be prequalified.

5.02 SUBCONTRACTORS/SUPPLIERS/OTHERS

A. Owner reserves the right to reject a proposed subcontractor for reasonable cause.

B. Refer to General Conditions.

BID SUBMISSION

6.01 SUBMISSION PROCEDURE

A. Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.

B. Submit one copy of the executed offer on the Bid Forms provided, signed and sealed with the required security in a closed opaque envelope, clearly identified with bidder's name, project name and Owner's name on the outside.

C. An abstract summary of submitted bids will be made available to all bidders following bid opening.

6.02 BID INELIGIBILITY

A. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may at the discretion of the Owner, be declared unacceptable.

B. Failure to provide security deposit, bonding or insurance requirements may, at the discretion of Owner, be waived.

BID ENCLOSURES/REQUIREMENTS

7.01 SECURITY DEPOSIT

A. Bids shall be accompanied by a security deposit as follows:

1. Bid Bond of a sum no less than 10 percent of the Bid Amount on AIA A310 Bid Bond Form.

B. Endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the principal (Sub-Contractor) and surety.

C. The security deposit will be returned after delivery to the Owner of the required Performance and Payment Bond(s) by the accepted bidder.

D. Include the cost of bid security in the Bid Amount.

E. After a bid has been accepted, all securities will be returned to the respective bidders and other requested enclosures.

F. If no contract is awarded, all security deposits will be returned.

7.02 CONSENT OF SURETY

A. Each Bidder must accompany his Bid with a signed certificate (this may be as part of Bid Bond), from an Admitted Surety company, an insurance organization authorized by the Insurance Commissioner to transact business of insurance in the State of Oregon during this calendar year, and acceptable to the Owner. This certificate shall be in favor of the Owner, stating that such Surety company will provide the Bidder, if awarded the Contract, with a proper Performance Bond and a Labor and Material Payment Bond, for one hundred percent (100%) of the Contract Price as security for the faithful performance of all work under the contract and payments of all charges in connection therewith. The cost of these bonds shall be included in the Bid. Copies of AIA Bond forms may be obtained upon request.

7.03 PERFORMANCE ASSURANCE

A. Accepted Bidder: Provide the cost of a Performance and Payment bond as described in Document 00 7300 - Supplementary Conditions.

B. Include the cost of performance assurance bonds in the Bid Amount and identify the cost on the Bid Form.

7.04 BID FORM REQUIREMENTS

A. Complete all requested information in the Bid Form and Appendices.

7.05 FEES FOR CHANGES IN THE WORK

A. Include in the Bid Form, the fees proposed for subcontract work for changes (both additions and deductions) in the Work. Contractor shall apply fees as noted, to the subcontractor's gross (net plus fee) costs on additional work.

7.06 BID FORM SIGNATURE

A. The Bid Form shall be signed by the bidder, as follows:
   1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature. Affix seal.
   2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature. Affix seal to each signature.
   3. Corporation: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts, under each signature. Affix the corporate seal. If the bid is signed by officials other than the president and secretary of the company, or the president/secretary/treasurer of the company, a copy of the by-law resolution of their board of directors authorizing them to do so, must also be submitted with the Bid Form in the bid envelope.
   4. Joint Venture: Each party of the joint venture shall execute the Bid Form under their respective seals in a manner appropriate to such party as described above, similar to the requirements of a Partnership.

7.07 ADDITIONAL BID INFORMATION

A. Submit the following Supplements concurrent with bid submission:
   1. Document 00 4323 - Alternates: Include the cost variation to the Bid Amount applicable to the Work described in Section 01 2300.

7.08 SELECTION AND AWARD OF ALTERNATIVES

A. Indicate variation of bid price for alternatives listed on the Bid Form. Unless otherwise indicated, indicate alternatives as a difference in bid price by adding to or deducting from the base bid price.

B. Bids will be evaluated on the total of the base bid price and all of the alternatives. After determination of the successful bidder, consideration will be given to which alternatives will be included in the Work.

OFFER ACCEPTANCE/REJECTION

8.01 DURATION OF OFFER

A. Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.

8.02 ACCEPTANCE OF OFFER

A. Owner reserves the right to accept or reject any or all offers.

B. After acceptance by Owner, Architect on behalf of Owner, will issue to the successful bidder, a written Bid Acceptance.

END OF INSTRUCTIONS TO BIDDERS

SECTION 00 3100

AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITIONS

A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of the Contract Documents, as follows:

B. Geotechnical Report: Entitled Geotechnical Investigation, dated August 23, 2012.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

EXISTING REPORTS AND SURVEYS

4.01 SUBSURFACE INVESTIGATION REPORT

A. A copy of a geotechnical report with respect to the building site is available for viewing:
   1. Title: Geotechnical Investigation, Geothermal Power Plant, Oregon Institute of Technology, Klamath Falls, OR.
   2. Date: August 23, 2012.
   3. Prepared by: Applied Geotechnical Engineering and Geologic Consulting, LLC.
   4. View at the office of Architect.

B. This report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Architect.

C. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in the Contract Documents.

D. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Sum accruing to Owner.

4.02 TOPOGRAPHIC SURVEY

A. Topographical survey information has been incoroporated in drawings prepared by the project's Civil Engineer. No separate topographical survey is available.

B. This survey identifies grade elevations prepared primarily for the use of Civil Engineer in establishing new grades and identifying natural water shed.

END OF SECTION

SECTION 00 4000

PROCUREMENT FORMS AND SUPPLEMENTS

PART 1 GENERAL

1.01 FORMS

A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in the procurement requirements.

B. Instructions to Bidders: Section 00 2113.

C. Substitution Request Form (During Procurement): Section 01 6010.

D. Bid Form: Section 00 4100.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 00 4100

BID FORM

THE PROJECT AND THE PARTIES

1.01 TO:

A. Owner
   1. OREGON INSTITUTE OF TECHNOLOGY
   2. 3201 CAMPUS DRIVE, KLAMATH FALLS, OR 97601

1.02 FOR:

A. NEW GEOTHERMAL POWER PLANT

1.03 DATE: _____ (BIDDER TO ENTER DATE)

1.04 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

A. Bidder's Full Name _____
   1. Address _____
   2. City, State, Zip_____

1.05 OFFER

A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Gary R. Caperna, Architect for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

B. _____
_____ dollars
($_____), in lawful money of the United States of America.

C. Work Description:
   1. .
   2. .
   3. .

D. Specifications Section(s) which apply to this Bid:
   1. .
   2. .
   3. .

E. Exclusions:
   1. .
   2. .

F. Performance Bond:
   1. included: Yes_____ No_____
   2. Cost to ADD Performance Bond: $_____.

G. We have included the required security deposit as required by the Instruction to Bidders.

H. All applicable federal taxes are included and State of Oregon taxes are included in the Bid Sum.

I. All Cash and Contingency Allowances described in Section 01 2100 are included in the Bid Sum.

1.06 ACCEPTANCE

A. This offer shall be open to acceptance and is irrevocable for sixty days from the bid closing date.

B. If this bid is accepted by Owner within the time period stated above, we will:
   1. Execute the Agreement within seven days of receipt of Notice of Award.
   2. Furnish the required bonds within seven days of receipt of Notice of Award.
   3. Commence work within seven days after written Notice to Proceed of this bid.

C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

D. In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

1.07 CONTRACT TIME

A. If this Bid is accepted, we will:

B. Complete the Work by the 15th day of March, 2013.

1.08 CHANGES TO THE WORK

A. When Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:
   1. _____ percent overhead and profit on the net cost of our own Work;
   2. _____ percent on the cost of work done by any Subcontractor.

B. On work deleted from the Contract, our credit to Owner shall be Architect-approved net cost plus _____ of the overhead and profit percentage noted above.

1.09 ADDENDA

A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.
   1. Addendum # _____ Dated _____.
   2. Addendum # _____ Dated _____.
   3. Addendum # _____ Dated _____.

1.10 BID FORM SUPPLEMENTS

A. The following information is included with Bid submission:
   1. Alternatives: _____, _____, _____.

B. The following Supplements are attached to this Bid Form and are considered an integral part of this Bid Form:
   1. Document 00 4323 - Alternatives: Include the cost variations to the Bid Sum applicable to the Work as described in Section _____.

1.11 BID FORM SIGNATURE(S)

A. The Corporate Seal of

B. _____

C. (Bidder - print the full name of your firm)

D. was hereunto affixed in the presence of:

E. _____

F. (Authorized signing officer, Title)

G. (Seal)

H. _____

I. (Authorized signing officer, Title)

1.12 IF THE BID IS A JOINT VENTURE OR PARTNERSHIP, ADD ADDITIONAL FORMS OF EXECUTION FOR EACH MEMBER OF THE JOINT VENTURE IN THE APPROPRIATE FORM OR FORMS AS ABOVE.

END OF BID FORM

SECTION 00 4323

ALTERNATES FORM

PARTICULARS

1.01 THE FOLLOWING IS THE LIST OF ALTERNATIVES REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO BATZER CONSTRUCTION, INC.

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

ALTERNATIVES LIST

2.01 THE FOLLOWING AMOUNTS SHALL BE ADDED TO OR DEDUCTED FROM THE BID AMOUNT. REFER TO SECTION 01 2300 - ALTERNATIVES: SCHEDULE OF ALTERNATIVES.

2.02 ALTERNATIVE # 1 - METAL BUILDING - SIDING: (ADD) (DEDUCT) $ _____

END OF SUPPLEMENT C

SECTION 00 6000

PROJECT FORMS

1.01 THE PRINTED "BID BOND", 1970 EDITION, FORM A310, AS ISSUED BY THE AMERICAN INSTITUTE OF ARCHITECTS, AS APPLICABLE, FORM A PART OF THIS PROJECT MANUAL, WHETHER ATTACHED HERETO OR NOT. A COPY OF THESE DOCUMENTS MAY BE REFERRED TO AT THE OFFICE OF THE ARCHITECT AT ANY TIME AND A COPY OBTAINED UPON REQUEST.

2.01 SUB-CONTRACTORS MAY OBTAIN COPIES OF AIA DOCUMENT A310 FOR THEIR REVIEW AND USE BY CONTACTING THE ARCHITECT'S OFFICE AT 541/773-7553.

END OF BONDS AND CERTIFICATES

SECTION 00 7200

GENERAL CONDITIONS

NOTE TO SPECIFIER: SEE SECTION 005000 CONTRACTING FORMS AND SUPPLEMENTS FOR A BETTER WAY TO INCORPORATE STANDARD PREPRINTED FORMS AND OTHER EXTERNAL DOCUMENTS.

FORM OF GENERAL CONDITIONS

4.01 THE GENERAL CONDITIONS APPLICABLE TO THIS CONTRACT IS ATTACHED FOLLOWING THIS PAGE.

A. **THE DOCUMENT IS: GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS, BY THE OREGON UNIVERSITY SYSTEM, DATED JULY 1, 2012.**

RELATED REQUIREMENTS

5.01 AMENDMENTS FOR RFP 2012-02; BY OUS; MODIFIES GENERAL CONDITIONS.

5.02 SUBCONTRACT FORM: PUBLIC WORKS SUBCONTRACT FORM; BY BATZER CONSTRUCTION, INC.

END OF DOCUMENT

OREGON UNIVERSITY SYSTEM

GENERAL CONDITIONS
FOR PUBLIC IMPROVEMENT CONTRACTS

July 1, 2012

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

TABLE OF SECTIONS

OREGON UNIVERSITY SYSTEM
GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS
("OUS Public Improvement General Conditions")

SECTION A
GENERAL PROVISIONS

A.1 DEFINITION OF TERMS

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

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.

BID, means an offer binding on the Bidder and submitted in response to an Instructions to Bidders or a proposal in connection with a Request for Proposals.

BIDDER, means an Entity that submits a Bid in response to Instructions to Bidders or a proposer in connection with a Request for Proposals.

CHANGE ORDER, means a written order which, when fully executed by the Parties to this Contract, constitutes a change to the Contract Documents. Change Orders shall be issued in accordance with the changes provisions in Section D and, if applicable, establish a Contract Price or Contract Time adjustment. A Change Order shall not be effective until executed as a Change Order.

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 Public Improvement 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 Bidders, Supplemental Instructions to Bidders, the OUS Public Improvement Contract, OUS Public Improvement General Conditions, Public Improvement Supplemental General Conditions, if any, the accepted Bid, Plans, Specifications, Change Orders, 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 this Contract and, if applicable, the issuance of a Notice to Proceed and concluding upon Final Completion.

CONTRACT PRICE, means the total of the awarded Bid 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; Owner's costs to correct defective 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 be in the form required by OUS and as posted from time to time on the OUS website and 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 Change Orders 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.

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 Public Improvement 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 Public Improvement General Conditions, recording all Services performed.

SOLICITATION DOCUMENT, means Instructions to Bidders or Bidders 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.

PUBLIC IMPROVEMENT SUPPLEMENTAL GENERAL CONDITIONS, means those conditions that remove from, add to, or modify these OUS Public Improvement General Conditions. Public Improvement 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 Change Orders and Construction Change Directives, with those of later date having precedence over those of an earlier date;

(b) The Public Improvement Supplemental General Conditions;

(c) The OUS Public Improvement Contract;

(d) The OUS Public Improvement 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 Bid.

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 a Bid, 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

Except to the extent otherwise directed by Owner, Contractor shall obtain and pay for all necessary permits, licenses and fees, except for those specifically excluded in the Public Improvement 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 is 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 an Change Orders.

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 Public Improvement 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, unless stated otherwise in the Contract Documents, 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 of 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 Change Order. The amount of the Change Order 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 Change Order 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 Change Order 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 Change Order 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 Change Orders 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 Change Order 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 Change Order. 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 Change Order. 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 <u>DELAYS</u>

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 Owner agree 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 Public Improvement 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 s 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 Change Order;

(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.. Contractor shall submit annual MWESB Reports on June 30 of each year the Contract is active. Contracts - 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 thirty (30) 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 30-Day period.

E.5.1.4 Owner will reduce the amount of the retainage if the Contractor notifies 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 in accordance with Applicable Laws.

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 Contractor 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 and fire 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 State , 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 its 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 execution of this Contract, Contractor shall obtain, and keep in effect at Contractor's expense for the term of this Contract, 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 to this Contract.

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 $1,000,000, or other amount as indicated in the Supplemental General Conditions, 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 remains 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 acknowledges and agrees that Owner reserves the right to withhold payment to Contractor 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 this 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 Change Order , 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, with 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 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 Work 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 to 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 (and subject to the provisions of 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 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.

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 approved 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 conducted at the Work site, or as required by the Contract Documents, 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.

OUS General Conditions for Public Improvement Contracts (OUS General Conditions) Amendments for RFP 2012-02:

A.1 DEFINITIONS OF TERMS

In the OUS General Conditions the following terms shall be added as defined below:

GENERAL CONTRACTOR, means the Design/Build Contractor, of which Batzer Construction, Inc. is the Prime Contractor and coordinating all drawings and specifications for the Geothermal Power Plant Infrastructure RFP #2012-02.

SUBCONTRACTOR, means the person awarded the Subcontract under the Prime General Contractor to complete the work contemplated.

A.3 INTERPRETATION OF CONTRACT DOCUMENTS

Section A.3.3 – end of second sentence add Project Engineer to "Architect/Engineer/*Project Engineer*".

B.1 OWNER'S ADMINISTRATION OF THE CONTRACT

Section B.1.3 – strike through "communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer."

Section B.1.3 – add "communications by the with the Architect/Engineer's consultants shall be made through Project Engineer, Jim Hammell, PE at 201-264-6594, for distribution and responses from Architect/Engineer's consultants."

Section B.1.4. – strike entire sentence and replace with "Based upon the Project Engineer and Owner's Representative's evaluations of the Contractor and Subcontractor's Application for Payment, or unless otherwise stipulated by the Owner's Representative the Project Engineer will review and certify the amounts due the Contractor and Subcontractors and will issue Certificates for Payment in such amounts."

B.4 PERMITS

Strike through "Contractor shall obtain and pay for all necessary permits" and replace with "Contractor shall coordinate and obtain all necessary permits and Owner shall pay for Permits".

K.4 TRAINING

Add "Start-up – Contractor and Subcontractors must include in their bid all associated costs the Plant Start-up. No additional costs, without Owner approval, will be contemplated.

Add Section K.10 as per below:

K.10 VIRTUAL DESIGN & CONSTRUCTION – PRE-ENGINEERED METAL BUILDING, MECHANICAL, & ELECTRICAL SUBCONTRACTORS – BUILDING INFORMATION MODELING (BIM)

K.10.1 Subcontractors shall provide and coordinate, in a timely manner, a 3-Dimensional (3-D) model of the work. The 3-D model will represent an "as fabricated or installed" fully detailed level of information. This detailed model shall include, but is not limited to, major structural mechanical and electrical pipes, ducts, conduits, major structural members such as trusses, beams, columns, etc. as well as secondary and miscellaneous steel connections including bracing, angles, and etc. necessary for the successful coordination of other building trades.

K.10.2 Subcontractors shall update and maintain the 3-D model to reflect changes in the work as a result of coordination or design changes and shall deliver an "AS BUILT" record model of the Work at the end of the project.

K.10.3 Subcontractors shall coordinate with all trades. Batzer Construction will call meetings, as required, notifying which Subcontractors shall attend. Failure to attend will result in work by the absent Subcontractor, on sheets reviewed at a meeting, being declared improperly coordinated and will required the Subcontractor to relocate work as directed by Batzer, or to field run the work not coordinated. No extra compensation will be paid to any Subcontractor for relocating any element of the work or other material that has been installed without property coordination between all the Subcontractor and the trades involved. If any improperly coordinated work, or work installed that is not in accordance with the approved coordination composites, necessitates additional work by other Subcontractors, the cost of such additional work shall be assessed to the Subcontractor responsible as determined by Batzer. Errors in coordination will be resolved be the Subcontractor at his own expense. Where agreements cannot be reached, Batzer will furnish a resolution. The Subcontractor will bear the expense of said resolution.

K.10.4 Subcontractor is required to have for its use, one Autodesk® Revit/Architecture Suite 2012 software license. This software is required to view multiple 3-D model files to allow visualization and coordination of the Work through clash detection analysis. Subcontractor has the option of:

1. Purchasing the software for their use;
2. Utilizing Batzer Construction's drafting personnel at $50.00/hour to provide said services for Subcontractor; or
3. Hire an approved third party.

K.10.5 All work on the coordination drawings (including 3-D models) shall be performed by competent detailers/technicians in a clear legible manner utilizing standard industry conventions. All Subcontractors shall be responsible for providing their coordination drawing files according to the established coordination schedule. It is the responsibility of each Subcontractor to supply a sufficient number of detailers/technicians to prevent delay to the BIM 3-Demensional coordination process and shop drawing submittals. Batzer reserves the right to assess the skills of Subcontractor's BIM detailers/technicians, and the Subcontractor's on-site representative required for collaboration with others, and if found deficient by Batzer, Subcontractor shall replace them with personnel acceptable to Batzer.

BATZER CONSTRUCTION, INC.
PO BOX 4460
MEDFORD OR 97501
Ph. (541) 773-7553 Fax: (541) 773-3049
Oregon CCB #132902

PUBLIC WORKS SUBCONTRACT

PROJECT: _____ SUBCONTRACT No.: _____

OWNER: _____

SUBCONTRACTOR: _____ Corporation ☐ Partnership ☐

Ltd Liability Co. ☐ Individual ☐

_____ Const. Cont. Board Reg.: _____

Taxpayer Ident.: _____

_____ Workers' Comp Carrier: _____

PH. _____ FAX _____ Policy: _____

Exp. Date: _____

SUBCONTRACT WORK. Subcontractor shall furnish labor, materials, and services necessary to complete the following work ("Work" or "Subcontractor's Work") [attach additional sheets if necessary]:

All Subcontractors will be bound by the Terms and Conditions of these OUS Public Improvements General Conditions and Contract.

SUBCONTRACT PRICE. Batzer Construction, Inc. ("Contractor"), shall pay Subcontractor the following amounts for the Work ("Contract Price") [attach additional sheets if necessary]:

Subcontractor represents that it has inspected the Project and has made all investigations essential to a full understanding of the difficulties which it may encounter in performing the Subcontract Work. Subcontractor further represents that it has carefully reviewed and examined: (a) all of the contract documents of the Prime Contract (between Owner and Contractor) including Drawings, Specifications, General and Supplemental Conditions, addenda, amendments, modifications, etc.; and, (b) this Subcontract and its terms and conditions ((a) and (b) collectively, "Contract Documents"). The terms and conditions of this Subcontract are entitled "Terms and Conditions Oregon Public Works Subcontract." The Contract Documents, including the terms and conditions of this Subcontract, are incorporated into this Subcontract by this reference.

The presently scheduled completion date of the Work is _____, 20_____. Subcontractor shall submit progress payment applications not later than the _____ day of the month for work performed through the _____ day of the month.

THIS WRITTEN SUBCONTRACT CONTAINS THE ENTIRE AGREEMENT BETWEEN CONTRACTOR AND SUBCONTRACTOR, AND NO OTHER ORAL OR WRITTEN INDUCEMENT OR PROMISE HAS BEEN MADE TO OR EXTENDED FROM EITHER PARTY AS A PART OF THIS SUBCONTRACT. THIS SUBCONTRACT SHALL BE CHANGED, AMENDED, OR MODIFIED ONLY IN WRITING SIGNED BY CONTRACTOR.

Dated:_____ BATZER CONSTRUCTION, INC.

Signature:_____

ACCEPTANCE

THIS SUBCONTRACT AND ITS TERMS AND CONDITIONS ARE ACCEPTED BY SUBCONTRACTOR'S SIGNATURE BELOW OR BY SUBCONTRACTOR'S COMMENCEMENT OF THE WORK.

Dated:_____ SUBCONTRACTOR

Signature:_____

Title:_____

BATZER CONSTRUCTION, INC.
PO BOX 4460
MEDFORD OR 97501
Ph. (541) 773-7553 Fax: (541) 773-3049
Oregon CCB #132902

TERMS AND CONDITIONS

PUBLIC WORKS SUBCONTRACT

ARTICLE 1 - THE WORK

1.1 **Subcontractor's Work.** Contractor employs the Sub-contractor, as an independent contractor, to perform Subcontractor's Work. Subcontractor shall perform such Work under the general direction of Contractor and in accordance with this Subcontract and the Contract Documents.

1.2 **Conflicts.** Copies of the parts of the Contract Documents that relate directly to Subcontractor's Work shall be furnished to Subcontractor upon request. In the event of a conflict between this Subcontract and other portions of the Contract Documents, this Subcontract shall govern. In the event of a conflict between these printed Terms and Conditions and the terms written on the signature page of the Subcontract, the latter written terms shall govern.

ARTICLE 2 - SCHEDULE

2.1 **Time is of the Essence.** Both parties mutually agree to perform their respective work and the work of their subcontractors so that the Project will be completed in accordance with the Contract Documents and the work schedule. Subcontractor's timing of performance is critical to Contractor's timely performance. Contractor shall prepare the schedule of work and revise the schedule as needed as the work progresses. TIME IS OF THE ESSENCE OF THIS SUBCONTRACT. Subcontractor shall: commence Work hereunder within forty-eight (48) hours after notification; conduct the Work with reasonable diligence in strict accordance with Contractor's time schedule; cooperate in related work; and, in no manner interfere with the work of Contractor or other contractors or subcontractors.

2.2 **Damages for Failure to Meet Schedule.** Subcontractor expressly recognizes that failure to meet the schedule will cause Contractor substantial damage, including, but not limited to, payment of liquidated damages. Subcontractor further expressly recognizes that failure to meet the Contractor's schedule is a material breach of this Subcontract.

2.3 **Schedule Changes.** Subcontractor recognizes that changes will be made in the schedule of Work and agrees to comply with such changes.

2.4 **Priority of Work.** Contractor has the right to decide the time or order in which the various portions of the Work will be installed or the priority of the Work and all matters representing the timely and orderly conduct of Subcontractor's Work.

ARTICLE 3 - PRICE

Contractor agrees to pay to Subcontractor for the satisfactory performance of Subcontractor's Work the Subcontract Price in accordance with Article 4, and subject to additions or deductions as provided for herein. The Subcontract Price includes all taxes, licenses, and fees of any nature which may be imposed upon or charged by any governmental authority upon the labor, material, or other things used in the performance of the Work or upon the transaction between Contractor and Subcontractor.

ARTICLE 4 - PAYMENT

4.1 **General Provisions for Payment.**

4.1.1 **Schedule of Values.** Subcontractor shall provide a schedule of values satisfactory to Contractor no more than fifteen (15) days from the date of execution of this Subcontract.

4.1.2 **Payment Use Restriction.** No payment received by Subcontractor shall be used to satisfy or secure any indebtedness other than one owed by Subcontractor to a person or entity furnishing labor, equipment or materials to the Project. This restriction shall continue until Subcontractor's Work is completed and all indebtedness associated therewith has been paid in full.

4.1.3 **Payment Use Verification.** Contractor shall have the right at all times to contact Subcontractor's subcontractors and suppliers in order to ensure that they are being paid by Subcontractor for work performed or materials furnished to the Project.

4.1.4 **Affidavit of Wages.** Subcontractor shall furnish to Contractor a weekly affidavit with supporting detailed exhibits in a form to be prescribed by Contractor, certifying wages paid and to whom during each preceding weekly payroll period. **Failure to provide such certification shall result in contractor withholding 25% of all sums due to subcontractor until all such certifications have been furnished to contractor without prior notice and without incurring any late interest penalties.** Contractor shall pay Subcontractor any amounts withheld under this Subarticle within 14 days after Subcontractor furnishes the required certifications.

4.1.5 **Partial Lien Waivers and Affidavits.** When required by Contractor, and as a prerequisite for payment, Subcontractor shall provide, in a form satisfactory to Contractor, partial lien or claim waivers and affidavits from Subcontractor, and its sub-subcontractors and suppliers for the completed Subcontractor's Work. Such waivers may be made conditional upon payment.

4.1.6 **Payment by Subcontractor.** Subcontractor shall ensure that all of its subcontractors, employees, and suppliers, at all times, are paid all amounts due in connection with the performance of this Subcontract and Subcontractor shall earmark all payments received in connection with the Project, from Contractor or otherwise, to such persons and for such purpose. Within fourteen (14) days after the execution hereof by Subcontractor, Subcontractor shall provide Contractor with written notice of the subcontractors and suppliers which Subcontractor intends to employ on the Project, and thereafter shall keep Contractor informed of additional or changed subcontractors or suppliers. Contractor shall have the right at all times to contact said persons in order to ensure that the same are being paid by Subcontractor for Work performed or materials furnished on the Project. Contractor shall have the right to withhold any payment(s) due under this Subcontract until Subcontractor submits evidence satisfactory to Contractor, in its sole discretion, that amounts owed by Subcontractor in connection with performance of this Subcontract have been paid. Further, Subcontractor agrees that Contractor may, by joint check, direct check, or otherwise, pay all persons or entities who have not been paid the monies due them in connection with this Subcontract whether or not a lien or claim has been filed and Subcontractor shall, to the extent that Contractor has not recovered said amounts pursuant to withholding, pay said amounts to Contractor upon demand. However, no payment by Contractor to any subcontractor or supplier of Subcontractor shall be deemed to confer upon said subcontractor or supplier any third party right or benefit. Subcontractor shall also immediately reimburse Contractor for any amounts paid under Contractor's payment and/or performance bond, if any, in connection with this Subcontract. In the event Contractor is required to pay or indemnify any person as a result of any act or omission to act required of Subcontractor

4.3.4 **Effect.** Acceptance of final payment shall constitute a waiver of all claims by Subcontractor relating to Subcontractor's Work, but shall in no way relieve Subcontractor of liability for the obligations assumed under any warranties required of the Contract Documents hereof, or for faulty or defective Work appearing after final payment. Without limitation, final payment does not waive Contractor's right to recoupment or setoff, nor Subcontractor's obligation to remedy unknown defective Work and non-compliance with the Contract Documents or warranties thereunder.

4.4 **Recoupment and Setoff.** Contractor may deduct from any amounts due or to become due Subcontractor any sum or sums owed by Subcontractor to Contractor; and in the event of any breach by Subcontractor of any provision or obligations of this Subcontract, or in the event of the assertion by other parties of any claim or lien against Contractor or the premises arising out of Subcontractor's performance of Subcontractor's Work, or otherwise, Contractor shall have the right to retain out of any payments due or to become due to Subcontractor an amount sufficient to completely protect Contractor from any and all loss, damage or expense therefrom, until the situation has been satisfactorily remedied or adjusted by Subcontractor.

4.5 **Backcharge Schedule.** In the event Contractor deducts, from payments to Subcontractor, any costs to correct or complete Subcontractor's Work or to otherwise remedy Subcontractor's breach or default, Contractor will submit to Subcontractor a written backcharge schedule accounting for the amount deducted. All such deductions will be final and Subcontractor waives any claim for the amounts deducted unless Subcontractor provides a written notice of claim for all or part of the deducted sum to Contractor within three (3) days of Subcontractor's receipt of the backcharge schedule.

4.6 **Joint Checks.** Contractor reserves the right to make payment by joint check or by direct check to Subcontractor's materials suppliers or subcontractors or any person who has any right of action against Contractor, Owner, Contractor's surety, or the premises arising from or in any way related to Subcontractor's Work under any law. Subcontractor expressly agrees that Contractor reserves the right of determination as to what manner of payment shall be made. Any amount so paid will be charged to Subcontractor's account.

ARTICLE 5 - CHANGES AND CLAIMS

5.1 **Changes.** When Contractor so orders in writing, and without nullifying this Subcontract, Subcontractor shall make any and all changes in the Work. Adjustments in the Subcontract Price or Contract time, if any, resulting from such changes shall be set forth in a Subcontract change order to the extent, less Contractor's costs or damages, obtained by Contractor under the Prime Contract. No such adjustments shall be made for any such Work performed by Subcontractor that has not been so ordered in writing by Contractor.

5.2 **Claims Relating to Owner.** Subcontractor agrees to make, and pursue to resolution, all claims for extension of time, damages for delay or otherwise, arising out of or relating to changes directed by Owner, deficiencies in the Contract Documents, or other acts or omissions for which Owner is or may be liable to Contractor, in the manner provided in the Contract Documents for like claims by Contractor upon Owner within three (3) calendar days prior to the beginning of such Subcontractor's Work or the event or situation for which the claim is to be made, or immediately upon Subcontractor's first knowledge of the event or situation, whichever first occurs, and, in any event, in time to preserve any such claims under the Prime Contract. Subcontractor agrees to be bound to Contractor to the same extent that Contractor is bound to Owner both by the terms of the Prime Contract and by any and all decisions or determinations made thereunder by the party or entity so authorized in the Prime Contract, if applicable. In the event the Prime Contract contains a provision, hereinafter called Disputes Clause, whereby claims may be resolved under an administrative procedure or by arbitration, then as to any claims of Subcontractor for or on account of acts or omissions of Owner or Designer which are not disposed of by agreement, Contractor agrees to aid and cooperate with Subcontractor and to present to Owner, in Contractor's name, all of Subcontractor's claims for additional monetary compensation or time extension; and to further invoke, on behalf of Subcontractor, those provisions in the Prime Contract for determining disputes. Contractor shall have the option to present such claims upon Subcontractor's behalf, in advance of and without Subcontractor's written request or consent. Subcontractor shall have full responsibility for preparation and presentation of such claims and shall bear all expenses thereof, including all attorneys' fees. Subcontractor agrees to be bound by the procedure and final determination as to any such claims and will pursue no independent litigation with respect thereto, pending final determination under such Disputes Clause. Subcontractor shall not be entitled to receive any greater amount from Contractor than Contractor is entitled to and actually does receive from Owner on account of Subcontractor's Work, less five percent (5%) or Two Hundred Dollars ($200.00), whichever is greater, for administration of Subcontractor's claim by Contractor, and Subcontractor agrees that it will accept such amount, if any, received by Contractor from Owner, less said administrative fee and less any recoupment or setoff that may be applicable under this Subcontract, as full satisfaction and discharge of all claims for or on account of acts or omissions of Owner or Designer.

5.2.1 Subcontractor shall be bound by Contractor's determination, made in good faith, as to apportionment of any amounts received from Owner on behalf of claimants, including Contractor, Subcontractor and other subcontractors or suppliers, whose work is affected by any act or omission of Owner or Designer.

5.2.2 If Subcontractor makes a claim for additional compensation, such claim shall conform strictly to the requirements of the Contract Documents, and shall also include a certified statement as to the validity of facts and costs in the following form unless a different form is required by the Contract Documents in which case Subcontractor shall execute that form:

> "Under penalty of law for perjury or falsification, the undersigned [insert name and title of person signing] of [insert name of Subcontractor] certifies that this claim for additional compensation for work on the Subcontract is a true statement of the actual costs incurred on the Subcontract and is fully documented and supported under the Subcontract and that Subcontractor is entitled to payment of such amount."
>
> [sign and have notarized]

5.3 **Claims Relating to Contractor.** All claims, disputes, and other matters in question between Contractor and Subcontractor, which includes but is not limited to any amount Subcontractor claims is due from Contractor despite any lack of payment by Owner and claims not relating to claims included in Subarticle 5.2, shall be resolved in the manner provided in Article 13 herein. Subcontractor shall give Contractor written notice of any such claim within three (3) days of the event for which claim is made; otherwise, such claim shall be deemed waived. In the event any such claim is related to the performance of work by Subcontractor, Subcontractor shall account for all labor, materials, and equipment (including equipment rental costs) for any such claim on a daily basis and shall submit such accountings to Contractor on a weekly basis. Failure to account for such costs on a daily basis or submit such costs to Contractor on a weekly basis will constitute a waiver of any such claim by Subcontractor.

5.4 **Delay.** If the progress of Subcontractor's Work is substantially delayed without fault or responsibility of Subcontractor, then the time for Subcontractor's Work shall be extended by change order to the extent obtained by Contractor under the Contract Documents, and the schedule of Work shall be revised accordingly. In no event shall Contractor be liable to Subcontractor for any damages or additional compensation as a consequence of delays caused by any person unless Contractor has first recovered the same on behalf of Subcontractor from Owner. Apart from recovery by Contractor from Owner, Subcontractor's sole and exclusive remedy for delay shall be an extension in the time for performance of Subcontractor's Work. No extension of time or any other remedy for delay will be allowed unless written claim is made within three (3) calendar days from the delaying event and in time to preserve such claim for Contractor under the Prime Contract.

5.5 **Liquidated Damages.** If the Contract Documents provide for liquidated damages for delay beyond the completion date set forth in the contract documents, and are so assessed, then Contractor may assess same against Subcontractor in proportion to Subcontractor's share of the responsibility for such delay, regardless of cause. However, the amount of such assessment shall not exceed the amount assessed against Contractor. Nothing in this Subarticle shall be construed to limit the damages recoverable from Subcontractor by Contractor or others arising out of the Work. Such damages may include, and are not limited to, damages for delay to Contractor

The Safety Representative shall have the Authority to stop Subcontractor's Work in the event of unsafe or potentially unsafe conditions.

7.8.6 Within 24 hours after each occurrence, Subcontractor shall furnish to Contractor a written report of all accidental injuries to persons or damage to property. A complete accident investigation report shall be submitted at the same time. At the end of each month, Subcontractor shall submit monthly injury statistics on forms specified by Contractor or Owner. Contractor's authorized representatives shall be given access at all times to Subcontractor's records, documents, files, workplace facilities, and personnel, in order to audit, verify, and evaluate compliance with safety requirements if Contractor chooses to do so.

7.8.7 Subcontractor is required to comply with all applicable "Hazard Communication/Right to Know" laws concerning toxic or hazardous substances. Subcontractor shall maintain an index of those materials which are stored or used in the performance of the Work which contain toxic or hazardous substances. A copy of said list shall be provided to Contractor. Subcontractor shall make Material Safety Data Sheets available to all its employees. Copies of all reports made pursuant to the Material Safety Data Sheets shall be furnished to Contractor.

7.8.8 Subcontractor, and all its subcontractors, is required to maintain a drug and alcohol free working environment, consistent with the established policies and programs of Contractor and Owner. Subcontractor shall, without fail, conduct new hire, post accident, and reasonable cause drug and alcohol screening tests.

7.8.9 Subcontractor shall keep the Project and its premises free from debris and unsafe conditions resulting from Subcontractor's Work, and broom-clean each work area prior to discontinuing Work each day.

7.8.10 If Subcontractor fails to commence compliance with the duties of this Subarticle 7.8 within 24 hours after receipt from Contractor of written notice of non-compliance, Contractor may perform such necessary cleanup or implement safety measures without further notice and deduct the cost thereof from any amounts due or to become due Subcontractor. Abnormally frequent injury to workers or hazardous construction practices is cause for termination of the Subcontract.

7.9 **Protection of the Work**. Subcontractor shall take necessary precautions to properly protect Subcontractor's Work and the work of others from damage caused by Subcontractor's operations. Should Subcontractor cause damage to the work or property of Subcontractor, Owner, Contractor, or others, Subcontractor shall promptly remedy such damage to the satisfaction of Contractor or Contractor may so remedy and deduct the cost thereof from any amounts due or to become due Subcontractor.

7.10 **Taking Possession of Subcontractor's Work**. Even though the time for Subcontractor's performance has not expired, Contractor and Owner have the right to take possession of, and to use, any completed, or partially completed, portions of Subcontractor's Work. The exercise of such rights shall not be deemed a final acceptance of the Work or a waiver of any other rights of Contractor or Owner.

7.11 **Permits, Fees, and Licenses**. Subcontractor shall give adequate notices to authorities pertaining to Subcontractor's Work and secure and pay for all permits, fees, licenses, assessments, inspections, and taxes necessary to complete Subcontractor's Work in accordance with the Contract Documents. To the extent obtained by Contractor under the Contract Documents, and directly applicable and allowable to the Work, Subcontractor shall be compensated for additional costs resulting from laws, ordinances, rules, regulations, and taxes enacted after the date of this Subcontract.

7.12 **Assignment**. This Subcontract is personal to Subcontractor. Subcontractor shall not assign this Subcontract nor its proceeds nor subcontract the whole nor any part of Subcontractor's Work without prior written approval of Contractor. Any assignment without such approval shall be invalid, unenforceable, and void.

7.13 **Subcontractor's Investigations and Representations**. Subcontractor represents that it is fully qualified to perform the Subcontract Work, and acknowledges that, prior to the execution of this Subcontract, it has (a) by its own independent investigation ascertained (i) the Work required by this Subcontract, (ii) the conditions involved in performing the Work, and (iii) the obligations of this Subcontract and the Contract Documents, and (b) verified all information furnished by Contractor or others satisfying itself as to the correctness and accuracy thereof. Any failure by Subcontractor to independently investigate and become fully informed will not relieve Subcontractor from its responsibilities hereunder.

7.14 **Approvals.**

7.14.1 Subcontractor warrants and agrees that it can and will obtain all requisite approvals from Owner and licensing agencies as to its eligibility to serve as a subcontractor and approvals of all materials and performance of the Work as required by the Contract Documents.

7.14.2 Subcontractor shall deliver to Contractor copies of shop drawings, cuts, samples, and material lists required by Contractor or the Contract Documents within sufficient time so as not to delay performance of the Project or within sufficient time for Contractor to submit the same within the time stated in the Contract Documents, whichever is earlier. Any deviation from the Contract Documents shall be clearly identified on shop drawings. Notwithstanding any general approval granted by Contractor or Owner, all Work shall be in accordance with the Contract Documents.

7.15 **Meetings**. Subcontractor agrees to attend weekly on-site meetings if required to do so by Contractor or Owner.

7.16 **Prevailing Rate of Wage**. When required of Contractor under the Prime Contract, or where required by law, Subcontractor expressly agrees to be bound by and comply with any prevailing rate of wage laws applicable to Subcontractor's Work and if the Prime Contract is an Oregon Public Works contract, Subcontractor agrees to comply with ORS 279C.800-279C.870.

7.17 **Public Works Bond.** If the Prime Contract is an Oregon Public Works contract, Subcontractor shall obtain a public works bond in the penal sum of $30,000 and shall file such bond with the Construction Contractors Board. Subcontractor shall provide a copy of such proof to Contractor before Subcontractor performs any work on the Project, unless Subcontractor is exempt from such bond requirement, in which case proof of such exemption and election not to obtain a public works bond must be provided to Contractor.

7.18 **License.** Subcontractor represents that it is and will remain properly licensed as required by the Oregon Construction Contractors Board and ORS Chapter 701, and that its subcontractors (if any) are and shall remain properly licensed to perform all Work required under this Subcontract. Subcontractor is responsible for confirming that any subcontractors and/or suppliers it employs on the Project are properly licensed, bonded, and insured.

ARTICLE 8 - PERFORMANCE OF WORK

8.1 **Layout Responsibility**. Contractor or Owner shall establish principal access lines and levels whereupon Subcontractor shall lay out and be strictly responsible for the accuracy of Subcontractor's Work and for any loss or damage to Contractor or contractors or subcontractors engaged in work on the site by reason of Subcontractor's failure to perform its Work correctly. Subcontractor shall exercise prudence so that actual final conditions and details will result in perfect alignment of finished surfaces.

8.2 **Workmanship**. Every part of Subcontractor's Work shall be executed in strict accordance with the Contract Documents in a sound, workmanlike, and substantial manner. All materials used in Subcontractor's Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work, and shall be new except for such materials as may be expressly provided in the Contract Documents to be otherwise.

8.3 **Materials Furnished by Others**. In the event the scope of Subcontractor's Work includes installation of materials or equipment furnished by others, it shall be the responsibility of Subcontractor to examine the items so provided and thereupon handle, store, and install the items with such skill and care as to insure a satisfactory and proper installation. Loss or damage due to acts of Subcontractor shall be deducted from any amounts due or to become due Subcontractor.

8.4 **Substitutions.** No substitutions shall be made in Subcontractor's Work without first receiving all approvals required under the Contract Documents for substitutions. Subcontractor shall indemnify Contractor for any increased costs, including overhead, incurred by Contractor as a result of such substitutions, whether or not Subcontractor has obtained approval thereof and

Subcontractor shall notify Contractor in writing within twenty (20) working days after receipt of Contractor's termination order of the effect of such order upon Subcontractor's Work, and Subcontract Price, or Subcontract time shall be adjusted by Subcontract change order for any increase in the time or cost of performance of this Subcontract caused by such termination, suspension, delay, or interruption. No claim under this Article shall be allowed for any costs incurred more than twenty (20) working days prior to Subcontractor's notice to Contractor. If this Subcontract is terminated for convenience, Subcontractor shall be entitled to be paid a portion of the Subcontract Price based on the reasonable value of Work properly performed prior to such termination plus reasonable direct close-out costs, less partial payments previously made, except that if there is also a termination for convenience of the Prime Contract, termination settlement shall be as provided in the Contract Documents. However, neither the Subcontract Price nor the Subcontract time shall be adjusted under this Article for any termination, suspension, delay or interruption to the extent that performance would have been so suspended, delayed, or interrupted by the fault or negligence of Subcontractor.

9.6 **Wrongful Exercise**. If Contractor wrongfully exercises any option under this Article, Contractor shall be liable to Subcontractor solely for the reasonable value of Work performed by Subcontractor prior to Contractor's wrongful action, including reasonable overhead and profit, and reasonable closeout costs, less prior payments made.

9.7 **Assignment.** In the event of Termination, including termination without cause, Contractor may require Subcontractor to assign to it any subcontracts, rental agreements and any other commitments which Contractor, in its sole discretion, chooses to take by assignment. Subcontractor will promptly execute and deliver to Contractor written assignments of the requested items.

9.8 **No Waiver.** Termination by Contractor will not constitute any waiver of rights, claims or causes of action Contractor may have against Subcontractor under this Subcontract.

ARTICLE 10 - LABOR

10.1 **Collective Bargaining Agreements**. Subcontractor agrees to be bound and comply with all applicable enforceable provisions of each collective bargaining agreement to which Contractor is signatory, if any, and to indemnify Contractor from any and all liability, claim, loss, cause of action, cause of suit, or damage, including standby and start-up costs suffered by Contractor, resulting in any way from Subcontractor not being signatory to, or failing to comply with, the requirements of any such agreements executed by Contractor or Subcontractor in effect during Subcontractor's performance of the Work. Subcontractor assumes the responsibility of familiarizing itself with all labor agreements that may be applicable to this Article. Failure at any time to comply with any of the provisions of such agreements will, at the option of Contractor, be cause for immediate termination of this Subcontract for default and Contractor shall have all of the rights contained in Article 9 hereof with regard to such termination.

10.2 **Labor Relations**. If Subcontractor employs workers who are members of the building trades unions or subject to any other collective bargaining agreement, then, before commencing the work, Subcontractor shall hold, and participate in, a "jurisdictional" meeting with all trades whose members may be involved in the work. Subcontractor shall furnish Contractor a written report of such meeting, and shall notify Contractor of any unusual or out of the ordinary jurisdictional assignments before made by Subcontractor.

10.3 **Labor Harmony**. If by reason of strikes, picketing, or disputes of any nature between Subcontractor and any individual, group, or organization or informational picketing of any kind, Subcontractor should for a period of three (3) consecutive days, be unable to supply enough properly skilled workers or materials or equipment to perform Subcontractor's Work, then Contractor may terminate this Subcontract for default and proceed in accordance with Article 9 hereof.

ARTICLE 11 - INDEMNITY

11.1 **Indemnification Regarding Subcontractor's Performance**. To the extent permitted by law, Subcontractor shall defend, indemnify, and hold harmless "Indemnitees" which are: Owner, Designer, Contractor (including its affiliates, parents, and subsidiaries), and Contractor's sureties from and against all claims, causes of action or suit, damages, liability, losses, and expenses, including, but not limited to, attorney fees, arising out of or resulting from the performance of Subcontractor's Work, provided that any such claim, cause of action or suit, damage, liability, loss, or expense is attributable to bodily injury, sickness, disease, or death or to injury to or destruction of tangible property, including the loss of use resulting therefrom, to the extent caused by the fault of Subcontractor or anyone directly or indirectly employed by Subcontractor or anyone for whose acts Subcontractor may be liable, regardless of whether it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate or abridge, or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to any party or person described in this Article. Notwithstanding any other provision of this Article, in no instance shall Subcontractor be required to indemnify an Indemnitee against liability for damages arising out of death or bodily injury to persons or damage to property caused solely by that Indemnitee's negligence or willful misconduct. This indemnity obligation shall survive termination of or final payment under the Subcontract.

11.2 **Equipment Use**. In the event that Subcontractor or any of its agents, employees, suppliers, or lower-tier subcontractors utilize any machinery, equipment, tools, scaffolding, hoists, lifts, or similar items belonging to or under the control of Contractor, Subcontractor shall be liable to Contractor for any loss or damage (including personal injury or death) which may arise from such use, except where such loss or damage shall be found to have been due solely to the negligence of Contractor's employees operating Contractor-owned or Contractor-leased equipment.

11.3 **No Limitation Upon Liability**. To the fullest extent permitted by law, in any and all claims against Owner, Designer, Contractor (including its affiliates, parents, and subsidiaries), and other contractors or subcontractors or any of their agents or employees by any employee of Subcontractor, anyone directly or indirectly employed by Subcontractor or anyone for whose acts Subcontractor may be liable, the indemnification obligation under this Article shall not be limited by any immunities or limitations on the amount or type of damages, compensation, or benefits payable by or for Subcontractor under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts. Subcontractor expressly acknowledges that the foregoing waiver of such immunity(ies) was separately negotiated and mutually agreed upon by Contractor and Subcontractor.

Subcontractor's assumption of liability is independent from, and not limited in any manner by, Subcontractor's insurance coverage obtained pursuant to this Subcontract or otherwise. All amounts owed by Subcontractor to Contractor as a result of the liability provisions of this Subcontract shall be paid upon demand.

11.4 **Performance Failure**. Subcontractor shall be liable to Contractor for all costs, direct or indirect, which Contractor or Owner incurs as a result of Subcontractor's failure to perform this Subcontract, or any part hereof, in accordance with its terms. Subcontractor's failure to perform shall include, but not be limited to, the failure of its suppliers and/or subcontractors of any tier to perform. The liability of Subcontractor and its sureties (if any) shall include, but not be limited to, (1) liquidated or actual damages and other delay costs payable by Contractor to Owner; (2) Contractor's increased costs of performance, including extended overhead and other costs resulting from Subcontractor-caused delays or improper Subcontractor Work; (3) warranty and rework costs; (4) liability to third parties, including Subcontractor's employees; (5) cost to complete Subcontractor's Work; (6) attorney fees and related costs; and (7) sums equal to benefits paid for or on behalf of Subcontractor or to Subcontractor's employees where such benefit payments are charges to Contractor under any merit plan or to Contractor's individual reserve account pursuant to any workers' or unemployment compensation insurance policy or statute.

11.5 **Compliance With Laws**. Subcontractor agrees to be bound by, and at its own cost to comply with, all federal, state, and local laws, ordinances, and regulations (hereinafter collectively referred to as "laws") applicable to Subcontractor's Work, including, but not limited to, equal employment opportunity laws, Minority and Disadvantaged and Women Business Enterprise laws, the Occupational Safety and Health Act in its federal and state versions, tax laws, environmental and hazardous substance laws, and all other laws with which Contractor must comply according to the Contract Documents. Subcontractor shall be liable to Indemnitees as provided in the indemnification obligation under this Article for all loss, cost, and expense (including, but not limited to, attorney, consultant and expert fees) attributable to any acts of commission or omission by Subcontractor, its employees, or

Documents. To the fullest extent allowable under applicable state law, such insurance afforded to Contractor, Owner, and Designer as additional insureds under Subcontractor's policies shall be primary insurance and not excess over, or contributing with, any insurance purchased or maintained by Contractor or Owner.

If owners of Subcontractor perform work on or in connection with the Project, they shall each elect coverage for themselves under the applicable workers' compensation law and insurance policies.

12.3 **Required Certificates of Insurance and Endorsement Forms.** Prior to commencement of the Work, or within five (5) days from the date of execution of this Subcontract, whichever is sooner, and as a condition precedent to payment for the Work, Subcontractor shall provide Contractor with Certificates of Insurance in a form acceptable to Contractor which shall provide satisfactory evidence that Subcontractor has complied with all insurance requirements of this Subcontract and the Prime Contract. Certificates shall evidence existence of endorsement CG2010 (1985) or the equivalent. At Contractor's sole option, it may require, in addition to Certificates of Insurance, properly completed and executed insurance endorsement forms, in a form acceptable to Contractor, evidencing the required insurance coverage and/or certified copies of policies. Such Certificates of Insurance and/or endorsement forms shall include a provision that the coverages afforded thereunder shall not be cancelled, nor non-renewed, nor restrictive modifications added, unless at least thirty (30) days' prior written notice is given to Contractor, unless a longer period is specifically required by the Contract Documents, in which case the longer period shall apply. If the Certificate of Insurance includes language to the effect that – "This certificate is issued as a matter of information only and confers no rights upon the certificate holder" – such language shall be deleted.

12.4 **Waiver of Rights.** Contractor and Subcontractor waive all rights against each other and Owner, Designer, separate contractors, and all other subcontractors for loss or damage to the extent covered by builder's risk or completed operations or any other property or equipment insurance, except such rights as they may have to the proceeds of such insurance; provided, however, that such waiver shall not extend to the acts of Designer. In addition, Subcontractor's workers compensation insurance policy shall contain a provision that Subcontractor and its insurer waive all rights of subrogation or "claims over" against Contractor and Owner.

ARTICLE 13 - DISPUTES

13.1 **Governing Law.** The law of the State of Oregon shall govern this Subcontract.

13.2 **Agreement to Mediate.** Except for claims for contribution or indemnity arising out of or relating to a lawsuit filed by or against any party to this Subcontract, the parties mutually agree that any dispute that may arise under this Subcontract will be submitted to a mediator agreed to by both parties as soon as reasonable after such dispute arises, but in any event prior to the commencement of arbitration or litigation. Such mediation shall take place in Portland, Oregon, and the mediation fees and mediator's expenses shall be shared equally by the parties. The parties agree to exercise their best efforts in good faith to resolve all disputes in mediation.

13.3 **Claims of Subcontractor.** As to any claims asserted by Subcontractor on account of acts or omissions of others for which Contractor may have a right to claim under the Prime Contract, or for any claims made by others under the Prime Contract against Contractor for which Subcontractor is responsible, Subcontractor agrees to prosecute or defend such claims in Contractor's name and in accordance with the provisions of the Prime Contract for determining disputes. Contractor and Subcontractor further agree to cooperate in prosecuting or defending claims. Subcontractor shall have full responsibility for preparation and presentation of such claims and shall bear the expenses thereof, including attorney fees. Subcontractor shall be bound by such determinations.

13.4 **Arbitration or Litigation.** Subject to any mediation requirement, if any dispute arises between Contractor and Subcontractor pertaining to the interpretation of this Subcontract, the rights and obligations of the parties hereunder, or to the breach of this Subcontract (which includes but is not limited to any claim for damages or compensation Subcontractor claims is due from Contractor despite any lack of responsibility or payment by Owner and claims not relating to claims included in Subarticle 5.2), Contractor shall have the option of having the dispute resolved through arbitration or action in a court of law. If Subcontractor first commences a court action with respect to a matter that Contractor desires to have determined by arbitration, or an arbitration proceeding with respect to a matter which Contractor desires to have determined by court action, Contractor shall have the right to have said court action or arbitration proceeding stayed if Contractor within 30 days commences or notifies Subcontractor in writing of its intent to commence the court action or arbitration proceeding desired by Contractor. If the elections afforded Contractor herein are not enforceable, then both parties agree to arbitrate all disputes. Disputes other than those selected by Contractor to be decided in a court of law, shall be settled exclusively by arbitration by the Arbitration Service of Portland, Inc., in accordance with the Rules of the Arbitration Service of Portland, Inc. The decision of the arbitrator(s) shall be final and binding upon both parties. In every case where Contractor has, before the arbitration decision is rendered, offered a settlement which Subcontractor refused to accept and which meets or exceeds the arbitrator's award, all costs and fees, including attorney fees and the arbitrator's fees, incurred or necessitated by the arbitration proceeding shall be paid by Subcontractor.

13.5 **Consolidated or Joint Arbitration.** If arbitration is conducted involving Owner, Contractor, or any other party concerning or in any way relating to the work required or alleged to be required herein, this Subcontract, or Subcontractor, Subcontractor expressly agrees to a consolidated or joint arbitration, if and as called for by Contractor.

13.6 **Venue.** If any suit or action is filed by any party to enforce this Subcontract or otherwise with respect to the subject matter of this Subcontract, this Subcontract and all Work hereunder shall be interpreted under the laws of Oregon, and venue for any suit or action shall be Clackamas County, Oregon. By executing this Subcontract, Subcontractor hereby subjects himself to the jurisdiction of the Circuit Court of the State of Oregon in and for Clackamas County.

13.7 **Work Continuation and Payment.** Unless otherwise agreed in writing, Subcontractor shall carry on the Work and maintain the Scheduled Work pending resolution of the dispute, and, if so, Contractor shall continue to make payments in accordance with this Subcontract.

13.8 **Notice of Intent to Prosecute Claim.** Except where a shorter notice period is required by this Subcontract or the Contract Documents or by law, Subcontractor expressly promises and agrees not to institute any suit, action, or proceeding against Contractor and/or its surety, or send any notice of claim to Contractor's surety and/or the Owner without giving at least seven (7) days' prior notice in writing to Contractor of Subcontractor's intention to do so. Such notice shall include a general statement of the claim together with a detailed statement of the damages alleged. Failure to provide such notice shall be a waiver of such claim by Subcontractor.

13.9 **Contractor's Damages.** Notwithstanding any provision to the contrary in any Article or Subarticle of this Subcontract, Subcontractor's liability for costs incurred by Contractor on Subcontractor's behalf, or on account of Subcontractor, or otherwise under any provision of this Subcontract shall include not only Contractor's direct or out-of-pocket costs but also Contractor's overhead associated with such costs. In addition, Contractor shall be entitled to a 10% markup on such direct or out-of-pocket costs. This markup is not profit nor a penalty but is established as liquidated damages to compensate Contractor for its administrative costs and/or to allow Contractor to recover its profit on work foregone as a result of Subcontractor's failure to properly perform.

ARTICLE 14 - EQUAL OPPORTUNITY

14.1 In connection with its performance under this Subcontract, Subcontractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, sex, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Subcontractor agrees to post hereafter, in conspicuous places, available for employees and applicants for employment, notices, prepared by Subcontractor, and approved by the government when required, setting forth the provisions of this Article.

14.2 Subcontractor shall permit access to its books, records, and accounts by representatives of Contractor or Owner or any applicable

OREGON UNIVERSITY SYSTEM

GENERAL CONDITIONS
FOR PUBLIC IMPROVEMENT CONTRACTS

July 1, 2012

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

TABLE OF SECTIONS

OREGON UNIVERSITY SYSTEM
GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS
("OUS Public Improvement General Conditions")

SECTION A
GENERAL PROVISIONS

A.1 DEFINITION OF TERMS

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

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.

BID, means an offer binding on the Bidder and submitted in response to an Instructions to Bidders or a proposal in connection with a Request for Proposals.

BIDDER, means an Entity that submits a Bid in response to Instructions to Bidders or a proposer in connection with a Request for Proposals.

CHANGE ORDER, means a written order which, when fully executed by the Parties to this Contract, constitutes a change to the Contract Documents. Change Orders shall be issued in accordance with the changes provisions in Section D and, if applicable, establish a Contract Price or Contract Time adjustment. A Change Order shall not be effective until executed as a Change Order.

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 Public Improvement 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 Bidders, Supplemental Instructions to Bidders, the OUS Public Improvement Contract, OUS Public Improvement General Conditions, Public Improvement Supplemental General Conditions, if any, the accepted Bid, Plans, Specifications, Change Orders, 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 this Contract and, if applicable, the issuance of a Notice to Proceed and concluding upon Final Completion.

CONTRACT PRICE, means the total of the awarded Bid 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; Owner's costs to correct defective 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 be in the form required by OUS and as posted from time to time on the OUS website and 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 Change Orders 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.

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,

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 a Bid, 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.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 an Change Orders.

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 Public Improvement 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

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 Change Order 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 Change Order 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

(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 Change Order 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 Change Order. 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 Change Order. 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

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 s 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

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.. Contractor shall submit annual MWESB Reports on June 30 of each year the Contract is active. Contracts - 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 thirty (30) 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 30-Day period.

E.5.1.4 Owner will reduce the amount of the retainage if the Contractor notifies 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 in accordance with Applicable Laws.

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

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 State , 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

$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 to this Contract.

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 $1,000,000, or other amount as indicated in the Supplemental General Conditions, 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 remains 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 acknowledges and agrees that Owner reserves the right to withhold payment to Contractor 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 this 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 Change Order , 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, with 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

(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 Work 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.

J.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 to 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

PREVAILING WAGE RATES

for

Public Works Contracts in Oregon

OREGON BUREAU OF LABOR AND INDUSTRIES

Brad Avakian
Commissioner
Bureau of Labor and Industries

Effective: July 1, 2012

BRAD AVAKIAN
COMMISSIONER

DOUG MCKEAN
Deputy Commissioner

BUREAU OF LABOR AND INDUSTRIES

July 1, 2012

In January and July of each year, the Bureau of Labor and Industries publishes the prevailing wage rates that are required to be paid to workers on non-residential public works projects in the state of Oregon. Quarterly updates are published in April and October.

A separate publication, entitled "*Definitions of Covered Occupations for Public Works Contracts in Oregon,*" provides occupational definitions used to classify the duties performed on public works projects.

These publications are available electronically on the bureau's website at www.orgegon.gov/boli**.** In order to contain costs and preserve limited budget resources, BOLI is no longer automatically mailing copies of these publications to contracting agencies, contractors, and other interested parties. Those on the agency's mailing list will receive a postcard notification whenever the publications are amended in the future. One complimentary hard copy of each PWR publication is available upon request by emailing BOLI at pwremail.boli@state.or.us or calling 971-673-0838. Additional copies are available at cost, plus postage.

Also available on the bureau's website is a link to the federal Davis-Bacon rates. This link is posted in order to assist contractors and public agencies in determining which rates to pay on projects in Oregon subject to BOTH the state PWR and federal Davis-Bacon Act. The higher of the wage rates must be paid on such projects.

Unless specifically exempted by state law, prevailing wage rates are the minimum wages that must be paid to all workers employed on all public works. These rates are determined using data collected from a statewide construction industry wage survey of occupations and crafts performing commercial building and heavy and highway construction in 14 geographic regions of the state.

ORS 279C.830 requires that the applicable wage rates be incorporated into all bid specifications for public works contracts subject to the PWR law. A statement incorporating the applicable prevailing wage rate publication and any amendments thereto or Davis-Bacon wage rate determination into the specifications *by reference* will satisfy these requirements. Such reference must include the title of the applicable wage rates publication or determination and the date of the publication or determination as well as the date of any applicable amendments. A provision that prevailing wage rates must be paid must also appear in the contract.

Generally, the rates in effect at the time the bid specifications are first advertised are those that apply for the duration of the project. There are some exceptions to this rule. For example, if during the bidding process, the prevailing wage rates change, the public agency has the option of amending the bid specifications to reflect such changes. If a Construction Manager/General Contractor (CM/GC) is used on the project, the rates in effect at the time the CM/GC contract becomes a public works contract are the applicable rates to be used for the duration of the project. (See OAR 839-025-0020 for more information.) Note that the applicable rates for purposes of compliance with the federal Davis-Bacon Act may be different than the applicable rates for purposes of compliance with Oregon's prevailing wage rate laws. The effective federal rates will be those as determined under 29 CFR 1.6.

If you have any questions regarding application of the state PWR law or the applicable rates to be paid on any project, contact the bureau's Prevailing Wage Coordinator in Portland at (971) 673-0839.

B. Avakian

Brad Avakian
Commissioner
Bureau of Labor and Industries

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BOLI forms necessary to comply with ORS 279C.800 through ORS 279C.870 may be found in the back of this booklet. Contractors are encouraged to use and keep on file the forms provided as master copies for use on future prevailing wage rate projects.

All of the information in this booklet can be accessed and printed from the Internet at: www.oregon.gov/boli

Pursuant to ORS 279C.800 to ORS 279C.870, the prevailing wage rates contained in this booklet have been adopted for use on public works contracts in Oregon. Additional copies of this booklet are available at cost, plus postage.

HOW TO LOOK UP A RATE

1. **When was the project first advertised for bid?**
   For purposes of compliance with Oregon's prevailing wage rate laws, the rates in effect at the time the bid specifications are first advertised are those that apply for the duration of the project. (See OAR 839-025-0020(6) for information about projects using a CM/GC.)

2. **What type of work is being performed by the employee?**
   Using the booklet, *Definitions of Covered Occupations* find the definition that most closely matches the actual work being performed by the worker. If you have any questions about work classifications, contact BOLI at the number below.

3. **Where is the work being performed – what region?**
   Find the occupation in the correct region pages associated with the county where the project construction is taking place.

4. **Is there a rate listed next to the classification?**
   If so, use it. The prevailing wage rate is made up of an hourly base rate and an hourly fringe rate; it is the combination of these two amounts that must be paid to the worker.

5. **If the book directs you to "See Appendix," go to the back of the book and use the rate listed in the Appendix pages.** It may include a group number and/or zone pay. Zone pay is added to the base rate.

6. **Apprentices** must be paid the full fringe rate in those regions where the appendix rate does not apply. However, if the book directs you to "See Appendix," and the worker is registered in a bona fide apprenticeship program, **you may contact BOLI at (971) 673-0839** for the applicable hourly fringe rate.

7. **If you still don't know CALL BOLI at (971) 673-0839.**

For specific information or questions regarding the prevailing wage law, you may obtain a "Prevailing Wage Rate Laws" handbook by contacting the nearest Oregon Bureau of Labor and Industries office listed below. An order form is at the back of the booklet.

BOLI Office Locations

Eugene	1400 Executive Parkway, Suite 200 Eugene, OR 97401	(541) 686-7623
Portland	800 NE Oregon St., #1045 Portland, OR 97232	(971) 673-0761
Salem	3865 Wolverine St. NE, Bldg. E-1 Salem, OR 97305	(503) 378-3292

PUBLIC WORKS BONDS

EVERY CONTRACTOR AND SUBCONTRACTOR who works on public works projects subject to the prevailing wage rate (PWR) law is required to file a **$30,000 "PUBLIC WORKS BOND"** with the Construction Contractor's Board (CCB). (ORS 279C.836) This includes flagging and landscaping companies, temporary employment agencies, and sometimes sole proprietors.

- This bond is to be **USED EXCLUSIVELY FOR UNPAID WAGES** determined to be due by the Bureau of Labor and Industries (BOLI).
- The bond **MUST** be filed **BEFORE STARTING WORK** on a prevailing wage rate project.
- The bond is in effect **CONTINUOUSLY** (do not have to have one per project).
- **BEFORE PERMITTING A SUBCONTRACTOR TO START WORK** on a public works project, **CONTRACTORS MUST VERIFY** their subcontractors have either filed the bond, or have elected not to file a public works bond due to a bona fide exemption.
- A public works bond is in addition to any other required bond the contractor or subcontractor is required to obtain.

Exemptions:

- Allowed for contractors that are certified disadvantaged, minority, women or emerging small business enterprises, for the first FOUR years of certification;
    - Exempt contractor must still file written verification of certification with the CCB, and give the CCB written notice that they elect not to file a bond.
- For projects with a total project cost of $100,000 or less, a public works bond is not required. (Note this is the total project cost, not an individual contract amount.)
    - The Prime Contractor must give written notice to the public agency that they elect not to file a public works bond.
    - Subcontractors must give written notice to the prime contractor that they elect not to file a public works bond.
- Emergency projects, as defined in ORS 279A.010(f).

ORS 279C.830(3) and (4) require:

That the **specifications** for every contract for public works shall contain a provision stating that the contractor and every subcontractor must have a public works bond filed with the CCB before starting work on the project, unless otherwise exempt.

Every contract awarded by a contracting agency shall contain a provision requiring the contractor:

- To have a public works bond filed with the CCB before starting work on the project, unless otherwise exempt;
- To include in every subcontract a provision requiring the subcontractor to have a public works bond filed with the CCB before starting work on the project unless otherwise exempt.

PWR SURVEY WAGE RATE APPEAL PROCESS

1) Anyone wishing to challenge or appeal a survey rate determination should submit their request in writing to the commissioner.

2) The appeal should include:
   a) a complete description of the "problem," including the affected trade(s), and documentation or evidence (if available) supporting why the rate determination is incorrect
   b) recommendations for how the rate could be more accurately determined.

3) The written appeal will be reviewed by the Wage and Hour Division which will recommend to the commissioner a course of action and proposed time frame for addressing the issue (such as a recommendation that further information be obtained, an investigation or study of the matter be conducted, a rate amendment or correction be issued, the next survey be modified, etc.).

4) The commissioner will review the division's recommendation and either approve, disapprove or modify the recommendation. (The PWR Advisory Committee may be consulted in some matters as deemed appropriate by the commissioner.)

5) The requesting party will be notified of the commissioner's decision.

PWR REQUIRED POSTINGS

ALL CONTRACTORS AND SUBCONTRACTORS

PREVAILING WAGE RATES

Each and every contractor and subcontractor engaged in work on a public works must post the applicable prevailing wage rates for that project in a conspicuous place at the work site so workers have ready access to the information. ORS 279C.840(4); OAR 839-025-0033(1).

DETAILS OF FRINGE BENEFIT PROGRAMS

When a contractor or subcontractor provides for or contributes to a health and welfare plan or a pension plan, or both, for the contractor or subcontractor's employees who are working on a public works project, the details of all fringe benefit plans or programs must be posted on the work site. The posting must include a description of the plan or plans, information about how and where claims can be made and where to obtain more information. The notice must be posted in a conspicuous place at the work site in the same location as the prevailing wage rates (see above). ORS 279C.840(5); OAR 839-025-0033(2)

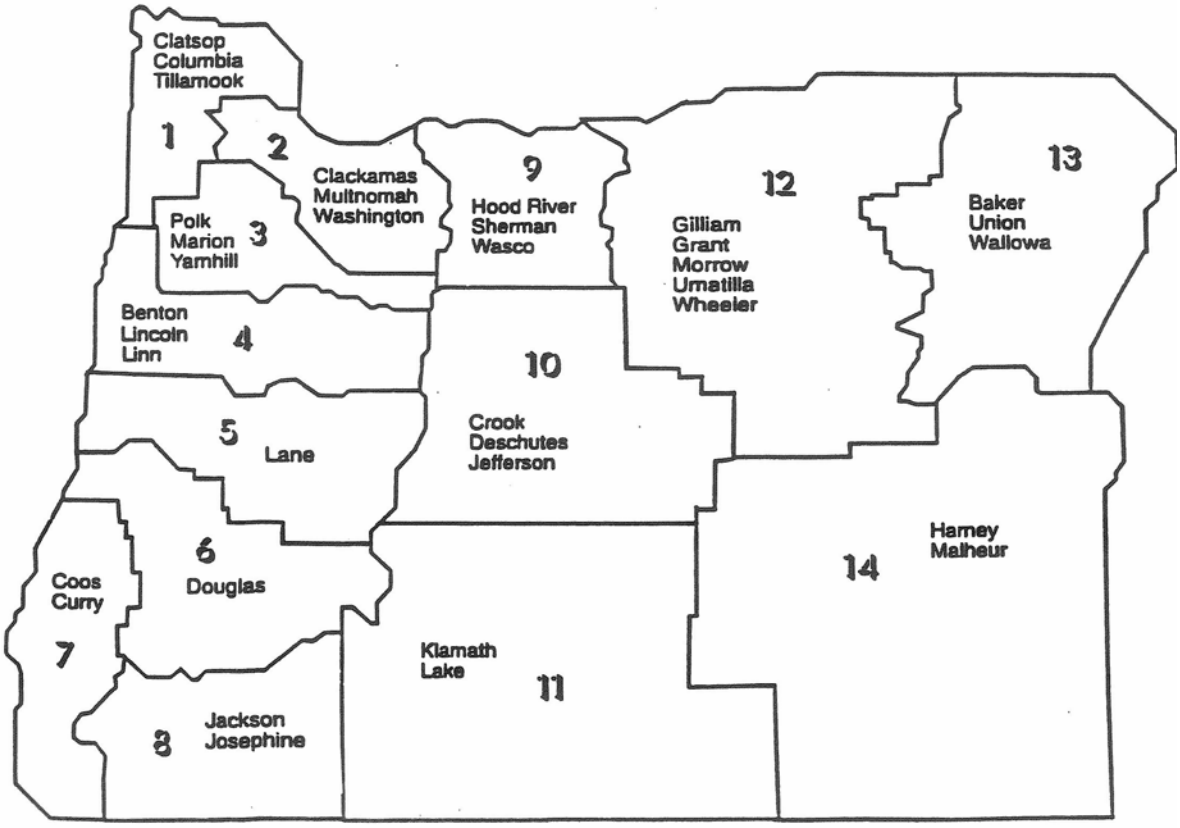
WORK SCHEDULE

Contractors and subcontractors must give workers the regular work schedule (days of the week and number of hours per day) in writing, before beginning work on the project. Contractors and subcontractors may provide the schedule at the time of hire, prior to starting work on the contract, or by posting the schedule in a location frequented by employees, along with the prevailing wage rate information and any fringe benefit information. If an employer fails to give written notice of the worker's schedule, the work schedule will be presumed to be a five-day schedule. The schedule may only be changed if the change is intended to be permanent and is not designed to evade the PWR overtime requirements. ORS 279C.540(2); OAR 839-025-0034.

PREVAILING WAGE RATES

OCCUPATIONS
BY
REGIONS

PREVAILING WAGE RATE REGIONS



REGION #1
Clatsop, Columbia and Tillamook Counties

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	See Appendix	See Appendix
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	See Appendix	See Appendix
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	$30.97	$16.16
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge & Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	$34.21	$9.69
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	See Appendix	See Appendix
Line Constructor	See Appendix	See Appendix
Marble Setter	$28.26	$6.64
Millwright Group 1 & 2	$29.32	$10.68
Painter	See Appendix	See Appendix
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	See Appendix	See Appendix

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	See Appendix	See Appendix
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	$30.97	$16.16
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	$24.25	$10.01
Laborer Group 2	$25.29	$9.52
Laborer Group 3	$22.35	$11.30
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	See Appendix	See Appendix
Line Constructor	See Appendix	See Appendix
Marble Setter	$28.26	$6.64
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	See Appendix	See Appendix
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	See Appendix	See Appendix
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	$30.97	$16.16
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	$34.21	$9.69
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger	$21.03	$10.45
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	$24.25	$10.01
Laborer Group 2	$25.29	$9.52
Laborer Group 3	$22.35	$11.30
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	See Appendix	See Appendix
Sheet Metal Worker	See Appendix	See Appendix

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	$29.78	$12.38
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver	$33.00	$13.52
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	$29.78	$12.38
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	$32.33	$14.78
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	$34.81	$13.51
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	$28.75	$12.35
Hazardous Material Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	$38.03	$16.90
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	See Appendix	See Appendix
Sheet Metal Worker	See Appendix	See Appendix

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	See Appendix	See Appendix
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	See Appendix	See Appendix
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

REGION #7
Coos and Curry Counties

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver	$33.00	$13.52
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	See Appendix	See Appendix

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	$29.78	$12.38
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	See Appendix	See Appendix
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo,and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	$32.33	$14.78
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	$30.03	$14.62
Drywall Taper	$28.67	$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger	$21.03	$10.45
Glazier	$28.75	$12.35
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	$30.70	$15.56
Laborer Group 1	$24.25	$10.01
Laborer Group 2	$25.29	$9.52
Laborer Group 3	$22.35	$11.30
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	$29.78	$12.38
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	See Appendix	See Appendix
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	$30.03	$14.62
Drywall Taper	$28.67	$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	See Appendix	See Appendix
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	$20.37	$6.54
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	See Appendix	See Appendix
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter)	See Appendix	See Appendix
Tile Setter/Terrazzo Worker: Hard Tile Setter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger	$21.03	$10.45
Glazier	$28.75	$12.35
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	$24.25	$10.01
Laborer Group 2	$25.29	$9.52
Laborer Group 3	$22.35	$11.30
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	See Appendix	See Appendix
Line Constructor	See Appendix	See Appendix
Marble Setter	$28.26	$6.64
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	$20.37	$6.54
Piledriver	$33.00	$13.52
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	$33.56	$10.10
Power Equipment Operator Group 1A	$37.31	$11.60
Power Equipment Operator Group 1B	$34.65	$17.50
Power Equipment Operator Group 2	$31.67	$10.06
Power Equipment Operator Group 3	$30.87	$9.64
Power Equipment Operator Group 4	$30.02	$8.79
Power Equipment Operator Group 5	$27.67	$8.62
Power Equipment Operator Group 6	$26.30	$8.93
Roofer	$22.25	$7.46
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	See Appendix	See Appendix
Sprinkler Fitter	$29.78	$12.38
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter)	See Appendix	See Appendix
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper	$28.67	$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructors (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	$28.75	$12.35
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	$30.70	$15.56
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	$20.37	$6.54
Piledriver	$33.00	$13.52
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	$29.78	$12.38
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	See Appendix	See Appendix
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	See Appendix	See Appendix

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	$29.78	$12.38
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	$31.86	$13.08
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	$30.03	$14.62
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	$34.81	$13.51
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	$26.36	$4.89
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	$38.03	$16.90
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix
Roofer	$22.25	$7.46
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	See Appendix	See Appendix
Sprinkler Fitter	$29.78	$12.38
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	$28.45	$10.48
Cement Mason	$25.37	$13.11
Diver	See Appendix	See Appendix
Divers' Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	$30.03	$14.62
Drywall Taper	$28.67	$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	$23.44	$9.10
Fence Erector (Metal)	$20.22	$4.30
Flagger	$21.03	$10.45
Glazier	$28.75	$12.35
Hazardous Materials Handler/Mechanic	$17.49	$3.87
Highway and Parking Striper	$26.11	$8.20
Ironworker	$30.70	$15.56
Laborer Group 1	$24.25	$10.01
Laborer Group 2	$25.29	$9.52
Laborer Group 3	$22.35	$11.30
Landscape Laborer/Technician	$16.80	$4.02
Limited Energy Electrician	$26.51	$8.63
Line Constructor	$19.50	$1.51
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	$29.32	$10.68
Painter	$20.37	$6.54
Piledriver	$33.00	$13.52
Plasterer and Stucco Mason	$25.27	$13.61
Plumber/Pipefitter/Steamfitter	$38.03	$16.90
Power Equipment Operator Group 1	$33.56	$10.10
Power Equipment Operator Group 1A	$37.31	$11.60
Power Equipment Operator Group 1B	$34.65	$17.50
Power Equipment Operator Group 2	$31.67	$10.06
Power Equipment Operator Group 3	$30.87	$9.64
Power Equipment Operator Group 4	$30.02	$8.79
Power Equipment Operator Group 5	$27.67	$8.62
Power Equipment Operator Group 6	$26.30	$8.93
Roofer	$22.25	$7.46
Sheet Metal Worker	$30.45	$12.87

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Soft Floor Layer	$24.38	$9.26
Sprinkler Fitter	See Appendix	See Appendix
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	$25.45	$11.39
Tender to Plasterer and Stucco Mason	$17.35	$12.74
Testing, Adjusting, and Balancing (TAB) Technician	$27.53	$8.18
Tile Setter/Terrazzo Worker: Hard Tile Setter	$26.38	$10.55
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver	$19.80	$6.11

Using the booklet, *Definitions of Covered Occupations*, find the definition that most closely matches the actual work being performed by the worker.

APPENDIX
JULY 1, 2012

NOTE: THE APPENDIX SECTION IS TO BE USED <u>ONLY</u> FOR REGIONS/TRADES SPECIFIED IN PAGES 6 THROUGH 33. REFER TO PAGES 6 THROUGH 33 <u>BEFORE</u> USING RATES IN THIS SECTION.

TRADE	BASIC HOURLY RATE	FRINGE
ASBESTOS WORKER/INSULATOR		
	39.42	**18.87**
FIRESTOP/CONTAINMENT WORKERS		
	26.85	**12.17**
BOILERMAKER	**33.28**	**26.96**

BRICKLAYER/STONEMASON
(This trade is tended by "Tenders to Mason Trades")

Area 1	**32.75**	**15.56**

Reference Counties Area 1

Baker	Grant	Marion	Umatilla
Benton (a)	Harney	Morrow	Union
Clackamas	Hood River	Multnomah	Wallowa
Clatsop	Lincoln (a)	Polk	Wasco (a)
Columbia	Linn (a)	Sherman	Washington
Gilliam	Malheur	Tillamook	Yamhill

(a) North Half

(Add $1.00 per hour to Fringe for Refractory repair work.)

Area 2	**31.53**	**15.21**

Reference Counties Area 2

Benton (b)	Deschutes	Lane	Wheeler
Coos	Jefferson	Lincoln (b)	
Crook	Klamath	Linn (b)	
Curry	Lake	Wasco	

(b) South Half

(Add $1.00 per hour to Fringe for Refractory repair work.)

CARPENTER

Zone 1 (Base Rate)

Group 1	**32.04**	**14.18**
Group 2	**32.19**	**14.18**
Group 3	**32.54**	**14.18**
Group 4	**32.69**	**14.18**
Group 5	**32.54**	**14.18**
Group 6	**33.04**	**14.18**

CARPENTER (continued)

Zone Differential for Carpenters
(Add to Zone 1 Rate)

Zone 2	**.85**
Zone 3	**1.25**
Zone 4	**1.70**
Zone 5	**2.00**
Zone 6	**3.00**
Zone 7	**5.00**

Zone 1: Projects located within 30 miles of the respective city hall of the cities listed below.
Zone 2: More than 30 miles but less than 40 miles.
Zone 3: More than 40 miles but less than 50 miles.
Zone 4: More than 50 miles but less than 60 miles.
Zone 5: More than 60 miles but less than 70 miles.
Zone 6: More than 70 miles but less than 100 miles.
Zone 7: More than 100 miles.

Reference Cities for Group 1 and 2 Carpenters

Albany	Goldendale	Madras	Roseburg
Astoria	Grants Pass	Medford	Salem
Baker City	Hermiston	Newport	The Dalles
Bend	Hood River	Ontario	Tillamook
Brookings	Klamath Falls	Pendleton	Vancouver
Burns	La Grande	Portland	
Coos Bay	Lakeview	Port Orford	
Eugene	Longview	Reedsport	

Zones for Groups 3 and 4 Carpenter are determined by the distance between the project site and **either**

1) The worker's residence; ***or***

2) City Hall of a reference city for the appropriate group shown, whichever is closer

Reference Cities for Group 3 and 4 Carpenters

Eugene	Medford	Portland	Vancouver
Longview	North Bend	The Dalles	

Zones for Groups 5 and 6 Carpenter are determined by the distance between the project site and **either**

1) The worker's residence; ***or***

2) City Hall of a reference city for the appropriate group shown, whichever is closer

Reference Cities for Group 5 and 6 Carpenters

Bend	Longview	North Bend
Eugene	Medford	Portland

CARPENTER (continued)

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Group 1 (Carpenter Group-I)	Group 2 (Carpenter Group-II)
Group 3 (Millwright Group-I)	Group 4 (Millwright Group-II)
Group 5 (Bridge & Highway Carpenter)	Group 6 (Piledriver)

Welders receive $.75/hour above their group's rate.

When working with creosote and other toxic, treated wood and steel material, workers shall receive $.25/hour premium pay for minimum of eight (8) hours.

When working in sheet pile coffer dams or cells up to the external water level, Group 6 workers shall receive $.15/hour premium pay for minimum of eight (8) hours.

CEMENT MASON

(This trade is tended by "Concrete Laborer")

Zone 1 (Base Rate)

Group 1	**29.98**	**17.76**
Group 2	**30.58**	**17.76**
Group 3	**30.58**	**17.76**
Group 4	**31.18**	**17.76**

Zone Differential for Cement Mason
(Add to Zone 1 Rate)

Zone 2	**.65**
Zone 3	**1.15**
Zone 4	**1.70**
Zone 5	**3.00**

Zone 1: Projects located within 30 miles of the respective city hall of the reference cities listed.
Zone 2: More than 30 miles, but less than 40 miles.
Zone 3: More than 40 miles, but less than 50 miles.
Zone 4: More than 50 miles, but less than 80 miles.
Zone 5: More than 80 miles.

CEMENT MASON (continued)

Reference Cities

Bend	Corvallis	Eugene	Medford
Portland	Salem	The Dalles	Vancouver

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

DIVER & DIVERS' TENDER

DIVER	**77.08**	**14.18**
DIVER'S TENDER	**36.34**	**14.18**

1) For those workers who reside within a reference city below, their zone pay shall be computed from the city hall of the city wherein they reside.

2) For those workers who reside nearer to a project than is the city hall of any reference city below, the mileage from their residence may be used in computing their zone pay differential.

3) The zone pay for all other projects shall be computed from the city hall of Portland.

Zone Differential for Diver/Divers' Tender
(Add to Zone 1 Rate)

Zone 2	**.85**
Zone 3	**1.25**
Zone 4	**1.70**
Zone 5	**2.00**
Zone 6	**3.00**
Zone 7	**5.00**

Zone 1: Projects located within 30 miles of city hall of the reference cities listed.
Zone 2: More than 30 miles, but less than 40 miles.
Zone 3: More than 40 miles, but less than 50 miles.
Zone 4: More than 50 miles, but less than 60 miles.
Zone 5: More than 60 miles, but less than 70 miles.
Zone 6: More than 70 miles, but less than 100 miles.
Zone 7: More than 100 miles from the city hall of employee's home local.

TRADE	BASIC HOURLY RATE	FRINGE	TRADE	BASIC HOURLY RATE	FRINGE

DIVER & DIVERS' TENDER (continued)

Reference Cities for Diver/Divers' Tender

Astoria	Klamath Falls	Newport	Roseburg
Bend	Longview	North Bend	Salem
Eugene	Medford	Portland	The Dalles

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Depth Pay and Enclosure Pay are added to the Divers' Basic Hourly Rate to obtain the Total Hourly Rate for the Diver.

Basic Hourly Rate	+	Hourly Depth Pay	+	Hourly Enclosure Pay	=	Divers' Total Hourly Pay Rate

Divers' Depth Pay:

Depth of Dive	Hourly Depth Pay
50-100 ft.	$1.00 per foot over 50 feet
101-150 ft.	$1.50 per foot over 100 feet
151-200 ft.	$2.00 per foot over 150 feet

Divers' Enclosure Pay (working without vertical escape):

Distance Traveled In the Enclosure	Hourly Enclosure Pay
5-50ft.	$.50/hr. up to $4.00 maximum per day
50-100ft.	$1.13/hr. up to $9.00 maximum per day
100-150ft.	$2.13/hr. up to $17.00 maximum per day
150-200ft.	$4.63/hr. up to $37.00 maximum per day
200-300ft.	$4.63/hr. up to $37.00 maximum per day, plus $.40 per foot traveled in enclosure.
300-450ft.	$4.63/hr. up to $37.00 maximum per day, plus $.80 per foot traveled in enclosure.
450-600ft.	$4.63/hr. up to $37.00 maximum per day, plus $1.60 per foot traveled in enclosure.

DREDGER

Zone A (Base Rate)

Leverman (Hydraulic & Clamshell)	**43.47**	**13.20**
Assistant Engineer (Watch Engineer, Mechanic Machinist)	**40.64**	**13.20**
Tenderman (Boatman Attending Dredge Plant) Fireman	**39.34**	**13.20**
Fill Equipment Operator	**38.28**	**13.20**
Assistant Mate	**35.85**	**13.20**

Zone Differential for Dredgers
(Add to Zone A Base Rate)

Zone B	**3.00**
Zone C	**6.00**

Zone mileage based on road miles:

Zone A: Center of jobsite to no more than 30 miles from the city hall of Portland.
Zone B: More than 30 miles but not more than 60 miles.
Zone C: Over 60 miles.

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER

Zone 1 (Base Rate)

1. DRYWALL INSTALLER	**32.33**	**13.89**
2. LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER	**30.45**	**15.77**

Zone Differential for Drywall, Lather, Acoustical Carpenter & Ceiling Installer
(Add to Zone 1 Base Rate)

Zone mileage based on road miles:

Zone 2	31-40 miles	**.85**
Zone 3	41-50 miles	**1.25**
Zone 4	51-60 miles	**1.70**
Zone 5	61-70 miles	**2.00**
Zone 6	71-100 miles	**3.00**
Zone 7	101 or more	**5.00**

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER (continued)

The correct transportation allowance shall be based on road mileage from the City Hall of the local union having jurisdiction of the job or other transportation reference cities herein listed.

Reference Cities

Albany	Coquille	Medford	Roseburg
Astoria	Eugene	Newport	Salem
Baker	Grants Pass	North Bend	Seaside
Bandon	Hermiston	Pendleton	The Dalles
Bend	Klamath Falls	Portland	Tillamook
Brookings	Kelso-Longview	Reedsport	Vancouver

ELECTRICIAN

Area 1

Electrician	**27.66**	**10.83**
Cable Splicer	**30.43**	**10.97**

Reference Counties Area 1

Malheur

Area 2

Electrician	**36.55**	**16.28**
Cable Splicer	**38.38**	**16.33**

Reference Counties Area 2

Gilliam Grant Morrow Umatilla Wheeler

Area 3

Electrician	**32.45**	**14.32**

Reference Counties Area 3

Coos Curry Lane (a) Lincoln

(a) Those portions lying **west** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County

ELECTRICIAN (continued)

Area 4

Electrician	**36.46**	**16.27**
Cable Splicer	**40.11**	**16.38**
Lighting Maintenance/ Material Handlers	**17.64**	**8.03**

Reference Counties Area 4

Benton	Jefferson	Marion
Crook	Lane (b)	Polk
Deschutes	Linn	Yamhill (c)

(b) Those portions lying **east** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.
(c) South half

Area 5

Electrician	**37.05**	**18.41**
Material Handler/ Lighting Maintenance	**21.12**	**11.57**
Electrical Welder	**40.76**	**18.52**

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

Zone Pay for Area 5 Electrician
(Add to Basic Hourly Rate)

Zone mileage based on air miles:

Zone 1	31-50 miles	**1.50**
Zone 2	51-70 miles	**3.50**
Zone 3	71-90 miles	**5.50**
Zone 4	91 or more	**9.00**

There shall be a 30-mile free zone from downtown Portland City Hall and a similar 15-mile free zone around the following cities:

Astoria	Seaside	Tillamook
Hood River	The Dalles	

Further, the free zone at the Oregon coast shall extend along Hwy 101 west to the ocean Hwy 101 east 10 miles if not already covered by the above 15-mile free zone.

TRADE	BASIC HOURLY RATE	FRINGE

ELECTRICIAN (continued)

Area 6

Electrician	**29.78**	**14.44**
Cable Splicer	**29.78**	**14.44**
Electrical Material Handler	**16.22**	**7.64**

Reference Counties Area 6

Harney Josephine Lake
Jackson Klamath

Zone Pay for Area 6 Electrician
(Add to Basic Hourly Rate)

Zone mileage based on road miles:

Zone 1	0-20 miles	**0.00**
Zone 2	21-30 miles	**1.50**
Zone 3	31-40 miles	**3.30**
Zone 4	41-50 miles	**5.00**
Zone 5	51-60 miles	**6.80**
Zone 6	60 or more	**9.50**

Zone Pay for Area 6 **Electrical Material Handler**
(Add to Basic Hourly Rate)

Zone mileage based on road miles:

Zone 1	0-20 miles	**0.00**
Zone 2	21-30 miles	**1.00**
Zone 3	31-40 miles	**2.80**
Zone 4	41-50 miles	**4.50**
Zone 5	51-60 miles	**6.30**
Zone 6	60 or more	**9.00**

There shall be a 20-mile free zone from the downtown Post Office in Grants Pass, Klamath Falls, Medford, and Roseburg.

ELEVATOR CONSTRUCTOR, INSTALLER AND MECHANIC

Area 1

Mechanic	**46.54**	**23.54**

Reference Counties Area 1

Baker Umatilla Union Wallowa

ELEVATOR CONSTRUCTOR, INSTALLER AND MECHANIC (continued)

Area 2

Mechanic	**46.72**	**23.54**

Reference Counties Area 2

All remaining Counties

GLAZIER	**32.16**	**15.73**

Add $1.00 to base rate if safety belt is required by State safety regulations.
Add $4.00 to base rate for work done from a non-motorized single-man bosun chair.

HIGHWAY/PARKING STRIPER

	33.19	**9.05**

IRONWORKER

Zone 1 (Base Rate):	**34.12**	**20.60**

Zone Differential for Ironworker
(Add to Basic Hourly Rate)

Zone 2	**3.75** hr. or $30.00 maximum per day
Zone 3	**6.88** hr. or $55.00 maximum per day
Zone 4	**9.38** hr. or $75.00 maximum per day

Zone 1: Projects located within 45 miles of city hall in the reference cities listed below.
Zone 2: More than 45 miles, but less than 60 miles.
Zone 3: More than 60 miles, but less than 100 miles.
Zone 4: More than 100 miles.

Note: Zone pay for Ironworkers shall be determined using AAA road mileage computed from the city hall of the reference cities listed below **or** the residence of the employee, whichever is nearer to the project.

Reference Cities

Medford Portland

TRADE	BASIC HOURLY RATE	FRINGE

LABORER

Zone 1 (Base Rate):

Group 1	**25.27**	**12.85**
Group 2	**26.27**	**12.85**
Group 3	**21.75**	**12.85**

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Hazardous Waste Site. A Group 1 base rate is used for General Laborer on such a site. For further information on this, call the Prevailing Wage Rate Coordinator at (971) 673-0839.

Zone Differential for Laborers
(Add to Zone 1 Rate)

Zone 2	**.65**
Zone 3	**1.15**
Zone 4	**1.70**
Zone 5	**2.75**

Zone 1: Projects located within 30 miles of city hall in the reference cities listed below.
Zone 2: More than 30 miles but less than 40 miles.
Zone 3: More than 40 miles but less than 50 miles.
Zone 4: More than 50 miles but less than 80 miles.
Zone 5: More than 80 miles.

Reference Cities

Albany	Burns	Hermiston	Roseburg
Astoria	Coos Bay	Klamath Falls	Salem
Baker City	Eugene	Medford	The Dalles
Bend	Grants Pass	Portland	

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

LIMITED ENERGY ELECTRICIAN

Area 3	**24.70**	**12.24**

Reference Counties Area 3

Coos Curry

Area 4	**27.04**	**12.31**

Reference Counties Area 4

Crook	Jefferson	Polk
Deschutes	Marion	Yamhill

Area 5	**27.75**	**14.83**

Reference Counties Area 5

Clackamas	Multnomah	Wasco
Hood River	Sherman	Washington

LINE CONSTRUCTOR

Area 1

Group 1	**50.10**	**14.85**
Group 2	**44.73**	**14.64**
Group 3	**31.44**	**10.85**
Group 4	**38.47**	**11.48**
Group 5	**33.55**	**11.03**
Group 6	**31.31**	**10.95**
Group 7	**16.69**	**9.57**

Area 1

All counties except Malheur County

Group 1
Cable Splicer
Leadman Pole Sprayer

Group 2
Heavy Line Equipment Man
Journeyman Lineman Welder
Journeyman Lineman
Pole Sprayer

Group 3
Tree Trimmer

Group 4
Line Equipment man

Group 5
Head Groundman
Jackhammer Man
Powderman

Group 6
Groundman

Group 7
Tree Trimmer Groundman

TRADE	BASIC HOURLY RATE	FRINGE

MARBLE SETTER **33.75** **15.56**

(This trade is tended by "Tile, Terrazzo, & Marble Finishers")

PAINTER & DRYWALL TAPER

COMMERCIAL PAINTING	**19.71**	**8.50**
INDUSTRIAL PAINTING	**20.61**	**8.50**
BRIDGE PAINTING	**24.06**	**8.50**

Add $0.75 to base rate for work over 60 ft. high on swing stage, mechanical climber, spider or bucket truck for both commercial and industrial painting.

DRYWALL TAPER	**31.76**	**11.86**

PLASTERER AND STUCCO MASON
(This trade is tended by "Tenders to Plasterers")

Nozzleman	**30.86**	**12.81**
Swinging Scaffold	**29.86**	**12.81**
All Other Work	**28.86**	**12.81**

PLUMBER/PIPEFITTER/STEAMFITTER

Area 1 See Region pages for rates.

Reference Counties Area 1

Baker Harney Malheur

Area 2 **46.85** **24.89**

Reference Counties Area 2

Grant (a) Umatilla Wallowa
Morrow Union

(a) Except Southwest Portion

Area 3 **38.20** **21.63**

Reference Counties Area 3

All Remaining Counties

POWER EQUIPMENT OPERATOR

Zone 1 (Base Rate)

Group 1	**37.27**	**13.05**
Group 1A	**39.13**	**13.05**
Group 1B	**41.00**	**13.05**
Group 2	**35.64**	**13.05**
Group 3	**34.65**	**13.05**
Group 4	**33.71**	**13.05**
Group 5	**32.60**	**13.05**
Group 6	**29.61**	**13.05**

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Waste Site. For information on this differential, call the Prevailing Wage Rate Coordinator at (971) 673-0839.

Zone Rates

Zone 2	**3.00**
Zone 3	**6.00**

For the Following Metropolitan Counties:

Multnomah, Clackamas, Marion, Yamhill, Washington and Columbia:

See map on page 45 for Zone 1 of this classification

(A) All jobs or projects located in Multnomah, Clackamas and Marion counties, west of the western boundary of Mt. Hood National Forest and west of mile post 30 on Interstate 84 and west of mile post 30 on State Hwy 26 and west of mile post 30 on Hwy 22 and all jobs located in Yamhill County, Washington County and Columbia County shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located in the area outside the identified boundary above, but less than 50 miles from the Portland City Hall shall receive Zone 2 pay for all classifications.

(C) All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone 3 pay for all classifications.

For the Following Cities:

Albany; Bend; Coos Bay; Eugene; Grants Pass; Klamath Falls; Medford and Roseburg:

TRADE	BASIC HOURLY RATE	FRINGE	TRADE	BASIC HOURLY RATE	FRINGE

POWER EQUIPMENT OPERATOR
(continued)

(A) All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 2 for all classifications.

(C) All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 3 pay for all classifications.

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

ROOFER

Area 1*

Roofer	**28.03**	**9.65**
Handling coal tar pitch	**30.83**	**9.65**
Remove fiberglass insulation	**30.83**	**9.65**

Reference Counties Area 1

Clatsop	Hood River	Tillamook
Columbia	Sherman	Wasco

*On all jobs on which coal tar pitch is the basic roofing material or where the old roof being removed is composed of coal tar based material, a rate of pay ten percent (10%) greater than the basic rate of pay shall be paid for all work performed.

*All employees engaged in removing fiberglass insulation shall receive a rate of pay ten percent (10%) greater than the employee's basic rate of pay.

ROOFER (continued)

Area 2**

Roofer	**23.37**	**10.87**

Reference Counties Area 2

Benton	Lincoln	Marion	Yamhill
Douglas	Linn	Polk	

** Add $2.00 to basic hourly rate for application, spudding and cutting or removal of coal tar products.

** Add $0.50 per hour to base hourly rate for application, spudding and cutting or removal of fiberglass insulation.

SHEET METAL WORKER

Area 1 **36.23** **17.64**

Reference Counties Area 1

Benton	Grant	Linn	Wheeler
Clackamas	Harney	Multnomah	
Gilliam	Lincoln	Washington	

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work with lead or installing material in a plant that uses lead in any form to manufacture a product (excluding soldering).

Add $1.00 to base rate for work performed in a confined space as defined by OSHA.

Area 3 **32.16** **18.42**

Reference Counties Area 3

Morrow	Umatilla

Add $1.00 to base rate for work where it is necessary to wear a chemically activated face mask.

TRADE	BASIC HOURLY RATE	FRINGE

SHEET METAL WORKER (continued)

Area 4	**31.52**	**15.79**

Reference Counties Area 4

Douglas

Area 5	**30.25**	**16.86**

Reference Counties Area 5

Coos Curry

SOFT FLOOR LAYER	**27.28**	**11.92**
SPRINKLER FITTER	**32.43**	**19.70**

TENDERS TO MASON TRADES (Brick and Stonemason, Mortar Mixer, Hod Carrier)

27.03 12.35

Add $0.50 to base rate for refractory work.

Add to base rate an amount equal to that received for safety belt requirements or other unusual job conditions by the mechanic this worker is tending.

TENDER TO PLASTERER AND STUCCO MASON

27.21 13.45

TESTING AND BALANCING (TAB) TECHNICIAN

Air-Handling Equipment, Ductwork
(Sheet Metal Worker)
36.23 17.64

Water Distribution Systems
(Plumber/Pipefitter/Steamfitter)
38.20 21.63

TILE SETTER/TERRAZZO WORKER: Hard Tile Setter

28.94 14.01

(This trade is tended by "Tile, Terrazzo, & Marble Finisher")

TILE, TERRAZZO, AND MARBLE FINISHER

1. TILE, TERRAZZO FINISHER

21.84 10.40

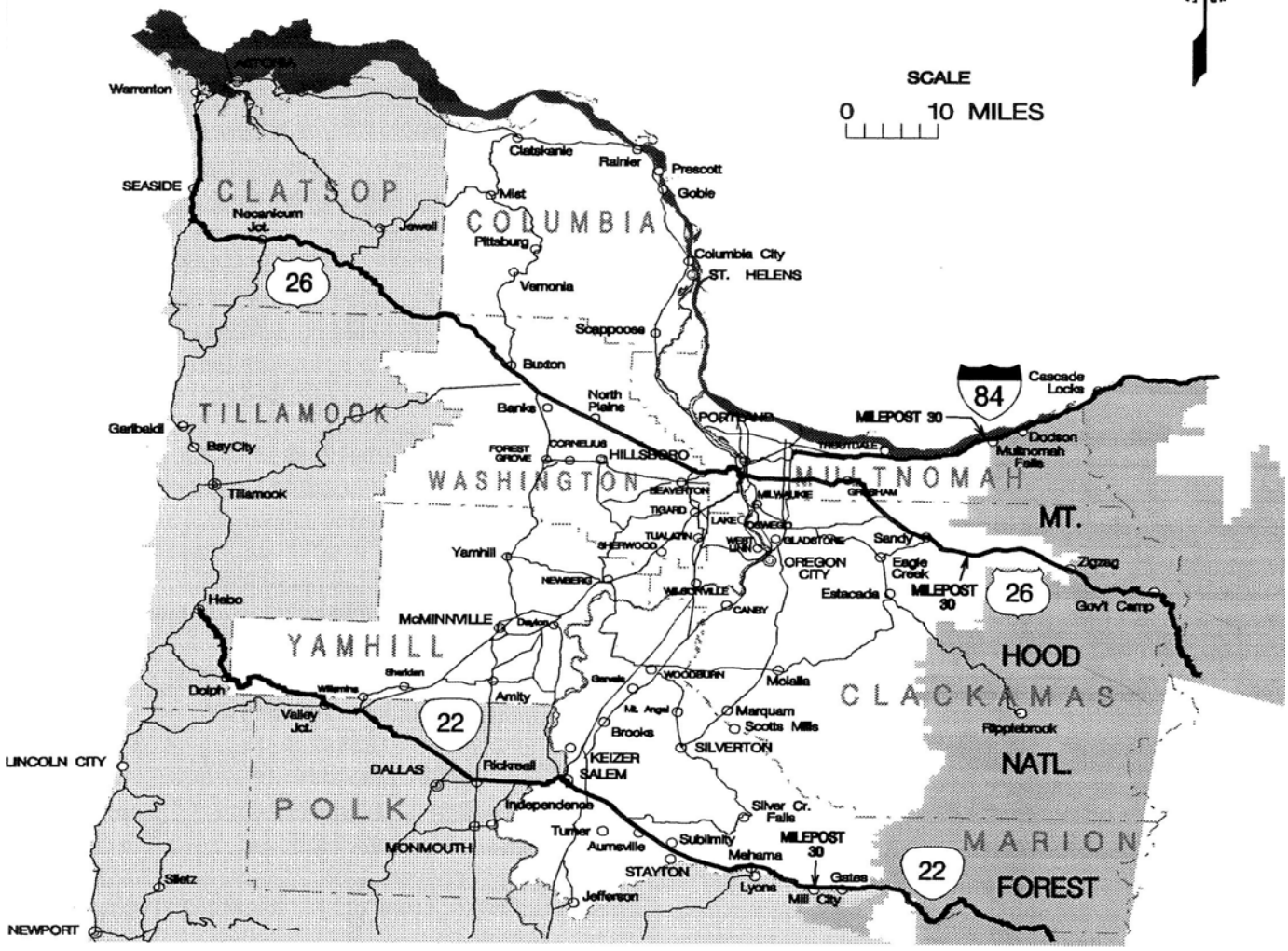
Add $1.00 to base rate if safety belt required by State safety regulations.

Add $1.00 to base rate if work involves epoxy, furnane, alkor acetylene black grouting or waterproof membrane.

2. BRICK AND MARBLE FINISHER

21.84 10.50

Power Equipment Operators
Zone 1



LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2012

To: All Oregon Contracting Agencies

Pursuant to ORS 279C.860, contractors on this list are ineligible to receive public works contracts subject to the Prevailing Wage Rate Law. These contractors and subcontractors, as well as any firm, corporation, partnership or association in which the contractor or subcontractor has a financial interest are ineligible to receive public works contracts until removed from this list.

If you have questions regarding the list or for the most current information regarding persons ineligible to receive prevailing wage contracts, please contact the Prevailing Wage Rate Coordinator in Portland at (971) 673-0839.

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
1.	**All Concrete Specialties, Inc.** 9415 NE 62nd Avenue Vancouver, WA 98665	March 29, 2012	March 28, 2015
2.	**American Eagle Electric, LLC** 3894 Roosevelt Boulevard Eugene, OR 97402	November 1, 2011	October 31, 2014
3.	**Ameritech Machine Mfg., Inc.** PO Box 1455, Redmond, OR 97756-0402 350 SW Industrial Way, Bend, OR 97702-1073 2328 NW Stonehill Drive, Bend, OR 97701-6806 2660 NE Highway 20, Suite 610 Bend, OR 97701-6403	June 17, 2011	June 16, 2014
4.	**Anbasa Transport, LLC** PO Box 1003 Boring, OR 97009-1003	May 15, 2012	May 14, 2014
5.	**Anderson Builders, Inc.** PO Box 601 Chiloquin, OR 97624-0601	June 17, 2011	June 16, 2014
6.	**Travis B. Anderson** 2790 NE Broken Bow Drive Bend, OR 97701-5804	September 14, 2011	September 13, 2014
7.	**B & C Northwest Electric, Inc.** **dba Horizon Electric** 1818 16th Street West Linn, OR 97068	November 1, 2011	October 31, 2014
8.	**BPM Plaster, Inc.** PO Box 17915 Salem, OR 97305	January 15, 2011	January 14, 2014
9.	**Beaver Flagging** 2239 Dakota Street Eugene, OR 97404	November 25, 2009	November 24, 2019
10.	**Christy C. Beaver** 2570 River Road Eugene, OR 97404	November 25, 2009	November 24, 2019
11.	**Bennett Commercial Floors, Inc.** 416 Leandra Lane PO Box 1020 Eagle Point, OR 97524	January 1, 2012	December 31, 2014

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2012

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
12.	**Richard D. Bennett, Jr.** 416 Leandra Lane PO Box 1020 Eagle Point, OR 97524	January 1, 2012	December 31, 2014
13.	**Mark A. Bourdeau** 13233 SW Morgan Road Sherwood, OR 97140	June 3, 2011	June 2, 2014
14.	**Cameron Creations** **Steven Cameron** **Nancy Cameron** PO Box 2 Lowell, OR 97452	May 25, 2000	Not to be Removed
15.	**Century Atlantic Construction, LLC** **fdba First Choice Gutters** 10725 NE Tillamook Portland, OR 97220	June 3, 2011	June 2, 2014
16.	**Ronald Cook** PO Box 1455, Redmond, OR 97756-0402 350 SW Industrial Way, Bend, OR 97702-1073 2328 NW Stonehill Drive, Bend, OR 97701-6806 2660 NE Highway 20, Suite 610 Bend, OR 97701-6403	June 17, 2011	June 16, 2014
17.	**Dark Horse Construction, LLC** 15824 S Pope Lane Oregon City, OR 97045	November 1, 2011	October 31, 2014
18.	**E.H. Glaab, General Contractor, Inc.** 16762 Sandy Court La Pine, OR 97739-1027	September 14, 2011	September 13, 2014
19.	**Edward H. Glaab** 16762 Sandy Court La Pine, OR 97739-1027	September 14, 2011	September 13, 2014
20.	**Eugene B. Graeme** 169 SE Cody Lane Madras, OR 97741	May 3, 2012	May 2, 2015
21.	**James Hays** 8011 25th Street White City, OR 97503-1547	September 14, 2011	September 13, 2014
22.	**Hays Drywall, Inc.** PO Box 1398, Medford, OR 97501-0104 8011 25th Street White City, OR 97503-1547	September 14, 2011	September 13, 2014

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2012

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
23.	**Holm II, Inc.** **Dennis A. Holm** **Linda A. Holm** 618 N 2nd Avenue Stayton, OR 97383	January 1, 2011	December 31, 2013
24.	**Howard E. Johnson & Sons Construction Co.** PO Box 1142 Warrenton, OR 97146-1142	August 26, 2009	August 25, 2012
25.	**JAL Contracting** PO Box 7529 Bend, OR 97708-7529 21085 Lost Valley Court Bend, OR 97702-2801	November 25, 2009	November 24, 2012
26.	**John Benjamin Kamph** 1113 SW Courtney Laine Drive McMinnville, OR 97128-1017	January 5, 2012	January 4, 2015
27.	**Kamph Construction Company, Inc.** 1113 SW Courtney Laine Drive McMinnville, OR 97128-1017	January 5, 2012	January 4, 2015
28.	**Kelaye Concrete, LLC** 21822 SE Bohna Park Road Damascus, OR 97089	May 15, 2012	May 14, 2014
29.	**Ken-Dee Construction, Ltd.** PO Box 822093 Vancouver, WA 98682	February 8, 2012	February 7, 2015
30.	**David Larson** PO Box 1142 Warrenton, OR 97146-1142	August 26, 2009	August 25, 2012
31.	**Larson Construction Company, Inc.** PO Box 2797 Gearhart, OR 97138-2797	August 26, 2009	August 25, 2012
32.	**Jennifer A. Lupton** PO Box 7529 Bend, OR 97708-7529 21085 Lost Valley Court Bend, OR 97702-2801	November 25, 2009	November 24, 2012
33.	**Lance Lupton** PO Box 7529 Bend, OR 97708	May 24, 2010	May 23, 2013
34.	**Lela Mae Lupton** PO Box 7529 Bend, OR 97708	May 24, 2010	May 23, 2013

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2012

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
35.	**Servando Garcia Maldonado** PO Box 17915 Salem, OR 97305	January 15, 2011	January 14, 2014
36.	**Mark Bourdeau Trucking, Inc.** 13233 SW Morgan Road Sherwood, OR 97140	June 3, 2011	June 2, 2014
37.	**Michael S. Varner Construction, Inc.** PO Box 9416 Bend, OR 97708-9416	February 22, 2012	February 21, 2015
38.	**Michelle Delrae Mullins** **aka Michelle Sutherland** **aka Michelle Shearer** **dba Oregon Traffic Solutions** 2522 Fort Worth Ave, Apt 113 Dallas, TX 75211-1716 125 SW Kathleen Street Waldport, OR 97394	January 5, 2012	January 4, 2015
39.	**Northwest Road Builders, Inc.** 57280 Timber Road Vernonia, OR 97064-9645	June 3, 2011	June 2, 2014
40.	**Alex J. Olsen** **dba BSD Enterprises** PO Box 493 11600 ½ Highway 101 S. Tillamook, OR 97141	April 25, 2012	April 24, 2015
41.	**Oregon Traffic Solutions** 125 SW Kathleen Street Waldport, OR 97394	January 5, 2012	January 4, 2015
42.	**Pacwest Contracting, LLC** 23388 Butterfield Trail Bend, OR 97702	May 24, 2010	May 23, 2013
43.	**Portland Tile Contractors, LLC** 8781 SE 55th Avenue Portland, OR 97206 16434 S Harding Road Oregon City, OR 97045	May 31, 2012	May 30, 2015
44.	**William J. Postles** 1818 16th Street West Linn, OR 97068	November 1, 2011	October 31, 2014
45.	**RC Landworks, Inc.** PO Box 232 Boring, OR 97009 21822 SE Bohna Park Road Damascus, OR 97089	May 15, 2012	May 14, 2015

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2012

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
46.	**RMH Group, Inc.** **dba H & M Concrete Company** 830 NE Hidden Valley Bend, OR 97702	September 14, 2011	September 13, 2014
47.	**Edward S. Rodgers** PO Box 601 Chiloquin, OR 97624-0601	June 17, 2011	June 16, 2014
48.	**Christopher Rogers** 1355 Piedmont Springfield, OR 97477	June 3, 2011	June 2, 2014
49.	**Rogers Consulting and Construction, Inc.** 496 S 69th Place Springfield, OR 97478	June 3, 2011	June 2, 2014
50.	**Terry Rand Ross** 18598 SW Mount Adams Loop Powell Butte, OR 97753-1652	March 29, 2012	March 28, 2015
51.	**Frances L Sallah and Edrissa Sallah** 4800 SW Maple Avenue Beaverton, OR 97005	May 1, 2011	April 30, 2014
52.	**Michelle Shearer** **aka Michelle Sutherland** **aka Michelle Delrae Mullins** **dba Oregon Traffic Solutions** 2522 Fort Worth Ave, Apt 113 Dallas, TX 75211-1716 125 SW Kathleen Street Waldport, OR 97394	January 5, 2012	January 4, 2015
53.	**Silvercreek Woodworks, Inc.** 20551 Builders Court La Pine, OR 97701-8507	September 14, 2011	September 13, 2014
54.	**Sunikerr, LLC** 4800 SW Maple Avenue Beaverton, OR 97005	May 1, 2011	April 30, 2014
55.	**Michelle Sutherland** **aka Michelle Delrae Mullins** **aka Michelle Shearer** **dba Oregon Traffic Solutions** 2522 Fort Worth Ave, Apt 113 Dallas, TX 75211-1716 125 SW Kathleen Street Waldport, OR 97394	January 5, 2012	January 4, 2015
56.	**Tile Masters, LLC** 4676 Commercial Street SE Salem, OR 97302-1902 5015 Micah Court SE Salem, OR 97306-2855	June 17, 2011	June 16, 2014

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2012

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
57.	**Richard W. Titus** 57280 Timber Road Vernonia, OR 97064-9645	June 3, 2011	June 2, 2014
58.	**Michael S. Varner** PO Box 9416 Bend, OR 97708-9416	February 22, 2012	February 21, 2015
59.	**WCI Construction, LLC** 169 SE Cody Lane Madras, OR 97741	May 3, 2012	May 2, 2015
60.	**Rebekah Williams** PO Box 1003 Boring, OR 97009-1003 21822 SE Bohna Park Road Damascus, OR 97089	May 15, 2012	May 14, 2014
61.	**Russell T. Williams** PO Box 232 Boring, OR 97009 21822 SE Bohna Park Road Damascus, OR 97089	May 15, 2012	May 14, 2015
62.	**Wrangler Construction, Inc.** 169 SE Cody Lane Madras, OR 97741	May 3, 2012	May 2, 2015

BRAD AVAKIAN, COMMISSIONER
OREGON BUREAU OF LABOR AND INDUSTRIES

PREVAILING WAGE RATE FORMS

WH-38	**Certified Payroll Form**
WH-39	**Public Work Contract Fee Information Form**
WH-40	**Public Work Contract Fee Adjustment Form**
WH-81	**Notice of Award of Public Works Contract**
WH-118	**Planned Public Improvement Summary**
WH-119	**Capital Improvement Cost Comparison Estimate**

BUREAU OF LABOR AND INDUSTRIES, PREVAILING WAGE RATE UNIT

INSTRUCTIONS FOR COMPLETING THE PREVAILING WAGE RATE PAYROLL/CERTIFIED STATEMENT FORM (WH-38)

The Payroll/Certified Statement form (WH-38) may be used by contractors for reporting their payroll as required by ORS 279C.845 on public works projects subject to the Prevailing Wage Rate (PWR) Law. Although this form has not been officially approved by the U.S. Department of Labor (US DOL), it is designed to meet the requirements of the federal Davis-Bacon Act. For projects associated with the U.S. Department of Housing and Urban Development (HUD), contact the public agency (owner) associated with the project for assistance with payroll reporting.

Contractors are not required to use the WH-38 form in reporting their payroll; however, the contractor must provide all of the information contained in the form, including the certified statement on page two. The certified statement must be signed by the contractor, certifying the accuracy of the information reported on the payroll, including representations pertaining to the provision of fringe benefits to employees by third parties, and must be submitted with each weekly payroll report. Detailed instructions concerning the preparation of the form follow:

Complete the top third of the form. Be sure to enter the date the contract was first advertised for bid. If you are not sure of this date, contact the public agency (owner) associated with the project. The "Payroll No." is a US DOL requirement and represents the week number for the reporting period.

Column 1 – NAME AND ADDRESS: The employee's full name must be shown on each payroll submitted. The employee's address must also be shown on the first payroll submitted. The address need not be shown on subsequent payrolls submitted unless the address changes. The US DOL requires an employee identification number for each individual employee, on each payroll submitted. This number may be, but does not have to be, the last four digits of the employee's social security number.

Column 2 – CLASSIFICATION: For assistance in determining the correct classification, use the Bureau of Labor and Industries' publication "Definitions of Covered Occupations for Public Works Contracts in Oregon." On the WH-38, list the classification that is most descriptive of the work actually performed by the employee. Give the group number for those classifications that include such information. Indicate which workers are apprentices, if any, and give their current percentage, classification, and group number when applicable. If an employee works in more than one classification, use the highest rate for all hours worked, or use separate line entries to show hours worked and hourly rates for each classification.

Column 3 – DAY AND DATE: Enter the day of the week (M, T, W, Th, F, S, and Sn) in the top row of boxes, and the corresponding date below.

HOURS WORKED EACH DAY: Enter the total number of straight time hours worked in the row marked "ST." Generally, hours worked over 8 in a day or work performed on Saturdays, Sundays, and legal holidays should be entered as overtime ("OT") hours worked. Contractors who have adopted and followed a written work schedule of four consecutive ten-hour days (Monday through Thursday or Tuesday through Friday) may enter hours worked over 10 in a day as overtime hours. For more information on overtime requirements, see the Contractor Responsibilities section of the Bureau of Labor and Industries' publication "Prevailing Wage Rate Laws" handbook.

Column 4 – TOTAL HOURS: Enter separately the total number of straight time and overtime hours worked by the employee (in each classification, if applicable) on the PWR project during the week. The total number of straight time hours worked should be entered in the lower box ("ST"); the total number of overtime hours worked should be entered in the top box ("OT").

Column 5 – HOURLY BASE RATE: Enter the hourly base rate (plus zone pay, if any) and the hourly overtime rate (plus zone pay, if any) paid to the employee in the appropriate straight time and overtime boxes. (Payment of not less than one and one half times the base rate of pay, including zone pay but not

including fringe benefits, is required to be paid for overtime hours pursuant to ORS 279C.540). Generally, use the appropriate prevailing wage rates in effect at the time the contract was first advertised for bid by the public agency. If this date is not known, or if the project was not advertised for bid, contact the public agency (owner) associated with the project for assistance with applicable rates.

Column 6 – HOURLY FRINGE BENEFIT AMOUNT PAID AS WAGES TO THE EMPLOYEE: Enter hourly fringe benefit amounts paid directly to the employee as wages. (For overtime hours worked, it is not necessary to pay time and one half for the fringe benefit portion of the prevailing wage rate.)

Column 7 – GROSS AMOUNT EARNED: Enter the gross amount earned for work on the PWR project during the week. If part of the employee's wages for the pay period were earned on projects other than the project described on the WH-38, or if the employee is paid less often than on a weekly basis, enter in column 7 first the gross amount earned on the PWR project for the week, then the total gross amount earned for the pay period. For example: $567.84 / $1,267.27.

Column 8 – ITEMIZED DEDUCTIONS, FICA, FED, STATE, ETC.: Enter deductions withheld from wages for the pay period. All deductions must be in accordance with the provisions of ORS 652.610 (and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. Stat. 967, 76 Stat. 357; 40 U.S.C 276c) on projects subject to Davis-Bacon Act). For projects subject to the Davis-Bacon Act, itemize the deductions.

Column 9 – NET WAGES PAID: Enter the total amount of net wages actually paid to the employee for the pay period. This figure can be calculated by subtracting the total deductions reported in Column 8 from the gross amount of wages for the pay period reported in the bottom portion of Column 7.

Column 10 – HOURLY FRINGE BENEFITS PAID TO BENEFITS PARTY, PLAN, FUND OR PROGRAM: Enter the hourly amount of fringe benefits paid to each individually approved party, plan, fund, or program, for each employee. List these amounts separately on the lines provided. Any contractor who is making payments to approved parties, plans, funds or programs in amounts less than the required hourly fringe benefit is obligated to pay the difference directly to the employee as wages in lieu of fringe benefits, and to show that amount in Column 6 of this form. For information on how to calculate hourly fringe benefit credits, see Appendix A in the Bureau of Labor and Industries' publication "Prevailing Wage Rate Laws" handbook.

Column 11 – NAME OF BENEFIT PARTY, PLAN, FUND OR PROGRAM: Enter the name of the party, plan, fund, or program that corresponds to the amount paid as an hourly fringe benefit in Column 10.

CALCULATION CHECK

In order to determine whether the wages and fringe benefits paid are sufficient to meet prevailing wage rate requirements, the following check may be performed:

1. For each classification listed in column 2, compute the sum of:
   a) the hourly base rate of pay shown in Column 5,
   b) the hourly fringe benefit amount paid as wages to employee shown in Column 6, and
   c) the hourly fringe benefits paid to benefit party, plan, fund or program shown in Column 10.

2. This sum must equal or exceed the total of the hourly base rate (including zone pay) and the hourly fringe benefit rate for that classification as listed in the appropriate issue of the Bureau of Labor and Industries publications Prevailing Wage Rates for Public Works Contracts in Oregon, or in the Prevailing Wage Rates for Public Works Contracts Subject to BOTH the State PWR and Federal Davis-Bacon Act, if applicable.

IF YOU HAVE QUESTIONS REGARDING COMPLETION OF THIS FORM, CONTACT THE PREVAILING WAGE RATE UNIT OF THE BUREAU OF LABOR AND INDUSTRIES AT (971) 673-0838.

NOTE: PAYROLL/CERTIFIED STATEMENTS ARE ONLY REQUIRED TO BE SUBMITTED TO THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT.

CERTIFIED PAYROLL AND OTHER FORMS ARE AVAILABLE ON OUR WEBSITE: WWW.OREGON.GOV/BOLI

BUREAU OF LABOR AND INDUSTRIES
WAGE AND HOUR DIVISION

PAYROLL/CERTIFIED STATEMENT FORM WH-38
FOR USE IN COMPLYING WITH ORS 279C.845*

PRIME CONTRACTOR ☐ SUBCONTRACTOR ☐ PAYROLL NO._____

Business Name (DBA): Phone: ( ) CCB Registration Number:

Project Name: Project Number: Type of Work:

Street Address: Project Location:

Mailing Address: Project County:

Date Pay Period Began: Date Pay Period Ended:

THIS SECTION FOR PRIME CONTRACTORS ONLY

Public Contracting Agency Name:
Phone: ( )
Date Contract Specifications First Advertised for Bid:
Contract Amount:

THIS SECTION FOR SUBCONTRACTORS ONLY

Subcontract Amount:
Prime Contractor Business Name (DBA):
Prime Contractor Phone: ( )
Prime Contractor's CCB Registration Number:
Date You Began Work on the Project:

(1)	(2)		(3) DAY AND DATE							(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
NAME , ADDRESS AND EMPLOYEE'S IDENTIFICATION NUMBER	CLASSIFICATION (INCLUDE GROUP # AND APPRENTICESHIP STEP IF APPLICABLE)		HOURS WORKED EACH DAY							TOTAL HOURS	HOURLY BASE RATE	HOURLY FRINGE BENEFIT AMOUNTS PAID AS WAGES TO EMPLOYEE	GROSS AMOUNT EARNED (see directions)	ITEMIZED DEDUCTIONS FICA, FED, STATE, ETC.	NET WAGES PAID	HOURLY FRINGE BENEFITS PAID TO BENEFIT PARTY, PLAN, FUND, OR PROGRAM	NAME OF BENEFIT PARTY, PLAN, FUND, OR PROGRAM
		OT															
		ST															
		OT															
		ST															
		OT															
		ST															
		OT															
		ST															
		OT															
		ST															

*Although this form has not been officially approved by the U.S. Department of Labor, it is designed to meet the requirements of both the state PWR law and the federal Davis-Bacon Act.

THIS FORM CONTINUED ON REVERSE

CERTIFIED STATEMENT

Date: _____

I, _____, _____
(NAME OF SIGNATORY PARTY) (TITLE)
do hereby state:
(1) That I pay or supervise the payment of the persons employed by:

_____
(CONTRACTOR, SUBCONTRACTOR OR SURETY)
on the _____; that during the payroll period
(BUILDING OR WORK)
commencing on the _____ day of _____, _____, and ending the _____ day
(MONTH) (YEAR)
of _____, _____, all persons employed on said project have been paid the
(MONTH) (YEAR)
full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said _____
(CONTRACTOR, SUBCONTRACTOR OR SURETY)
from the full weekly wages earned by any person, and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as specified in ORS 652.610, and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:

_____

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for workers contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each worker conform with work performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a state apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a state, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

I HAVE READ THIS CERTIFIED STATEMENT, KNOW THE CONTENTS THEREOF AND IT IS TRUE TO MY KNOWLEDGE:

_____
(NAME AND TITLE)

_____
(SIGNATURE AND DATE)

In addition to completing sections (1) - (3), if your project is subject to the federal Davis-Bacon Act requirements, complete the following section as well:

(4) That:
(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS OR PROGRAMS

☐ - In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ - Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in Section 4(c) below.

(c) EXCEPTIONS:

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

FILE THIS FORM WITH THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT
NOTE TO CONTRACTORS: YOU MUST ATTACH COPIES OF THIS FORM TO EACH OF YOUR PAYROLL SUBMISSIONS ON THIS PROJECT.
INSTRUCTIONS AND ADDITIONAL FORMS ARE AVAILABLE ON OUR WEBSITE: WWW.OREGON.GOV/BOLI.

CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only:

Project DB #:_____

PUBLIC WORKS FEE INFORMATION FORM

For use by public agencies that have contracted with a contractor on a public works project regulated by ORS 279C.800 to 279C.870, in compliance with ORS 279C.825. Also for use by public agencies that are a party to a public works project pursuant to ORS 279C.800(6)(a)(B) or (C).

PUBLIC AGENCIES: Please complete and mail this form to BOLI at the above address, along with the public works fee of one-tenth of one percent of the contract price (contract amount x .001), payable to BOLI. **The minimum fee is $250.00; the maximum fee is $7,500.00.** Without the following completed information, the bureau may be unable to properly credit you for payment received.

PUBLIC AGENCY: _____ **AGENCY #:** _____

AGENCY MAILING ADDRESS: _____

CITY, STATE, ZIP _____

AGENCY CONTACT PERSON: _____ **PHONE: ( )** _____

PROJECT MANAGER NAME: _____ **PHONE: ( )** _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT LOCATION: _____

PROJECT NO: _____ **DATE CONTRACT FIRST ADVERTISED:** _____

DATE CONTRACT AWARDED: _____ **CONTRACTOR CCB#:** _____

CONTRACTOR BUSINESS NAME (DBA): _____

CONTRACTOR ADDRESS: _____

CITY, STATE ZIP _____

CONTRACT AMOUNT: $ _____ **FEE AMOUNT DUE/PAID: $** _____

If less than $50K is it part of a larger project? ☐yes ☐no **Contract amount x .001 = fee due**

(Please duplicate this form for future use.)

CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only:

Project DB #:_____

PUBLIC WORKS FEE ADJUSTMENT FORM

THIS FORM TO BE USED FOR RECONCILIATION OF FEES UPON COMPLETION OF PUBLIC WORKS PROJECTS

(As required by ORS 279C.825 and OAR 839-025-0210)

PUBLIC AGENCIES: Complete and mail this form to BOLI at the above address after completion of the public work project and not less than 30 days after the final progress payment is made to the contractor. Public agencies are required to determine the final contract price, including all change orders or other adjustments to the original contract price, and to calculate the adjusted prevailing wage rate fee based on the revised contract price. Documentation must be included to support the final contract price. Documentation of the final contract price may consist of change orders or other contract documents substantiating the amount of the contract. The prevailing wage rate fee of one-tenth of one percent (.001) shall be applied to the final contract price, with credit taken for fees already submitted. The public agency must submit any additional fee payable to BOLI, or submit any request for refund, with this adjustment form. **NO ADDITIONAL FEE IS REQUIRED TO BE PAID, AND REFUNDS WILL NOT BE MADE, FOR RECONCILED AMOUNTS OF LESS THAN $100.00.**

PUBLIC AGENCY: _____ **AGENCY #:** _____

AGENCY CONTACT PERSON: _____ **PHONE :( )** _____

MAILING ADDRESS: _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT NUMBER: _____ **PROJECT LOCATION:** _____

CONTRACTOR/BUSINESS NAME (DBA): _____

CONTRACTOR CCB#: _____ **DATE AWARDED:** _____

FINAL CONTRACT/PROJECT AMOUNT: _____ **FINAL FEE DUE:** _____
(Include all change orders and adjustments to the contract price) **(Final Contract amount X .001)**

ORIGINAL CONTRACT AMOUNT: _____ **INITIAL FEE PAID:** _____
(Original Contract amount X .001)

TOTAL ADJUSTMENT: _____ **BALANCE DUE*:** _____
or
REFUND DUE*: _____
***Final contract fee less initial fee paid**

Sample Calculation:			
Final Contract Amount:	**$ 400,000.00**	**Final Fee Due:**	**$ 400.00**
Original Contract Amount:	**- 300,000.00**	**Initial Fee Paid:**	**- 300.00**
Total Adjustment:	**$ 100,000.00**	**Additional Amount Due:**	**$ 100.00**

(Please duplicate this form for future use)

BUREAU OF LABOR AND INDUSTRIES
NOTICE OF PUBLIC WORKS

(For use by public agencies in complying with ORS 279C.835 for public works awarded after January 1, 2008)

NOTE: ORS 279C.835 requires that public contracting agencies include with this form a copy of the disclosure of first-tier subcontractors submitted pursuant to ORS 279C.370.

PUBLIC AGENCY INFORMATION

Agency Name: _____ Agency Number (if known): _____

Address: _____ Agency Division: _____

City, State, Zip: _____

Agency Representative: _____ Phone: _____

SECTION A: To be completed when a public agency awards a contract to a contractor for a public works project, including CM/GC projects. (See reverse for public works projects in which no public agency awards a contract to a contractor.)

CONTRACT INFORMATION:

Project Name: _____ Project Number: _____

Contract Name (if part of larger project): _____ Contract Number: _____

Project Manager Name: _____ Phone #: _____ Fax #: _____

Project Location (Street(s), City): _____ Project County: _____

Contract Amount: $_____ If under $50,000, is this contract part of a larger project? YES____ NO____

If yes, total project amount: $_____

Will project use federal funds that require compliance with the Davis-Bacon Act? YES____ NO____

Date Contract Specifications First Advertised for Bid (if not advertised, date of RFP or first contact with contractor): _____

If CM/GC Contract, Date Contract Became a Public Works Contract (see OAR 839-025-0020(6)): _____

Date Contract Awarded: _____ Date Work Expected to Begin: _____

Date Work Expected to be Complete: _____

PRIME CONTRACTOR INFORMATION:

Name: _____

Address: _____

City, State Zip: _____ Phone: _____

Construction Contractors Board Registration Number: _____

Name of Bonding Company: _____

Address: _____

Agent Name and Phone Number: _____

Bond Number: _____

☐ Copy of first-tier subcontractors attached (**see NOTE above**).

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

SECTION B: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(B) (a project for the construction, reconstruction, major renovation or painting of a privately owned road, highway, building, structure or improvement of any type that uses funds of a private entity and $750,000 or more of funds of a public agency) and no public agency awards a contract to a contractor.

CONTRACT INFORMATION:

Name of Project Owner:_____ Phone #: _____ Fax #: _____

Project Name: _____ Project Number:_____

Project Location (Street(s), City): _____ Project County:_____

Total Project Amount: $_____ Amount of Public Funds Provided for the project: $_____

Name(s) of Public Agency (ies) Providing Public Funds: _____

Date the public agency or agencies commit to the provision of funds for the project: _____

Will project use federal funds that require compliance with the Davis-Bacon Act? YES____ NO____

Date Work Expected to Begin: _____

Date Work Expected to be Complete: _____

SECTION C: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(C) (a project for the construction of a privately owned road, highway, building, structure or improvement of any type that uses funds of a private entity and in which 25 percent or more of the square footage of the completed project will be occupied or used by a public agency) and no public agency awards a contract to a contractor.

CONTRACT INFORMATION:

Name of Project Owner: _____ Phone #: _____ Fax #: _____

Project Name: _____ Project Number:_____

Project Location (Street(s), City): _____ Project County: _____

Total Project Amount: $_____ Amount of Public Funds Provided for the project: $_____

Name(s) of Public Agency(ies) Providing Public Funds: _____

Total square footage of privately owned road, highway, building, structure or improvement: _____

Percent of total square footage of the completed project that will be occupied or used by a public agency: _____

Date the public agency or agencies entered into an agreement to occupy or use the completed project: _____

Will project use federal funds that require compliance with the Davis-Bacon Act? YES____ NO____

Date Work Expected to Begin: _____

Date Work Expected to be Complete: _____

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

Signature of agency representative completing form: _____

Printed Name: _____ Phone #: _____ Date:_____

RETURN THIS COMPLETED FORM TO:
Prevailing Wage Rate Unit • Bureau of Labor and Industries • 800 NE Oregon Street, #1045 • Portland, OR 97232-2180
Telephone (971) 673-0852 • FAX (971) 673-0769

PLANNED PUBLIC IMPROVEMENT SUMMARY

FISCAL YEAR: _____ - _____ _____ **PAGE** _____ **OF** _____

(Name of State or Local Government Agency)

Project Number	Project Name	Project Type	Project Location	Estimated Project Cost	Agency or Contract Work

ORS 279C.305 requires that not less than 30 days prior to adoption of its budget for the subsequent budget period, each public agency shall prepare and file with the Commissioner of the Bureau of Labor and Industries a list of every public improvement known to the agency that the agency plans to fund in the budget period, identifying each improvement by name and estimating the total on-site construction costs. The list shall also contain a statement as to whether the agency intends to perform the construction by a private contractor. If the agency intends to perform construction work using the agency's own equipment and personnel on a project estimated to cost more than $125,000, the agency must also show that its decision conforms to the state's policy that public agencies make every effort to construct public improvements at the least cost to the public agency. Public agencies are required to keep and preserve a full, true and accurate account of the costs of performing the work, including all engineering and administrative expenses, and the cost, including investment costs, of any equipment used.

This form (WH-118) may be used to list planned public improvements. Form WH-119 (Capital Improvement Project Cost Comparison Estimate) may be used to report the agency's least cost analysis.

Completed forms should be mailed to:

Prevailing Wage Rate Unit
Wage and Hour Division, #1045
Bureau of Labor and Industries
800 N.E. Oregon St.
Portland, OR 97232-2180

CAPITAL IMPROVEMENT PROJECT COST COMPARISON ESTIMATE

_____
(Name of State or Local Government Agency)

DEPARTMENT: _____ **PROJECT NAME:** _____

PROPOSED YEAR: _____ **FUND:** _____

PROJECT DESCRIPTION: _____ **PROJECT NUMBER:** _____

Rough Quantity Estimates	Units	Work Class Description	Agency Force Estimate		Agency Contract Estimate	
			Unit Cost	Total Cost	Unit Cost	Total Cost
				$		$

ESTIMATED CONSTRUCTION PERIOD: _____

The above-named agency has determined that this project can be performed at the least cost by: ☐ **the Agency** ☐ **Contractor** (check one)

_____
(Signature of Agency Official)

ORS 279C.305 requires that not less than 30 days prior to adoption of its budget for the subsequent budget period, each public agency shall prepare and file with the Commissioner of the Bureau of Labor and Industries a list of every public improvement known to the agency that the agency plans to fund in the budget period, identifying each improvement by name and estimating the total on-site constructions costs. The list shall also contain a statement as to whether the agency intends to perform the construction by a private contractor. If the agency intends to perform construction work using the agency's own equipment and personnel on a project estimated to cost more than $125,000, the agency must also show that its decision conforms to the state's policy that public agencies make every effort to construct public improvements at the least cost to the public agency. Public agencies are required to keep and preserve a full, true and accurate account of the costs of performing the work, including all engineering and administrative expenses, and the cost, including investment costs, of any equipment used.

Form WH-118 (Planned Public Improvement Summary) may be used to list planned public improvements. This form (WH-119) may be used to report the agency's least cost analysis.

Completed forms should be mailed to:

Prevailing Wage Rate Unit
Wage and Hour Division, #1045
Bureau of Labor and Industries
800 N.E. Oregon St.
Portland, OR 97232-2180

The 2012 edition of the *Prevailing Wage Rate Laws* handbook is available. One complimentary hard copy of each Prevailing Wage Rate (PWR) publication is available upon request by emailing BOLI at pwremail.boli@state.or.us or calling (971) 673-0838. Additional copies are available at cost, plus postage.

In addition to providing this and other PWR publications, the Bureau of Labor and Industries' PWR Unit regularly offers free, informational seminars for both public agencies and contractors.

Prior to responding below, please consider that all PWR-related information is available online at http://www.oregon.gov/BOLI/WHD/PWR/index.shtml. If you are interested in receiving the handbook and/or being included on our mailing lists for future seminar notifications, please complete the form below and return it to the bureau's PWR Unit. You may mail this form to the address on the opposite side of the form, or fax it to (971) 673-2372.

☐ Please send me the 2012 edition of the *Prevailing Wage Rate Laws* handbook.

☐ Please add me to the mailing list to receive information about BOLI PWR seminars.

☐ Please add me to the e-mailing list to receive information about BOLI PWR seminars.

_____

AGENCY OR CONTRACTOR BUSINESS NAME and PHONE NUMBER (Required)

_____

AGENCY OR CONTRACTOR BUSINESS E-MAIL ADDRESS (Please print clearly)

_____

MAILING ADDRESS

_____

CITY, STATE, ZIP

_____

NAME OF REPRESENTATIVE and PHONE NUMBER if different from above.

place
stamp
here

BOLI - PREVAILING WAGE RATE UNIT
800 NE OREGON #1045
PORTLAND, OR 97232

BUREAU OF LABOR AND INDUSTRIES
WAGE AND HOUR DIVISION – PWR UNIT
800 NE OREGON STREET # 1045
PORTLAND, OR 97232

TRADE	BASIC HOURLY RATE	FRINGE	TRADE	BASIC HOURLY RATE	FRINGE

ELECTRICIAN

Area 3

Electrician	**32.65**	**14.33**

Reference Counties Area 3

Coos Curry Lane (a) Lincoln

(a) Those portions lying **west** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County

GLAZIER	**32.71**	**16.08**

Add $1.00 to base rate if safety belt is required by State safety regulations.
Add $4.00 to base rate for work done from a non-motorized single-man bosun chair.

LIMITED ENERGY ELECTRICIAN

Area 3	**24.90**	**12.60**

Reference Counties Area 3

Coos Curry

SECTION 01 1000

SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: OIT Geothermal Power Plant.

B. Owner's Name: Oregon Institue of Technology.

C. Architect's Name: Gary R. Caperna, Architect.

D. The Project consists of the construction of a metal building to house the power plant, well house, cooling towers and their steel support framing..

1.02 CONTRACT DESCRIPTION

A. Contract Type: Multiple prime contracts each based on a Stipulated Price as described in Batzer Construction, Inc., Public Works Subcontract.

1.03 DESCRIPTION OF NEW CONSTRUCTION

A. Scope of Work: Construction of a metal building to house the power plant, well house, cooling towers and their steel support framing, as shown on Plans and Specifications, as follows:
   1. The project consists of an approximately 3,430 square foot, Type II-B one-story, pre-engineered metal building with gravel access road, parking lot, underground utilities, and other improvements.

B. Project address: 3201 Campus Drive, Klamath Falls, OR 97601.

1.04 WORK BY OWNER

A. Items noted OFOI (Owner Furnished, Owner Installed) and NIC (Not in Contract) will be supplied and installed by Owner before Substantial Completion. Refer to drawings.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:
   1. Use of site and premises by the public.

C. Provide access to and from site as required by law and by Owner:
   1. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Utility Outages and Shutdown:
   1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 3 working days notice to Owner and authorities having jurisdiction.
   2. Limit shutdown of utility services to 4 hours at a time, arranged at least 48 hours in advance with Owner.
   3. Prevent accidental disruption of utility services to other facilities.

1.06 WORK SEQUENCE

A. Coordinate construction schedule and operations with Architect and Owner.

1.07 SPECIFICATION SECTIONS APPLICABLE TO ALL CONTRACTS

A. Unless otherwise noted, all provisions of the sections listed below apply to all contracts. Specific items of work listed under individual contract descriptions constitute exceptions.

B. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.
   1. Subcontractors are responsible for furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other

items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of each Section and each Subcontract.

C. Section 01 2000 - Price and Payment Procedures.

D. Section 01 2300 - Alternates.

E. Section 01 3000 - Administrative Requirements.

F. Section 01 4000 - Quality Requirements.

G. Section 01 5000 - Temporary Facilities and Controls.

H. Section 01 6000 - Product Requirements.

I. Section 01 6010 - CSI Substitution Request Form.

J. Section 01 7000 - Execution and Closeout Requirements.

K. Section 01 7800 - Closeout Submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Document 00 7200 - General Conditions and Document 00 7300 - Modifications to General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

B. Document 00 7300 - Modifications to General Conditions: Percentage allowances for Contractor's overhead and profit.

1.03 SCHEDULE OF VALUES

A. Form to be used: Sub-Contractor's standard spreadsheet, or AIA G703, Continuation Sheet.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization and bonds and insurance.

F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form to be used: AIA G702, Application and Certificate for Payment, and AIA G703, Continuation Sheet.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.
   3. Scheduled Values.
   4. Previous Applications.
   5. Work in Place and Stored Materials under this Application.
   6. Authorized Change Orders.
   7. Total Completed and Stored to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.

F. Execute certification by signature of authorized officer.

G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

H. Submit three copies of each Application for Payment.

I. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 01 3000.
   2. Construction progress schedule, revised and current as specified in Section 01 3000.
   3. Affidavits attesting to off-site stored products.

J. When Architect requires substantiating information, submit data justifying dollar amounts in question. 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.

1.05 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

B. For other required changes, Architect will issue a document signed by Owner instructing Sub-Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change.

C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor or Subcontractor shall prepare and submit a fixed price quotation within five (5) days.

D. Computation of Change in Contract Amount: As specified in the OUS General Conditions.
   1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.

E. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

F. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

G. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

H. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

I. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 7000.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings.

C. Construction progress schedule.

D. Submittals for review, information, and project closeout.

E. Number of copies of submittals.

F. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Description of New Construction.

B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

A. Project Coordinator: General Contractor.

B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.

C. During construction, coordinate use of site and facilities through the Project Coordinator.

D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

F. Coordinate field engineering and layout work under instructions of the Project Coordinator.

G. Make the following types of submittals to Architect through the Project Coordinator:
   1. Requests for information / interpretation.
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Manufacturer's instructions and field reports.
   6. Applications for payment and change order requests.
   7. Progress schedules.
   8. Coordination drawings.
   9. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.
   4. Earthwork and Underground Utilities Subcontractors.
   5. HVAC Subcontractor.
   6. Electrical Subcontractor.

C. Agenda:
   1. Submission of executed bonds and insurance certificates.
   2. Submission of schedule of values, and progress schedule.
   3. Designation of personnel representing the parties to Contract, Owner and Architect.
   4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   5. Scheduling.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

E. Contractor will ecord minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum Bi-Weekly intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Maintenance of progress schedule.
   7. Corrective measures to regain projected schedules.
   8. Planned progress during succeeding work period.
   9. Maintenance of quality and work standards.
   10. Effect of proposed changes on progress schedule and coordination.
   11. Other business relating to Work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

3.04 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - CLOSEOUT SUBMITTALS.

3.05 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

3.07 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies that Contractor requires, plus three copies that will be retained by Architect.
   2. Larger Sheets, Not Larger Than 36 x 48 inches: Submit the number of opaque reproductions that Contractor requires, plus three copies that will be retained by Architect.

B. Documents for Information: Submit three copies.

C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.

D. Samples: Submit the number specified in individual specification sections; two of which will be retained by Architect.

3.08 SUBMITTAL PROCEDURES

A. Transmit each submittal with Sub-Contractor's standard transmittal form.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
   1. Submittals will be accepted from the contractor only. Submittals received from other entities will be returned without review or action.

E. Preparation: Reproductions of contract documents are not acceptable as shop drawings.

1. Samples: Attach a description to each sample; list name of manufacturer or source of each sample; keep final samples at project site.

F. Deliver submittals to Architect at business address.

G. Schedule submittals to expedite the Project, and coordinate submission of related items.

H. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
   1. If a submittal must be processed within a certain time in order to maintain the progress of the work, state so clearly on the submittal.

I. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
   1. Do not submit substitute items that have not been approved by means of the procedure specified elsewhere.
   2. Do not include requests for substitution (either direct or indirect) on submittals; comply with procedures for substitutions specified elsewhere.

J. Provide space for Contractor and Architect review stamps, miniumum 4 inches wide by 5 inches high.

K. When revised for resubmission, identify all changes made since previous submission.

L. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

M. Submittals not requested will not be recognized or processed.

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. References and standards.

B. Quality assurance submittals.

C. Control of installation.

D. Tolerances.

E. Testing and inspection services.

F. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

A. Document 00 3100 - Available Project Information: Soil investigation data.

B. Document 00 7200 - General Conditions: Inspections and approvals required by public authorities.

C. Section 01 3000 - Administrative Requirements: Submittal procedures.

D. Section 01 4216 - Definitions.

E. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2011.

B. ASTM E329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing; 2011.

1.04 SUBMITTALS

A. Test Reports: After each test/inspection, promptly submit three copies of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.
   2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

B. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.05 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the

standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 TESTING AND INSPECTION AGENCIES

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

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

A. See individual specification sections and drawings for testing required.

B. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.

5. Perform additional tests and inspections required by Architect.
6. Attend preconstruction meetings and progress meetings.
7. Submit reports of all tests/inspections specified.

C. 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 Contractor.
4. Agency has no authority to stop the Work.

D. 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 manufacturers' facilities.
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 tests/inspections.
   d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.

F. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4216

DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Project Manual: The book-sized volume that includes the procurement requirements (if any), the contracting requirements, and the specifications.

E. Provide: To furnish and install.

F. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Vehicular access and parking.

F. Waste removal facilities and services.

G. Project identification sign.

H. Field offices.

1.02 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power and metering, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.

B. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.

C. New permanent facilities may be used.

D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TELECOMMUNICATIONS SERVICES

A. General Contractor will provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services will include:
   1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
   2. Telephone Land Lines: One line, minimum; one handset per line.
   3. Internet Connections: Minimum of one; DSL modem or faster.
   4. Email: Account/address reserved for project use.
   5. Facsimile Service: Minimum of one dedicated fax machine/printer, with dedicated phone line.

1.04 TEMPORARY SANITARY FACILITIES

A. General Contractor will provide and maintain required facilities and enclosures at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

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

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

A. General Contractor will provide 6 foot high fence around construction site; equipped with vehicular gates with locks.

1.07 EXTERIOR ENCLOSURES

A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.08 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Existing on-site roads may be used for construction traffic.

E. Owner has provided construction staging and temporary parking areas to accommodate construction personnel. Refer to drawings.

1.09 WASTE REMOVAL

A. General Contractor will provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.10 PROJECT IDENTIFICATION

A. No other signs are allowed without Owner permission except those required by law.

1.11 FIELD OFFICES

A. General Contractor will provide Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

1.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

E. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Procedures for Owner-supplied products.

G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Lists of products to be removed from existing building.

B. Section 01 4000 - Quality Requirements: Product quality monitoring.

C. Section 01 6010 - CSI Substitution Request Form.

1.03 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Agreement.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:
   1. Made outside the United States, its territories, Canada, or Mexico.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Will reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution. Section 01 6010 - CSI Substitution Request Form.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Architect will notify Contractor in writing of decision to accept or reject request.

3.02 OWNER SUPPLIED PRODUCTS

A. See Section 01 1000 - Summary for identification of Owner-supplied products.

B. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

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

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 6010 - SUBSTITUTION REQUEST FORM

(During the Bidding/Negotiating Stage)

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01 6000 Substitution Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 6000 Substitution Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

Supporting Data Attached: ☐ Drawings X☐ Product Data ☐ Samples ☐ Tests ☐ Reports ____☐__

SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

H. Demonstration and instruction of Owner personnel.

I. Closeout procedures, except payment procedures.

J. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on working at site; work sequence; applicable specifications.

B. Section 01 3000 - Administrative Requirements: Submittals procedures.

C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

D. Section 01 5000 - Temporary Facilities and Controls: Temporary interior partitions.

E. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties .

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate Contractor.
   6. Include in request:
      a. Identification of Project.
      b. Location and description of affected work.
      c. Necessity for cutting or alteration.
      d. Description of proposed work and products to be used.
      e. Effect on work of Owner or separate Contractor.
      f. Written permission of affected separate Contractor.
      g. Date and time work will be executed.

D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

1.05 COORDINATION

A. See Section 01 1000 and drawings for use of site.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

G. Utilize recognized engineering survey practices.

H. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

J. Periodically verify layouts by same means.

K. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. See Section 01 1000 for other limitations on outages and required notifications.
      c. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.

5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

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

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
   2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
   3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

I. Refinish existing surfaces as indicated:
   1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
   2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
   3. Patch as specified for patching new work.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

D. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

F. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

H. Restore work with new products in accordance with requirements of Contract Documents.

I. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

J. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material , to full thickness of the penetrated element.

K. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

L. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

M. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

N. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Prohibit traffic from landscaped areas.

H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.13 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F. Clean filters of operating equipment.

G. Clean debris from roofs, gutters, downspouts, and drainage systems.

H. Clean site; sweep paved areas, rake clean landscaped surfaces.

I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect and Owner.

B. Accompany Architect on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Substantial Completion.

D. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.

E. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

F. Notify Architect when work is considered finally complete.

G. Complete items of work determined by Architect's final inspection.

3.15 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 00 7200 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 30 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit three sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Field changes of dimension and detail.
   4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.

d. Operating instructions.
e. Maintenance instructions for equipment and systems.
f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:
   a. Shop drawings and product data.
   b. Air and water balance reports.
   c. Photocopies of warranties and bonds.

3.04 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete foundation walls and retaining walls.

D. Concrete foundations and anchor bolts for pre-engineered building.

E. Concrete reinforcement.

F. Joint devices associated with concrete work.

G. Miscellaneous concrete elements, including equipment pads.

H. Concrete curing and finishing.

I. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

B. Special Provisions, Civil Work, by Adkins Engineering, Inc.: Concrete Paving: Manholes; Catch Basins and other site elements.

C. Section 07 1113 - Bituminous Dampproofing.

D. Section 07 9005 - Joint Sealers: Sealants for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000 (Reapproved 2009).

F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.

G. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.

H. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.

J. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute International; 2004.

K. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.

L. ASTM C33 - Standard Specification for Concrete Aggregates; 2011.

M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2010.

N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2011.

O. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2008.

P. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2010a.

Q. ASTM C150 - Standard Specification for Portland Cement; 2011.

R. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.

S. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2010b.

T. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

U. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2007.

V. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2010a.

W. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2008a.

X. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2010.

Y. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1999 (Reapproved 2008).

Z. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2011.

AA. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2010a.

AB. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).

AC. ASTM E1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996 (Reapproved 2008).

AD. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2009.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Samples:
   1. Submit samples of underslab vapor retarder to be used.

D. Quality Control Submittals: Submit the following information related to quality assurance requirements specified:
   1. Design data: Submit proposed mix designs and test data before concrete operations begin. Identify for each mix submitted the method by which proportions have been selected.
   2. Placement schedule: Submit concrete placement schedule prior to start of any concrete placement operations. Include location of all joints indicated on drawings, plus anticipated construction joints.
   3. Delivery tickets: Submit copies of delivery tickets complying with ASTM C 94 for each load of concrete delivered to site. Include on the tickets the additional information specified in the ASTM document.

E. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Formwork Design and Construction: Comply with guidelines of ACI 347 to provide formwork that will produce concrete complying with tolerances of ACI 117.

B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces.
   3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.
   5. Fillets: Wood or plastic fillets for chamfered corners, in maximum lengths possible.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type.
   1. Acquire all cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C 33.
   1. Acquire all aggregates for entire project from same source.

C. Fly Ash: ASTM C618, Class C or F.

D. Calcined Pozzolan: ASTM C618, Class N.

E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

F. Water: Clean and not detrimental to concrete.

2.04 CHEMICAL ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260.

C. High Range Water Reducing Admixture: ASTM C494/C494M Type F.

D. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.

E. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.

F. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder - Building Floor Slabs ONLY: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
   1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,400 psi.

C. Moisture-Retaining Cover: ASTM C171; regular curing paper, white curing paper, clear polyethylene, white polyethylene, or white burlap-polyethylene sheet.

D. Liquid Curing Compound: ASTM C 309, Type 1, clear or translucent.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059 Type II.

B. Epoxy Bonding System: Complying with ASTM C881/C881M and of Type required for specific application.

C. Joint Filler at Interior and Exterior Slabs: Nonextruding, resilient asphalt impregnated fiberboard or felt, complying with ASTM D 1751, 1/4 inch thick and 4 inches deep ; tongue and groove profile.

D. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with minimum 1 inch diameter holes for conduit or rebars to pass through at 6 inches on center; ribbed steel stakes for setting.
   1. Height: To suit slab thickness.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
   1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.

B. Concrete Strength: Establish required average strength for concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
   2. Refer to Structural drawings for compressive strength, water/cement ratio, slump, and air entrainment requirements.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: As indicated on drawings.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
   4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
   5. Cement Content: Minimum ___ lb per cubic yard.
   6. Water-Cement Ratio: Maximum 40 percent by weight.
   7. Total Air Content: 6 percent, determined in accordance with ASTM C173/C173M.
   8. Maximum Slump: 4 inches.
   9. Maximum Aggregate Size: 3/4 inch.

2.08 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete. The contractor is responsible for design, engineering, and construction of formwork, and for its timely removal.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
   1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
   2. Use latex bonding agent only for non-load-bearing applications.

E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

F. Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches and seal watertight by taping edges and ends. Do NOT cover with sand; repair damaged vapor retarder before covering.
   1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R. Schedule continuous placement and consolidation of concrete within planned construction joints.
   1. Thoroughly consolidate concrete without displacing reinforcement or embedded items, using internal vibrators, vibrating screeds, roller pipe screeds, or other means acceptable to architect.
   2. Strike off and level concrete slab surfaces, using highway straightedges, darbies, or bull floats before bleed water can collect on surface. Do not work concrete further until finishing operations are commenced.

C. Notify Architect not less than 48 hours prior to commencement of placement operations.

D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

E. Ensure reinforcement, inserts, and embedded parts will not be disturbed during concrete placement.

F. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

G. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Locate joints as indicated on the drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

D. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.

E. Repair underslab vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.

F. Separate slabs on grade from vertical surfaces with joint filler.

G. Extend joint filler from bottom of slab to within 1/2 inch of finished slab surface. Conform to Section 07 9005 for finish joint sealer requirements.

H. Install joint devices in accordance with manufacturer's instructions.

I. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

J. Apply sealants in joint devices in accordance with Section 07 9005.

K. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

L. Place floor slabs in saw cut pattern indicated. Refer to Structural drawings.

M. Saw cut joints as soon as surface is capable of resisting load without damage to finish. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

N. Screed floors level, maintaining the following minimum F(F) Floor Flatness and F(L) Floor Levelness values when measured in accordance with ASTM E1155/ASTM E1155M.
   1. F(F): Specified Overall Value (SOV) of 25; Minimum Localized Value (MLV) of 17.
   2. F(L): Specified Overall Value (SOV) of 20; Minimum Localized Value (MLV) of 13.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 EQUIPMENT BASES

A. Form, reinforce, and place bases for all mechanical and electrical eqiupment indicated on the drawings, including architectural, structural, mechanical, electrical, and plumbing drawings, in accordance with approved shop details furnished by the various trades. Corners shall be bullnosed and bases shall be coved.

3.08 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:

D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Steel trowel surfaces that will receive sealer with slip-resistant finish.

2. Apply a non-slip Medium Broom-finish to interior and exterior floor surfaces that will be left exposed; refer to Finish Schedule. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.

E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.09 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than 7 days.

C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

D. Surfaces Not in Contact with Forms:
   1. Final Curing: Begin after initial curing but before surface is dry.
      a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

E. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure four concrete test cylinders. Obtain test samples for every 150 cu yd or less of each class of concrete placed, but not less than one sample per 5,000 square feet of surface area for slabs and walls..

F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

H. Determine temperature of concrete for each set of cylinders taken, following procedures of ASTM C 1064.

I. Determine air content of concrete for each set of cylinders taken, following procedures of ASTM C 231.

3.11 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.12 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 05 1200

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural steel framing members, support members and struts.

B. Base plates, shear stud connectors.

C. Grouting under base plates.

D. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 05 5000 - Metal Fabrications: Steel fabrications affecting structural steel work.

C. Section 09 9000 - Painting and Coating.

1.03 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2005.

B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005.

C. AISC S348 - Specification for Structural Joints Using ASTM A325 or A490 Bolts; 2004.

D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.

E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.

F. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished; 2007.

G. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

H. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 2010.

I. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.

J. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.

K. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.

L. ASTM A529/A529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality; 2005 (Reapproved 2009).

M. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2006a.

N. ASTM E94 - Standard Guide for Radiographic Examination; 2004 (Reapproved 2010).

O. ASTM E164 - Standard Practice for Ultrasonic Contact Examination of Weldments; 2008.

P. ASTM E165 - Standard Test Method for Liquid Penetrant Examination; 2009.

Q. ASTM E709 - Standard Guide for Magnetic Particle Testing; 2008.

R. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.

S. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
   2. Connections not detailed.
   3. Indicate cambers and loads.
   4. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.

C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

D. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.

E. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."

B. Fabricator: Company specializing in performing the work of this section with minimum 8 years of documented experience.

C. Erector: Company specializing in performing the work of this section with minimum 8 years of documented experience.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Angles, Plates, and Wide Flange Beams: ASTM A36/A36M.

B. Steel W Shapes and Tees: ASTM A992/A992M.

C. Steel Shapes, Plates, and Bars: ASTM A529/A529M high-strength, carbon-manganese structural steel, Grade 50.

D. Cold-Formed Structural Tubing: ASTM A500, Grade B.

E. Pipe: ASTM A53/A53M, Grade B, Finish galvanized.

F. Shear Stud Connectors: Made from ASTM A 108 Grade 1015 bars.

G. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A galvanized to ASTM A 153/A 153M, Class C.

H. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, medium carbon, plain.

I. Welding Materials: AWS D1.1; type required for materials being welded.

J. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C 1107/C 1107M and capable of developing a minimum compressive strength of 5,000 psi at 7 days. Acceptable products include Masterflow 928, Sonogrout 10K, and Five Star Instant Grout or approved equivalent.

K. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Shop fabricate to greatest extent possible.

B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

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

2.03 FINISH

A. Prepare structural component surfaces in accordance with SSPC SP 1, 2, and/or 3.

B. Shop prime structural steel members. Do not prime surfaces that will be field welded, in contact with concrete, or high strength bolted.

2.04 SOURCE QUALITY CONTROL

A. High-Strength Bolts: Provide testing and verification of shop-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", testing at least 20 percent of bolts at each connection.

B. Welded Connections: Visually inspect all shop-welded connections and test at least 20 percent of welds using one of the following:
   1. Radiographic testing performed in accordance with ASTM E94.
   2. Ultrasonic testing performed in accordance with ASTM E164.
   3. Liquid penetrant inspection performed in accordance with ASTM E165.
   4. Magnetic particle inspection performed in accordance with ASTM E709.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 ERECTION

A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".

B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Field weld components and shear studs indicated on shop drawings.

D. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".

E. Do not field cut or alter structural members without approval of Architect.

F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

G. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.03 TOLERANCES

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

B. Maximum Offset From True Alignment: 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.

B. High-Strength Bolts: Provide testing and verification of field-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", testing at least 20 percent of bolts at each connection.

C. Welded Connections: Visually inspect all field-welded connections and test at least 20 percent of welds using one of the following:
   1. Radiographic testing performed in accordance with ASTM E94.
   2. Ultrasonic testing performed in accordance with ASTM E164.

3. Liquid penetrant inspection performed in accordance with ASTM E165.
4. Magnetic particle inspection performed in accordance with ASTM E709, when indicated on drawings.

END OF SECTION

SECTION 05 5000

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel items.

B. Steel pipe bollards, galvanized.

C. Steel mesh door at exterior (galvanized and prefinished); at Well Pump House.

D. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

C. Section 05 5213 - Pipe and Tube Railings.

D. Section 08 3613 - Sectional Doors.

E. Section 09 9000 - Painting and Coating: Paint finish.

F. Section 13 3419 - Metal Building Systems - Overhead door and louver frames.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

E. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).

F. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.

G. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.

H. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.

I. ASTM A780-01 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2006.

J. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.

K. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.

L. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

M. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

N. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

D. Product Data: Provide manufacturer's data on product description, dimensions, and standard product drawings.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A 36/A 36M.

B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing, hot-dip galvanized finish.

C. Plates: ASTM A 283.

D. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, hot-dip galvanized finish.

E. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; galvanized finish. Size: 6-inch diameter.

B. Steel angle corner guards: As indicated; prime paint finsh.

C. Screen Door at Well House:
   1. Expanded Metal, 3/4 #9 Flattened, galvanized, from 48.0000" X 120.0000" sheet: McNichols, www.mcnichols.com.
   2. Steel Tube Frame: As specified in 2.01 B above.

D. Door Frames for Overhead Door Openings, Wall Openings, and Doors: Channel and Angle sections; prime paint finish.

E. Steel wall protection at interior of Metal Building: Refer to drawings.

2.04 FINISHES - STEEL

A. Prime paint all steel items.
   1. Exceptions: Galvanize items to be embedded in concrete.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized , except surfaces to be in contact with concrete.

3.04 CLEANING AND TOUCH-UP

A. Touch up damage to galvanized surfaces usinggalvanizing repair paint in accordance with ASTM A780.

END OF SECTION

SECTION 05 5213

PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Free-standing railings at steps and ramps.

B. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 03 3000 - Cast-in-Place Concrete: Placement of anchors in concrete.

C. Section 09 9000 - Painting and Coating: Paint finish.

1.03 REFERENCE STANDARDS

A. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.

C. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.

D. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).

E. SSPC-Paint 15 - Steel Joist Shop Paint; The Society for Protective Coatings; 1999 (Ed. 2004).

F. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); The Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

A. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E 935.

B. Design railing assembly, wall rails, and attachments to resist lateral force of 75 lbs at any point without damage or permanent set. Test in accordance with ASTM E 935.

C. Allow for expansion and contraction of members and building movement without damage to connections or members.

D. Dimensions: See drawings for configurations and heights.
   1. Top Rails and Wall Rails: 1-1/2 inches diameter, round.
   2. Intermediate Rails: 1-1/2 inches diameter, round.
   3. Posts: 1-1/2 inches diameter, round.
   4. Balusters: 1/2 inch square solid bar.

E. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
   1. For anchorage to concrete, refer to details.
   2. Posts: Provide adjustable flanged brackets.

F. Provide welding fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL RAILING SYSTEM

A. Steel Tube: ASTM A 500, Grade B cold-formed structural tubing.

B. Steel Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.

C. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.

D. Exposed Fasteners: No exposed bolts or screws.

E. Galvanizing: In accordance with requirements of ASTM A123/A123M.
   1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

F. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.03 FABRICATION

A. Accurately form components to suit specific project conditions and for proper connection to building structure.

B. Fit and shop assemble components in largest practical sizes for delivery to site.

C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

D. Welded Joints:
   1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
   2. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be cast into concrete with setting templates, for installation as work of other sections.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.

C. Anchor railings securely to structure.

D. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.

E. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Non-structural dimension lumber framing.

C. Rough opening framing for doors, windows, and roof openings.

D. Sheathing.

E. Preservative treated wood materials.

F. Miscellaneous framing and sheathing.

G. Communications and electrical room mounting boards.

H. Concealed wood blocking, nailers, and supports.

I. Miscellaneous wood nailers, furring, and grounds.

J. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 03 3000 - Cast-In-Place Concrete: Setting anchors in concrete.

C. Section 05 5000 - Metal Fabrications: Wire mesh and steel tube framed outer door; bolts and other hardware.

D. Section 06 1753 - Shop-Fabricated Wood Trusses.

E. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

F. Section 07 6200 - Sheet Metal Flashing and Trim: Sill flashings.

1.03 REFERENCE STANDARDS

A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2001.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

E. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.

F. ICC-ES Legacy Evaluation Report NER 272; revised 2004.

G. PS 1 - Structural Plywood; 2007.

H. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

I. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau; 2004, and supplements.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials and application instructions.

C. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.

1.05 DELIVERY, STORAGE, AND HANDLING

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

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

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

B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: West Coast Lumber Inspection Bureau (WCLIB).

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19. S-GRN material is not acceptable, due to different acclimation rates of these (S-GRN and S-DRY) materials.

D. Stud Framing (2 by 4 through 2 by 6):
   1. Species: Douglas Fir-Larch.

E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 12):
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 1 & Btr
   3. Free of Heart Center.

F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 TIMBERS FOR CONCEALED APPLICATIONS

A. Grading Agency: West Coast Lumber Inspection Bureau (WCLIB).

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry (19 percent maximum).

D. Beams and Posts 5 inches and over in thickness:
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 1.

2.04 STRUCTURAL COMPOSITE LUMBER

A. At Contractor's option, structural composite lumber may be substituted for concealed dimension lumber and timbers.

B. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.
   1. Beams: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published E (modulus of elasticity): 1,800,000 psi, minimum.
   2. Manufacturers:
      a. iLevel by Weyerhaeuser: www.ilevel.com.
      b. Boise Cascade: www.bc.com.
      c. Substitutions: See Section 01 6000 - Product Requirements.

2.05 CONSTRUCTION PANELS

A. Roof Sheathing: APA PRP-108/APA PRPR-108, Form B455, Rated PLYWOOD Sheathing, Exposure 1, and as follows:
   1. Span Rating: 40/20.
   2. Thickness: 5/8 inch, nominal.

B. Wall Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, and as follows:
   1. Span Rating: 24/0.
   2. Thickness: 7/16 inch, nominal.

C. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

D. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Other Locations: PS 1, C-D Plugged or better.

2.06 ACCESSORIES

A. Fasteners and Anchors: Provide as required by applicable codes and as otherwise indicated.
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, locations exposed to weather, unfinished steel elsewhere.
   2. Power-Driven Fasteners: ICC-ES Legacy Evaluation Report NER 272.
   3. Bolts: Refer to Section 05 5000.

B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions. Provide Simpson Stong-Tie Connectors manufactured by Simpson Strong-Tie Co., Inc.
   1. For contact with preservative treated wood in concealed or exposed locations, provide minimum G185 galvanizing per ASTM A 653/A 653M.

C. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions. Provide Simpson Stong-Tie Connectors manufactured by Simpson Strong-Tie Co., Inc. or approved equivalent.
   1. For contact with preservative treated wood in concealed or exposed locations, provide minimum G185 galvanizing per ASTM A 653/A 653M.

D. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

E. Water-Resistive Barrier: As specified in Section 07 2500.

2.07 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:

1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
    a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    b. Treat lumber in contact with roofing, flashing, or waterproofing.
    c. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

B. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength .

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at ceiling openings and under wall stud partitions that are parallel to ceiling joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet span at mid-span. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

I. Notches in middle third of joist span are prohibited; notches elsewhere for pipes shall not exceed 1/6 of depth of joist. Replace any joists so notched. Do not notch joists at bearing unless specifically indicated and in no case more than 1/4 of joist depth.

J. Do not bore holes within 2 inches of top or bottom of joist nor larger than 1/3 depth of joist. Replace any joists so bored.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

D. Specifically, provide the following non-structural framing and blocking:
    1. Wall brackets.

2. Wall-mounted door stops.
3. Wall paneling and trim.
4. Joints of rigid wall coverings that occur between studs.

3.05 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
   1. At long edges provide solid edge blocking where joints occur between roof framing members.
   2. Nail panels to framing with ring-shank nails; staples are not permitted.

B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails.
   1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

C. Communications and Electrical Room Mounting Boards: Secure over gypsum board with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.
   4. Size and Location: As indicated on drawings.

3.07 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.09 CLEANING

A. Waste Disposal:
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 1753

SHOP-FABRICATED WOOD TRUSSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated wood trusses for roof framing.

B. Bridging, bracing, and anchorage.

C. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 06 1000 - Rough Carpentry: Installation requirements for miscellaneous framing.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

B. TPI 1 - National Design Standard for Metal Plate Connected Wood Truss Construction; Truss Plate Institute; 2007 and errata (ANSI/TPI 1).

C. TPI BCSI 1 - Building Component Safety Information Booklet: The Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses; joint publication of the Truss Plate Institute and the Wood Truss Council of Amer

D. TPI DSB-89 - Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses; Truss Plate Institute; 1989.

E. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau; 2004, and supplements.

F. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 2011.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Show truss configurations, sizes, spacing, size and type of plate connectors, cambers, framed openings, bearing and anchor details, and bridging and bracing.
   1. Include identification of engineering software used for design.
   2. Provide shop drawings stamped or sealed by design engineer.

1.05 QUALITY ASSURANCE

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

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle and erect trusses in accordance with TPI BCSI 1.

B. Store trusses in vertical position resting on bearing ends.

PART 2 PRODUCTS

2.01 TRUSSES

A. Wood Trusses: Designed and fabricated in accordance with TPI 1 and TPI DSB-89 to achieve structural requirements indicated.

1. Species and Grade: Douglas Fir, WWPA Grade _____.
2. Connectors: Steel plate.
3. Structural Design: Comply with applicable code for structural loading criteria.

2.02 MATERIALS

A. Lumber:
   1. Moisture Content: Between 7 and 9 percent.
   2. Lumber fabricated from old growth timber is not permitted.

B. Steel Connectors: Hot-dipped galvanized steel sheet, ASTM A653/A653M Structural Steel (SS) Grade 33/230, with G90/Z275 coating; die stamped with integral teeth; thickness as indicated.

C. Truss Bridging: Type, size and spacing recommended by truss manufacturer.

2.03 ACCESSORIES

A. Wood Blocking, Bridging, Plates, and Miscellaneous Framing: As specified in Section 06 1000.

B. Fasteners: Electrogalvanized steel, type to suit application.

C. Bearing Plates: Electrogalvanized steel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that supports and openings are ready to receive trusses.

3.02 PREPARATION

A. Coordinate placement of bearing items.

3.03 ERECTION

A. Install trusses in accordance with manufacturer's instructions and TPI DSB-89 and TPI BCSI 1; maintain a copy of each TPI document on site until installation is complete.

B. Set members level and plumb, in correct position.

C. Do not field cut or alter structural members without approval of Architect.

D. Install permanent bridging and bracing.

3.04 TOLERANCES

A. Framing Members: 1/2 inch maximum, from true position.

END OF SECTION

SECTION 06 2000

FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood fasciae and trim at exterior.

C. Wood casings and moldings.

D. Hardware and attachment accessories.

E. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

C. Section 09 9000 - Painting and Coating: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

B. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

1.04 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Custom Grade.

B. Exterior Woodwork Items:
   1. Soffits and Fascias: Prepare for paint finish.

C. Interior Woodwork Items:
   1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine; prepare for paint finish.

2.02 WOOD-BASED COMPONENTS

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

2.03 LUMBER MATERIALS

A. Softwood Lumber: Western Red Cedar species, re- sawn, maximum moisture content of 6 percent; with vertical grain, Select Tight Knot.

2.04 FASTENINGS

A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

B. Fasteners: Of size and type to suit application; galvanized finish in concealed locations and galvanized finish in exposed locations.

2.05 ACCESSORIES

A. Primer: as specified in Section 09 9000.

B. Wood Filler: Solvent base, tinted to match surface finish color.

2.06 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

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

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Site Finishing: See Section 09 9000.

C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 07 1113

BITUMINOUS DAMPPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Bituminous dampproofing at exposed retaining walls. Refer to Architectural and Structural Engineering drawings for extent of work.

B. Protection boards.

C. Drainage panels.

D. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 03 3000 - Cast-In-Place Concrete.

C. Section 31 2000 - Earth Moving; fill behind retaining walls.

D. Section 33 4600 - Subdrainage.

1.03 REFERENCE STANDARDS

A. ASTM D4479 - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007.

B. NRCA ML104 - The NRCA Roofing and Waterproofing; National Roofing Contractors Association; Fifth Edition, with interim updates.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide properties of primer, bitumen, and mastics.

C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.05 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application until dampproofing has cured.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Karnak Corporation: www.karnakcorp.com.
   2. Mar-Flex Systems, Inc: www.mar-flex.com.
   3. W.R. Meadows, Inc: www.wrmeadows.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DAMPPROOFING PRODUCTS

A. Bituminous Dampproofing: Cold-applied, spray-grade; asphalt base, volatile petroleum solvents, and other content, suitable for application by spray, brush, roller, or squeegee; asbestos-free; suitable for application on vertical and horizontal surfaces.
   1. Composition: ASTM D4479 Type I, minimum.
   2. VOC Content: Not more than permitted by local, State, and federal regulations.

3. Applied Thickness: 1/16 inch, minimum, wet film.
4. Products:
    a. W.R. Meadows, Inc.; Sealmastic Spray-Mastic: www.wrmeadows.com.
    b. Substitutions: See Section 01 6000 - Product Requirements.

B. Primers, Mastics, and Related Materials: Type as recommended by dampproofing manufacturer.

2.03 ACCESSORIES

A. Drainage Panel: 1/4 inch thick formed plastic, hollowed sandwich.

B. Protection Board: 1/8 inch thick biodegradable hardboard.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify substrate surfaces are durable, free of matter detrimental to adhesion or application of dampproofing system.

C. Verify that items that penetrate surfaces to receive dampproofing are securely installed.

3.02 PREPARATION

A. Protect adjacent surfaces not designated to receive dampproofing.

B. Clean and prepare surfaces to receive dampproofing in accordance with manufacturer's instructions.

C. Do not apply dampproofing to surfaces unacceptable to manufacturer.

D. Apply mastic to seal penetrations, small cracks, or minor honeycomb in substrate.

3.03 APPLICATION

A. Exposed retaining and foundation walls: Apply two coats of dampproofing.

B. Perform work in accordance with NRCA Roofing and Waterproofing Manual.

C. Prime surfaces in accordance with manufacturer's instructions.

D. Apply bitumen with roller.

E. Apply bitumen in two coats, continuous and uniform, at a rate of 2 gal/100 sq ft per coat.

F. Seal items projecting through dampproofing surface with mastic. Seal watertight.

G. Place drainage panel directly over dampproofing, butt joints, place to encourage drainage downward.

H. Place protection board over drainage panel, butt joints, and adhere with mastic.

I. Scribe and cut boards around projections, penetrations, and interruptions.

END OF SECTION

SECTION 07 1900
WATER REPELLENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water repellents applied to exterior concrete surfaces.

B. Pressure washing.

C. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.03 REFERENCE STANDARDS

A. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005.

B. ASTM D5095 - Standard Test Method for Determination of the Nonvolatile Content in Silanes, Siloxanes, and Silane-Siloxane Blends Used in Masonry Water Repellent Treatments; 1991 (Reapproved 2007).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide product description.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention; cautionary procedures required during application.

1.05 QUALITY ASSURANCE

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

B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years experience.

1.06 PRE-INSTALLATION MEETING

A. Convene a meeting at least one week prior to starting work; require attendance of affected installers; invite Architect and Owner.

1.07 FIELD CONDITIONS

A. Protect liquid materials from freezing.

B. Do not apply water repellent when ambient temperature is lower than 50 degrees F or higher than 100 degrees F.

C. Do not apply water repellents when wind velocity is higher than 5 mph.

1.08 EXTRA MATERIALS

A. See Section 01 6000 - Product Requirements, for additional provisions.

B. Provide two gallons of water repellent.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silane/Siloxane Water Repellents:
   1. Tnemec Company, Inc: www.tnemec.com.
   2. BASF Construction Chemicals, Inc: www.buildingsystems.basf.com.
   3. Pecora Corporation: www.pecora.com.
   4. PROSOCO, Inc: www.prosoco.com.
   5. Textured Coatings of America, Inc: www.texcote.com.
   6. Eco-Wares : www.eco-wares.com.
   7. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

A. Water Repellent: Non-glossy, colorless, penetrating, water-vapor-permeable, non-yellowing sealer, that dries invisibly leaving appearance of substrate unchanged.
   1. Applications: Vertical surfaces and non-traffic horizontal surfaces.
   2. VOC Content: Less than 600 g/L, when tested in accordance with ASTM D3690 or D 5095.
   3. Products: Siloxane, silane, or blend that reacts chemically with concrete and masonry; minimum 90 percent nonvolatile content.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify joint sealants are installed and cured.

C. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of water repellent.

3.02 PREPARATION

A. Prepare surfaces to be coated as recommended by water repellent manufacturer for best results.

B. Remove loose particles and foreign matter.

C. Remove oil and foreign substances with a chemical solvent that will not affect water repellent.

D. Pressure wash surfaces to be coated:
   1. Concrete: High pressure wash at 1500 to 4000 psi, at 6 to 12 inches from surface.

E. Allow surfaces to dry completely to degree recommended by water repellent manufacturer before starting coating work.

3.03 APPLICATION

A. Apply water repellent in accordance with manufacturer's instructions, using procedures and application methods recommended as producing the best results.

B. Apply at rate recommended by manufacturer, continuously over entire surface.

C. Apply two coats, minimum.

D. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

3.04 PROTECTION OF ADJACENT WORK

A. Protect adjacent landscaping, property, and vehicles from drips and overspray.

B. Protect adjacent surfaces not intended to receive water repellent.

C. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

END OF SECTION

SECTION 07 2500

WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, and joints around frames of openings in exterior walls.

B. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 03 3000 - Cast-In-Place Concrete: Vapor retarder under concrete slabs on grade.

C. Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashings installed in conjunction with weather barriers.

D. Section 07 9005 - Joint Sealers: Sealant materials and installation techniques.

1.03 REFERENCE STANDARDS

A. AATCC Test Method 127 - Water Resistance: Hydrostatic Pressure Test; 2008.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

C. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2003.

D. ASTM E 2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights; 2007.

E. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc.; 2009.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on material characteristics, performance criteria, and limitations.

C. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

1.05 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. Air Barrier Sheet, Mechanically Fastened:
   1. Air Permeance: 0.004 cubic feet per square foot, maximum, when tested in accordance with ASTM E2178.
   2. Water Vapor Permeance: 5 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).
   3. Water Vapor Permeance: 10 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).

4. Water Penetration Resistance: Withstand a water head of 21 inches, minimum, for minimum of 5 hours, when tested in accordance with AATCC 127.
5. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 9 months weather exposure.
6. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 9 months weather exposure.
7. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 50 or less, when tested in accordance with ASTM E84.
8. Water Resistance: Comply with applicable water-resistive requirements of ICC-ES Acceptance Criteria AC38.
9. Products:
    a. DuPont Company; Tyvek CommercialWrap: www.dupont.com.
    b. Fiberweb, Inc; Typar MetroWrap: www.typar.com.
    c. National Shelter Products, Inc.; DRYLine W: www.drylinewrap.com.
    d. VaproShield, LLC; WrapShield: www.vaproshield.com.
    e. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ACCESSORIES

A. Self-Adhesive Sheet Flashing: ASTM E 2112. Acceptable products:
    1. Moistop E-Z Seal Flashing, manufactured by Fortifiber Building Systems Group.

B. Air Barrier Tape: Pressure-sensitive plastic tape recommended by air barrier manufacturer for sealing joints and penetrations in barrier.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Mechanically Fastened Sheets - On Exterior:
    1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
    2. Overlap seams as recommended by manufacturer but at least 6 inches.
    3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
    4. Attach to framed construction with fasteners extending through sheathing into framing. Space fasteners at 12 to 18 inches on center along each framing member supporting sheathing.
    5. Install air barrier and vapor retarder UNDER jamb flashings.
    6. Install head flashings under weather barrier.
    7. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

D. Openings and Penetrations in Exterior Weather Barriers:
    1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
    2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with at least 4 inches wide; do not seal sill flange.
    3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.

4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

A. Do not cover installed weather barriers until required inspections have been completed.

3.05 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 3113
ASPHALT SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Asphalt shingle roofing.

B. Flexible sheet membranes for eave protection, underlayment, and valley protection.

C. Associated metal flashings and accessories.

D. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 06 1000 - Rough Carpentry: Roof sheathing.

1.03 REFERENCE STANDARDS

A. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.

B. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2009.

C. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method); 2009.

D. ASTM D3462 - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules; 2010a.

E. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.

F. Miami (APD) - Approved Products Directory; Miami-Dade County; database at www.miamidade.gov/buildingcode.

G. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating material characteristics.

C. Samples: Submit two samples of each shingle color indicating color range and finish texture/pattern ; for color selection.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Shingles: 25 sq ft of each type and color.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.

1.06 FIELD CONDITIONS

A. Do not install shingles or eave protection membrane when surface temperatures are below 45 degrees F.

PART 2 PRODUCTS

2.01 SHINGLES

A. Manufacturers:
   1. Atlas Roofing Corporation; GlassMaster: www.atlasroofing.com.
   2. GAF Materials Corporation; Royal Sovereign: www.gaf.com.
   3. Owens Corning CorpOak Ridge: www.owenscorning.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462; Class A fire resistance.
   1. Wind Resistance: Class F, when tested in accordance with ASTM D3161.
   2. Warranted Wind Speed: Not less than tested wind resistance.
   3. Miami-Dade County approved.
   4. Self-sealing type.
   5. Style: Square.
   6. Color: As selected.

2.02 SHEET MATERIALS

A. Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

B. Underlayment: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D226 , Type II ("No.30").

2.03 ACCESSORIES

A. Nails: Standard round wire shingle type, of hot-dipped zinc coated steel, 12 gage, 0.105 inch shank diameter, 3/8 inch head diameter, of sufficient length to penetrate through roof sheathing or 3/4 inch into roof sheathing or decking.

B. Staples: Standard wire shingle type, of hot dipped zinc coated steel, 16 gage, 0.062 inch diameter, 15/16 inch crown width, of sufficient length to penetrate through roof sheathing or 3/4 inch into roof sheathing or decking.

C. Plastic Cement: ASTM D4586, asphalt roof cement.

D. Gable Louver Vents: Product: Master Flow Model DA1212; GAF; www.gaf.com.
   1. Net free area: 60 square inches.
   2. Material: Aluminum.

E. Wall Louver Vents: Product: Master Flow Model DA1212; GAF; www.gaf.com
   1. Net free area: 60 square inches.
   2. Material: Aluminum.

2.04 METAL FLASHINGS

A. Metal Flashings: Provide sheet metal eave edge, gable edge, and other flashing indicated.
   1. Form flashings to protect roofing materials from physical damage and shed water.
   2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
   3. Hem exposed edges of flashings minimum 1/4 inch on underside.
   4. Coat concealed surfaces of flashings with bituminous paint.

B. Sheet Metal: Prefinished galvanized steel, 0.018 inch/26 gage thick, minimum G90/Z275 hot-dipped galvanized; PVC coated, color as selected.

C. Bituminous Paint: Acid and alkali resistant type; black color.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.

B. Verify that deck is of sufficient thickness to accept fasteners.

C. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.02 PREPARATION

A. Seal roof deck joints wider than 1/16 inch with deck tape.

B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.

C. Broom clean deck surfaces before installing underlayment or eave protection.

D. Install eave edge and gable edge flashings tight with fascia boards. Weather lap joints 2 inches and seal with plastic cement. Secure flange with nails spaced 18 inches on center.

3.03 INSTALLATION - EAVE PROTECTION MEMBRANE

A. Install eave protection membrane from eave edge to minimum 4 ft up-slope beyond interior face of exterior wall.

B. Install eave protection membrane in accordance with manufacturer's instructions.

3.04 INSTALLATION - UNDERLAYMENT

A. At Roof Slopes Greater Than 4:12 : Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches. Stagger end laps of each consecutive layer. Nail in place. Weather lap minimum 4 inches over eave protection.

B. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

3.05 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions.
   1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.
   2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.

B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.

C. Project first course of shingles 3/4 inch beyond fascia boards.

D. Extend shingles 1/2 inch beyond face of gable edge fascia boards.

E. Complete installation to provide weather tight service.

3.06 PROTECTION

A. Do not permit traffic over finished roof surface.

END OF SECTION

SECTION 07 9005

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

B. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 07 2500 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders:

C. Section 13 3419 - Metal Building Systems.

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2010.

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.

C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2010.

D. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Samples: Submit two samples, 3/8 x 3 inch in size illustrating sealant colors for selection.

1.05 QUALITY ASSURANCE

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

1.06 FIELD CONDITIONS

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

1.07 COORDINATION

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

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Polyurethane Sealants:
   1. Bostik Inc: www.bostik-us.com.
   2. Pecora Corporation: www.pecora.com.
   3. BASF Construction Chemicals-Building Systems; Product ____: www.buildingsystems.basf.com.
   4. Sherwin-Williams Company; Stampede-1/-TX Polyurethane Sealant: www.sherwin-williams.com.
   5. Substitutions: See Section 01 6000 - Product Requirements.

B. Butyl Sealants:
   1. Bostik Inc; Product ____: www.bostik-us.com.
   2. Pecora Corporation; Product ____: www.pecora.com.
   3. Sherwin-Williams Company; Storm Blaster All Season Sealant: www.sherwin-williams.com.
   4. Tremco Global Sealants; Product ____: www.tremcosealants.com.
   5. Substitutions: See Section 01 6000 - Product Requirements.

C. Acrylic Emulsion Latex Sealants:
   1. Bostik Inc; Product ____: www.bostik-us.com.
   2. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
   3. BASF Construction Chemicals-Building Systems; Product ____: www.buildingsystems.basf.com.
   4. Sherwin-Williams Company; White Lightning 3006 Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
   5. Tremco Global Sealants; Product ____: www.tremcosealants.com.
   6. Substitutions: See Section 01 6000 - Product Requirements.

2.02 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.

B. General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single component.
   1. Color: To be selected by Architect from manufacturer's standard range.
   2. Color: color as selected.
   3. Applications: Use for:
      a. Joints between concrete and other materials.
      b. Joints between plaster, masonry and other materials.
      c. Joints between metal frames and other materials.
      d. Other exterior joints for which no other sealant is indicated.

C. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
   1. Applications: Use for:
      a. Concealed sealant bead in sheet metal work.

D. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
   1. Color: Colors as selected.
   2. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Other interior joints for which no other type of sealant is indicated.

E. Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A; single component.
   1. Color: Match adjacent finished surfaces.
   2. Applications: Use for:
      a. Expansion joints in floors.
   3. Products:
      a. Pecora Corporation; NR-201 Self-Leveling Traffic and Loop Sealant: www.pecora.com.
      b. Sherwin-Williams Company; Stampede 2SL Polyurethane Sealant: www.sherwin-williams.com.
      c. Substitutions: See Section 01 6000 - Product Requirements.

F. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.

1. Color: Gray.
2. Applications: Use for:
    a. Joints in sidewalks and vehicular paving.
3. Products:
    a. Pecora Corporation; NR-201 Self-Leveling Traffic and Loop Sealant: www.pecora.com.
    b. Sherwin-Williams Company; Stampede 2SL Polyurethane Sealant: www.sherwin-williams.com.

2.03 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker where joint backing is not used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION

SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated steel doors and frames.

B. Thermally insulated steel doors.

C. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us <http://www.boli.state.or.us>.

B. Section 08 7100 - Door Hardware.

C. Section 09 9000 - Painting and Coating: Field painting.

D. Section 13 3419 - Metal Building Systems.

E. Section 23 3700 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

B. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory-Applied Finish Painted Steel Surfaces for Steel Doors and Frames; 2007.

C. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.

D. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

F. ASTM C1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus; 2005.

G. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.

H. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

I. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

C. Shop Drawings: Details of each opening, showing elevations, frame profiles, and identifying location of different finishes, if any.
   1. Identify openings numerically by Architect's opening numbers.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1. Include preparation instructions for field painting when products are delivered to jobsite.

1.05 QUALITY ASSURANCE

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

B. Maintain at the project site a copy of all reference standards dealing with installation.

C. It is the specific responsibility of the Hollow Metal Supplier to furnish products which are fully functional, in full compliance with State and Local Building Codes, Fire Codes, and Handicap Codes.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with NAAMM HMMA 840.

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

C. Damage not acknowledged at delivery shall be considered jobsite damage and therefore the responsibility of the contractor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Doors and Frames:
1. Assa Abloy Ceco, Curries, or Fleming: www.assaabloydss.com.
2. Republic Doors; Product ____: www.republicdoor.com.
3. Steelcraft: www.steelcraft.com.
4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DOORS AND FRAMES

A. Requirements for All Doors and Frames:
1. Accessibility: Comply with ANSI/ICC A117.1.
2. Door Top Closures: Flush with top of faces and edges.
3. Door Edge Profile: Beveled on both edges.
4. Door Texture: Smooth faces.
5. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
6. Galvanizing for Units in Wet Areas: All components hot-dipped zinc-iron alloy-coated (galvannealed), manufacturer's standard coating thickness.
7. Finish: Factory primed, for field finishing.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL DOORS

A. Exterior Doors :
1. Grade: ANSI A250.8 Level 3, physical performance Level A, Model 2, seamless.
2. Core: Polystyrene foam.
3. Top Closures for Outswinging Doors: Flush with top of faces and edges.
4. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.
5. Insulating Value: U-value of 0.50, when tested in accordance with ASTM C1363.
6. Weatherstripping: Separate, see Section 08 7100.
7. Finish: Completely factory finished.

2.04 STEEL FRAMES

A. General:
1. Comply with the requirements of grade specified for corresponding door, except:

a. ANSI A250.8 Level 1 Doors: 16 gage frames.

2. Finish: Factory primed, for field finishing.

B. Exterior Door Frames: Face welded, seamless with joints filled.

1. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.

2. Weatherstripping: Separate, see Section 08 7100.

2.05 ACCESSORY MATERIALS

A. Astragals for Double Doors: Specified in Section 08 7100.

1. Exterior Doors: Steel, Z-shaped.

B. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

C. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.06 FINISH MATERIALS

A. Primer: Rust-inhibiting, complying with ANSI A250.10 , door manufacturer's standard.

B. Factory Finish: Complying with ANSI A 250.3, manufacturer's standard coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION

A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.

B. Coordinate frame anchor placement with wall construction.

C. Coordinate installation of hardware.

1. Install by drilling and tapping the concealed reinforcement for manufacturer-furnished fasteners. Installation using tek type screws is not acceptable.

D. Coordinate installation of electrical connections to electrical hardware items.

E. Touch up damaged factory finishes.

1. Make repairs immediately. Field sanding of baked-on primer must be performed to insure finish paint adhesion.

3.03 TOLERANCES

A. Clearances Between Door and Frame: As specified in ANSI A250.8.

B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.04 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 08 3613
SECTIONAL DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Overhead sectional doors, manually operated.

B. Operating hardware and supports.

C. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 05 5000 - Metal Fabrications: Steel channel opening frame.

C. Section 08 7100 - Door Hardware: Lock cylinders.

D. Section 09 9000 - Painting and Coating: Finish painting.

E. Section 13 3419 - Metal Building Systems.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

B. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2002 (Reapproved 2010).

C. DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors; Door & Access Systems Manufacturers' Association, International; 2004.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

C. Product Data: Show component construction, anchorage method, and hardware.

D. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.

E. Operation Data: Include normal operation, troubleshooting, and adjusting.

F. Maintenance Data: Include data for transmission, shaft and gearing, lubrication frequency, spare part sources.

G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

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

B. Installer: Company specializing in performing the work of this section with minimum three years of experience.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals for warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer:
   1. Clopay Corporation; Model 3300: www.clopaydoor.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 STEEL DOOR COMPONENTS

A. Steel Doors: Flush steel, insulated; high lift operating style with track and hardware; complying with DASMA 102, Commercial application.
   1. Performance: Withstand positive and negative wind loads equal to 1.5 times design wind loads specified by local code without damage or permanent set, when tested in accordance with ASTM E330, using 10 second duration of maximum load.
   2. Door Nominal Thickness: 2 inches thick.
   3. Exterior Finish: Pre-finished with baked enamel of white color.
   4. Interior Finish: Pre-finished with baked enamel of white color.
   5. Glazed Lights: four glazed lights per panel, one row; set in place with resilient glazing channel.
   6. Operation: Chain hoist.

B. Door Panels: Flush steel construction; outer steel sheet of 0.058 inch thick, flat profile; inner steel sheet of 0.058 inch thick, flat profile; core reinforcement of 2 inch thick sheet steel roll formed to channel shape, rabbeted weather joints at meeting rails; insulated.

C. Glazing: 1/8 inch (3 mm) clear polycarbonate glazing.

2.03 DOOR COMPONENTS

A. Hinge and Roller Assemblies: Heavy duty hinges and adjustable roller holders of galvanized steel; floating hardened steel bearing rollers, located at top and bottom of each panel, each side.

B. Lift Mechanism: Torsion spring on cross head shaft, with braided galvanized steel lifting cables.

   1. For Manual Operation: Requiring maximum exertion of 25 lbs force to open.

C. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.

D. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.

E. Head Weatherstripping: EPDM rubber seal, one piece full length.

F. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.

G. Lock: Inside center mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior and exterior handle.

H. Lock Cylinders: See Section 08 7100.

2.04 MATERIALS

A. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating, plain surface.

B. Insulation: Rigid polystyrene, bonded to facing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

3.02 PREPARATION

A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.

B. Apply primer to wood frame.

3.03 INSTALLATION

A. Install door unit assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without distortion or stress.

C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

D. Fit and align door assembly including hardware.

E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 9005.

F. Install perimeter trim.

3.04 TOLERANCES

A. Maximum Variation from Plumb: 1/16 inch.

B. Maximum Variation from Level: 1/16 inch.

C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.

D. Maintain dimensional tolerances and alignment with adjacent work.

3.05 ADJUSTING

A. Adjust door assembly for smooth operation and full contact with weatherstripping.

3.06 CLEANING

A. Clean doors and frames and glazing.

B. Remove temporary labels and visible markings.

3.07 PROTECTION

A. Protect installed products from damage during subsequent construction.

B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for hollow steel doors.

B. Electrically operated and controlled hardware.

C. Lock cylinders for doors for which hardware is specified in other sections.

D. Thresholds.

E. Weatherstripping, seals and door gaskets.

F. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 06 4100 - Custom Cabinets: Cabinet hardware.

C. Section 08 1113 - Hollow Metal Doors and Frames.

D. Section 08 3613 - Sectional Doors: Hardware for same, except cylinders; installation of cylinders.

1.03 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities; Final Rule; 2010; (ADA Standards for Accessible Design).

B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

C. BHMA A156.3 - American National Standard for Exit Devices; Builders Hardware Manufacturers Association; 2001 (ANSI/BHMA A156.3).

D. BHMA A156.4 - American National Standard for Door Controls - Closers; Builders Hardware Manufacturers Association, Inc.; 2000 (ANSI/BHMA A156.4).

E. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2005 (ANSI/BHMA A156.22).

F. BHMA A156.31 - Electric Strikes and Frame Mounted Actuators ; 2001 (ANSI/BHMA A156.31).

G. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.

B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

C. Convey Owner's keying requirements to manufacturers.

D. Preinstallation Meeting: Convene a preinstallation meeting ten working days prior to commencing work of this section; require attendance by all affected installers.

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

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:

C. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.

D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

E. Hardware Schedule: Show manufacturer's complete identification for every item for every door.
   1. Cross-reference to item names and designations in contract documents.
   2. Indicate door/frame materials and sizes.
   3. Explain number codes and abbreviations.
   4. Indicate hardware mounting heights or locations, if different from those specified.
   5. Indicate finish for each item.
   6. Preliminary schedule will be reviewed if accompanied by product data.

F. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with ten years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

B. Provide a locked storage area controlled by the contractor for hardware not yet installed; take special care to prevent loss of long-lead items.

1.08 COORDINATION

A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.09 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.

B. Provide all items of a single type of the same model by the same manufacturer.

C. Provide products that comply with the following:
   1. Applicable provisions of federal, state, and local codes.

2.02 LOCKS AND LATCHES

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
   1. Hardware Sets indicate locking functions required for each door.
   2. If no hardware set is indicated for a swinging door provide an office lockset.
   3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
   4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.

B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
   1. Provide cams and/or tailpieces as required for locking devices required.

C. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.03 ELECTRIC STRIKES

A. Electric Strikes: Complying with BHMA A156.31 and UL listed as a Burglary-Resistant Electric Door Strike; style to suit locks.

2.04 EXIT DEVICES

A. Locking Functions: Functions as defined in BHMA A156.3, and as follows:
   1. Entry/Exit, Always-Locked: Key outside retracts latchbolt but does not unlock lever, no latch holdback.

2.05 CLOSERS

A. Closers: Complying with BHMA A156.4.
   1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
   2. Provide a door closer on every exterior door.
   3. On pairs of swinging doors, if an overlapping astragal is present, provide coordinator to ensure the leaves close in proper order.

2.06 GASKETING AND THRESHOLDS

A. Gaskets: Complying with BHMA A156.22.
   1. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top, sides, and meeting stiles of pairs.
      a. Where exterior door is also required to have fire or smoke rating, provide gaskets functioning as both smoke and weather seals.
   2. On each exterior door, provide door bottom sweep, unless otherwise indicated.

B. Thresholds:
   1. At each exterior door, provide a threshold unless otherwise indicated.

2.07 GENERAL REQUIREMENTS FOR DOOR HARDWARE PRODUCTS

A. Provide products that comply with the following:
   1. Applicable provisions of Federal, State, and local codes.
   2. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
   3. Applicable provisions of NFPA 101, Life Safety Code.
   4. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

B. Manufacturers:
   1. Obtain all items of each type from the same manufacturer.
   2. Where a particular manufacturer's product is specified, products of other manufacturers will be considered for substitution.

C. Fasteners: Provide hardware prepared by the manufacturer with fastener holes for machine screws, unless otherwise indicated.
   1. Provide all fasteners required for secure installation.
   2. Select fasteners appropriate to substrate and material being fastened.
   3. Use flathead Phillips screws unless otherwise indicated.
   4. Use wood screws for installation in wood.
   5. Use fasteners impervious to corrosion outdoors and on exterior doors.
   6. Exposed screws: Match hardware finish.
   7. Where it is not possible to reinforce substrate adequately for screws, use through-bolts with sleeves or use sex bolts.
      a. Do not use where head or nut would be exposed on face of door, unless specifically indicated or made necessary by other requirements.

b. Finish exposed heads and nuts the same as hardware on that side of the door.

D. Finishes on All Exposed Metal Items: Satin chrome plated (626)..
1. Exceptions:
a. Plates and bars: Satin stainless steel (630).
b. Hinges: Where steel hinges are acceptable, use matching plated finish.
c. As indicated for specific items.
2. Items specified with the same finish shall match as closely as possible using standard manufactured products.
3. Provide finishes matching BHMA A156.18 designations.

2.08 HINGES

A. Butt Hinges:
1. Non-removable pins at exterior out-swinging doors.
2. Dimensions: As indicated, within limits prescribed by ANSI/BHMA A156.7.
3. Hinge pins: Unless otherwise indicated:
a. Use steel pins for steel hinges.
b. Use stainless steel pins for nonferrous hinges.
c. Provide nonremovable pins or safety studs for out-swinging doors with keyed lock or exit only function.
d. Provide nonrising pins for interior doors.
4. Quantity: As indicated in schedule.

2.09 KEYING

A. Door Locks: Grand master keyed.
1. Include construction keying.
2. Key to existing keying system.

B. Supply keys in the following quantities:
1. 3 master keys.
2. 3 grand master keys.
3. 3 change keys for each lock.

2.10 KEY CABINET

A. Cabinet Construction: Sheet steel construction, piano hinged door with cylinder type lock master keyed to building system.

B. Cabinet Size: Size for project keys plus 50 percent growth.

C. Horizontal metal strips for key hook labelling with clear plastic strip cover over labels.

D. Finish: Baked enamel, white color.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

B. Verify that electric power is available to power operated devices and of the correct characteristics.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Mounting heights for hardware from finished floor to center line of hardware item: As listed in Schedule, unless otherwise noted:
1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
2. For steel doors and frames: See Section 08 1113.

D. Install surface-mounted items after substrates have been completely finished; install recessed items and recessed portions of items before finishes are applied and provide suitable, effective protection.
   1. When surface-mounted items are installed before final finish, remove, store, and reinstall, or apply suitable effective protection.

E. Install hardware in correct location, plumb and level.

F. Reinforce substrates as required for secure attachment and proper operation.

G. Thresholds: Apply continuous bead of sealant to all contact surfaces before installing.

3.03 FIELD QUALITY CONTROL

A. Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.04 ADJUSTING

A. Adjust work under provisions of Section 01 7000.

B. Adjust hardware for smooth operation.

C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

B. Adjust door closers to overcome air pressure produced by HVAC systems.

C. If hardware adjustment is completed more than one month before substantial completion, readjust hardware not more than one week before substantial completion.

3.06 PROTECTION

A. Protect finished Work under provisions of Section 01 7000.

B. Do not permit adjacent work to damage hardware or finish.

3.07 SCHEDULE - ATTACHED.

END OF SECTION

GROUP #1
POWER PLANT BUILDING DOORS D1 (2EA)

3 EA	BUTT HINGES FBB179 4.5 X 4.5 NRP	652	STANLEY
1 EA	PANIC 99L	626	VON DUPRIN
1 EA	CYLINDER (BY OWNER)		
1 EA	CLOSER 4111 H CUSH	ALUM	LCN
1 EA	THRESHOLD 272A 36”	ALUM	PEMKO
1 EA	DOOR SWEEP 315CN 36”	ALUM	PEMKO
1 SET	GASKET PS074 17’	BLACK	STEELCRAFT

GROUP #2
POWER PLANT BUILDING DOORS D2 (1 EA)

6 EA	BUTT HINGES FBB179 4.5 X 4.5 NRP	652	STANLEY
1 EA	PANIC 99L	626	VON DUPRIN
1 EA	PANIC 99EO	626	VON DUPRIN
1 EA	CYLINDER (BY OWNER)		
1 EA	MULLION 4954	ALUM	VON DUPRIN
2 EA	CLOSER 4111 H CUSH	ALUM	LCN
1 EA	THRESHOLD 272A 72”	ALUM	PEMKO
2 EA	DOOR SWEEP 315CN 36”	ALUM	PEMKO
1 SET	GASKET PS074 21’	BLACK	STEELCRAFT

GROUP #3
PUMP BUILDING SINGLE DOOR (1EA)

3 EA	BUTT HINGES FBB179 4.5 X 4.5	652	STANLEY
1 EA	LOCKSET 93K7AB 15D S3	626	BEST
1 EA	CYLINDER (BY OWNER)		
1 EA	WALLSTOP WS407CCV	630	IVES
1 EA	THRESHOLD 272A	ALUM	PEMKO
1 EA	DOOR SWEEP 315CN 42”	ALUM	PEMKO
1 SET	GASKET PS074 18’	BLACK	STEELCRAFT

SECURITY SCREEN DOOR HARDWARE FURNISHED BY SECURITY DOOR MFR.

GROUP #4
PUMP BUILDING PAIR DOORS (1EA)

6 EA	BUTT HINGES FBB179 4.5 X 4.5 NRP	652	STANLEY
1 EA	LOCKSET 93K7AB 15D S3	626	BEST
1 EA	CYLINDER (BY OWNER)		
2 EA	FLUSHBOLT FB458 12”	626	IVES
1 EA	THRESHOLD 272A 72”	ALUM	PEMKO
2 EA	DOOR SWEEP 315CN 36”	ALUM	PEMKO
1 SET	GASKET PS074 21’	BLACK	STEELCRAFT

END OF HARDWARE SCHEDULE

SECTION 09 9000

PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints and other coatings.

C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   2. Exposed surfaces of steel lintels and ledge angles.

D. **Do Not Paint or Finish the Following Items:**
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
   6. Floors, unless specifically so indicated.
   7. Glass.
   8. Exposed pipes, ducts and conduits.

E. See Schedule - Surfaces to be Finished, at end of Section.

F. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 05 5000 - Metal Fabrications: Shop-primed items.

C. Section 07 1900 - Water Repellents: Concrete retaining walls.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2011.

C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

D. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.04 DEFINITIONS

A. Conform to ASTM D 16 for interpretation of terms used in this section.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on all finishing products, including VOC content.

C. Samples: Submit three painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on waterproof paper, 8x10 inch in size.

D. Manufacturer's Instructions: Indicate special surface preparation procedures.

E. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.06 QUALITY ASSURANCE

A. Materials: All coating materials required by this section shall be provided by a single manufacturer, unless otherwise required or approved.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum seven years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

1.09 EXTRA MATERIALS

A. See Section 01 6000 - Product Requirements, for additional provisions.

B. Supply 1 gallon of each color; store where directed.

C. Label each container with color in addition to the manufacturer's label.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Paints:
   1. Base Manufacturer: ICI Paints: www.icipaintsinna.com..
   2. Glidden Professional: www.gliddenprofessional.com.
   3. Benjamin Moore & Co: www.benjaminmoore.com.
   4. PPG Architectural Finishes, Inc: www.ppgaf.com.
   5. Sherwin Williams Co.: www.sherwin-williams.com.

C. Primer Sealers: Same manufacturer as top coats.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   4. Supply each coating material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      b. Architectural coatings VOC limits of State in which the project is located.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Colors: To be selected from manufacturer's full range of available colors.
   1. Selection to be made by Architect after award of contract.
   2. Extend colors to surface edges; colors may change at any edge as directed by Architect.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint WE-OP-3L - Wood, Opaque, Latex, 3 Coat:
   1. One coat of latex primer sealer.
   2. Semi-gloss: Two coats of latex enamel.

B. Paint ME-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of Direct To Metal latex primer.
   2. Semi-gloss: Two coats of latex enamel.

C. Paint ME-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
   1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
   2. Semi-gloss: Two coats of latex enamel.

D. Paint MgE-OP-3L - Galvanized Metals, Latex, 3 Coat:
   1. One coat galvanize primer.
   2. Semi-gloss: Two coats of latex enamel; .

E. Paint E-Pav - Pavement Marking Paint:
   1. White: One coat, with reflective particles .

2.04 PAINT SYSTEMS - INTERIOR

A. Paint I-OP-MD-WC - Medium Duty Vertical/Overhead: Including uncoated steel, shop primed steel, and galvanized steel.
   1. Two top coats and one coat primer.
   2. Top Coat(s): MPI High Performance Architectural Interior Latex; MPI #138-141.
   3. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
   4. Primer(s): As recommended by manufacturer of top coats.

B. Paint WI-OP-3L - Wood, Opaque, Latex, 3 Coat:
   1. One coat of latex primer sealer.
   2. Semi-gloss: Two coats of latex enamel.

C. Paint MI-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of latex primer.
   2. Semi-gloss: Two coats of latex enamel.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of coatings until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
   2. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing coatings that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.

F. Seal surfaces that might cause bleed through or staining of topcoat.

G. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

H. Asphalt, Creosote, or Bituminous Surfaces to be Painted: Remove foreign particles to permit adhesion of finishing materials. Apply latex based sealer or primer.

I. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

J. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).

K. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid

solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

L. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

M. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

N. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.

O. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 MIXING AND THINNING

A. Remove and discard any skin formed on surface of coatings in containers. Discard any containers where skin comprises 2 percent or more of the remaining material. Do not add thinner except as specifically recommended (not merely permitted) by the coating manufacturer for proper coating application under the circumstances prevailing at the project site when application equipment recommended by the coating manufacturer is employed. Use only the quantities and the types of thinner recommended.

B. Mix materials using mechanical mixers in accordance with coating manufacturer's instructions. Agitate mixed materials during application if recommended by manufacturer.

C. Combine multi-component paints in quantities needed for use within the manufacturer's recommended pot life at the anticipated application temperatures. Discard remaining mixed material after pot life has expired.

D. Strain pigmented coatings after mixing except where mechanical application equipment is provided with effective strainers.

E. Tinting: Except where coating materials cannot be tinted, tint each successive coat of paint a sufficiently contrasting color to facilitate identification of complete coating coverage.

3.04 APPLICATION

A. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.

B. Apply products in accordance with manufacturer's instructions.

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance.

F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

G. Sand wood and metal surfaces lightly between coats to achieve required finish.

H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

I. Completed coatings shall be free of defects such as runs, sags, variations in color, lap or brush marks, holidays, and skips.

J. Apply coatings according to the schedule at the end of this section and as otherwise indicated. Coat all similar surfaces not specifically mentioned unless specifically exempted.

K. Coat front and back of miscellaneous items such as covers, access panels, and grilles. Apply fully finish coats behind movable items of furniture and equipment before installation. Apply prime coat only behind non-movable items of furniture and equipment before installation.

L. Remove coatings not in compliance with this specification, reclean and re-prepare surfaces as specified, and apply coatings to comply with the contract documents.

M. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 PRIME COATS

A. General:
   1. Field apply bottom coats scheduled except where the contract documents require shop coating of ferrous metals.
   2. Where first coat shows signs of suction spots or poorly sealed areas, reapply first coat material to adequately seal surface before proceding with successive coats.
   3. Ferrous metals that have not been shop primed shall be field primed promptly after arrival at the site or shall be stored away from the effects of weather.
   4. Re-prepare and retouch damaged prime coats using approved, compatible primer.

B. Primers for Wood and Wood Products:
   1. Apply first coat to wood upon receipt at the site and before wood is exposed to sun or rain.
   2. Before installation, prime both concealed and exposed surfaces of interior and exterior wood, including cut ends.

3.06 FINISH COATS

A. Number of Coats and Minimum Coating Thickness:
   1. Apply not less than the number of coats indicated.
   2. Apply additional coats at no additional cost to the owner when necessary to achieve complete hiding, uniform texture, or uniform sheen and appearance.

3.07 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.08 CLEANING AND PROTECTION

A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site. Remove all traces of coatings from adjacent surfaces not scheduled to be coated. Remove by appropriate methods that do not damage surfaces.

3.09 PROTECTION

A. Protection:
   1. Protect work against damage until fully cured. Provide signs identifying wet surfaces until surfaces are adequately cured.
   2. Shortly before final completion of the project, examine surfaces for damage to coatings and restore coatings to new, undamaged condition.
   3. Touch-up of minor damage will be acceptable where result is not visibly different from surrounding surfaces. Where result is different either in color, sheen, or texture, recoat entire surface.

3.10 SCHEDULE - SURFACES TO BE FINISHED

A. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically noted.
   2. Fire rating labels, equipment serial number and capacity labels.
   3. Stainless steel items.

B. Paint the surfaces described below under Schedule - Paint Systems.

C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
   1. Paint all insulated and exposed pipes occurring in finished areas to match background surfaces, unless otherwise indicated.

2. Paint shop-primed items occurring in finished areas.
3. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.

3.11 SCHEDULE - PAINT SYSTEMS

A. Wood: Finish all surfaces exposed to view.
   1. Exterior trim: WE-OP-3A.
   2. Interior trim: WI-OP-3A, semi-gloss.

B. Steel Doors and Frames: Finish all surfaces exposed to view; MI-OP-3L, semi-gloss.

C. Steel Fabrications: Finish all surfaces exposed to view.
   1. Exterior: ME-OP-3L, semi-gloss; finish all surfaces, including concealed surfaces, before installation.
   2. Interior: MI-OP-3L, semi-gloss.

D. Galvanized Steel: Finish all surfaces exposed to view.
   1. Exterior: ME-OP-3L, gloss; finish all surfaces, including concealed surfaces, before installation.

E. Shop-Primed Metal Items: Finish all surfaces exposed to view.
   1. Exterior: ME-OP-2L, gloss; finish all surfaces, including concealed surfaces, before installation.

F. Exterior Pavement Markings: E-Pav; apply to asphalt or concrete for parking space delineations.

END OF SECTION

SECTION 10 4400

FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire extinguishers.

B. Fire extinguisher cabinets.

C. Accessories.

D. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

B. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

1.03 REFERENCE STANDARDS

A. NFPA 10 - Standard for Portable Fire Extinguishers; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate cabinet physical dimensions.

C. Product Data: Provide extinguisher operational features, color and finish, and anchorage details.

D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 FIELD CONDITIONS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Extinguisher Cabinets and Accessories:
   1. JL Industries, Inc: www.jlindustries.com.
   2. Larsen's Manufacturing Co: www.larsensmfg.com.
   3. Potter-Roemer: www.potterroemer.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FIRE EXTINGUISHERS

A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.

B. Dry Chemical Type Fire Extinguishers: Cast steel tank, with pressure gage.
   1. Class 2A-10B:C.
   2. Size 5 gal.
   3. Model: MP5 by Larsen's Manufacturing Co.

4. Finish: Baked enamel, red color.

2.03 FIRE EXTINGUISHER CABINETS

A. Metal: Formed primed steel sheet; 0.036 inch thick base metal.

B. Cabinet Configuration: Surface type.
   1. Sized to accommodate accessories.
   2. Interior nominal dimensions of 9.5 wide x 24 high x 3.5 inch deep.
   3. Trimless type.

C. Door: 0.036 inch thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with continuous piano hinge. Provide roller type catch.

D. Door Glazing: Plastic, clear, 1/8 inch thick acrylic. Set in resilient channel gasket glazing.
   1. Manufacturer's standard vertical letteringidentifyingcontents of cabinet; letter color: red.

E. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.

F. Weld, fill, and grind components smooth.

G. Finish of Cabinet Interior: White enamel.

H. Product: "Cameo" Series, model no. C2409-R, by Larsen's Manufacturing Co.

2.04 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install cabinets plumb and level , 36 inches from finished floor to inside bottom of cabinet.

C. Secure rigidly in place.

D. Place extinguishers and accessories in cabinets.

END OF SECTION

SECTION 22 05 00

COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Identification for Plumbing Piping and Equipment.
2. Sleeves.
3. Mechanical sleeve seals.
4. Formed steel channel.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Shop Drawings: Submit for piping and equipment identification list of wording, symbols, letter size, and color coding for pipe identification and valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

B. Product Data for Pipe and Equipment Identification: Submit for mechanical identification manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.1 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

A. Manufacturers:
1. Allen Systems, Inc.
2. Brady (W.H.) Co.; Signmark Div.
3. Industrial Safety Supply Co., Inc.
4. Seton Name Plate Corp.
5. MSI (marketing Services, Inc.)

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light background color.

C. Plastic Tags: Laminated three-layer plastic with engraved black letters on light background color, minimum 1-1/2 inches diameter.

D. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener. Color and Lettering: Conform to ASME A13.1.

E. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings. Color and Lettering: Conform to ASME A13.1.

F. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

2.2 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.

2.3 MECHANICAL SLEEVE SEALS

A. Manufacturers:
1. Thunderline Link-Seal, Inc.
2. NMP Corporation

B. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.4 FORMED STEEL CHANNEL

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. B-Line Systems
3. Midland Ross Corporation, Electrical Products Division
4. Unistrut Corp.

B. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive sleeves.

3.2 INSTALLATION - PIPING AND EQUIPMENT IDENTIFICATION

A. Install plastic nameplates with adhesive.

B. Install plastic tags with corrosion resistant metal chain.

3.3 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with firestopping insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel escutcheons at finished surfaces.

END OF SECTION

SECTION 22 05 03

PIPES AND TUBES FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Pipe and pipe fittings for the following systems:
   1. Domestic water piping, within 5 feet of building.
   2. Sanitary sewer piping, within 5 feet of building.
   3. Equipment drains and over flows.
   4. Unions and flanges.
   5. Underground pipe markers.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on pipe materials and fittings. Submit manufacturers catalog information.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.

1.5 QUALIFICATIONS

A. Design pipe hangers and supports under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Furnish temporary end caps and closures on piping and fittings. Maintain in place until installation.

C. Protect piping from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.

B. Do not install underground piping when bedding is wet or frozen.

1.8 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.9 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate installation of buried piping with trenching.

PART 2 PRODUCTS

2.1 DOMESTIC WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Copper Tubing: ASTM B88, Type [K,] [L,] annealed.
   1. Fittings: ASME B16.18, cast copper, or ASME B16.22, wrought copper.
   2. Joints: Compression connection or Brazed, AWS A5.8 BCuP silver/phosphorus/copper alloy with melting range 1190 to 1480 degrees F.

2.2 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type [M,] [L,] [K,] hard drawn.
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
   2. Joints: [Solder, lead free, [ASTM B32,] 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F.] [Braze, AWS A5.8 BCuP silver/phosphorus/copper alloy with melting range 1190 to 1480 degrees F.]

2.3 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. ABS Pipe: ASTM D2751, SDR [23.5] [35] [42], Acrylonitrile-Butadiene-Styrene (ABS) material, bell and spigot style solvent sealed ends.

1. Fittings: ABS, ASTM D2751.
2. Joints: ASTM D2235, solvent weld.

2.4 SANITARY SEWER PIPING, ABOVE GRADE

A. ABS Pipe: ASTM D2751 or ASTM F628, Schedule 40, DWV, Acrylonitrile-Butadiene-Styrene (ABS) material.
1. Fittings: ABS, ASTM D2751.
2. Joints: ASTM D2235, solvent weld.

B. PVC Pipe: ASTM D1785, Schedule 40, [and Schedule 80 for sizes 8 inch and larger,] or ASTM D2241, SDR 21 or 26, polyvinyl chloride (PVC) material.
1. Fittings: [ASTM D2466, Schedule 40, PVC] [ASTM D2467, Schedule 80, PVC] [ASTM D2464 PVC, threaded].
2. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.

2.5 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:
1. Ferrous Piping: Class [150] [250] [300], malleable iron, threaded.
2. Copper Piping: Class 150, bronze unions with [soldered] [brazed joints].
3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
4. PVC Piping: PVC.
5. CPVC Piping: CPVC.

B. Flanges for Pipe 2-1/2 inches and Larger:
1. Ferrous Piping: Class [150] [250] [300], forged steel, slip-on flanges.
2. Copper Piping: Class 150, slip-on bronze flanges.
3. PVC Piping: PVC flanges.
4. CPVC Piping: CPVC flanges.
5. Gaskets: 1/16 inch thick preformed neoprene gaskets.

C. PVC Pipe Materials: For connections to equipment and valves with threaded connections, furnish solvent-weld socket to screwed joint adapters and unions, or ASTM D2464, Schedule 80, threaded, PVC pipe.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify excavations are to required grade, dry, and not over-excavated.

C. Verify trenches are ready to receive piping.

3.2 PREPARATION

A. Ream pipe and tube ends. Remove burrs. [Bevel plain end ferrous pipe.]

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.3 INSTALLATION - BURIED PIPING SYSTEMS

A. Verify connection to existing piping system, size, location, and invert are as indicated on Drawings.

B. Establish elevations of buried piping with not less than three (3) ft of cover.

C. Establish minimum separation of 12”from other services.

D. Excavate pipe trench as shown on drawings

E. Install pipe to elevation as indicated on Drawings.

F. Place bedding material at trench bottom to provide uniform bedding for piping, level bedding materials in one continuous layer not exceeding 4 inches compacted depth; compact to 95 percent maximum density.

G. Install pipe on prepared bedding.

H. Route pipe in straight line.

I. Install pipe to allow for expansion and contraction without stressing pipe or joints.

J. Install shutoff valves at locations indicated on Drawings.

K. Install plastic ribbon tape continuous over top of pipe.

L. For non metallic pipe, Install trace wire continuous over top of pipe.

M. Pipe Cover and Backfilling:
   1. Backfill trench in accordance with Section 31 23 23.
   2. Maintain optimum moisture content of fill material to attain required compaction density.
   3. After hydrostatic test, evenly backfill entire trench width by hand placing backfill material and hand tamping in 6 inches compacted layers to 12 inches minimum cover over top of jacket. Compact to 95 percent maximum density.
   4. Evenly and continuously backfill remaining trench depth in uniform layers with backfill material.
   5. Do not use wheeled or tracked vehicles for tamping.

3.4 INSTALLATION - ABOVE GROUND PIPING

A. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

B. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.

C. Group piping whenever practical at common elevations.

D. Sleeve pipe passing through partitions, walls and floors. Refer to Section 22 05 29.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

G. Provide access where valves and fittings are not accessible.

H. Install non-conducting dielectric connections wherever jointing dissimilar metals.

I. Establish invert elevations, slopes for drainage to 1/4 inch per foot minimum. Maintain gradients.

J. Slope piping and arrange systems to drain at low points.

K. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

L. Install piping penetrating roofed areas to maintain integrity of roof assembly.

M. Install valves as shown on drawings.

N. Install piping specialties as shown on drawings.

O. **Insulate piping**. For all cold water piping: Provide ½" fiberglass sectional insulation with ASJ for condensation control. Cover with stainless steel jacket.

P. Install pipe identification for potable cold water lines..

3.5 INSTALLATION - DOMESTIC WATER PIPING SYSTEMS

A. Install domestic water piping system in accordance with local codes.

3.6 INSTALLATION - SANITARY WASTE AND VENT PIPING SYSTEMS

A. Install sanitary waste and vent piping systems in accordance with local plumbing code.

B. Install bell and spigot pipe with bell end upstream.

C. Support cast iron drainage piping at every joint.

3.7 FIELD QUALITY CONTROL

A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Test domestic water piping system in accordance with applicable code

C. Test sanitary waste and vent piping system in accordance with applicable code

END OF SECTION

SECTION 23 05 00

COMMON WORK RESULTS FOR MECHANICAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Identification for Mechanical Piping and Equipment.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Shop Drawings: Submit for piping and equipment identification list of wording, symbols, letter size, and color coding for pipe identification and valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

B. Product Data for Pipe and Equipment Identification: Submit for mechanical identification manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.1 IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

A. Manufacturer: Subject to compliance with requirements, provide mechanical identification materials of one of the following:
   1. Allen Systems, Inc.
   2. Brady (W.H.) Co.; Signmark Div.
   3. Industrial Safety Supply Co., Inc.
   4. Seton Name Plate Corp.
   5. MSI (marketing Services, Inc.)

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light background color.

C. Plastic Tags: Laminated three-layer plastic with engraved black letters on light background color, minimum 1-1/2 inches diameter.

D. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener. Color and Lettering: Conform to ASME A13.1.

E. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings. Color and Lettering: Conform to ASME A13.1.

F. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive sleeves.

3.2 INSTALLATION - PIPING AND EQUIPMENT IDENTIFICATION

A. Install plastic nameplates with adhesive.

B. Install plastic tags with corrosion resistant metal chain.

END OF SECTION

SECTION 23 05 03

PIPES AND TUBES FOR MECHANICAL PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Pipe and pipe fittings for the following systems:
   1. Heating water piping.
   2. Geothermal water piping.
   3. Condenser water piping.
   4. Unions and flanges.
   5. Underground pipe markers.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate layout of piping systems, including equipment, critical dimensions, and sizes.

C. Product Data: Submit data on pipe materials and fittings. Submit manufacturers catalog information.

   1. Grooved joint couplings and fittings may be shown on drawings and product submittals, and shall be specifically identified by the manufacturer's style or series designation.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.1 code for installation of piping systems and ASME Section IX for welding materials and procedures.

B. All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.

C. All castings used for coupling housings, fittings, and valve bodies shall be date stamped for quality assurance and traceability.

D. Gaskets shall be molded and produced by the coupling manufacturer, and shall be suitable for the intended service

1.5 DELIVERY, STORAGE, AND HANDLING

A. Furnish temporary end caps and closures on piping and fittings. Maintain in place until installation.

B. Protect piping from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.6 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.7 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate installation of buried piping with trenching.

PART 2 PRODUCTS

2.1 HEATING WATER, ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 40, 0.375 inch wall for sizes 12 inch and larger, black.
   1. Fittings: ASME B16.3, malleable iron or ASTM A234/A234M, forged steel welding type.
   2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

2.2 GEOTHERMAL HOT WATER PIPING, SUPPLY AND RETURN, BURIED

A. Steel Pipe: ASTM A53/A53M, Schedule 40, 0.375 inch wall for sizes 12 inch and over, black with AWWA C105 polyethylene jacket, or double layer, half-lapped 10 mil polyethylene tape.
   1. Fittings: ASTM A234/A234M forged steel welding type with double layer, half-lapped 10 mil polyethylene tape.
   2. Joints: Welded.

B. Ductile Iron Pipe: AWWA C151.
   1. Fittings: AWWA C110, ductile iron, standard thickness.
   2. Joints: AWWA C111, rubber gasket with 3/4 inch diameter rods.
   3.

C. Fiberglass Pipe: ASTM D2310, glass fiber reinforced thermosetting resin material.
   1. Fittings: Fiberglass reinforced epoxy.
   2. Joints: Hub-and-spigot with rubber gasket.

2.3 GEOTHERMAL HOT WATER PIPING, SUPPLY AND RETURN, ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 40, 0.375 inch wall for sizes 12 inch and larger, black.
   1. Fittings: ASME B16.3, malleable iron or ASTM A234/A234M, forged steel welding type.
   2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

B. Steel Pipe: ASTM A53/A53M Schedule 40, black, cut grooved ends.
   1. Fittings: ASTM A395/A395M and ASTM A536 ductile iron, ASTM A234/A234M wrought carbon steel, or factory-fabricated steel ASTM A53; grooved ends.
   2. Joints: Grooved mechanical couplings meeting ASTM F1476.
      a. Housing Clamps: Two housings conforming to ASTM A395/A395M and ASTM A536 ductile iron, enamel coated, compatible with steel piping sizes, rigid or flexible type.
      b. Gasket: Elastomer composition for operating temperature range from -30 degrees F to 230 degrees F.
      c. Accessories: ASTM A449 electroplated steel bolts, nuts, and washers.

2.4 CONDENSER WATER PIPING, ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 40, 0.375 inch wall for sizes 12 inch and larger, black.
   1. Fittings: ASME B16.3, galvanized malleable iron or ASTM A234/A234M, galvanized forged steel welding type.
   2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

2.5 EQUIPMENT DRAINS AND OVERFLOWS

A. Steel Pipe: ASTM A53/A53M Schedule 40, galvanized.
   1. Fittings: ASME B16.3, malleable iron or ASME B16.4, cast iron.
   2. Joints: Threaded for pipe 2 inch and smaller; flanged for pipe 2-1/2 inches and larger.

2.6 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:
   1. Ferrous Piping: Class 150, malleable iron, threaded.

B. Flanges for Pipe 2-1/2 inches and Larger:
   1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
   2. Gaskets: 1/16 inch thick preformed neoprene gaskets.

C. Grooved Joint Couplings:

   1. Steel Piping:

a. Flexible Type: For use in locations where vibration attenuation and stress relief are required, and for the elimination of flexible connectors. Victaulic Installation-Ready Style 177 or Style 77.
b. 14” and Larger: AGS Series, with lead-in chamfer on housing key and wide width Flush Seal gasket. Victaulic Style W07 (rigid) and Style W77 (flexible).

2.7 UNDERGROUND PIPE MARKERS

A. Plastic Ribbon Tape: Bright colored, continuously printed, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

B. Trace Wire: Magnetic detectable conductor, brightly colored plastic covering.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify excavations are to required grade, dry, and not over-excavated.

C. Verify trenches are ready to receive piping.

D. Verify bill of materials (Drawing M7.1) for list of materials furnished by Johnson Controls Inc (JCI) to job site for installation by the mechanical piping contractor.

3.2 PREPARATION

A. Ream pipe and tube ends. Remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions. Unions and flanges for servicing and disconnect are not required in installations using grooved joint couplings. (The couplings shall serve as disconnect points.)

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.3 INSTALLATION - BURIED PIPING SYSTEMS

A. Route pipe in straight line.

B. Install pipe to allow for expansion and contraction without stressing pipe or joints.

3.4 INSTALLATION - ABOVE GROUND PIPING

A. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

B. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.

C. Group piping whenever practical at common elevations.

D. Sleeve pipe passing through partitions, walls and floors.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

1. For water systems, Victaulic flexible couplings may be used on header piping to accommodate thermal growth and contraction, and for the elimination of expansion loops (as approved by the engineer). Where loops are required, use flexible-type couplings on the loops.

F. Grooved joint shall be installed in accordance with the manufacturer's written recommendations. Grooved ends shall be clean and free from indentations, projections, or roll marks. The gasket shall be molded and produced by the coupling manufacturer of an elastomer suitable for the intended service. The coupling manufacturer's factory trained representative shall provide on-site training for the contractor's field personnel in the use of grooving tools and installation of product. The representative shall periodically visit the job site to ensure best practices in grooved product installation are being followed. (A distributor's representative is not considered qualified to conduct the training.)

G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not accessible.

I. Install non-conducting dielectric connections wherever jointing dissimilar metals.

J. Establish invert elevations, slopes for drainage to 1/8 inch per foot minimum. Maintain gradients.

K. Slope piping and arrange systems to drain at low points.

L. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

M. Install piping penetrating roofed areas to maintain integrity of roof assembly.

3.5 INSTALLATION - HEATING AND COOLING PIPING SYSTEMS

A. Install cooling tower condenser water in accordance with ASME B31.9.

B. Install heating water and geothermal hot water piping in accordance with ASME B31.1.

3.6 FIELD QUALITY CONTROL

A. Test piping systems in accordance with ASME B31.9.

3.7 CLEANING

A. After completion, fill, clean, and treat piping systems.

END OF SECTION

SECTION 23 05 16

FLEXIBLE CONNECTORS FOR MECHANICAL PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Flexible pipe connectors.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 DESIGN REQUIREMENTS

A. Provide structural work and equipment required for expansion and contraction of piping. Verify anchors, guides, and expansion joints provide and adequately protect system.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data:
   1. Flexible Pipe Connectors: Indicate maximum temperature and pressure rating, face-to-face length, live length, hose wall thickness, hose convolutions per foot and per assembly, fundamental frequency of assembly, braid structure, and total number of wires in braid.
   2. Expansion Joints: Indicate maximum temperature and pressure rating, and maximum expansion compensation.

C. Manufacturer's Installation Instructions: Submit special procedures.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

E. Manufacturer’s Field Reports: Indicate results of inspection by manufacturer’s representative.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of flexible pipe connectors, expansion joints, anchors, and guides.

C. Operation and Maintenance Data: Submit adjustment instructions.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.

PART 2 PRODUCTS

2.1 MANUFACTURERS: Subject to compliance with requirements, provide products by one of the following:

A. Packless Expansion Compensators:
1. Adsco Manufacturing Corp.
2. Anamet, Inc.
3. Flexonics Inc., Metal Hose and Expansion Joint Div.
4. Hyspan Precision Products, Inc.
5. Keflex HVAC Products, Flex-Weld, Inc.
6. Metraflex Co.

B. Packless Rubber Expansion Joints:
1. Garlock Mechanical Packing Div., Colt Industries
2. Keflex HVAC Products Div., Flex-Weld, Inc.
3. MG Piping Products Co.
4. Mason Industries, Inc.
5. Metraflex Co.
6. Vibration Mountings and Controls, Subsidiary of ARX.

C. Slip Joints:
1. Adsco Manufacturing Corp.
2. Advanced Thermal Systems, Inc.

D. Flexible Ball Pipe Joints:
1. Advanced Thermal Systems, Inc.
2. Barco Div., Marison Industries.

E. Grooved Piping Couplings and Nipples Expansion Joints:
1. Grinnell Corp.
2. Gustin - Bacon Div., Tyler Pipe
3. Stockham Valves & Fittings, Inc.
4. Victaulic Co. of America.

F. Grooved Piping Slip-Type Expansion Joints:
1. Victaulic Co. of America

2.2 FLEXIBLE PIPE CONNECTORS

A. Steel Piping:
   1. Inner Hose: Stainless Steel.
   2. Exterior Sleeve: Double braided stainless steel.
   3. Pressure Rating: 200 psig WOG and 250 degrees F.
   4. Joint: Flanged.
   5. Size: Use pipe-sized units.
   6. Maximum offset: 3/4 inch.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install Work in accordance with ASME B31.1.

B. Install flexible pipe connectors on pipes connected to equipment supported by vibration isolation. Refer to Section 21 05 48. Provide line size flexible connectors.

C. Install flexible connectors at right angles to displacement. Install one end immediately adjacent to isolated equipment and anchor other end. Install in horizontal plane unless indicated otherwise.

D. Rigidly anchor pipe to building structure. Provide pipe guides to direct movement only along axis of pipe. Erect piping so strain and weight is not on cast connections or apparatus.

E. Provide support and anchors for controlling expansion and contraction of piping. Provide loops, pipe offsets, and swing joints, or expansion joints [where required] [as indicated on Drawings].

F. Provide grooved piping systems with minimum one joint per inch pipe diameter instead of flexible connector supported by vibration isolation. Grooved piping systems need not be anchored.

G. Provide expansion loops as indicated on Drawings.

END OF SECTION

SECTION 23 05 29

HANGERS AND SUPPORTS FOR MECHANICAL PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Pipe hangers and supports.
2. Hanger rods.
3. Inserts.
4. Flashing.
5. Equipment curbs.
6. Sleeves.
7. Mechanical sleeve seals.
8. Formed steel channel.
9. Equipment bases and supports.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate system layout with location including critical dimensions, sizes, and pipe hanger and support locations and detail of trapeze hangers.

C. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.

D. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers. Indicate calculations used to determine load carrying capacity of trapeze, multiple pipe, and riser support hangers.

E. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

G. Engineering Judgements: For conditions not covered by UL or WH listed designs, submit judgements by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with applicable authority for welding hanger and support attachments to building structure.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.8 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish five year manufacturer warranty for pipe hangers and supports.

PART 2 PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Hydronic Piping:
   1. Conform to MSS SP-69.
   2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron or Carbon steel, adjustable swivel, split ring.
   3. Hangers for Cold Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.
   4. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
   5. Hangers for Hot Pipe Sizes 6 inches and Larger: Adjustable steel yoke, cast iron roll, double hanger.
   6. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

7. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches and Larger: Steel channels with welded spacers and hanger rods, cast iron roll.
8. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.
9. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamp.
10. Wall Support for Hot Pipe Sizes 6 inches and Larger: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron roll.
11. Vertical Support: Steel riser clamp.
12. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
13. Floor Support for Hot Pipe Sizes 4 Inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
14. Floor Support for Hot Pipe Sizes 6 inches and Larger: Adjustable cast iron roll and stand, steel screws, and concrete pier or steel support.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

2.3 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.4 FLASHING

A. Metal Flashing: 26 gage thick galvanized steel.

B. Metal Counterflashing: 22 gage thick galvanized steel.

C. Lead Flashing:
1. Waterproofing: 5 lb./sq. ft sheet lead.
2. Soundproofing: 1 lb./sq. ft sheet lead.

D. Flexible Flashing: 47 mil thick sheet butyl; compatible with roofing.

E. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.5 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.

B. Sleeves for Round Ductwork: Galvanized steel.

C. Sleeves for Rectangular Ductwork: Galvanized steel or wood.

D. Sealant: Acrylic.

2.6 MECHANICAL SLEEVE SEALS

A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.7 FORMED STEEL CHANNEL

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. B-Line Systems.
3. Midland Ross Corporation, Electrical Products Division.
4. Unistrut Corp.

B. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify openings are ready to receive sleeves.

3.2 PREPARATION

A. Remove incompatible materials affecting bond.

B. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with MSS SP 58.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment.

F. Support vertical piping at every floor.

G. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. Design hangers for pipe movement without disengagement of supported pipe.

J. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

K. Provide clearance in hangers and from structure and other equipment for installation of insulation.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

A. Provide housekeeping pads of concrete, minimum thickness as indicated on the drawings and extending 6 inches beyond supported equipment.

B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct supports of steel members, formed steel channel, or steel pipe and fittings. Brace and fasten with flanges bolted to structure.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

3.6 INSTALLATION - FLASHING

A. Provide flexible flashing and metal Counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms for sound control.

C. Provide curbs for roof installations 14 inches minimum high above roofing surface. Flash and counter-flash with sheet metal; seal watertight. Attach Counterflashing to equipment and lap base flashing on roof curbs. Flatten and solder joints.

D. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

3.7 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with firestopping insulation and caulk. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel escutcheons at finished surfaces.

3.8 SCHEDULES

A. Steel Pipe Hanger Spacing:

PIPE SIZE Inches	COPPER TUBING MAXIMUM HANGER SPACING Feet	STEEL PIPE MAXIMUM HANGER SPACING Feet	COPPER TUBING HANGER ROD DIAMETER Inches	STEEL PIPE HANGER ROD DIAMETER Inches
2	8	10	3/8	3/8
2-1/2	9	11	1/2	1/2
3	10	12	1/2	1/2
4	12	14	1/2	5/8
5	13	16	1/2	5/8
6	14	17	5/8	3/4
8	16	19	3/4	3/4
10	18	22	3/4	7/8
12	19	23	3/4	7/8
14	22	25	7/8	1
16	23	27	7/8	1
18	25	28	1	1
20	27	30	1	1-1/4

Note 1: Refer to manufacturer’s recommendations for grooved end piping systems.

END OF SECTION

SECTION 23 05 48

SEISMIC CONTROLS FOR MECHANICAL PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2. RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.2 SUMMARY

A. This Section includes the following:
   1. Restraining braces and cables.

1.3 DEFINITIONS AND STANDARDS

A. Referenced Standards
   1. ACSE 7-05: American Society of Civil Engineers / Structural Engineering Institute Standard 7-05, Minimum Design Loads for Buildings and Other Structures.

B. Design Criteria:
   1. Occupancy Category: ASCE 7-05 Occupancy Category designation, Table 1-1
   2. Site Classification: ASCE 7-05 Site Classification designation, Table 20.3-l
   3. Peak Spectral Response Acceleration (SS): ASCE 7-05 Figure 22-1 – Maximum Considered Earthquake Ground Motion of 0.2s spectral response acceleration, Site Class B
   4. Design Spectral Response Acceleration (SDS): ASCE 7-05, Eqs. 11.4-1 and 11.4-3
   5. Seismic Design Category: ASCE 7-05 Seismic Design Category designation, Tables 11.6-l and ll.6-2.
   6. Component Importance Factor (IP): ASCE 7-05, Section 13.1.3

C. Custom Engineered Assembly: Anchorage and seismic restraint assembly, comprised of standard or proprietary components, designed and applied to system by the Seismic Engineer.

D. Pre-Engineered Assembly: Previously designed anchorage and seismic restraint assembly selected and applied to system by the Seismic Restraint System Engineer.

E. Seismic Restraint System Engineer: Registered Professional Engineer currently licensed in Oregon as a structural, civil, or mechanical engineer. Responsible for designing, applying, and inspecting pre-engineered seismic restraint assemblies and components in accordance with applicable codes and component manufacturer's published recommendations.

F. Seismic Engineer: Professional engineer currently licensed in Oregon as a structural, civil, or mechanical engineer. Responsible for designing, applying, and inspecting custom seismic restraint components in accordance with applicable codes.

G. OSHPD: Office of Statewide Health Planning and Development for the State of California.

1.4 SUBMITTALS

A. Product Data for the following:
   1. Include rated load, rated deflection, and overload capacity for pipe cable restraints.
   2. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
      a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
      b. Annotate to indicate application of each product submitted and compliance with requirements.

B. Coordination Drawings: Show coordination of seismic bracing for HVAC piping and equipment with other systems and equipment in the vicinity, including other supports and seismic restraints.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For air-mounting systems to include in operation and maintenance manuals.

1.5 SEISMIC SYSTEM ENGINEERING AND QUALITY ASSURANCE

A. Seismic restraint system shall be engineered to comply with criteria stated and referenced herein.

B. Seismic restraints and related engineering for HVAC, plumbing, and piping systems to be provided by a single vendor.

C. Application of Pre-engineered Assemblies by Seismic Restraint System Engineer:
   1. Application of Custom Engineered and/or Pre-Engineered Assemblies, as applicable to this project, and as follows:
      a. Application of restraints for floor or roof-mounted equipment.
      b. Application of restraints for curb mounted equipment including unit-to-curb and curb-to-structure attachments.
      c. Application of seismic restraint assemblies for vibration isolated and suspended equipment.
      d. Application of seismic restraint assemblies for piping and ductwork.
   2. Submittal packages shall bear the stamp of only the responsible Seismic Restraint System Engineer.

3. Approved Pre-engineered Assembly and Application Services: Mason Industries, Kinetics, or an independent professional engineer meeting qualifications listed herein as Seismic Restraint System Engineer.

D. Custom Engineered Assemblies:
1. System engineering shall include design and application of Custom Engineered Assemblies, as applicable to this project, and as follows:
   a. Design and Application of restraints for floor or roof-mounted equipment.
   b. Design and Application of restraints for curb mounted equipment including unit-to-curb and curb-to-structure attachments.
   c. Design and Application of seismic restraint assemblies for vibration isolated and suspended equipment.
   d. Design and Application of seismic restraint assemblies for piping and ductwork.
2. Engineering shall be performed by, or under the direct supervision of, a Seismic Engineer meeting the qualifications listed herein. Submittal packages shall bear the signed seal of only the Seismic Engineer.

E. Lateral loads and anchorage requirements at attachment to building structural system to be coordinated with project Structural Engineer.

F. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproval by ICC-ES, or preapproval by another agency acceptable to authorities having jurisdiction, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.

1.6 SHOP DRAWINGS, PRODUCT DATA, OPERATION & MAINTENANCE DATA

A. A. Pre-submittal:
1. Submit attached letter (at end of this section) outlining how the seismic requirements for this project will be met (i.e., Pre-engineered Assemblies, Custom Assemblies). In the letter state what companies will be providing the services and the qualifications of the responsible individuals.

B. Shop drawings shall be submitted as one complete package inclusive of all mechanical systems and equipment.

C. Submit the following in accordance with Section “SUBMITTAL PROCEDURES”:
1. Seismic Restraint Location Plan: Full or half size copies of ductwork and piping plans from the Contract Documents, showing locations and type of seismic restraint assemblies to be used.
   a. Drawings shall consist of mechanically reproduced copies of the Contract Documents, or custom drafted specifically for the Work of this Project and bear only the seal of the Seismic Restraint System Engineer or Seismic Engineer. All other seals shall be removed from drawings prior to submittal.
   b. Provide separate drawings for ductwork and piping systems.
   c. Each drawing shall be printed on a single sheet. Drawings pieced together from multiple copies are not acceptable.
2. Seismic Restraint Assembly Installation Details: Pre-Engineered or Custom Engineered assembly details showing required components, dimensions, and method of connection to supporting structure.

3. Calculations for System Application: Calculations shall indicate maximum forces anticipated at each restraint assembly, method of determining forces, and selection of restraint assemblies.
    a. For Pre-Engineered Assemblies, include documentation of design conditions, maximum load capacity of assembly, and maximum forces at anchorage points.
    b. For Custom Engineered Assemblies, submit calculations identifying maximum load capacity of assembly, maximum forces on each component, sizing/selection of each component, and maximum forces at anchorage points.

D. The entire submittal package comprised of drawings, details, and calculations for mechanical ductwork, piping, and equipment shall be stamped and signed in accordance with the requirements listed under 1.5 SEISMIC SYSTEM ENGINEERING AND QUALITY ASSURANCE in this specification section.

E. At seismic restraint system installation completion, submit three (3) copies of report from seismic restraint system Engineer, or the Engineer's representative, certifying that seismic restraints are installed in conformance with approved shop drawings and no additional restraints are necessary based on field conditions. Include written authorization, from Seismic Restraint System Engineer, of the designated representative.

F. Prior to Contract Closeout submit Operation and Maintenance information required as indicated in Section “CLOSEOUT PROCEDURES”.

PART 2 - PRODUCTS

2.1 SEISMIC-RESTRAINT DEVICES

A. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by an agency acceptable to authorities having jurisdiction.
    1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.

B. Pre-Engineered Assemblies
    1. Anchorage and seismic restraint assemblies comprised of standard or proprietary components, capable of application to restraint system and supporting structure.
    2. Acceptable Proprietary Manufacturers: Mason Industries, Kinetics, Tolco, B-Line, or approved.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SEISMIC RESTRAINT INSTALLATION

A. General
1. Seismic restraint system shall be installed in strict accordance with the manufacturer's written instructions and certified submittal data.
2. Conflicts with other trades that result in rigid contact with the equipment or piping due to inadequate space or other conditions shall be coordinated with the Seismic Restraint Engineer and corrected.
3. Attach restraints and anchors to a common structural element plane and within a common structural system.
4. For non-isolated suspended equipment, piping, and ducts, install solid braces or taut flexible cable restraints.
5. Provide supplementary support steel for equipment, piping, and ductwork required for the work of this Section.

B. Ductwork And Piping Seismic Restraint
1. Provide minimum of two transverse supports and one longitudinal support on each pipe or duct run. Transverse bracing shall be installed at each turn and at each end of a run with a minimum of one brace at each end. Where a pipe or duct run is shorter than the minimum interval between braces, provide braces at each end.
2. Where restraints are attached to clevis style pipe hangers, the cross bolt must be reinforced.

3.3 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

A. Install flexible connections in piping where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where the connections terminate with connection to equipment that is anchored to a different structural element from the one supporting the connections as they approach equipment. Comply with requirements in Division 23 Section "Hydronic Piping" for piping flexible connections.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: [Owner will engage] [Engage] a qualified testing agency to perform tests and inspections.

B. Perform tests and inspections.

C. Tests and Inspections:
1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
4. Test at least [four] <Insert number> of each type and size of installed anchors and fasteners selected by Architect.
5. Test to 90 percent of rated proof load of device.
6. Measure isolator restraint clearance.
7. Measure isolator deflection.

8. Verify snubber minimum clearances.
9. Air-Mounting System Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
10. Air-Mounting System Operational Test: Test the compressed-air leveling system.
11. Test and adjust air-mounting system controls and safeties.
12. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION 230548

SECTION 230548 - SEISMIC RESTRAINT SYSTEM ENGINEERING PRE-SUBMITTAL

PROJECT: _____
(Project Title)

The Undersigned states the following:

- Seismic restraints for the work of Divisions 22 and23 for this project will be provided as required in Section 230548.

- Application of Pre-Engineered Restraint Assemblies will be provided by Seismic Restraint System Engineer meeting qualifications of Section 230548.

Seismic Restraint System Engineer: _____

Firm Name: _____

Authorized Representative: _____
(Name of representative authorized to act on Engineer's behalf)

- Design for Custom Engineered Restraint Assemblies will be provided by Seismic Engineer meeting qualifications of Section 230548.

Seismic Engineer: _____

Firm Name: _____

Authorized Representative: _____
(Name of representative authorized to act on Engineer's behalf)

- Upon completion of seismic restraint system installation the Engineers listed above, or the designated representative listed, will inspect and certify that seismic restraints are installed in conformance with approved shop drawings and, based on actual field conditions, no additional restraints are necessary to comply with applicable codes.

Submitted by: _____ Date: _____

Firm: _____

Address:_____

_____

_____ E-mail:_____

Telephone: _____

Signature:_____

SECTION 23 07 00

MECHANICAL INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Piping insulation, jackets and accessories.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Product Data: Submit product description, list of materials and thickness for each service or equipment scheduled and locations.

B. Submit schedule showing manufacturer's product number, k-value, thickness, and furnished accessories for each mechanical system requiring insulation.

C. Manufacturer's Installation Instructions: Submit manufacturer's installation instructions for each product type.

1.4 QUALITY ASSURANCE

A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E 84.

B. Energy Efficiency: Insulate piping and ductwork in accordance with the Oregon Energy Efficiency Specialty Code.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Do not install insulation and related products when ambient temperatures and conditions are not meeting manufacturer's requirements.

B. Maintain temperature before, during, and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   1. Armacell
   2. Certainteed Corp.
   3. Ductmate Industries (duct liner only)
   4. Johns Manville Insulations.
   5. Knauf Insulation
   6. Owens-Corning Fiberglas Corp.
   7. Reflectix

2.2 PIPE INSULATION

A. Man Made Mineral Fiber: ASTM C547; rigid molded, noncombustible.
   1. k (ksi) factor: 0.24 at 75 degrees F.
   2. Maximum service temperature: 850 degrees F.
   3. Vapor Retarder Jacket: White Kraft paper with glass fiber yarn and bonded to aluminized film, secured with self-sealing longitudinal laps and butt strips or with outward clinch expanding staples and vapor retarder mastic.

B. Hydrous Calcium Silicate: ASTM C533; rigid molded, asbestos free, gold color.
   1. k (ksi) factor: 0.44 at 300 degrees F.
   2. Maximum Service Temperature: 1200 degrees F.
   3. Tie Wire: Stainless steel with twisted ends on maximum 12 inch centers.

C. Jackets:
   1. Stainless Steel Jacket: Type 302 stainless steel, 0.010 inch thick sheet, corrugated finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify piping is tested and ready for installation.

3.2 INSTALLATION

A. Continue insulation vapor barrier through penetrations.

B. Piping Insulation:
   1. General: Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
   2. Locate all seams in the least visible locations.
   3. Neatly finish insulation at supports, protrusions, and interruptions.

4. Insulate complete system of pipes conveying fluids below ambient temperature.
5. Install fiber glass insulated pipes conveying fluids below ambient temperature with vapor barrier jackets. Finish with glass cloth and vapor barrier adhesive.
6. For manmade mineral fiber insulated pipes conveying fluids above ambient temperature, install standard jackets. Bevel and seal ends of insulation at equipment, flanges, and unions.
7. Install insert between support shield and piping on piping 2 inches diameter or larger. Fabricate of cork or other high density insulating material suitable for temperature, not less than 6 inches long.
8. For pipe exposed in mechanical equipment rooms or in finished spaces, finish with jacket and fitting covers.
9. For exterior applications, install vapor barrier jacket. Insulate pipe, fittings, joints, and valves and finish with glass mesh reinforced vapor barrier cement. Cover with jacket with seams located on bottom side of horizontal piping.

3.3 SCHEDULES

A. Piping Insulation: Insulate the following HVAC piping systems

1. Heating Water Supply and Return
2. Geothermal Water Supply and Return
3. Condenser (Cooling Tower) Water Supply and Return

B. Piping Insulation Thickness. Piping shall be insulated in accordance with the following table:

Fluid	Nominal Pipe Diameter	
	≤ 1.5”	> 1.5”
Hot Water	1 ½	2

SECTION 23 21 16

HYDRONIC PIPING SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Positive displacement meters.
2. Heat consumption meters.
3. Liquid flow meters.
4. Pressure gages.
5. Pressure gage taps.
6. Thermometers.
7. Thermometer supports.
8. Test plugs.
9. Air vents.
10. Flow meters.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 PERFORMANCE REQUIREMENTS

A. Flexible Connectors: Provide at or near pumps and other motorized equipment where piping configuration does not absorb vibration.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit for manufactured products and assemblies used in this Project.
1. Manufacturer's data indicating use, operating range, total range, accuracy, and location for manufactured components.
2. Submit product description, model, dimensions, component sizes, rough-in requirements, service sizes, and finishes.
3. Submit schedule indicating manufacturer, model number, size, location, rated capacity, load served, and features for each piping specialty.

4. Submit electrical characteristics and connection requirements.

C. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures, application, selection, and hookup configuration. Include pipe and accessory elevations.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit instructions for calibrating instruments, installation instructions, assembly views, servicing requirements, lubrication instruction, and replacement parts list.

1.6 MAINTENANCE SERVICE

A. Section 01 70 00 - Execution and Closeout Requirements: Maintenance service.

1.7 MAINTENANCE MATERIALS

A. Section 01 70 00 - Execution and Closeout Requirements: Spare parts and maintenance materials.

PART 2 PRODUCTS

2.1 HEAT CONSUMPTION METERS

A. Manufacturers:
1. ONICON

B. Meter: Brass body turbine meter with magnetic drive register, platinum temperature sensors.
1. Maximum Service Temperature: 200 degrees F.
2. Accuracy: +/- 1 percent.
3. Power: Lithium Battery.

2.2 LIQUID FLOW METERS

A. Manufacturers:
1. ONICON Model F-3000 .
2. Substitutions: Not Permitted.

B. Measuring Station: Electromagnetic flow meters are factory-configured for ease of installation and start-up.

2.3 PRESSURE GAGES

A. Manufacturers:
1. Ametek, U.S. Gauge Div.

2. Ashcroft Dresser Industries Instrument Div.
3. Marsh Instrument Co., Unit of General Signal.
4. Marshalltown Instruments, Inc.
5. Miljoco Corporation
6. Trerice (H.O.) Co.
7. Weiss Instruments, Inc.
8. Weksler Instruments Corp.
9. WIKA Instruments

B. Gage: ASME B40.1, with bourdon tube, rotary brass movement, brass socket, front calibration adjustment, black scale on white background.
1. Case: Steel.
2. Dial Size: 4-1/2 inch diameter.
3. Mid-Scale Accuracy: One percent.
4. Scale: Psi.

2.4 PRESSURE GAGE TAPS

A. Needle Valve: Brass, 1/4 inch NPT for minimum 300 psi.

B. Ball Valve: Brass, 1/4 inch NPT for 250 psi.

C. Pulsation Damper: Pressure snubber, brass with 1/4 inch NPT connections.

D. Siphon: Brass, 1/4 inch NPT angle or straight pattern.

2.5 STEM TYPE THERMOMETERS

A. Manufacturers:
1. Trerice (H.O.) Co.

B. Thermometer: ASTM E1, lens front tube, cast aluminum case with enamel finish.
1. Size: 7-inch scale.
2. Window: Clear glass.
3. Stem: Brass, 3/4 inch NPT.
4. Accuracy: 2 percent.
5. Calibration: Degrees F.

2.6 THERMOMETER SUPPORTS

A. Socket: Brass separable sockets for thermometer stems with or without extensions.

B. Flange: 3 inch outside diameter reversible flange, designed to fasten to sheet metal air ducts, with brass perforated stem.

2.7 TEST PLUGS

A. 1/4 inch NPT or 1/2 inch NPT brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with:
1. Neoprene core for temperatures up to 200 degrees F.
2. Nordel core for temperatures up to 350 degrees F.
3. Viton core for temperatures up to 400 degrees F.

B. Test Kit:
   1. Carrying case, internally padded and fitted containing:
      a. Two 3-1/2 inch diameter pressure gages.
      b. Two gage adapters with 1/8 inch probes.
      c. Two 1-1/2 inch dial thermometers.

2.8 AIR VENTS

A. Manufacturers:
   1. Armstrong Machine Works.
   2. Bell & Gossett ITT; Fluid Handling Div.
   3. Hoffman Specialty ITT; Fluid Handling Div.
   4. Spirax Sarco.
   5. Taco, Inc.
   6. Watson McDaniel.

B. Manual Type: Short vertical sections of 2 inch diameter pipe to form air chamber, with 1/8 inch brass needle valve at top of chamber.

C. Float Type:
   1. Brass or semi-steel body, copper, polypropylene, or solid non-metallic float, stainless steel valve and valve seat; suitable for system operating temperature and pressure; with isolating valve.

D. Washer Type:
   1. Brass with hydroscopic fiber discs, vent ports, adjustable cap for manual shut-off, and integral spring loaded ball check valve.

PART 3 EXECUTION

3.1 INSTALLATION - THERMOMETERS AND GAGES

A. Install one pressure gage for each pump, locate taps before strainers and on suction and discharge of pump; pipe to gage.

B. Install gage taps in piping

C. Install pressure gages with pulsation dampers. Provide needle valve or ball valve to isolate each gage. Extend nipples to allow clearance from insulation.

D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inches for installation of thermometer sockets. Allow clearance from insulation.

E. Install thermometer sockets adjacent to controls systems thermostat, transmitter, or sensor sockets. Where thermometers are provided on local panels, pipe mounted thermometers are not required.

F. Coil and conceal excess capillary on remote element instruments.

G. Provide instruments with scale ranges selected according to service with largest appropriate scale.

H. Install gages and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.

I. Adjust gages and thermometers to final angle, clean windows and lenses, and calibrate to zero.

3.2 INSTALLATION - HYDRONIC PIPING SPECIALTIES

A. Locate test plugs as indicated on Drawings.

B. Where large air quantities accumulate, provide enlarged air collection standpipes.

C. Install manual air vents at system high points.

D. For automatic air vents in ceiling spaces or other concealed locations, install vent tubing to nearest drain.

E. Provide air separator on suction side of system circulation pump and connect to expansion tank.

F. Provide drain and hose connection with valve on strainer blow down connection.

G. Support pump fittings with floor mounted pipe and flange supports.

3.3 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements and 01 70 00 - Execution and Closeout Requirements: Field inspecting & testing.

3.4 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

B. Clean and flush system before adding final solution fill.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting installed construction.

B. Do not install hydronic pressure gauges until after systems are pressure tested.

END OF SECTION

SECTION 23 31 00

HVAC DUCTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Duct Materials.
2. Ductwork fabrication.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 PERFORMANCE REQUIREMENTS

A. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Submit duct fabrication drawings, drawn to scale not smaller than 1/4 inch equals 1 foot, on drawing sheets same size as Contract Documents, indicating:
1. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.
2. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust duct systems, indicate classification of materials handled as defined in this section.
3. Fittings.
4. Reinforcing details and spacing.
5. Seam and joint construction details.
6. Penetrations through fire rated and other walls.
7. Terminal unit, coil, and humidifier installations.

8. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.

C. Product Data: Submit data for duct liner and duct connectors.

D. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate, following SMACNA HVAC Air Duct Leakage Test Manual.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

B. Construct ductwork to NFPA 90A and NFPA 90B and NFPA 96 standards.

PART 2 PRODUCTS

2.1 DUCT MATERIALS

A. Galvanized Steel Ducts: ASTM A653/A653M galvanized steel sheet, lock-forming quality, having G60 zinc coating of in conformance with ASTM A90/A90M.

B. Steel Ducts: ASTM A1008/A1008M.

C. Fasteners: Rivets, bolts, or sheet metal screws.

D. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.2 DUCTWORK FABRICATION

A. Fabricate and support rectangular ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible and as indicated on Drawings. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Construct T's, bends, and elbows with minimum radius 1-1/2 times centerline duct width. Where not possible and where rectangular elbows are used, provide turning vanes. Where acoustical lining is indicated, furnish turning vanes of perforated metal with glass fiber insulation.

C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

D. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.

E. Provide standard 45-degree lateral wye takeoffs. When space does not allow 45-degree lateral wye takeoff, use 90-degree conical tee connections.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify sizes of equipment connections before fabricating transitions.

3.2 INSTALLATION

A. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

B. During construction, install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

C. Install duct hangers and supports in accordance with Section 23 05 29.

D. Use double nuts and lock washers on threaded rod supports.

3.3 INTERFACE WITH OTHER PRODUCTS

A. Install openings in ductwork where required to accommodate thermometers and controllers. Install pitot tube openings for testing of systems. Install pitot tube complete with metal can with spring device or screw to prevent air leakage. Where openings are provided in insulated ductwork, install insulation material inside metal ring.

3.4 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

3.5 SCHEDULES

A. Ductwork Pressure Class Schedule:

AIR SYSTEM	PRESSURE CLASS
General Exhaust	[1/2 inch wg] [1 inch wg] regardless of velocity.

END OF SECTION

SECTION 23 34 00

HVAC FANS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Propeller fans.
2. Centrifugal wall fans.

B. Products furnished but not installed under this Section include roof curbs for roof-mounted exhaust fans and hoods.

C. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate size and configuration of fan assembly, mountings, weights, ductwork and accessory connections.

C. Product Data: Submit data on each type of fan and include accessories, fan curves with specified operating point plotted, power, RPM, sound power levels for both fan inlet and outlet at rated capacity, electrical characteristics and connection requirements.

D. Manufacturer's Installation Instructions: Submit fan manufacturers instructions.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.5 QUALITY ASSURANCE

A. Performance Ratings: Conform to AMCA 210 and bear AMCA Certified Rating Seal.

B. Sound Ratings: AMCA 301, tested to AMCA 300,and bear AMCA Certified Sound Rating Seal.

C. UL Compliance: UL listed and labeled, designed, manufactured, and tested in accordance with UL 705.

D. Balance Quality: Conform to AMCA 204.

E. Energy Recovery Unit Wheel Energy Transfer Rating: Meet ARI 1060.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Fans:
1. Greenheck, Inc.
2. Cook (Loren) Co.
3. Penn. Ventilator Co.

2.2 FANS, GENERAL

A. General: Provide fans that are factory fabricated and assembled, factory tested, and factory finished, with indicated capacities and characteristics. Requirements of individual fan sections take precedence over “Fans, General” section.

B. Performance:
1. Performance Base: jobsite conditions – elevation 4400 ft above sealevel.
2. Temperature Limit: Maximum 150 degrees F.
3. Static and Dynamic Balance: Eliminate vibration or noise transmission to occupied areas.

C. Fans and Shafts: Statically and dynamically balanced and designed for continuous operation at the maximum rated fan speed and motor horsepower.
1. Fan Shaft: Turned, ground, and polished steel designed to operate at no more than 70 percent of the first critical speed at the top of the speed range of the fan's class.

D. Belt Drives: Factory mounted, with final alignment and belt adjustment made after installation.
1. Service Factor: 1.5.

E. Belts: Oil-resistant, nonsparking, and nonstatic.

F. Belt Guard: Provide steel belt guards for motors mounted on the outside of the fan cabinet.
   1. Fabricate to SMACNA Standard; 0.106 inch thick, 3/4 inch diamond mesh wire screen welded to steel angle frame or equivalent, prime coated. Secure to fan or fan supports without short circuiting vibration isolation, with provision for adjustment of belt tension, lubrication, and use of tachometer with guard in place.

G. Motors and Fan Wheel Pulleys: Adjustable pitch for use with motors through 15 HP; fixed pitch for use with motors larger than 15 HP. Select pulley so that pitch adjustment is at the middle of the adjustment range at fan design conditions.

H. Shaft Bearings: Provide type indicated, having a median life "Rating Life" (AFBMA (L50)) of 100,000 hours, calculated in accordance with AFBMA Standard 9 for ball bearings and AFBMA Standard 11 for roller bearings.

I. Factory Finish: The following finishes are required:
   1. Sheet Metal Parts: Prime coating prior to final assembly.
   2. Exterior Surfaces: Baked-enamel finish coat after assembly.

J. Disconnect Switch: Factory wired, non-fusible, in fan housing for thermal overload protected motor, NEMA 250 Type 1 enclosure.

K. Motors: Open drip proof, NEMA MG1: Premium.

2.3 PROPELLER FANS

A. Construction:
   1. Impeller: Shaped steel or steel reinforced aluminum blade with hubs, statically and dynamically balanced, [keyed and] locked to shaft, directly connected to motor [or furnished with V-belt drive].
   2. Frame: One piece, square steel with die formed venturi orifice, mounting flanges and supports, with baked enamel finish.

B. Accessories:
   1. Back-draft Damper: Multiple blade with offset hinge pin, blades linked.
   2. Outlet Damper: Multiple blade with offset hinge pin, blades linked, line voltage motor drive, power open, spring return.
   3. Safety Screens: Expanded galvanized metal over inlet, motor, and drive and outlet (if exposed); to comply with OSHA regulations.
   4. Hood: Weather shield, to exclude rain and snow.
   5. Fan speed controller.

2.4 CENTRIFUGAL WALL FANS

A. Fan Unit: V-belt or direct drive (see schedules) with spun aluminum housing; resiliently mounted motor; aluminum wire bird screen.

B. Accessories:
   1. Backdraft Damper: Gravity actuated, aluminum multiple blade construction, felt edged with offset hinge pin, nylon bearings, blades linked [and line voltage motor drive, power open, spring return].

2. Motor Operated Damper: Aluminum multiple blade construction, felt edged with offset hinge pin, nylon bearings, blades linked and [line] [_____] voltage motor drive, power [open] [closed], [spring return] [_____].
3. Fan speed controller.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify roof curbs are installed and dimensions are as shown on shop drawing.

3.2 INSTALLATION

A. Secure fans and gravity ventilators with cadmium plated steel lag screws to roof curb or structure.

B. Suspended Fans: Install flexible connections specified in Section [23 33 00] between fan and ductwork. Ensure metal bands of connectors are parallel with minimum one inch flex between ductwork and fan while running.

C. Install backdraft dampers on inlet to roof and wall exhaust fans and gravity ventilators used in relief air applications.

D. Provide backdraft dampers on outlet from cabinet and ceiling fans and as indicated on Drawings.

E. Install safety screen where inlet or outlet is exposed.

F. Pipe scroll drains to nearest floor drain.

G. Install backdraft dampers on discharge of exhaust fans and as indicated on Drawings.

H. Provide sheaves required for final air balance.

3.3 MANUFACTURER'S FIELD SERVICES

A. Section 01 40 00 - Quality Requirements: Requirements for manufacturer’s field services.

B. Furnish services of factory trained representative for minimum of [one] [_____] days to start-up, calibrate controls, and instruct Owner on operation and maintenance.

3.4 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

B. Vacuum clean coils and inside of fan cabinet.

3.5 DEMONSTRATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for demonstration and training.

B. Demonstrate fan operation and maintenance procedures.

3.6 PROTECTION OF FINISHED WORK

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Do not operate fans for until ductwork is clean, filters in place, bearings lubricated, and fan has been test run under observation.

END OF SECTION

SECTION 23 37 00

LOUVERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Louvers.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

1.2 RELATED REQUIREMENTS

A. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit sizes, finish, and type of mounting. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of air outlets and inlets.

1.5 QUALITY ASSURANCE

A. Test and rate louver performance in accordance with AMCA 500.

PART 2 PRODUCTS

2.1 LOUVERS

A. Manufacturers:
1. Ruskin Mfg. Co.

2. Greenheck, Inc.
3. Cesco.
4. United.

B. General: Except as otherwise indicated, provide manufacturer's standard louvers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

C. Performance: Provide louvers that have minimum free area, and maximum pressure drop of each type as listed in manufacturer's current data, complying with louver schedule.

D. Substrate Compatibility: Provide louvers with frame and sill styles that are compatible with adjacent substrate, and that are specifically manufactured to fit into construction openings with accurate fit and adequate support, for weatherproof installation. Refer to general construction drawings and specifications for types of substrate which will contain each type of louver.

E. Materials: Construct of aluminum extrusions, ASTM B 221, Alloy 6063-T52. Weld units or use stainless steel fasteners.

F. Louver Screens: On inside face of exterior louvers, provide 1/2" square mesh anodized aluminum wire bird screens mounted in removable extruded aluminum frames.

G. Color: Final color of louvers to be selected by Architect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify inlet and outlet locations.

C. Verify ceiling and wall systems are ready for installation.

3.2 INSTALLATION

A. Install diffusers to Exterior Metal Building Wall with airtight connection.

3.3 INTERFACE WITH OTHER PRODUCTS

A. Check location of modulating air dampers and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

END OF SECTION

SECTION 23 65 23

FIELD-ERECTED COOLING TOWERS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes cooling tower with structure, casing, fill and basin, controls, heaters fans, motors and drive equipment, condensing water inlet and outlet with internal distribution and ladder and handrails.

B. This section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

C. Related Requirements:

1. Refer to Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

D. Related Sections:

1. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for concrete bases and basins specified by this section.
2. Section 22 11 00 - Facility Water Distribution: Execution requirements for make up water and drain piping specified by this section.
3. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Execution requirements for steel support bases specified by this section.
4. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product requirements for vibration isolators for placement by this section.
5. Section 23 21 13 - Hydronic Piping: Product requirements for condenser water piping for placement by this section.
6. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electrical connections specified by this section.

1.2 REFERENCES

A. American Bearing Manufacturers Association:

1. ABMA 9 - Load Ratings and Fatigue Life for Ball Bearings.
2. ABMA 11 - Load Ratings and Fatigue Life for Roller Bearings.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:

1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

C. American Society of Mechanical Engineers:
   1. ASME PTC 23 - Atmospheric Water Cooling Equipment.

D. Cooling Technology Institute:
   1. CTI - Acceptance Test Code.
   2. CTI 201 - Certification Standard for Commercial Water Cooling Towers.

E. National Electrical Manufacturers Association:
   1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate supports with point loads including dimensions, sizes, and locations for mounting-bolt holes.

C. Product Data: Submit rated capacities, dimensions, weights and point loads, accessories, required clearances, electrical requirements and wiring diagrams, and location and size of field connections. Submit schematic indicating capacity controls. Submit performance curve plotting leaving water temperature against wet bulb temperature.

D. Field Test Reports: Indicate compliance with specified performance.

E. Manufacturer's Certificate: Certify cooling tower performance meets or exceeds specified requirements.

F. Manufacturer’s Field Reports: Submit start-up report [for each unit]. Indicate compliance with field test.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit start-up instructions, maintenance data, parts lists, controls, and accessories.

1.5 QUALITY ASSURANCE

A. Thermal performance in accordance with CTI Acceptance Test Code and CTI 201.

B. Performance Ratings: Required performance not less than prescribed by ASHRAE 90.1 when tested in accordance with CTI Acceptance Test Code and CTI 201.

1.6 QUALIFICATIONS

A. Manufacturer: Baltimore Aircoil Company four (4) cell cooling tower has been purchased for this project.

B. Installer: Company specializing in performing work of this section [with minimum ten years experience.

1.7 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Accept cooling tower components on site in manufacturer’s shipping packaging. Inspect for damage.

C. Follow manufacturer's installation instructions for rigging, unloading, and transporting units.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish five year manufacturer warranty for corrosion resistance of cooling tower structure, fan drive, motor, labor and materials.

1.11 MAINTENANCE SERVICE

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance service.

B. Furnish service and maintenance of cooling tower for one year from Date of Substantial Completion.

C. Examine unit components [weekly] [semi-monthly] [monthly] [bi-monthly]. Clean, adjust, and lubricate equipment.

D. Include systematic examination, adjustment, and lubrication of unit, including fan belt replacement, and controls checkout and adjustments. Repair or replace parts in accordance with manufacturer's operating and maintenance data. Use parts produced by manufacturer of original equipment.

E. Perform work without removing units from service during building normal occupied hours.

F. Provide emergency call back service [at all hours] [during working hours] for this maintenance period.

G. Maintain locally, near Place of the Work, adequate stock of parts for replacement or emergency purposes. Have personnel available to ensure fulfillment of this maintenance service, without unreasonable loss of time.

H. Perform maintenance work using competent and qualified personnel under supervision of manufacturer or original installer.

PART 2 PRODUCTS

2.1 COOLING TOWERS

A. Manufacturers:
1. Baltimore Aircoil Company.

B. Field assembled, sectional, cross flow or counter flow, vertical discharge, induced draft type, with casing, structure, fan, motor and drive assemblies, fill, drift eliminators.

2.2 STEEL STRUCTURE TOWERS

A. Framework and Casing: Galvanized steel with sheets installed vertically with waterproof flanges.

B. Collection Basin: Galvanized steel with depressed center section, designed to support tower, with cleanout and drain fitting, 8 gage, 1/4 inch mesh strainer, side outlet sump, overflow

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify support is ready to accept tower.

B. Verify dimensions of support are as shown on shop drawings.

3.2 INSTALLATION

A. Install tower on [structural steel beams and columns] [concrete base] in accordance with manufacturers requirements and structural drawings.

B. Install condenser water piping with flanged connections to tower. Pitch condenser water supply to tower and condenser water suction away from tower. Refer to Section 23 21 13.

C. Install overflow, bleed, and drain, to [floor drain.] [storm sewer.] [_____.]

3.3 FIELD QUALITY CONTROL

A. Section [01 40 00 - Quality Requirements] [01 70 00 - Execution and Closeout Requirements]: Field inspecting, testing, adjusting, and balancing.

B. Test for capacity under actual operating conditions [in accordance with CTI Acceptance Test Code] and verify specified performance.

3.4 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust bleed, control settings and airflow.

3.5 DEMONSTRATION AND TRAINING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for demonstration and training.

B. Demonstrate starting, maintenance and operation of tower.

END OF SECTION

Electrical Specifications TOC

SECTION 26 0001

GENERAL ELECTRICAL PROVISIONS

PART 1 GENERAL

Products under this contract must meet minimum specifications requirements in detail without exception unless specifically noted and approved as provided in these Specifications. Equipment submitted for review must clearly state on cover sheet any differences from specified product. Equipment substitution or submittal review does not relieve Contractor from meeting all requirements of specified item. Electrical Engineer of Record:
Matthew J. Cash, PE
Fluent Engineering, Inc.
695 Commercial St. SE, Suite 3
Salem, Oregon 97301

1.01 DEFINITIONS

A. Definitions herein are intended as advisory and shall not limit requirements within the Contract Documents. Where a conflict of definitions exists, the more stringent standard shall be used. Where a term is defined on a Drawing the Drawing definition shall be used for that drawing. Not all definitions are included. Trade standard terms are not defined.

1.02 CONTRACT DOCUMENTS

A. The Contract Documents are inclusive. All requirements of all Contract Documents shall be binding as if repeated herein and within this Division as required by any other Division or Contract Document. Refer to JCI /Owner documents and Drawings for additional requirements.

B. This Division does not express or imply separation of the Contract Documents and shall not be considered as separation of the Work.

C. See 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.

D. Conflicts: If any conflicts exist the more stringent is required.

1.03 SCOPE OF WORK

A. General: Provide complete and functional electrical systems as specified, as shown on Drawings, as required, and as intended. Work generally includes, inspections, electrical distribution, lighting, devices, wiring systems, raceways, and control system raceway to support a geothermal power co-generation plant.

B. Omissions: Contractor shall be responsible for additional labor, or additional material necessary for the proper execution of the Work. Omissions of expressed reference to any item shall not relieve the responsibly to conform to the Contract Documents

C. Scope of Electrical Work
   1. All materials and workmanship shall be furnished for complete, tested, and operating electrical systems as shown on the drawings and specified herein.
   2. Electrical work is to include the electrical service. Complete to the point of connection with the serving utility. Any changes of or work required by the serving utility, are part of this work and shall be fully included in the bid price. A separate Owner-Utility Interconnection Agreement is in-place and work associated therein is excluded.

3. Work is also to include main distribution panel, feeder system and branch circuit panels. Complete branch circuit wiring. Light fixtures, wall switches, receptacles and similar items, exterior lighting and wiring, and wiring and connection to all mechanical equipment, connection to the GPPU, and GPPU power distribution and connections is included.

1.04 CONFORMANCE WITH REQUIREMENTS

A. General: All Work shall conform to the reasonable requirements of the project within the scope of the project and authorizations. All work shall conform to the methods and requirements of Code at the location of the Work.

1. Access and inspection: All portions of the Work shall be accessible to inspections and review at all reasonable times during construction. Contractor is responsible for providing access for review and inspection of the Work. Contractor shall secure written inspection reports prior to concealing Work. Contractor is responsible for damages to properly review the Work due to lack of at least 7 Days advance written notification to the General Contractor, Owner, and Engineer that Work is ready for inspection.

B. Accounting: Provide general accounting information as to labor and equipment costs to assist in determination of modifications to the Contract. Provide accounting breakdown when required for securing Owner financing, or for analysis of equipment costs or equipment payback periods, as well as information for Owner incentives, and/or grants.

1.05 COORDINATION OF TRADES

A. Check all other trade drawings to avert potential installation conflicts. Should major changes from the Drawings be required to resolve potential conflicts, notify the Architect and secure written approval and agreement on necessary adjustments prior to start of installation.

B. Check all equipment locations and connections on the site for coordination with other Divisions equipment and connections and structure and the like.

C. Contractor is responsible for scheduling trades to properly execute all the Work as intended.

1.06 STANDARD OF CARE AND QUALIFICATIONS

A. General: Contractor shall be experienced and knowledgeable to Provide Work. Owner is not responsible for improper operation, incompliance, or installation due to Contractor's lack of knowledge or experience. Upon request, and where requested herein the Contractor shall supply qualifications and experience. Drawings are presented with industry terms, statements, and trade practices and it is the responsibility of the Contractor to be familiar. Provide written notification prior to Bid to the Engineer if any representation is not understood, or outside standard practice.

B. Like Materials and Quality Control: All systems provided shall be new and of like materials provided through manufacturer authorized distributors. Provide equipment of same system and type by same manufacturer. Items of the same by different manufacturers will be rejected. Equipment shall conform to all applicable Code and applicable listing criteria as of the date of the Contract Documents. Equipment determined to be manufactured under any other listing or Code prior to the date of the Contract is not acceptable, even if the equipment is new or has not been used. All equipment provided to project shall be listed by an approved listing organization. Distribution Equipment Basis of Design: Eaton Cutler-Hammer to match GPPU supplied equipment.

1.07 EXAMINATION OF SITE

A. Examine Site of Work prior to making Bid. Ascertain all related physical conditions.

B. Verify at the Site of Work prior to Bid scale dimensions shown due to exact locations, distances, and levels will be governed by actual field conditions.

C. Owner will not be responsible for any loss or costs that may be incurred due to a Bidder's failure to fully inform themselves prior to Bid in regard to conditions pertaining to the Work and nature of the Work.

1.08 MINOR DEVIATIONS

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

1.09 RECORD DRAWINGS

A. Maintain a marked set of prints at job site at all times. Show all changes from the original drawing set whether visible or concealed. Include all addendums, field orders, change orders, clarifications, request for information drawn responses, and deviations. Dimension accurately from building lines, floor, or curb elevations. Show exact location, elevation, and size of conduit/raceway, access panels and doors, equipment, and all other information pertinent to the Work.

B. At project completion, submit marked sets to Architect (copy), and Engineer (original) for review.

1.10 TRAINING

A. Provide training of Owner's selected staff for all electrical systems specified herein.

B. Notify and Coordinate with Owner for training and attendance not later than 15 Days prior to training.

C. Provide 1 hour of general system training in addition to training indicated below.
1. Lighting Controls- 1 hour
2. Power Distribution System Settings, and Metering - 2 hours

D. Training shall be conducted by qualified individuals familiar with the Work, and with the equipment.

E. Instructor shall be familiar with programming and operation of equipment and shall provide instruction to do such.

F. Training shall not occur prior to systems being fully inspected, operational, and complete.

G. Utilize necessary training materials, conduct training at project location including walk-through of equipment on-site.

H. Provide Owner with all required Operation, Maintenance, and Programming manuals provided by equipment manufacturer.

1.11 WARRANTY

A. Warrant Work, materials, and equipment for not less than one year.

B. Provide additional warranty as required herein.

PART 2 PRODUCTS

THIS PART NOT USED

PART 3 EXECUTION

THIS PART NOT USED

END OF SECTION

SECTION 26 0026

SUBMITTALS AND SHOP DRAWINGS

PART 1 GENERAL

1.01 REQUIREMENTS

A. Refer to Division 1

B. Organization
1. Provide 3-ring type hard cover notebook with 3-hole punch product data sheets.
2. Order submittals in logical form with tab dividers indicating specification section, and specification title
3. Equipment shown on schedules shall be in logical order as the equipment appears on the schedule (i.e. light fixture type A precedes light fixture type Z).
4. Submit 5 copies for review. Not all copies will be returned to Contractor.

C. Allow no less than 20 Days for review by Engineer.

D. Contractor is responsible to submit and verify receipt of comments for all submittals.

E. Resubmittals shall contain all items included in pervious submittals with changes clearly identified with a cover letter listing the changed items. Only revised items will be reviewed.

F. No item requiring review shall be delivered to the site or otherwise provided to the Project until submittals have been reviewed by the Engineer.

1.02 DEFINITIONS

A. Manufacturing Data: Information regarding the product(s) and equipment issued by the manufacturer as described below.

B. Manufacturer's Label: Manufacturer's label shall include a typewritten list of manufacturer's name, sizes and model or catalog numbers.

C. Manufacturer's Catalog Data: Manufacturer's catalog data shall include standard catalog information (Cut Sheets) marked to indicate specific equipment and options for complete and functional system. All components of the system shall be included. Include listing information. Include installation instructions.

D. 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, control schematics, piping diagrams, connection diagrams, performance data, trip curves, listings, mix design, test results, and any other information required for a complete evaluation of the equipment specified, and to verify compliance with the Contract Documents. All available details shall be included with any modifications to the equipment indicated. All manufacturers and associated model numbers used for complete system shall be indicated.

E. Shop Drawings: Shop drawings are Construction drawings of items manufactured specifically for this project. Shop drawings shall include dimensions, construction details, weights, and additional information to identify the physical features of the system or piece of equipment. Drawings shall be adequately sized and scaled for a complete review.

F. Samples: Samples include actual example of the equipment to be installed. Include actual color, finish, and functioning replica of equipment to be installed. Samples will be returned to the Contractor when submitted with pre-paid postage.

G. Certifications and Qualifications: Submit list of past projects with same systems. Submit information listing references, copies of certificates issued by manufacturer, school, and standards organizations. Submit information mandated in specific specification section.

1.03 SUBMITTALS REQUIRED

A. Product Evaluation Data. 5 copies of product literature. The submittal schedule for product evaluation data is as indicated below. Each item requiring a submittal is given the following code:

L	Manufacturer's Label
C	Manufacturer's catalog data (Cuts)
E	Manufacturer's technical and engineering data
S	Shop drawings
SA	Samples
CR	Certifications
Q	Qualifications

1.04 SUBMITTAL SCHEDULE

Division 26 - Electrical

Section 26 0513- MEDIUM VOLTAGE CABLE	C,E,CR
Section 26 0519- BUILDING WIRE AND CABLES	C
Section 26 0526- GROUNDING	C
Section 26 0529- SUPPORTING DEVICES	L,S
Section 26 0533- RACEWAYS & FITTINGS	L
Section 26 0533.16- OUTLET, JUNCTION, AND PULL BOXES	C
Section 26 0533.20- CABLE TRAYS	C,S
Section 26 0553- ELECTRICAL IDENTIFICATION	L
Section 26 0560- OVERCURRENT PROTECTIVE DEVICES	C,E,S
Section 26 0583- WIRE CONNECTIONS	L
Section 26 2413- SWITCHBOARDS	C,E,S
Section 26 2416- PANELBOARDS	C,E,S
Section 26 2726- WIRING DEVICES	C,E
Section 26 2912- DISCONNECTS & MANUAL STARTERS	C,E,S
Section 26 4313- TVSS EQUIPMENT	C,E,S
Section 26 5113.10- LAMPS	C
Section 26 5113.20- LIGHTING FIXTURES	C,S

PART 2 PRODUCTS

THIS PART NOT USED

PART 3 EXECUTION

THIS PART NOT USED

END OF SECTION

SECTION 26 0513

MEDIUM VOLTAGE CABLE

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide, terminate, and connect medium voltage cables.

1.02 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

1.03 APPLICABLE STANDARDS

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

B. Insulated Power Cable Engineers Association (IPCEA)
   1. S-93-969 5-46kV Shielded Power Cable for Use in Transmission and Distribution of Electrical Energy (NMEA WC-74)

C. Underwirters Labarotories (UL)
   1. UL 1072-2006 Medium Voltage Power Cable

1.04 SUBMITTALS

A. Submit WC -74 manufacturers certified reports to Engineer. Certified copies shall show conformance with the referenced standards and shall be reviewed prior to delivery of cable.

B. Submit test results indicated herein when requested, and at Contract Closeout.

PART 2 PRODUCTS

2.01 MATERIAL, MEDIUM VOLTAGE CABLE:

A. Medium voltage cable shall be in accordance with the NEC, IPEA, and as shown on the Drawings.

B. Shall be single conductor stranded copper type as shown on the Drawings.

C. Insulation:
   1. Insulation level shall be 133 percent.
      a) Types:
         (i) Ethylene propylene rubber insulation shall be thermosetting, light and heat stabilized. Cable type abbreviation, EPR. J- Jacketed.
         (ii) Polyethylene insulation shall be thermosetting, light and heat stabilized, chemically crosslinked. Cable type abbreviation, CCLP.
         (iii) Within vaults, switchgear rooms and equipment assemblies where the incoming feeder cables are not suitable for connections between the protective equipment, disconnects and transformers, install suitable, approved cables.

D. Conductors and insulation shall be wrapped separately with semi-conducting tape.

E. Insulation shall be wrapped with non-magnetic, metallic shielding.

F. Heavy duty, overall protective jackets of chlorsulphonated polyethylene, neoprene, polyvinyl chloride or equal shall enclose cable.

G. Cable temperature ratings for continuous operation, emergency overload operation and short circuit operation shall be not less than the IPCEA Standard for the respective cable.

H. Manufacturer's name, size, insulation type, and other pertinent information shall be marked or molded clearly on the overall jacket's outside surface or incorporated on marker tapes within the cables at reasonable intervals.

2.02 MATERIAL, TERMINATIONS

A. The materials shall be compatible with the conductors, insulations and protective jackets on the cables and wires.

B. The terminations shall insulate and protect the conductors not less than the insulation and protective jackets on the cables and wires which protect the conductors.

C. Terminating Fittings:
1. Shall be heavy duty, pressure type fittings which will assure satisfactory performance of the connections under conditions of temperature cycling and magnetic forces from available short circuit currents.
2. The fittings shall be suitable designed and the proper size for the cables and wires being spliced and terminated.

D. Terminating Kits:
1. General
   a) Shall be assembled by the manufacturer or supplier of the material and shall be packaged for individual splices and terminations or for groups of splices and terminations.
   b) Shall consist of materials designed for the cables being spliced and terminated and shall be suitable for the prevail-ing environmental conditions.
   c) Shall include detail drawings and printed instructions for each type of splice and termination being installed, as prepared by the manufacturers of the materials in the kits.
   d) Detail drawings and printed instructions shall indicate the cable type, voltage rating, manufacturer's name and catalog numbers for the materials indicated.
   e) Voltage ratings for the splices and terminations shall be not less than the voltage ratings for the cables on which they are being installed.
   f) Reduce stress and absorb shock/expansion as required by termination equipment manufacturer and cable manufacturer (include stress-cone as indicated herein).

E. Taped Terminations:
1. Insulating and semi-conducting rubber tapes shall withstand 200 percent elongation without cracking, rupturing or reducing their electrical and self-bonding characteristics by more than 5 percent.

F. Epoxy Resin Kits shall be as follows:
1. Compatible with the cable insulations and jackets and make the splice watertight and submersible.

2. Thermosetting and generate its own heat so that external fire or heat will not be required.
3. Set solid and cure in approximately 60 minutes in 70 degree F ambient temperature.
4. Not deteriorate when subjected to oil, water, gases, salt water, sewage and fungus.
5. Furnished in pre-measured quantities, sized for each termination, with two resin components in an easy mixing plastic bag which will permit mixing the resin without entrapping air or contaminants. Other methods of packaging and mixing the epoxy resin components will be considered for approval, provided they include adequate safeguards to assure precise proportioning of the resin components and to prevent entrapping air and contaminants.
6. Use snap together, longitudinally-split, interlocking seam, transplant mold bodies or taped frameworks, injection fittings and injection gun or pouring equipment. Completely fill voids within the splices and terminations.

2.03 MATERIAL, FIREPROOFING TAPE

A. The tape shall consist of a flexible, conformable fabric of organic composition coated one side with flame-retardant elastomer.

B. The tape shall consist of a flexible, conformable fabric of organic composition coated one side with flame-retardant elastomer.

C. The tape shall not deteriorate when subjected to water, gases, salt water, sewage, or fungus. It shall be resistant to sunlight and ultraviolet light.

D. The finished application shall withstand a 200 ampere arc for not less than 30 seconds.

E. Securing Tape: Shall be glass cloth electrical tape not less than 7 mils thick, and 3/4-inch wide.

PART 3 EXECUTION

3.01 INSTALLATION, MEDIUM VOLTAGE CABLE

A. Installation shall be in accordance with the NEC, and as shown on the Drawings.

B. Follow sequencing as indicated on Drawings

C. Use suitable lubricating compounds on the cables and wires to prevent damage to them during pull. Provide compounds that are not injurious to the cable and wire jackets, and do not harden or become adhesive.

D. Splice the cables and wires only in manholes and accessible junction boxes.
E. In manholes, underground raceways and other outdoor locations:
1. Seal the cable ends prior to pulling them in to prevent the entry of moisture.
2. For ethylene propylene rubber and polyethylene insulated cables, use bags of epoxy resin which are not less than 1/4-inch larger in diameter than the overall diameter of the cable. Clean each end of each cable before installing the epoxy resin over it.

F. Provide ground shield and connect to termination equipment/feed as required. Include ground conductor where required per NEC.

3.02 INSTALLATION AND TERMINATIONS

A. Install the materials as recommended by their manufacturer including special precautions pertaining to air temperature during installations.

B. Ethylene Propylene Rubber and Polyethylene Insulated Cables:
   1. Cables Rated More than 8000 Volts: Install taped splices and termination or premolded rubber splices and terminations.

C. Installation shall be accomplished by qualified personnel trained to accomplish high voltage equipment installations. All instructions of the manufacturer shall be followed in detail.

3.03 INSTALLATION, FIREPROOFING

A. Cover all power cables located in manholes, handholes and junction boxes with arcproof and fireproof tape.

B. Apply the tape in single layer, one-half lapped or as recommended by the manufacturer. Install the tape with the coated side towards the cable and extend it not less than 1-inch into each duct

C. Secure the tape in place by a random wrap of glass cloth tape.

3.04 FEEDER IDENTIFICATION

A. In each manhole, pullbox, and termination point install permanent tags on cables and wires of each circuit to clearly designate their identification and voltage. The tags shall be the embossed brass type and shall also show the cable type and voltage rating. Position the tags so they will be easy to read after the fireproofing is installed.

3.05 FIELD TESTS FOR MEDIUM VOLTAGE CABLE

A. New Cable
   1. Acceptance tests shall be performed on new cable.
   2. Provide High Potential Tests and Dielectric Absorption Tests. Verify conformance with manufacturer's specifications and herein.
   3. Test and verify ringing and document ringing procedure and verification results to assure cables are properly phased. Match existing (replaced line) cable phase-to-phase configuration.
   4. Test new cable after installation, and terminations have been made, but before connection to service equipment. See Sequence on Drawings.

B. High Potential Test:
   1. Leakage current test shall be by high potential D.C. step voltage method.
   2. Prior to high potential test, test the cable and shields for continuity, shorts, and grounds.
   3. High potential test shall measure the leakage current from each conductor to the insulation shield. Use corona shields, guard rings, taping, mason jars, or plastic gabs to prevent corona current from influencing the readings. Unprepared cable shield ends shall be trimmed back 1-inch or more for each 10 kV of test voltage.
   4. Safety Precautions:
   5. Exercise suitable and adequate safety measures prior to, during, and after the high potential tests, including placing warning signs and preventing people and equipment from being exposed to the test voltage, including within tunnels. Coordinate testing time and date with Owner.

C. Test Voltages:

1. New shielded EPR and CCLP cable D.C. test voltages shall be as follows:

Wire Size		Test Voltage KV	
Rated Circuit Voltage	AWG or	100%	133%
Phase-to-Phase Volts	MCM	Insulation Level	Insulation Level
2001 - 5000	8 - 1000	25	25
5001 - 8000	6 - 1000	25	25
8001 - 15000	2 - 1000	55	65
150001 – 25000	1 – 1000	80	100

D. High Potential Test Method:

1. Apply voltage in approximately 8 to 10 equal steps.
2. Raise the voltage slowly between steps.
3. At the end of each step, allow the charging current to decay, and time of the interval of decay.
4. Read the leakage current and plot a curve of leakage current versus test voltage on graph paper as the test progresses. Read the leakage current at the same time interval for each voltage step.
5. Stop the test if leakage currents increase excessively or a "knee" appears in the curve before maximum test voltage is reached.
   a) For new cable, replace the cable and repeat the test.
6. Upon reaching maximum test voltage, hold the voltage for five (5) minutes. Read the leakage current at 30 second intervals and plot a curve of leakage current versus time on the same graph paper as the step voltage curve.
   a) Stop the test if leakage current starts to rise or decreases and, again, starts to rise. Leakage current should decrease and stabilize for good cable.
7. Terminate test and allow sufficient discharge time before testing the next conductor.
8. Include test documentation at shut-down coordination meeting. Submit test documentation when requested by Owner or Engineer and Submit test documentation with Contract Closeout documentation.

E. Dielectric Absorption Test:

1. Completely isolate extraneous electrical connections to new cable at terminations and joints.
2. Safety precautions shall be observed. Each cable shall be given a full dielectric absorption test with a 5000/12000V insulation resistance test set.
3. Test shall be applied for a long enough time to charge the cable.
4. Readings shall be recorded every 15 seconds during the first 3 minutes, and 1 minute intervals thereafter.
5. Test shall continue until three equal readings 1 minute apart are obtained. Readings shall not be less than 200 megohms at an ambient temperature of 68 degrees F. Readings taken at other temperatures shall be corrected accordingly.
6. Verify test results per manufacturer requirements, Reference Standards, and herein.
7. Include test documentation at shut-down coordination meeting. Submit test documentation when requested by Owner or Engineer and Submit test documentation with Contract Closeout documentation.

END OF SECTION

SECTION 26 0519

BUILDING WIRE & CABLES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Wires and Cables

1.02 REFERENCE STANDARDS

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

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver new wire and new cable to site in new packaging with standard cable coils/reels. Packaging shall clearly show length, wire size, wire/cable type, and manufacturer.

B. Protect products from weather, moisture, and damage.

PART 2 PRODUCTS

2.01 MATERIALS.

A. Building Wiring & Insulation: Copper, 98 percent conductivity, stranded. Solid may be used at contractor's option for wire smaller than #8 AWG. 600 volt insulation, Type THHN for dry interior and damp interior locations. Type THW, THWN or XHHW for wet locations, and exterior locations.

B. Conductor cable with conductors smaller than #12 AWG for branch circuits not permitted.

C. Exterior cables exposed to sunlight shall be listed "sunlight resistant."

D. De-rate conductors as required where installed at above grade exterior locations.

E. Control panel wiring no smaller than #14 AWG stranded switchboard Type MTW unless otherwise specified on the Drawings or required by system manufacturer.

F. Motor control wires shall be no smaller than #14 AWG.

G. Wire for other areas as shown on the Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Parallel feeders shall have identical conductor length. Exact conductor length is essential for this project. Contractor is responsible for damage as a result of electrical conditions due to differing parallel feeder lengths.

B. Use UL listed pulling lubricant for greater than equivalent #4 AWG wire diameter.

C. Use UL listed pulling lubricant for pulls greater than 75 feet.

D. Remove moisture from raceway prior to wire pull.

E. Provide copper grounding conductors. Provide a ground wire through conduits. Utilize the ground wire as the equipment grounding conductor no smaller than #12 AWG otherwise sized as shown and per NEC.

F. Do not splice feeders, or services. Splices only permitted in accessible junction or outlet boxes where circuit routes deviate. Do not splice or tap branch circuits terminating in a single outlet.

G. Color code conductors per NEC to designate neutral, phase, and ground as follows:

REFER TO JCI ELECTRICAL DRAWINGS- "CUSTOMER REQUIREMENTS"

H. Wires shall be factory color coded. Coloring shall be integral to the insulation. Plastic tape permitted on #6 AWG and larger where insulation coloring is not available or practical. Apply tape in spiral half-lap over exposed portions of cable at all locations that cable is accessible.

I. All conductors shall be identified with circuit number where conductors are accessible such as at terminals, outlets, switches, circuit breakers, motor control centers, etc. Identify the ends of a given conductor circuit the same.

J. Do not install wires of different voltage systems in same raceway, box, or other enclosure. Control voltage is permitted in same enclosure only where specific equipment is listed for multiple voltage use, and a listed voltage barrier is provided.

K. Radius of cable bends shall not be less than 10 times the outer diameter of the cable.

L. Do not install cable within conduit per NEC.

END OF SECTION

SECTION 26 0526

GROUNDING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Electrical systems grounding.

B. Signal systems grounding.

1.02 APPLICABLE STANDARDS

A. Underwriters Laboratories (UL)
   1. UL 467 Standard for Grounding and Bonding Equipment

B. Institute of Electrical and Electronic Engineers (IEEE)
   1. IEEE 81 Guide for Measuring Earth Resistively, Ground Impedance, and Earth Surface Potentials of a Ground System Part 1: Normal Measurements
   2. IEEE 142 Recommended Practice for Grounding of Industrial and Commercial Power Systems

1.03 APPLICABLE REGULATIONS

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

B. NEC references below are based on the 2005 edition. Contractor shall meet current NEC requirements.

1.04 TESTS

A. Measure ground grid resistance with earth test megger and provide additional listed and approved earth grounding devices and conductors as required until resistance to ground complies with Code.

PART 2 PRODUCTS

2.01 GROUNDING ELECTRODES

A. Encased Electrode: NEC 250.52(A). One, no smaller than #4 bare solid copper conductor. Install in concrete foundation or footing near contact with earth. Connect to steel reinforcing bars, where available, not less than two times.

B. Ground Rods: 5/8" diameter, 8' long, copper, with approved clamp near surface. Listed as ground rod for direct contact with earth.

C. Grounding Electrode: NEC 250.52(A).

2.02 GROUNDING CONDUCTORS, AND JUMPERS

A. Size: Per NEC 250.

B. Material: Copper.

C. Protection: Conductors not in raceway or concealed shall be insulated. Provide raceway where shown or required for physical protection.

PART 3 EXECUTION

3.01 INSTALLATION

A. Regardless of TESTS results above, Provide not less than the following:
1. Underground Metal Cold Water Pipe electrode; If underground Metal Cold Water Pipe is not available Provide Ground Ring.
2. Encased Electrode.
3. Two (2) Ground Rods or Ground Rods as shown.
4. Connection to building steel.

B. Grounding Electrodes: Bond all electrodes together. Do not provide other type of electrode than shown without written approval. Provide additional quantity of electrodes as required by 1.03 above.

C. Provide access to all grounding electrode conductor connections.

3.02 POWER AND SIGNAL SYSTEM GROUNDING

A. All equipment grounding conductors shall be routed through same equipment conductor raceway from beginning to end (distribution source to load).

B. Metallic raceways are not approved as equipment grounds.

C. Circuit Grounding: Install grounding bushings, studs, and jumpers at distribution centers, pullboxes, motor control centers, panelboards, and junction boxes.

D. Ground Connections: Clean surfaces thoroughly before applying ground lugs or clamps. If surface is coated, the coating must be removed down to the conductive material. After the coating has been removed, apply a listed and approved noncorrosive compound to cleaned surface and connections. Where galvanizing is removed from metal, it shall be re-applied or painted.

E. Bonding Jumpers: Provide with green insulation and size not smaller than per NEC and larger where shown. Connection to neutral only at service neutral bar. Bonding jumpers shall be contiguous without break, joint, or splice.

F. Service Panel:
1. Connect the various feeder green grounding conductors to the ground bus in the enclosure with suitable pressure connectors.
2. Connect the grounding electrode conductor to the ground bus.
3. Connect the neutral to the ground bus as the main bonding jumper.
4. Connect metallic conduits, which terminate without mechanical conductive connection to the enclosure, by grounding bushings and ground wire to the ground bus.

G. Feeders and Branch Circuits: Install green grounding conductors with feeders and branch circuits. Additional locations and systems as shown.

H. Raceway Systems:
1. Ground all metallic enclosed raceway systems.
2. All enclosed raceway connecting to equipment shall contain a grounding conductor.
3. Conduit systems shall contain a grounding conductor.

4. Bond grounding conductor at beginning and end of raceway provided for mechanical protection containing only a grounding conductor.

I. Boxes, Cabinets, Enclosures, and Panelboards:
1. Bond the grounding wires to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground conductors pass.
2. Provide lugs in each box and enclosure for ground wire termination.
3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs for terminating the ground wires.

J. Receptacles - Refer to Section 16140.

K. Ground lighting fixtures to the equipment grounding conductor of the wiring system.

L. Fixed electrical equipment shall have a ground lug installed for termination of the equipment ground conductor.

M. Motors: Install a separate insulated equipment grounding conductor from the equipment ground connection in the motor controller through the raceway and flexible conduit to the ground terminal on the motor housing. Ground motor controller through feeder raceway. No reductions.

N. Variable Frequency (Speed) Drives (VFD/VSD): Additional grounding requirements as shown on Drawings.

O. Ground cable tray(s).

P. Control and Signaling Equipment: Ground metallic enclosures and raceways, terminate shields and drain wires to building ground system. Provide additional grounding as required by equipment manufacturer.

3.03 TESTING

A. Test per IEEE 81.

B. Grounding Electrode Conductor:
1. Measure resistance between switchboard ground bus and each grounding electrode, using a Megger and a single length of additional wire.
2. Measure resistance between both ends of the additional wire used.
3. Grounding Electrode Conductor resistance is the difference between 1 and 2.
4. Correct any inadequate connections as indicated.

END OF SECTION

SECTION 26 0529

SUPPORTING DEVICES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Raceway Supports.

B. Cable supports.

C. Provide all hardware and materials to support, as required, a complete and congruent raceway system.

1.02 APPLICABLE STANDARDS

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

B. Underwrites Laboratories (UL)
1. UL 2239 Hardware for the Support of Conduit, Tubing, and Cable

C. National Electrical Contractors Association (NECA)
1. ECA 101 Standard for Installing Steel Conduit

PART 2 PRODUCTS

2.01 RACEWAY & CABLE SUPPORTS

A. Single Runs: Steel rod hangers, galvanized single hole conduit straps, or ring bolt type hangers with spring clips. Adhesives, tape, staples, wire-ties, or "J-nails" not acceptable.

B. Multiple Runs: Rack with 25 percent spare capacity. Maximum width per manufacturer's recommendations.

C. Vertical Runs: U-channel support with conduit fittings.

D. All hardware such as inserts, straps, bolts, nuts, screws and washers shall be galvanized or plated steel.

E. PVC coated galvanized steel on GPPU skid, exterior, and wet locations.

F. Channel manufacturers: Kindorf, Unistrut, or approved.

PART 3 EXECUTION

3.01 INSTALLATION

A. Supporting devices shall be listed for the location installed. Supports shall be of like material of raceway and be rated for location installed.

B. Layout to maintain headroom, neat mechanical appearance, and to support equipment loads required.

C. Exact location and spacing between supports per manufacturer's recommendations and NEC requirements.

D. Provide adequate spacing to prevent moisture build-up. All runs of conduit shall be arranged so as to be devoid of traps wherever possible.

E. Cable “Sag” greater than 3-Inches from valley to peak of run, not acceptable.

F. Cable and raceway runs shall be supported and routed in a neat and professional manner parallel to building and GPPU skid lines.

END OF SECTION

SECTION 26 0533

RACEWAY & FITTINGS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Conduit, Fittings, and Tubing.

B. Flexible Conduit.

1.02 REFERENCE STANDARDS

A. National Fire Protection Association (NFPA).
1. NFPA 70 National Electrical Code--Chapter 3.
2. Underwriters Laboratories (UL) 6,
3. UL797
4. UL1990

PART 2 PRODUCTS

2.01 MATERIALS AND COMPONENTS

A. General: No smaller than ¾-inch unless otherwise shown or indicated herein.

B. Conduit and Tubing: Electrical metallic tubing, galvanized rigid steel threaded conduit, Schedule 40 PVC.

C. Flexible Conduit: Flexible plastic jacketed type with liquidtight connectors and steel wrap armor (liquidtight flexible metallic conduit).

D. Fittings:
1. General: Listed and approved for purpose. Water, gas, concrete tight where required.
2. Electrical Metallic Tubing (EMT): Connectors to be steel. All connectors shall have factory insulated throats. Couplers and connectors shall be compression, setscrew type.
3. Galvanized Rigid Steel Conduit (GRC): Threaded. Do not use pressure type. Provide factory insulated throats on bushings.
4. Liquidtight Flexible Metallic Conduit: Continuous copper ground in core; approved watertight.

E. Expansion Joints: Offset or sliding type with bending straps and clamps. Listed for purpose.

F. Entrance Seal: Shall be modular, mechanical type, consisting of inter-locking synthetic rubber links shaped to continuously fill the annular space between the pipe and the wall opening. The elastomeric element shall be sized and selected per manufacturer's recommendations. Link-Seal or approved.

G. Underground Marking Tape: 6-inches wide, yellow, low density polyethylene 4 mil thickness. Imprinted: "CAUTION: STOP DIGGING - BURIED ELECTRIC LINE BELOW" and current date.

2.02 TYPE

A. Utilize GRC in concrete with concrete-tight connectors. Schedule 40 PVC permitted only where shown.

B. Utilize GRC for exterior with watertight connectors.

C. Utilize electrical metallic tubing concealed in finished interior spaces.

D. Utilize electrical metallic tubing exposed in unfinished spaces, where not subject to physical damage.

E. For underground conduit, utilize Schedule 40 PVC or GRC. Provide GRC elbows and GRC risers through penetrations where PVC is used.

F. Connections to motors, vibrating equipment, and movable equipment shall be with flexible metallic conduit or liquidtight flexible metallic conduit as shown on Drawings. Use liquidtight type in damp locations. No smaller than 1/2-inch for motor connections. Use 3/8-inch only for light fixture wiring where provided by light fixture manufacturer. Provide sufficient length of flexible conduit to stop vibration into connecting support. Sizes not noted on the Drawings shall be as required by the NEC and no smaller then upstream connection conduit size.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install raceway concealed in all areas where required concealment not required in mechanical and electrical rooms, connections to motors, above suspended ceilings, and underfloor spaces. Do not route in seismic GPPU slab.

B. Install raceway on GPPU skid to serve GPPU equipment. Coordinate routing, and raceway support locations, supporting hardware with JCI (Johnson Controls Incorporated).

C. Coordinate installation of conduit in masonry, cabinetry, and building slab work.

D. Underground Raceways: Watertight, including fittings, slope 3 inches per 100 feet downward from building.

E. Install underground marking tape when underground. Not in building slab itself. Bury tape 6 inches to 8 inches below grade directly above raceway.

F. Seal exterior junction boxes or provide with drainage. Seal raceway to cooling tower connections.

G. Galvanized rigid steel conduit installed in contact with earth shall be wrapped with 2-half laps of 10 mil, all weather, corrosion protection tape.

H. Route all conduits parallel or perpendicular to building lines.

I. Vertical Runs: Straight and plumb.

J. Raceways Running in Groups: Run at same elevation, properly spaced and supported.

K. Install conduit in concrete slab with minimum 2-inch cover. Do not install conduit larger than one inch maximum in concrete slabs unless approved by structural.

L. Maintain separation of raceways as required herein, and by structural, and by Batzer Construction. Use 2-feet separation as guild but do not separate raceway terminating ends by two feet. Refer to Drawings for additional information.

M. Do not interfere with placement of concrete re-bar. Place raceway between re-bar layers. Space at least 8-inches on center. Space as far as possible where terminating at same area. Secure raceway, boxes, inserts, etc. by mechanical means prior to pour.

N. Install conduit free with no dents or bruises. Cap ends to prevent entry of foreign materials and moisture.

O. Clean raceway before installation of conductor.

P. Alter conduit routing to avoid obstructions, minimizing crossovers. Avoid use of bends and offsets where possible. Only bend raceway with an approved conduit bending machine or approved hand (hickey) bender.

Q. Provide listed expansion complete fittings with grounding jumpers where conduits intersect building expansion joints, and for longer runs where conduit expansion may be excessive, and when traversing slab expansion joints.

R. Allow minimum of 24 inches clearance at flues, steam pipes, and geothermal heat sources. Route below heat sources whenever possible such that the arrangement provides for heat to rise from source away from routing.

S. Dissimilar Metals: Avoid contact with pipe or duct runs of other systems.

T. 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. Provide Junction and pull boxes to meet these limits.

U. Provide entrance seal for all exterior wall, underground, and exterior slab raceway penetrations.

V. All empty raceways shall be provided with pull string or #12 conductor. Provide #12 conductor for exterior empty PVC raceways.

END OF SECTION

SECTION 26 0533.16

OUTLET, JUNCTION, AND PULLBOXES

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. Provide electrical boxes and fittings as required for a complete, protected, and operable system.

B. Comply with local Codes and NEC as required for Providing electrical boxes and fittings.

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).
   1. C73 Series Dimensions of Attachment Plugs and Receptacles

B. National Electrical Manufacturers Association (NEMA)
   1. OS 1 Sheet-Steel Outlets Boxes, Device Boxes, Covers, and Box Supports
   2. FB 1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable

1.03 APPLICABLE REGULATIONS

A. American National Standards Institute (ANSI).
   1. C2 National Electrical Safety Code (ANSI/IEEE C2)

B. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

C. Underwriters' Laboratories (UL).
   1. UL50 Cabinets and Boxes (ANSI/UL50).
   2. UL514 Outlet Boxes and Fittings (ANSI/UL514).

PART 2 PRODUCTS

2.01 OUTLET BOXES:

A. No smaller than 4-inch, 1-1/2-inches deep box. Provide raised covers where required for surface mounted outlets, plaster rings on flush outlets. Provide tile rings where flush outlets installed in tile. Concrete type where installed in concrete.

B. Receptacle Outlets and Flush Switch: 4-inch square box, 1-1/2-inches deep, with single or two-gang plaster ring.

C. Match one piece gang boxes to number of devices, install one device per gang. Devices requiring more than one-gang shall be installed in individual boxes matched to device size. Do not exceed 5-gang configuration per row of devices at same location.

D. Provide galvanized steel interior dry location outlet wiring boxes for EMT raceway shaped and sized, to conform to each individual location and installation. Provide with factory knockouts in back and sides, and with threaded holes with screws for securing box covers or devices.

E. Provide outlet box accessories as required. Accessories include mounting brackets, wallboard hangers, extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes. Choice of accessories is Contractor’s option.

F. Outlet Box Covers:
   1. Flush Mounting: Bevelled, white nylon plastic, match device installed or full cover where no device installed.
   2. Surface Mounting: Bevelled, steel, pressure formed, match device installed or full cover where no device installed.

2.02 WEATHERPROOF / WET LOCATION OUTLET BOXES:

A. Provide corrosion-resistant cast metal weatherproof outlet wiring boxes, shaped and sized, to conform to each individual location and installation. Provide with threaded conduit ends, suitably configured for each application, including face plate gasket and corrosion proof fasteners.

B. Weatherproof boxes shall have smooth sides, gray finish.

C. Boxes used in contact with earth shall be cast iron alloy with gasketed screw cover and water-tight hubs.

D. Weatherproof Switch Plates: Cast metal, gasketed for switches provide spring loaded sealed door(s). Not permitted for use at receptacle WP cover.

E. Weatherproof Receptacle Outlet Cover: Cast metal, NEMA 3R, In-Use type, with locking tab. Match device configuration. 3 ¼ -inches internal depth. T&B CK series, or approved.

2.03 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.

2.04 KNOCKOUT CLOSURES:

A. Provide punched-steel knockout closures for steel boxes.

2.05 PULLBOXES.

A. Provide sheet metal in interior dry locations for EMT raceway. Provide cast metal in exterior, or damp locations. Type and material shall conform to National Electrical Code, with screw-on cover.

B. Flush Mounted Pullboxes: Provide overlapping covers with flush head screws, finished in light gray enamel.

C. Box volumes shall meet NEC for size and number of entering conduits and cables.

2.06 UNDERGROUND/ “IN-THE-GROUND” PULLBOXES

A. Underground Pull Boxes: Cast concrete with suitable concrete cover to withhold loads in location installed. Provide heavy-duty traffic cover where installed with vehicle traffic. Cover and box shall not deform and be rated for location installed. Provide drainage and no less than 4 feet compacted gravel below installation. Size, and configuration to match installation. Provide where required, and shown on Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Match one piece gang boxes to number of devices, install one device per gang. Do not exceed 4-gang configurations per row of devices at same location.

B. Locate outlet boxes flush other than in power plant, and in well house. Exterior mounts at structures shall be flush. Provide insulation behind box to prevent condensation for boxes mounted in exterior walls.

C. Coordinate location and mounting heights with built-in unit, cabinetry, and geothermal power plant equipment. Outlet mounting height shall be at same level required for equipment served.

D. When mounting receptacle, or outlet boxes above bench or counter, mount box to the side (horizontally) for finished receptacle grounding pole at left.

E. Support: Provide adequate support of all outlet boxes. Secure boxes independent raceway, by attaching directly to building structure by approved means.

F. Identify each junction and pullbox with system description including branch circuit numbers of enclosed circuits, and voltage.

G. Secure all raceway to entering boxes with approved bushings, and locknuts.

H. Do not mount boxes back-to-back. Boxes on opposite sides of wall shall be separated by at least 3 inches.

I. Maintain sound transmission and fire properties of surface installed. Provide appropriate fire stop and sound stop materials as required to maintain these properties.

J. Provide separate boxes where two voltage systems have equipment at same location.

END OF SECTION

SECTION 26 0533.20

CABLE TRAYS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide complete system to include cable tray, supports, wall penetrations, fire wall penetrations, and all other necessary hardware and installation material

1.02 QUALITY ASSURANCE

A. Acceptable manufactures: Cablofil or approved.

B. Reference Standards:
1. National Electrical Manufacturers Association (NEMA) #VE-1
2. National Electrical Code (NFPA 70)

PART 2 PRODUCTS

2.01 CABLE TRAYS

A. See drawings for size, configurations, and locations. No smaller than 6" wide by 3" deep. Tray shall not exceed 21.2 pounds per foot fully loaded with cables.

B. Type: Wire basket type with vertical wires terminating into edge of horizontal wires. "Safe-T-Edge" type.

C. Material: Carbon Steel

D. Finish: Electrodeposited zinc plating.

E. Support: As required by manufacturer. Do not use trapize type mounting hardware that impedes the installation of cables.

F. Fittings: Provide as required to maintain continuous ground, and continuous support of cables. Utilize rounded sweeps at corners.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in ceiling space.

B. Route and provide as shown on Drawings.

C. Alter tray routing to avoid obstructions, minimizing crossovers. Utilize tray sweeps as shown on Drawings. Avoid use of 90 degree 'T' fittings.

D. File all cut edges. Do not leave any sharp edges or support tray with equipment that can damage cables.

E. Provide mounting that spans no greater then every 6.5 feet and as further recommended by the manufacturer.

F. Do not use cable tray on exterior or where subject to damage.

G. Utilize cable tray for control conductors only. Non-power limited cables are not permitted in cable tray.

END OF SECTION

SECTION 26 0553

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Permanent Identification of system components.

1.02 APPLICABLE REGULATIONS

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

PART 2 PRODUCTS

2.01 MATERIALS

A. Phenolic Nameplate:
   1. Three layer, white front and back with black core.
   2. Neatly engraved through outer layer to show white characters on black background.
   3. Beveled edges, print lettering.
   4. Other colors as specified or shown. Use red for fire alarm, or fire sprinkler only.

B. Stenciling and Silk Screening: Printed lettering with enamel or lacquer paints. Legends contrasting with the background on which applied

C. Panelboard Directory Card: Fiberboard typed. Laminate or place in protective cover.

D. Concealed Box Labels: Permanent black ink such as “Sharpie” pen with neat and legible writing. Red permanent ink for fire alarm.

E. Concealed Conductor Labels: Listed white tape wrapped around individual conductor or cable, with permanent black ink with printed lettering

F. Stenciling and Silk Screening: Printed lettering with enamel or lacquer paints. Legends contrasting with the background on which applied.

G. Panelboard Directory Card: Fiberboard typed. Laminate or place in protective cover.

H. Concealed Box Labels: Permanent black ink such as “Sharpie” pen with neat and legible writing. Red permanent ink for fire alarm.

I. Concealed Conductor Labels: Listed white tape wrapped around individual conductor or cable, with permanent black ink with printed lettering.

PART 3 EXECUTION

3.01 EQUIPMENT TO BE IDENTIFIED

A. Motor starters, panels, lighting panels and the disconnecting devices contained therein.

B. Disconnects.

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, required by NEC, or noted on Drawings

G. Devices in lighting panels and power panels shall be identified on the panelboard directory card.

3.02 PHENOLIC NAMEPLATES

A. Power panels shall be labeled on the door of the interior with a nameplate. Letters for panels shall be printed and no less than 1/2 inch high.

B. Provide nameplate on switchboard

C. Provide nameplates where specified and as shown.

3.03 APPLYING IDENTIFICATION

A. Stenciled letters shall be applied by brush or by spraying.

B. Nameplates shall be attached with either adhesive or screws. If adhesive is used, it shall adequately adhere to the surface installed.

3.04 IDENTIFICATION REQUIREMENTS

A. Indicate Voltage for all concealed labels, and for Disconnects, panelboard and switchboard identification.

B. Identification for disconnecting devices contained in panels and motor control centers shall show the equipment name and location by floor, area, and direction to adequately indicate location of load. Do not include Voltage 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, area, and direction to adequately indicate location of load.

D. All indicators and controls for control panels, starters, and the like shall be labeled, such as (Start, Stop, On, Off, Reset, Fault, 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, area and direction, or by room numbers.

END OF SECTION

SECTION 26 0560

OVERCURRENT PROTECTIVE DEVICES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Circuit Breakers.

B. Fuses.

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).
   1. C37.16 Preferred Ratings, Related Requirements, and Application Recommendations for Low Voltage Power Circuit Breakers and AC Power Circuit Protectors.
   2. C37.17 Trip Devices for AC and General-Purpose DC Low-Voltage Power Circuit Breakers.
   3. C37.50 Test Procedure for Low-Voltage AC Power Circuit Breakers Used in Enclosures - Test Procedures.
   4. C97.1 Low Voltage Cartridge Fuses 600 Volts or Less.

B. Institute of Electrical and Electronic Engineers, Inc. (IEEE).
   1. 20-73 Low Voltage AC Power Circuit Breakers Used in Enclosures: ANSI C37.13.

C. National Electrical Manufacturer's Association (NEMA).
   1. FU-1 Low Voltage Cartridge Fuses.

1.03 APPLICABLE REGULATIONS

A. Underwriters' Laboratories (UL).
   1. UL 489-72 Molded Case Circuit Breakers and Circuit Breaker Enclosures.
   2. UL 198 E Class R Fuses.
   3. UL 869 Service Disconnects
   4. UL 1066 Standard for Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures

B. National Fire Protection Association (NFPA).
   1. FPA 70 National Electrical Code.

1.04 QUALITY CONTROL

A. Breakers shall be selectively coordinated with feeder breakers. Provide adjustments as indicated herein for such. Engineer will indicate settings during Construction Administration.

B. Breakers shall be of the same manufacturer as the switchboard and the panelboards.

C. Breakers shall be of the same manufacturer as the MCC: Eaton Cutler-Hammer.

PART 2 PRODUCTS

2.01 CIRCUIT BREAKERS

A. Construction
   1. Bolt-on connection to bus.
   2. Thermal-magnetic, molded case, with inverse time current overload and instantaneous magnetic tripping.
   3. Quick-make, quick-break, with tripped indication clearly shown by breaker handle taking a position between ON and OFF.
   4. Multiple phase breakers shall have a common internal trip. Do not use handle ties between single pole breakers.
   5. Breaker shall be switch (T) rated.
   6. Where used as service disconnects, breakers shall be listed for use as service entrance equipment and include locking handle.
   7. Provide locking handle where indicated on Drawings, and Panel Schedules
   8. Building normal power service main breaker shall include power monitoring with LCD display on breaker:
      a) Voltage- each phase L-L, L-N
      b) Amps- each phase
      c) kW/KVA
   9. Breakers, 400 amps and larger, shall include externally operable mechanical means to trip the circuit breaker, enabling maintenance personnel to verify the ability of the breaker trip mechanism to operate as well as exercising the breaker latch and operating mechanisms.
   10. Fully rated at fault current of panel or switchboard.
   11. Breakers, 800 amps and larger, shall include adjustable settings for coordination and computer controlled digital trip units with “plug-type” arrangement. Eaton Magnum DS with Digitrip 1150+ digital trip unit. Back-feed rated.
   12. GFI, Shunt, and the like as indicated on Drawings, and Panel Schedules.

2.02 GFI BRANCH CIRCUIT BREAKERS

A. Meet construction requirements herein.

B. Ground fault protection with integral push-to-test button.

C. Class 1.

D. Adjustable setting pickup from 0.03 to 30 Amps.

E. Adjustable time delay from instantaneous to 2.0 seconds.

2.03 TESTING

A. By Manufacturer at factory. Timed thermal trip test and timed magnetic trip test.

B. As required by local authority.

C. Submit test results to Engineer upon request.

2.04 FUSES

A. Feeder, Branch Circuit and Service Entrance Fuses: 600 amperes and below, UL Class J or RK1 current limiting type, 600 volt 200,000 ampere interrupting capacity.

B. Motor and Inductive Circuit Fuses: UL class RK5 time delay current limiting type, 600 volt, 200,000 ampere interrupting capacity.

C. Control Circuit Fuses: UL Class J or R current, limiting type, 600V.

D. Manufacturer: Bussmann, or approved

PART 3 EXECUTION

3.01 FACTORY SERVICE, COMMISSIONING (START-UP), AND SUPPORT

A. Provide not less than 24 hours on-site factory support by authorized manufacturer technician with access to factory engineers-8 hours concurrent, but 3 separate visits for breaker settings, troubleshooting, interties, GPPU commissioning, and coordination with Engineer. Support shall be included for benefit of the Owner and Owner's design team. Factory startup and commissioning shall be included and is in addition to 24 hours support required herein.

B. Factory support authorized technician to adjust settings and integrate as required for complete and operable system.

3.02 CIRCUIT BREAKER INSTALLATION

A. Label each breaker located in switchboard or separate enclosure to indicate load served.

B. Adjust settings on breakers to operate properly under actual field conditions and as indicated by Engineer.

C. Torque breakers to bus per manufacturer's requirements and installation procedures.

3.03 FUSE INSTALLATION

A. Label each switch to indicate type and rating of fuse installed.

B. All fuses shall be selected to provide selective system coordination.

C. Provide the greater of 10%, or not less than 3 spare fuses of each size, and rating used.

END OF SECTION

SECTION 26 0583

WIRE CONNECTIONS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Wires Connectors

1.02 REFERENCE STANDARDS

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

B. Underwriters' Laboratories, Inc (UL
   1. UL 486A through UL 486E

C. American National Standards Institute (ANSI)
   1. ANSI/UL 467

PART 2 PRODUCTS

2.01 TWIST-ON CONNECTOR

A. Pressure-type wound spring twist on connector.

B. Solderless pressure connectors.

C. Shell rating of 105 degrees C.

D. "Push-On" or "punch" type connectors not permitted.

2.02 COMPRESSION ADAPTER

A. Dual rated for use with both aluminum and copper cable conductors.

B. Diameter and ampacity as current carrying equivalent copper wire.

C. Pre-filled with approved joint compound

D. Connectors shall be clearly marked with Catalog Number, wire size and color-coded die index number.

E. Burndy "Hyplug" type AYP or equal by T&B, or approved.

2.03 TERMINAL, CRIMP TYPE

A. Flat; fork tongue, or flat circular matched to terminal size.

B. Color coded to wire size.

C. T&B "Sta-Kon", or approved.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide Twist-On Connectors at taps and splices for conductors no larger than #10 AWG. Provide only in approved junction and outlet boxes.

B. Provide Compression Adapaters for terminating a single conductor into mechanical connectors such as a circuit breaker or set screw lugs. Provide only where required for AL/CU transitions or where lugs require adapters.

C. Provide Crimp terminal at all Control voltage terminal blocks, unless otherwise recommended by manufacturer.

D. Do not nick conductor when stripping insulation. No “ringing”

E. Conductor and cable shall not be reduced at the terminal for connections.

F. Connectors shall be approved and listed for the purpose used.

G. Wrap all twist-on connectors with listed tape to maintain equivalent insulation of wire.

H. Remove any obstructions on connection to maintain continuity prior to installation of connectors, such as paint, dirt, and construction materials.

I. Copper conductors can be terminated in approved compression or mechanical connector, including set screws.

J. Provide slack at equipment to allow for a neat termination, access to conductors, and ability to repair or replace equipment.

END OF SECTION

SECTION 26 2413

SWITCHBOARDS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide switchboards to include protection, switching, required interconnections, instrumentation and control wiring for a complete and satisfactory operating system.

1.02 REFERENCE STANDARDS

A. National Electrical Manufacturer's Association (NEMA)
   1. NEMA PB-2: Dead-Front Distribution Switchboards
   2. NEMA KS-1: Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum)

B. Underwriters Laboratories (UL)
   1. UL 891: Standard for Dead-Front Switchboards
   2. UL 50: Standard for Enclosures for Electrical Equipment
   3. UL 869A: Reference Standard for Service Equipment

1.03 QUALITY ASSURANCE

A. Acceptable Manufacturers: Eaton Cutler-Hammer to match MCC

1.04 SUBMITTALS

A. Shop Drawings:
   1. Certified elevations, power and control diagrams, material list.
   2. Individual circuit breakers, switches, ground fault, instrumentation.

B. Tripping Coordination:
   1. Tripping curves.

PART 2 PRODUCTS

2.01 CONSTRUCTION

A. General:
   1. Switchboards completely factory assembled, wiring and tested before delivery.
   2. Each switching and circuit protective device to have visible ON/OFF permanent labeling, and rating information.
   3. Construct for seismic zone where equipment is installed.
   4. Fault current not less than 65,000 AIC.

B. Frame & Enclosure:
   1. Deadfront type with metal enclosed, self-supporting vertical sections bolted together to form a rigid assembly incorporating switching and protective devices. Structures shall be die-formed frame members bolted and braced with captive self-tapping bolts. Side, top, front and rear covers are code gauge steel with formed edges and are bolted to the switchboard structure.
   2. Provide ventilation openings where required.
   3. Self-supporting structure independent of wall supports.
   4. Depth: Adequate to accommodate safe mounting and connecting of equipment; Do not exceed what is shown on Drawings.
   5. Sections shall align flush and plumb with each other.

6. Top and rear shall be covered with removable captive screw-on plates having formed edges all around.
7. All covers secured by self-tapping screws, or screws with captive nuts.

C. Bussing:
1. Tin plated aluminum of sufficient size to limit temperature rise to 65^{o}C based on UL tests.
2. Brace per available fault current.
3. Connections bolted using plated hardware.
4. A-B-C type bus arrangement, arrangement as required for installation.
5. Supply main bus splices between adjacent distribution sections.
6. Neutral Bus: Full size. Bond to ground bus in main service switchboard at one point per Code.
7. Ground Bus: 50% size. Furnish bus and lug extending entire length of switchboard. Firmly secure to each vertical section structure. Shall ground switchboard enclosure.

D. Conductors Lugs:
1. Bolted to bus or circuit breaker.
2. Rated Al/Cu.

E. Finish: Exterior and interior steel surfaces properly cleaned and finished with industry standard gray baked enamel over a rust-inhibiting phosphatized primer coating approved by the paint manufacturer. All hardware to be plated. **Match MCC Finish: Reference Eaton Order: RC00709507, JCI PO# P171726.**

2.02 CUSTOMER NET METERING AND METERING INTERFACE TO DDC SYSTEM

A. Provide complete customer net metering by equipment manufacturer. Metering shall be data acquisition grade for GPPU MDP, and Wellhouse MDP each and include not less than the following:
1. Integration into JCI control DDC system. Metasys combatable, with usage and logging data. Each point of metering shall be integratable, continuous (analog) or time updating (digital).
2. Monitoring to include- total, per phase, neutral, and ground each with resettable minimum and peak values:
a) KW
b) KVA
c) Power Factor
d) KVAR
e) Frequency
f) Voltage
g) Amps
h) Power consumed (Load)- kWh
i) Power generated (Back-Feed)- kWh
j) Net Power (total of Load and Back-Feed)- kWh
3. Use of main breaker Digitrip 1150+ as metering is acceptable provided functions indicated herein, DDC integration, and reliable data is included.

2.03 PROTECTION EQUIPMENT

A. Circuit breakers are to be completely front accessible, front connectable, front programmable.

B. Breakers are to be mounted in switchboard to permit installation, maintenance, and testing without reaching over any line side bussing.

C. No common mounting brackets or electrical bus connectors.

D. Breaker connections requiring leaf and coil springs which could loosen or fly apart during a fault are not acceptable.

MOUNTING PAD & BARRIER PROTECTION

E. Solid Concrete with screed off top, troweled smooth, beveled edge. 4 inches high, length and width to match equipment or not more than 1.5 inches wider than equipment.

F. Coordinate with Architect for removable Bollard protection for MCC and GPPU MDP. Space not less than at intervals shown on Drawings and at each corner of MCC and MDP. Coordinate with Architect and field conditions for exact placement. Provide physical barrier protection from damage due to GPPU maintenance and support operations.

2.04 IDENTIFICATION

A. General:
1. Per NEC
2. Nameplate Location: On switchboard exterior, visible from working space.

B. Manufacturers Nameplates: Each vertical section to have a metallic nameplate indicating manufacturer's name, assembly date, switchboard type, ratings, bus bracing and factory order number.

C. Installation Nameplate: Provide phenolic nameplate near switchgear with the following information:
1. Project Name
2. Installing contractor
3. General Contractor: “Batzer Construction”
4. Owner Facilities Director: “David Ebsen”
5. Owner Electrician: “Jerry Bowles”
6. Project Development: “Johnson Controls, Inc.”
7. Electrical Engineer of Record: “Matthew J. Cash, PE”
8. Engineering Firm: “Fluent Engineering, Inc.”
9. Date Installed

D. Switchboard Nameplate:
1. Location: Switchboard top center

E. Service Disconnects Nameplate:
1. Type: Phenolic
2. Wording: "SERVICE DISCONNECT".
3. Location: Adjacent to each switch or breaker that serves to disconnect the utility power source.

F. Individual Switches and Breakers:
1. Indicate Load served (equipment name).
2. Mount Adjacent to handle.

2.05 POWER ONE-LINE DIAGRAM

A. Provide record building one-line diagram in room with switchgear. Laminate, and mount near switchboard.

PART 3 EXECUTION

3.01 INSTALLATION

A. Align bus sections before bolting. Tighten with torque wrench. Torque to manufacturer's requirements.
B. Level and securely fasten switchboards to mounting pads. Utilize all mounting hardware included with switchboard.
C. Check all internal bus connections prior to enclosing. Re-torque as required.
D. Provide adequate cable supports for cables entering switchboards from point of entry to termination.

END OF SECTION

SECTION 26 2416

PANELBOARDS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide panelboards incorporating equipment of the number, rating and type specified herein and shown in Panel Schedules.

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).
   1. ANSI C37 Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear

B. Institute of Electrical and Electronics Engineers (IEEE).
   1. Std. 241-74 Electric Systems for Commercial Buildings.

C. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

D. Underwriters' Laboratory (UL).
   1. UL 67 Standard for Panelboards.
   2. UL 869A Reference Standard for Service Equipment

E. National Electrical Contractors Associations (NECA)
   1. NECA 407 Standard for Maintaining and Installing Panelboards

F. National Electrical Manufacturer’s Association (NEMA)
   1. NEMA PB 1.1 General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.

1.03 QUALITY ASSURANCE

A. Acceptable Manufacturers: Eaton-Cutler Hammer to match MCC.

PART 2 PRODUCTS

2.01 CONSTRUCTION

A. General:
   1. Mounting hardware shall be captive type, and shall not pose a danger of dropping onto exposed parts if trim is opened, or removed.
   2. Provide Arc-Flash Protection label per NEC.

B. Box:
   1. Galvanized code gauge steel.
   2. 20-inch minimum width; 4-inch minimum gutter space on all sides. Larger as required by manufacturer and NEC.
   3. Minimum 4 interior mounting studs.
   4. Individual knockouts by manufacturer or field-cut per manufacturer requirements. Concentric knockouts are not permitted.
   5. All exterior and interior steel surfaces of panelboard door and trim shall be cleaned and finished with industry standard gray baked enamel paint over a rust-inhibiting phosphatized primer coating approved by the paint manufacturer. Match MCC, GPPU MDP (switchboard) color.

C. Bussing:
1. Copper- All phases, ground, and neutral.
2. Fully Rated. No reductions.
3. Bolt-on breaker Lugs
4. Tap Arrangement shall be phase sequence type, permitting any breaker configuration mounted at any location.
5. Short Circuit Bracing: Fully rated.
6. Neutral Bussing:
   a) Full size, unless otherwise noted.
   b) Properly sized lug for each outgoing neutral connection.
7. All bolts used to connect current-carrying parts together shall be accessible for tightening from the front of the panel.
8. Wiring terminals: Compression or setscrew type for copper conductors; bolted to bus.
9. Secured not less than at 6 separate locations to the enclosure. Bus movement in any direction in excess of 1/8-inch. is not acceptable.

D. Trim:
1. Code gauge steel.
2. Flush panels shall include trim overlap around box not more than 1.5-inchs.
3. Surface Panels: Same width and height as box.
4. Mountable by screwdriver, no special tools.
5. Tamper-proof: Trim shall not be removable with door closed.
6. Include separate trim door and access door. Door-in-Door type construction.
7. Doors:
   a) Shall conceal all breakers unless otherwise noted.
   b) Provide internal concealed access door hinges. Exterior door hinge is not required to be concealed, but shall be painted to match exterior color of panel.
   c) Over 48-inches in Height: Shall have auxiliary fasteners at top and bottom of door in addition to flush latch (3-point).
   d) Latches:
      (i) Spring-Type, flush, number as required by manufacturer
8. Where more than one latch is installed, access door shall be operable by only one person. Three simultaneously operated latches is not acceptable.
9. Equip latches with flush locks keyed alike. All panelboards shall be keyed alike.

E. Not less than NEMA 1 unless otherwise noted or otherwise required for location installed.

2.02 CIRCUIT BREAKERS

A. Main Breaker:
1. Provide where required and noted. Mount separate from branch breakers.
2. Covered by a metal plate, except for the operating handle, trip flag (if applicable), and trip button (if applicable).
3. Connection to breaker load side shall be contiguous bus bar. Connection by separate conductors is not acceptable.

B. Branch Breakers:
1. Bolt-on connection to bus snap-on permitted as per Section 16180. Securely mounted; Deflection of breaker with force applied in any direction greater than ¼-inch is not acceptable.
2. Additional requirements are noted elsewhere in these Specifications, shown on Drawings, and as per Code.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide mounting brackets, busbar drillings, and fillers for unused spaces.

B. Maintain fire properties of surface installed. Provide appropriate fire stop materials to maintain these properties.

C. Prepare and affix typed directory to inside cover of panelboard indicating loads and location of loads controlled by each circuit.

D. Securely mount raceway to panelboards with appropriate bushings. Bushings shall be insulated, and threaded through panelboard with locknut securing to box. Coordinate raceway size and locations entering box for neat a professional installation, as well as for appropriate routing.

E. Combine all keys on one key ring and furnish to Owner at time of substantial completion.

END OF SECTION

SECTION 26 2726

WIRING DEVICES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Wall Switches.

B. Receptacles.

C. Ground Fault Receptacles.

1.02 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).
   1. C73 Series Dimensions of Attachment Plugs and Receptacles.

B. National Electrical Manufacturer's Association (NEMA).
   1. WD 6 Wiring Devices- Dimensional Requirements
   2. WD 1 General Color Requirements for Wiring Devices.

C. National Fire Protection Association (NFPA).
   1. NFPA 70 National Electrical Code.

D. Underwriters' Laboratory (UL).
   1. UL-20 Standard for Snap Switches.
   2. UL 498 Attachment Plugs and Receptacles
   3. UL 467 Grounding and Bonding Equipment
   4. UL 514D Cover Plates for Flush-Mounted Wiring Devices
   5. 2006 UL 943 Safety for Ground-Fault Circuit-Interrupters

1.03 QUALITY ASSURANCE

A. Provide type 5362 receptacles.

B. Acceptable Manufacturers: Hubbell, Pass and Seymour, Arrow-Hart, Leviton, or approved

PART 2 PRODUCTS

2.01 MATERIALS

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

B. Receptacles: 20 Ampere (unless otherwise indicated), 125 Volts (unless otherwise shown), duplex, polarized, full gang size, specification grade 5362, separate ground terminal, 20 Amp. break-off tab for split circuit wiring.

C. Ground Fault (GFI) Receptacles: 20 Ampere, specification grade 5362 equal duplex receptacle with integral ground fault circuit interrupter. LED operation indicator. Test and reset buttons. End of life protection- GFI component failure results in no power delivered to equipment (2006 UL 943).

D. Wall Plates: 302 Stainless Steel, Match device configuration.

E. Color Gray Receptacles, Gray Switches.

PART 3 EXECUTION

2.02 INSTALLATION

A. Do not use back wiring wells, terminate conductors on mechanical screw terminals.

B. Provide wiring devices as shown.

C. Install devices plumb and consistent with building lines. Wall Plates shall make contact on four corners and shall fit flush with device.

D. Devices to include same configuration outlet box, cover, wall plate and other necessary installation materials for a complete operating circuit.

E. Mount switches 42 inches (to center line of faceplate) above floor except as otherwise noted on the Drawings.

F. Coordinate mounting locations with architectural details.

G. Mount receptacles vertically at 15 inches (to bottom of faceplate) above finished floor, with grounding pole at bottom.

H. Coordinate receptacle height with benches and counters.

I. When mounting receptacle above bench or counter, mount receptacle to the side with grounding pole at left.

J. Grounding: Install a separate bare conductor 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 2912

DISCONNECTS & MANUAL STARTERS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide motor disconnects as shown, and as required by Codes.

B. Provide circuit disconnects as shown, and as required by Codes.

C. Provide manual motor starters for single phase motors below one horsepower where disconnect is shown as required by Codes.

D. Disconnects to include adequate support, required hardware, and accessories for complete functional installation.

1.02 APPLICABLE REGULATION

A. Conform to National Electrical Code and inspection authority.

B. Provide disconnects rated for the location installed, as required by National Electrical Code, as shown, and as indicated herein.

1.03 REFERENCE STANDARDS

A. Underwriters' Laboratory (UL).
   1. UL-98 Enclosed Switches.

B. National Electrical Manufacturer's Association (NEMA).
   1. NEMA KS-1 Enclosed Switches.

PART 2 PRODUCTS

2.01 MANUAL MOTOR STARTER

A. Toggle horsepower rated, switch with thermal overload and pilot light.

B. Switch tab for locking switch in “OFF” Position.

2.02 EXTERNAL UTILITY DISCONNECT (EUD)

A. Acceptable Manufacturer: Eaton-Cutler Hammer to match MCC

B. Shall have UL label.

C. Construction:
   1. Pad-mounted NEMA 3R or greater for outdoor use. Flat roof.
   2. Custom Color: Per Architect
   3. 3200 Amp rated bussing. Tin Plated Aluminum.
   4. Pad-lockable in OFF position
   5. Fully buss rated, no reductions
   6. Integral arc-arrestor shoots
   7. Fully SCA rated- 65kAIC.
   8. Include (5) Auxiliary FORM-C contacts to integrate into DDC and GPPU Control System
   9. Full-length door with windowed panels to observe each blade position
   10. Seismic construction for location installed
   11. Not greater than dimensions shown on Drawings
   12. Additional requirements of Utility (PacifiCorp)

D. Provide 4 housekeeping pad, provide same as switchboard adjusted to EUD dimensions.

E. Provide 1-Inch control raceway and stub to nearest cable tray.

2.03 DISCONNECT

A. Motor and circuit disconnects shall have a UL label.

B. Construction: Dry, Indoor Locations shall be not less than NEMA 1. Enclosures for outdoor, or wet locations shall be not less than NEMA 3R. Rated at 600 Volt. Heavy duty, quick make, quick break. Number of poles and ampacity as noted or required by Code. Fusible with dual element fuses where shown. Short circuit rating sufficient to withstand the available fault current. Solid ground, solid neutral.

C. Include (3) auxiliary FORM-C contacts to integrate into DDC and GPPU Control System.

D. Blade-handle ON/OFF switch type; pull-out type is not acceptable.

E. Compression lugs or set-screw lugs approved for use with copper wire.

F. ON/OFF Positions clearly marked.

G. Lockable in "OFF" position.

H. Interlock:
1. Prevents switch from being opened when "ON."
2. Prevents closing switch when cover is open.
3. Provide defeater to permit authorized personnel to open door and inspect switch when "ON," or operate with cover open.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install motor and circuit disconnects as recommended by manufacturer, required by Code, required by UL, and where shown.

B. Maintain Code clearances and access.

C. Provide Manual Motor Starter where shown for single phase motors rated less than one horsepower. Manual Motor Starter is not required for motors with integral thermal overload protection. Provide Switch with locking tab for motors with integral thermal overload protection. Provide Manual Motor Starters as required for single phase motors without integral or other protection, otherwise provide Disconnect.

D. Provide a phenolic nameplate on each disconnect identifying the equipment item served.

E. Independently support disconnects. Do not mount disconnects on vibrating, HVAC, or Plumbing equipment.

END OF SECTION

SECTION 26 4313

TVSS EQUIPMENT

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide transient voltage surge suppression (TVSS) equipment for the electrical distribution system.

1.02 REFRENCE STANDARDS

A. Underwriters Laboratories (UL)
   1. UL 1449 Standard for Transient Voltage Surge Suppressers
   2. UL 1283 Standard for Safety for Electromagnetic Interference Filters

B. American National Standards Institute (ANSI)
   1. C62.41 IEEE Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits

PART 2 PRODUCTS

2.01 INTEGRAL PANELBOARD SURGE SUPPRESSOR

A. Unit shall be rated for Category B location per ANSI/IEEE C62.41-1991.

B. Unit shall be factory integrated into panelboard.

C. Each unit module shall be fused with a surge rated fuse and incorporate a thermal cutout device.

D. Minimum surge current capability shall be 80,000 amperes per phase, measured between L-N & L-G.

E. Unit diagnostics, mounted in door of distribution equipment, shall include the following:
   1. Operational LEDs to indicate loss of protection and circuit fully operational for each protection status.

F. The internal design of the unit shall have a minimum EMI/RFI filtering of –50 dB from 100kHz to 100MHz

G. The UL 1449 Listed and Recognized Component Suppression Voltage ratings shall not exceed:
   1. 330 Volts for 120/208 or 240 voltage configurations.
   2. 700 Volts for 480 voltage configurations.

H. All required “burn-in” tests shall be conducted at factory, prior to shipment.

I. Rated for not less than 200,000 AIC.

J. Installation shall not decrease available over-current protection device spaces including main breaker.

K. Acceptable manufacturer: Advanced Protection Technologies, by panelboard manufacturer, or approved.

2.02 INTEGRAL SWITCHBOARD SURGE SUPPRESSOR

A. Unit shall be rated for Category C location per ANSI/IEEE C62.41-1991.

B. Unit shall be factory integrated into switchboard.

C. Each unit module shall be fused with a surge rated fuse and incorporate a thermal cutout device.

D. Minimum surge current capability shall be 120,000 amperes per phase, measured between L-N & L-G.

E. Unit diagnostics, mounted in distribution equipment, shall include the following:
1. Operational LEDs to indicate loss of protection and circuit fully operational for each protection status.
2. Dual LCD surge counter for L-N and L-G modes
3. Audiable alarm with silence toggle switch

F. The internal design of the unit shall have a minimum EMI/RFI filtering of –50 dB from 100kHz to 100MHz.

G. The UL 1449 Listed and Recognized Component Suppression Voltage ratings shall not exceed:
1. 700 Volts for 480 voltage configurations.

H. All required “burn-in” tests shall be conducted at factory, prior to shipment.

I. Rated not less than 200,000 AIC.

J. Acceptable manufacturer: Advanced Protection Technologies, by switchboard manufacturer, or approved.

PART 3 EXECUTION

3.01 INSTALLATION

A. System shall be complete.

B. Comply with applicable Sections of this Division.

3.02 WARRANTY

A. Full five year warranty by manufacturer and includes unlimited replacement of consumable components.

END OF SECTION

SECTION 26 5113.10

LAMPS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide and install lamps in all light fixtures as required in this Division and shown.

PART 2 PRODUCTS

2.01 GENERAL

A. Lamps shall be certified, and approved per CEE- Consortium for Energy Efficiency.

2.02 TYPE AND COLOR

A. Refer to Lighting Fixture Schedule.

B. All lamps of each type and color shall be by the same manufacturer.

2.03 FLUORESCENT 4-FOOT LAMPS

A. Low mercury, TCLP compliant.

B. 85 CRI, 4100K color temperature.

C. Not greater than T8 in size

D. Mean/Design lumens not less than 2,800

E. Rated life not less than
   1. 3 hrs/start on PRS ballast- 30,000 hrs
   2. 12 hrs/start on PRS ballst- 36,000 hrs

F. Acceptable manufacturers: GE, Philips, Osram Sylvania

G. Basis of design: Osram Sylvania Octron 800 Ecologic XPS.

2.04 CPF LAMPS

A. Low mercury, TCLP compliant

B. 82 CRI, 4100K color temperature
   1. If 4100K not available, 3500K is acceptable for CPF Lamps

C. Rated life not less than 10,000 hrs.

D. Enclosed horizontal lamp mounting rated

E. Type as indicated on Drawings

F. Acceptable manufacturers: GE, Philips, Osram Sylvania

2.05 HID LAMPS

A. Provide coated lamps, no exceptions.

B. 70 CRI, pulse start, unless otherwise noted

C. Acceptable manufacturers: GE, Philips, Osram Sylvania.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install lamps in accordance with manufacturer's instructions.

3.02 EXTRA STOCK

A. Furnish 110% quantity of lamps of all types, based on initial lamping quantity. Where a fraction occurs, round up to next larger integer. For example, if 51 lamps of one type are installed in lighting fixtures, furnish 6 spare or 57 total lamps.

3.03 BURNOUT REPLACEMENT

A. Make replacements from extra stock as required until 60 days after Substantial Completion date. Deliver remaining lamps to Owner.

3.04 WARRANTY

A. Provide not less than 36 month warranty for T8 and T5 lamps. Provide greater as Included by manufacturer.

END OF SECTION

SECTION 26 5113.20

LIGHTING FIXTURES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide complete, supported, trimmed and finished lighting system operational for the use intended.

1.02 REFERENCE STANDARDS

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

B. American National Standards Association (ANSI)
   1. ANSI C62.41 IEEE Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits

C. Underwriters Laboratories (UL)
   1. UL 1598 Luminaires
   2. UL 1029 Standard for High-Intensity-Discharge Lamp Ballasts
   3. UL 935 Standard for Fluorescent-Lamp Ballasts'

D. National Fire Protection Association (NFPA)
   1. NFPA 70 National Electrical Code

E. Oregon Energy Code

1.03 COORDINATION

A. Verify compatibility and coordination of other materials with luminaire and ceiling system, and mounting system. Inform discrepancies to the Architect, and do not order until clarified.

B. Coordinate with Division 15 to avoid conflicts with mechanical equipment.

1.04 QUALITY CONTROL

A. Acceptable Manufacturers- Refer to Fixture Schedule.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide support and trim hardware required for adequate support and approved appearance of mounted equipment.

B. Factory balanced. Provide concealed weighted material to offset ballast and other component weight. Fixtures that do not hang or mount level are not acceptable.

C. Provide A12 lens, semi-diffuse, not less than 0.125 thick acrylic or per lighting fixture schedule.

D. Fixtures installed in insulated cavities shall be IC rated.

E. Provide fire rated enclosures for all fixtures installed in fire rated structures and fire rated ceilings. Enclosure shall be of the same rating as to not compromise the full rating of the structure where installed. Fixtures used in fire rated enclosures shall be UL listed for such installation and shall have 3-inches clear from enclosure on all sides.

F. Equipment shall be certified, and approved per Oregon Energy Code.

2.02 FLUORESCENT LUMINAIRES

A. Painted finish, no exposed materials with potential to oxidize. Additional or other requirements per Lighting Fixture Schedule.

B. Not less than 20-guage steel housing and reflectors unless otherwise indicated and per light fixture schedule.

C. Provide Hinged Frames with Catches; removable for cleaning without tools. Support lay-in lenses on four sides with flip ends on short dimension. Include captive removable and reusable hardware to secure lens to frame.

D. Design Luminaire to adequately dissipate heat from lamp, ballast, and battery pack.

E. Provide formed endplates and trim.

F. Suitable for mounting where shown.

2.03 RECESSED LUMINAIRES

A. Incandescent type shall be prewired with J-box integral to fixtures. Conductors rated for area and for conductor connections.

B. Flush and plumb with exposed surface, no gaps, include required trim rings and materials of adequate type for flush appearance.

2.04 PENDANTS/CABLE HANGERS

A. Pendant: Shall be contiguous, and color matched to fixture. Pendant type shall include swivel sockets permitting normal fixture motion and self-adjustment. Include color matched canopy at structural attachment. Provide safety cables secured to structure, wrapped around or through pendant where recommended by fixture manufacturer to independently support fixture. Route conductors through pendant as per manufacturer requirements.

B. Visible Cable: Field adjustable length, with extra coiled and concealed. Equal lengths, with 18-inches. Additional cable and for future adjustments. Locking ring to adequately hold fixture at desired mounting height. Cable stop to prevent fixture from sliding off end of cable.

2.05 CABLE HUNG FIXTURE CORDS

A. Visible Cords: Straight (not pigtail type) along length of cable, black, by fixture manufacturer. Shall not provide supporting function.

2.06 BALLASTS

A. Fluorescent Electronic Ballast

1. Program start, or program rapid start
2. THD < 10%
3. Ballast Power Factor > 98% for primary lamp
4. Operating input frequency 50/60 Hz
5. Provide 0-10V dc Dimming where shown
6. 0 degree F minimum lamp starting temperature
7. Operating input voltage +/- 10%
8. Audible noise rating “A” or better
9. Output frequency > 40 KHz with no visible flicker or striation
10. Continued operation if one lamp fails on multiple lamp ballasts
11. Constant light output for line voltage variation of +/- 10%
12. Ballast factor 0.90 to 0.85
13. No PCBs
14. 5 year warranty + labor allowance.
15. Class A sound rating
16. Qualified CEE (Consortium for Energy Efficiency) listed
17. FCC Class A: EMF/RFI
18. ANSI C62.41 Cat A for transient protection
19. UL listed
20. Acceptable product: Sylvania Quicktronic Professional, or approved.

B. Compact Fluorescent Electronic Ballast

1. Program start, or program rapid start.
2. THD < 10%
3. Ballast Power Factor > 99%
4. Provide 0-10V dc dimming where shown
5. 0 degree F minimum lamp starting temperature
6. Operating input voltage +/- 10%
7. Operating input frequency 50/60 Hz
8. Audible noise rating “A” or better
9. Output frequency > 40 KHz with no visible flicker or striation
10. Continued operation if one lamp fails on multiple lamp ballasts
11. Lamp current crest factor < 1.5
12. Constant light output for line voltage variation of +/- 10%
13. Ballast factor > 0.95
14. No PCBs
15. 5 year warranty + labor allowance
16. Qualified CEE (Consortium for Energy Efficiency) listed
17. Meets ANSI C62.41 Cat A for transient protection
18. UL listed
19. Acceptable product: Sylvania Quicktronic Professional or approved

PART 3 EXECUTION

3.01 GENERAL

A. Replace any damage to fixture, lamps, lens, or other lighting components with new fixture. Damage includes paint spray, and other construction materials adhering to fixtures. Damage or altering fixture as a result of mounting or placing fixture into applicable space is not acceptable.

B. Install per requirements of Oregon Energy Code.

3.02 COORDINATION

A. See Reflected Ceiling plan for exact location of equipment and ceiling construction.

B. See Finish Schedule for additional finish requirements.

C. Coordinate fixture mounting system prior to ordering fixtures.

D. Provide price breakdown accounting as required and requested by Oregon Energy Trust, or Engineer.

3.03 ACCESS

A. All fixtures shall have Code accessible supplies. Use reach-through type where recessed in non-accessible spaces.

3.04 SUPPORT

A. Suspended ceiling:
   1. Attach light fixtures to the suspended ceiling system where installed. Attachment shall have capacity of 5 times fixture weight in all directions.
   2. Support fixtures with not smaller than number 12 AWG hangers attached to the grid members within 3 inches of the corner of each fixture, attached to building structure.
   3. Attach two not smaller than number 12 AWG hangers from the fixture housing to the building structure.
   4. Support pendent-hung lighting fixtures directly from the structure above with not smaller than number 9 AWG wire or approved alternate support.

B. Support all fixtures from structure rated at least five times support weight.

3.05 SURFACE MOUNTING

A. Attach with mechanical means to secure fixture flush with structure. Attach at each corner of fixture not less than four places to building structure. Round fixtures shall be attached by forming a tripod configuration. Single center connection is not acceptable.

B. Seal around fixture so no light trespass can be observed.

3.06 ACCEPTANCE

A. Remove all debris, bugs, and other foreign materials from lamps and fixture housings. Clean all lamps, shades, reflectors, and lens removing all temporary labels, debris, dirt, and dust per manufacturer guidelines.

END OF SECTION

SECTION 31 1000

SITE CLEARING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

B. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

D. Utility Locator Service: Notify Oregon Utility Notification Center at 1-800-332-2344 for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

F. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance.

B. Protect site improvements to remain from damage. Restore damaged improvements to condition existing before start of site clearing.

C. Locate and clearly flag trees and vegetation to remain or to be relocated.

D. Protect remaining trees and shrubs from damage and maintain vegetation. Employ a licensed arborist to repair tree and shrub damage. Restore damaged vegetation. Replace damaged trees that cannot be restored to full growth, as determined by arborist.

E. Do not store materials or equipment or permit excavation within drip line of remaining trees.

F. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to the Department of Environmental Quality Erosion and Sedimentation Control Plan (ESCP) Drawings and requirements of the City of Klamath Falls Large Site with Grading and Sediment Control and associated Site Construction Permit.

G. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.

3.02 SITE CLEARING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

B. Strip topsoil. Stockpile topsoil that will be reused in the Work.

1. Stockpile surplus topsoil to allow for respreading deeper topsoil.

C. Remove existing above and below grade improvements as indicated and as necessary to facilitate new construction.

D. In areas not to be further excavated, fill depressions resulting from site clearing in accordance with the Geotechnical Investigation Report as prepared by Applied Geotechnical Engineering and Geologic Consulting.

E. Dispose of waste materials, including trash, debris, and excess topsoil, off Owner's property. Burning waste materials on-site is not permitted.

1. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 31 1000

SECTION 31 2000

EARTH MOVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

B. Unit prices for rock excavation are included in Division 01 Section "Unit Prices."

C. Unauthorized excavation consists of excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

D. Do not interrupt existing utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Site material shall be in conformance with the Geotechnical Investigation Report as prepared by Applied Geotechnical Engineering and Geologic Consulting.

PART 3 - EXECUTION

3.01 EARTHWORK

A. Site preparation shall be in conformance with the Geotechnical Investigation Report as prepared by Applied Geotechnical Engineering and Geologic Consulting.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

D. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

E. Explosives: Do not use explosives.

F. Excavate to subgrade elevations regardless of character of materials and obstructions encountered.

G. Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents.

H. Excavate for structures, building slabs, pavements, gravel driveways, and walkways. Trim subgrades to required lines and grades.

I. Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations. Maintain a minimum of 6 inches of working clearance on each side of pipe or conduit.

1. Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
2. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final subgrade.

J. Plow strip or break up sloped surfaces steeper than 1 vertical to 4 horizontal to receive fill.

K. Proof-roll subgrade below the building slabs, concrete areas and gravel driveways with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades. Allow project geotechnical engineer to inspect and test each subgrade and each fill or backfill layer and verify compliance with requirements.

L. Grade areas to a smooth surface to cross sections, lines, and elevations indicated. Grade walkways and unpaved subgrades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch.

M. Under pavements and walkways, place subbase course material on prepared subgrades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.

N. Under slabs-on-grade, place drainage course on prepared subgrade and compact to required cross section and thickness.

O. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 2000

SECTION 32 1713

PARKING BUMPERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Precast concrete parking bumpers and anchorage.

B. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

C. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

1.02 REFERENCE STANDARDS

A. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.

B. ASTM C33 - Standard Specification for Concrete Aggregates; 2011.

C. ASTM C150 - Standard Specification for Portland Cement; 2011.

D. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide unit configuration, dimensions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Parking Bumpers: Precast concrete, conforming to the following:
   1. Cement: ASTM C150, Portland Type I - Normal; white color.
   2. Concrete Materials: ASTM C33 aggregate, water, and sand.
   3. Reinforcing Steel: ASTM A615/A615M, deformed steel bars; unfinished finish, strength and size commensurate with precast unit design.
   4. Air Entrainment Admixture: ASTM C260.
   5. Concrete Mix: Minimum 5000 psi, 28 day strength, air entrained to 5 to 7 percent.
   6. Use rigid molds, constructed to maintain precast units uniform in shape, size and finish. Maintain consistent quality during manufacture.
   7. Embed reinforcing steel, and drill or sleeve for two dowels.
   8. Cure units to develop concrete quality, and to minimize appearance blemishes such as non-uniformity, staining, or surface cracking.
   9. Minor patching in plant is acceptable, providing appearance of units is not impaired.

B. Dowels: Cut reinforcing steel, 1/2 inch diameter, ____ inch long, pointed tip.

C. Adhesive: Epoxy type.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install units without damage to shape or finish. Replace or repair damaged units.

B. Install units in alignment with adjacent work.

C. Fasten units in place with 2 dowels per unit.

END OF SECTION

SECTION 32 3600

WALK, ROAD AND PARKING APPURTENANCES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Wheelchair signs at parking spaces and at building entrances.

1.02 RELATED SECTIONS

A. Concrete paving: Division 3.

B. Paint for striping: Section 09 9000 – Painting and Coatings.

B. Precast concrete parking bumpers: Section 32 1713 – Parking Bumpers.

C. Earthwork: Division 31.

1.03 REFERENCES

A. Americans with Disabilities Act Guidelines.

B. Oregon Structural Safety Code (OSSC) as it applies to accessibility signage.

1.04 SUBMITTALS

A. Product Data: Submit detailed product data and installation instructions.
   1. Submit product data for the following:
      a. Signage; for wheelchair signage and other accessibility signage, submit product literature indicating compliance with the OSSC and the Americans with Disabilities Act and showing suitability for installation at locations indicated.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Obtain required products from a single manufacturer.
   1. Accessories: Provide accessory items only as produced or recommended by manufacturer of primary products.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Storage: Store signage and other products in original unopened containers; protect from the elements.

PART 2 - PRODUCTS

2.01 WHEELCHAIR SIGNS

A. The design is based on the following product: SS Series Screen Printed Signs, by Best Manufacturing Sign Systems.
   1. Substitutions: Comparable products of other manufacturers will be considered under standard substitution procedures.

B. Signs: 12 inches wide, 18 inches high 18 gauge galvanized steel sheet with painted sign on one side. White painted sign background with blue symbols, text and letters configured in accordance with requirements of Oregon Transportation Commission. Provide with capped galvanized steel pipe support and mounting hardware.
   1. Sign at van accessible stall -- Sign copy: "VAN ACCESSIBLE."
   2. Verify information to be added with Owner prior to ordering.

2.02 PARKING LOT SIGNAGE: BY OWNER

PART 3 - EXECUTION

3.01 PREPARATION

A. Clean substrate, removing projections and substances detrimental to the work; comply with recommendations of manufacturer of products to be installed for proper preparation procedures.

3.02 INSTALLATION

A. General: Comply with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

B. Installation Locations: Refer to Drawings.

3.03 CLEANING

A. Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which will not scratch or otherwise damage finished surfaces.
   1. For cleaning, use only products and techniques acceptable to manufacturer of products being cleaned.

3.04 PROTECTION

A. General: Institute protective procedures and install protective materials as required to ensure that work of this section will be without damage or deterioration at substantial completion.

END OF SECTION

SECTION 33 1116

FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

B. Summary: This Section includes water-distribution piping outside the building for water service.

C. Comply with NSF 14 for plastic potable-water-service piping. Include marking "NSF-pw" on piping.

D. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

A. Ductile Iron Pipe: AWWA C151, with push-on-joint, bell- and plain-spigot end unless grooved or flanged ends are indicated.

1. Ductile Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Glands, Gaskets, and Bolts for Mechanical Joints: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
3. Gaskets for Push-on Joints: AWWA C111, rubber.

B. PVC Plastic Pipe: ASTM D 1785, Schedule 80.

1. PVC Socket Fittings: Schedule 80, ASTM D 2467.
2. Solvent Cement for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

C. PVC, AWWA Pipe: AWWA C900, Class 200, with bell end with gasket and spigot end.

1. PVC Fabricated Fittings: AWWA C900, Class 200, with a minimum dimension ratio (DR) of 14 with bell-and-spigot. Include elastomeric gasket in each bell.
2. Fittings: Shall be the same as listed under ductile iron pipe.

2.02 VALVES

A. Non-rising-Stem, Resilient-Seated Gate Valves: Provide valves meeting the requirements of AWWA C509 with a standard 2 inch operating nut. Valves shall open counterclockwise, and be equipped with an O-ring stuffing box. All materials in contact with potable water shall conform to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent. Coat all interior and exterior ferrous surfaces of valves with a protective epoxy coating meeting the requirements of AWWA C550.

B. Valve Boxes: Install valve boxes on all buried valves. Boxes shall be of cast iron, two-piece, slip type standard design with a base corresponding to the size of the valve. Boxes shall be coal-tar painted by the manufacturer using its standard. The cover shall have the word "WATER" cast in it.

C. Valve Stem Extensions: Valve stem extensions shall have a 2 inch square operating nut and self-centering rockplate support. Valves with an operating nut more than 4 feet below grade shall have a valve stem extension to raise the operating nut to within 3 feet of the ground surface.

2.03 SPECIALTIES

A. Plastic Underground Warning Tapes: Polyethylene plastic tape, 3 inches wide by 5 mils thick, solid blue in color with metallic core and continuously printed black-letter caption "CAUTION--WATER LINE BURIED BELOW."

B. Detectable Marking Wire: Detectable marking wire shall be No. 12 AWG, minimum, solid copper with blue colored polyethylene insulation. Joints or splices in wire shall be made with splicers and/or connectors designed for direct burial and shall be waterproof.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Water Main Connection: Arrange with utility owner for shut off of existing water main for installation of new connection assembly.

B. Connect water system piping and water supply source and building water distribution at the building wall in locations and pipe sizes indicated.

C. Install restrained joints for all buried piping. Use restrained joint pipe and fittings, thrust blocks, anchors, tie rods and clamps, and other supports at vertical and horizontal offsets. Design the restraint system to operate at a working pressure equal to the hydrostatic test pressure of 150 psi.

D. Install fittings for changes in direction and branch connections.

E. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.

F. Install PVC, AWWA pipe according to AWWA M23 and ASTM F 645.

G. Bury piping with depth of cover over top at least 36 inches.

H. Install continuous underground detectable warning tape during backfilling of trench for underground water service piping. Locate 12” below finished grade, directly over piping.

I. Install continuous underground detectable marking wire during backfilling of trench for underground water service piping. Attach wire to top of piping.

J. Clean and disinfect water distribution piping according to authorities having jurisdiction.

END OF SECTION 33 1116

SECTION 33 4100

STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

B. Submittals: Product data (pipe type, sizes, fittings) for each type of product indicated.

1.02 SECTION INCLUDES

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

A. Corrugated-Steel Pipe and Fittings: ASTM A 760/A 760M, Type I with fittings of similar form and construction as pipe.

1. Standard-Joint Bands: Corrugated steel.
2. Coating: Zinc.
3. Gauge: 16

B. Corrugated PE Drainage Tubing and Fittings: AASHTO M 252, Type S, with smooth waterway for coupling joints.

1. Soiltight Couplings: AASHTO M 252, corrugated, matching tube and fittings to form soiltight joints.

C. Corrugated PE Pipe and Fittings: AASHTO M 294, Type S, with smooth waterway for coupling joints.

1. Soiltight Couplings: AASHTO M 294, corrugated, matching pipe and fittings to form soiltight joints.

PART 3 - EXECUTION

3.01 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Division 31 Section “Earth Moving.”

3.02 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream.

C. Install PE pipe and fittings according to ASTM D 2321. Join pipe, tubing, and fittings with couplings for soiltight joints according to manufacturer's written instructions. Install corrugated piping according to CPPA's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."

D. Install corrugated steel piping according to ASTM A 798/A 798M.

END OF SECTION 33 4100

SECTION 33 4600

SUBDRAINAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section covers the furnishing of materials, products, accessories, tools, equipment, services, scaffolding, ladders, transportation, supervision, labor, and other items which may not be mentioned, but are necessary for the fabrication and installation or application of the work of this Section.

B. Submittals: Product Data.

1.02 RELATED REQUIREMENTS

A. Refer to the Batzer Construction, Inc. PUBLIC WORKS SUBCONTRACT, which is made a part of this Section, and applies to all work of this Section, including work shown on drawings. All Subcontractors shall be bound by the Terms and Conditions of the OUS Public Improvements General Conditions and Contract. Prevailing Wages: Current BOLI wage rates shall apply; refer to www.boli.state.or.us.

PART 2 - PRODUCTS

2.01 PERFORATED-WALL PIPES AND FITTINGS

A. Perforated PE Pipe and Fittings: ASTM F 405 or AASHTO M 252, Type CP; corrugated, with band type couplings.

1. Couplings: Manufacturer's standard, band type.

2.02 SOLID-WALL PIPES AND FITTINGS

A. PE Drainage Tubing and Fittings: AASHTO M 252, Interim, Type S, corrugated, with smooth waterway, and AASHTO M 252 corrugated, band-type fittings.

2.03 SOIL MATERIALS

A. Backfill, drainage course, impervious fill, and satisfactory soil materials are specified in Division 31 Section "Earth Moving" and shown on Plans.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Perforated Trench Drain Installation:

1. Place compacted layer of 3/4” drainage course at least 4 inches deep over compacted subgrade where drainage pipe is to be laid.
2. Encase pipe with sock-style geotextile filter fabric and install pipe.
3. Add drainage course to width of at least 6 inches on side away from trench wall and to top of pipe to perform tests.
4. After satisfactory testing, cover drainage piping to width of at least 6 inches on each side of trench wall and above pipe to finish grade.

B. Foundation Drainage Installation:

1. Place and compact impervious fill material at least 6 inches deep and 12 inches wide on subgrade adjacent to bottom of footing after concrete footing forms have been removed.
2. Place compacted layer of drainage course at least 4 inches deep over compacted subgrade where drainage pipe is to be laid.
3. Encase pipe with sock-style geotextile filter fabric and install pipe.
4. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.
5. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.
6. Install drainage course and wrap top of drainage course with non-woven geotextile filter fabric.
7. Place layer of non-woven geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.
8. Fill to Grade: Place and compact impervious fill material over compacted drainage fill.

C. Install piping beginning at low points of system at grades shown on Plan.

D. Testing: Test drain piping with water to ensure free flow before backfilling.

E. Maintain swab or drag in piping with tight joints and pull past each joint as it is completed.

END OF SECTION 33 4600