



Project Manual

Tri-Cities CIC Building New Gender Inclusive Restrooms

**Washington State University
Richland, WA**

Project No. 1907-2023
Issued 6/13/2023
Washington State University
Facility Services, Capital

**Tri-Cities CIC Building New Gender Inclusive Restrooms
Washington State University, Tri-Cities**



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Washington State University
Tri-Cities CIC Building New Gender Inclusive Restrooms
Richland, WA

Sealed bids are being requested by the Board of Regents of Washington State University, for the above referenced project.

Project Scope:

This project is to construct a new gender inclusive restroom on the 2nd floor of the Consolidated Information Center Building. This new 126 square foot space will include two new ADA water closet stalls along with a room containing 2 lavatory sinks. The HVAC system will be adjusted to provide dedicated supply and exhaust for these new rooms. All plumbing will be connected to existing plumbing lines in a nearby restroom plumbing chase. Fire sprinkler system will be altered to add additional heads to two new rooms. Electrical system will be adjusted to provide new lighting and extend circuit to new faucets. Contract Time shall be 90 Days from Notice to Proceed to Substantial Completion. Proposals MUST BE based on this Contract Time."

Project Physical address: 2770 Crimson Way, Richland, WA 99354.

Bid Estimate: \$110,000.00 to \$115,000.00

Bids will be received prior to 2:00 p.m. July 11, 2023; either by email to contracts@wsu.edu or in hard copy at McCluskey Services Building, 2425 East Grimes Way., Pullman, WA. Proposals will then be publicly opened and read aloud at 2:30 p.m. by <https://wsu.zoom.us/j/96276973536?from=addon> or Phone 253-215-8782 and entering Meeting ID 962 7697 3536. Attendance in person is not allowed.

A pre-bid conference for general contractors will be held at 11:00 a.m. on June 29, 2023 Tri-Cities CIC Building, Room 221, 2770 Crimson Way, Richland, WA 99354.

Bid documents may be obtained at <https://facilities.wsu.edu/facilities-services-capital/contractors/>. Contractors who would like to be included on the Planholder's list shall either attend the pre-bid meeting or request to be added by emailing contracts@wsu.edu.

Printing Disclaimer: The bidding documents are available for all interested bidders and plancenters. The University does not provide printing services; it is the bidder's responsibility to print the drawings to the appropriate scale indicated. We encourage the use of professional printing shops.

Owner reserves the right to reject any and all bids and to waive any informalities or irregularities in the bids received.

Maja S. Huff
509-335-9082
Contracts@wsu.edu
Facilities Services
Washington State University

END OF SECTION 00 11 13

PART 1 GENERAL

1.01 PROJECT IDENTIFICATION

- A. Refer to the Advertisement for Bids for Project identification, availability of bidding documents, Prebid Conference, and Contract completion date. Refer to Summary of Work, Section 01 11 00, for a brief description of the Work.

1.02 BIDDER QUALIFICATIONS

- A. Contractor Registration:
 - 1. Bidders subject to the Contractor's Registration Act (RCW Chapter 18.27) must show their State of Washington Contractor's license number on the Form of Proposal. In addition, bidders are cautioned to verify that all subcontractors submitting bids are also registered and licensed in accordance with the laws of the State of Washington. Owner is prohibited by virtue of RCW 39.06.010 from executing any Contract for public works with any contractor who is not registered or licensed in accordance with the laws of this state. Prior to submitting a bid, bidder must obtain an appropriate clearance and license to do business in the State of Washington as follows:
 - a. Contractor's License: Make license application to the Department of Labor and Industries, Contractor's Registration, P.O. Box 7689, Olympia, Washington 98504.
 - b. Registration Number: Out-of-State Contractors must obtain a registration number and permission to do business in the State of Washington from the Secretary of State, Olympia, Washington 98501.
 - c. Other Registrations: Register with the State Department of Revenue as a contractor engaging in business in this state and register with the State Department of Labor and Industries and the Employment Security Department.
 - 2. Payment and Performance Bonds:
 - a. Bidders must be able to furnish satisfactory separate Payment and Performance Bonds for full amount of the initial Contract Sum, plus sales tax.

1.03 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- A. Before submitting a bid or proposal, bidders shall carefully examine the Contract Documents, visit the Project site, and fully inform themselves as to all existing conditions and limitations, and shall include in their bid or proposal a sum to cover the cost of all items included in the Work, and shall rely on their own examination in making their bid or proposal. No change in the Work, the

Contract Sum, or the Contract Time will be allowed for issues that would have been reasonably apparent by the foregoing examination.

- B. Bidder acknowledges that it has satisfied itself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the Project site, including all exploratory work done by Owner, as well as from the Drawings and Specifications made a part of the Contract Documents.
- C. Bidder acknowledges that adjoining areas will be in normal course during the Work. Bidder should anticipate pedestrian and traffic congestion, limited parking, and the need to coordinate all Work with ongoing operations.
- D. Owner assumes no responsibility for any conclusions or interpretations made by bidder based on the information made available by Owner. Should a bidder find discrepancies or omissions in the Drawings or Specifications, or should bidder be in doubt as to their meaning, bidder shall at once notify Owner. If appropriate, Owner will send written instructions to all bidders by addenda. Questions received less than 7 Days before the time of bid opening may not be answered. All issued addenda shall be incorporated into these Contract Documents.

1.04 PREBID CONFERENCE

- A. All bidders are encouraged to attend a pre-bid conference. Refer to the Advertisement for Bids for the date, time and location.

1.05 CLARIFICATIONS

- A. Should bidders find discrepancies in, omissions from, or unclear information within the Contract Documents, they should notify Owner at once. Owner shall issue a written instruction in the form of an addendum to all bidders. Neither the Owner nor Architect/Engineer will be responsible for any oral instructions. Questions received less than 7 Days before bid opening may not be answered. All addenda issued prior to the opening of bids will be incorporated into the Contract.

1.06 SPECIFIED PRODUCTS

- A. Bids must be based upon items identified in the Specifications or approved substitutions. In certain cases, specific items have been named because of operational or maintenance considerations; approval of substitutions should not be assumed.
- B. Requests for approval of substitutions must be made in writing and received by Owner at least 7 Days prior to the date of bid opening. Said request must include complete descriptions, technical data, and performance records. Any approval of the proposed substitution will be made by addendum issued to all bidders.
- C. To submit substitution requests prior to Bid opening:

1. Only one substitution request per bidder will be considered for each product.
 2. Requests for substitutions shall provide sufficient data to allow Owner to evaluate the suitability of the proposed product. Bidder must clearly identify product and model number of proposed substitution.
- D. By requesting a substitution, bidder represents and warrants that (1) it has personally investigated the proposed material or product and determined that it is equal or better in all respects to that specified, (2) the same or better warranty will be provided for the substitution, (3) it has coordinated with affected subcontractors, (4) the substitution will not impact other parts of the Work, (5) the aggregate costs associated with the substitution actually reduces its bid amount, (6) all costs associated with the substitution are included in its bid, and (7) it waives any known or unknown future claim for an increase in the Contract Sum or Contract Time associated with the substitution.
- E. Owner retains full discretion over whether to approve a substitution, and Owner's approval does not relieve bidder of the above requirements.

1.07 TAXES

- A. State of Washington Sales Tax shall not be included in the bid price, except that the retail sales tax upon sales and rentals to prime contractors and subcontractors of tools, cranes, air compressors, bulldozers, lubricating oil, sandpaper, form lumber, and similar items of material and equipment which are primarily for use by the bidder rather than for resale as a component part of the finished work, shall be included in the bid price. (See WAC 458-20-170 (State Department of Revenue Rule 170))
- B. Sales tax applicable to the Contract Sum will be added to the Contract Sum by Owner at the time the Contract (Section 00 50 00) is written and shall be paid to Contractor. Contractor shall then remit payment for the sales tax to the State Department of Revenue in conformance with the law.

1.08 FILING FEES

- A. Applicable state laws concerning prevailing wages, hours, workers' compensation, and other conditions of employment are called to the attention of bidders for their compliance. Bidders shall include in their bid any and all fees, including filing fees, required to comply with applicable labor laws.

1.09 PAYMENT AND PERFORMANCE BONDS

- A. Upon award of the Contract, the successful bidder will be required to provide Owner with satisfactory separate payment and performance bonds. Cost of bond premiums must be included in the bidder's proposal.

1.10 FORM OF PROPOSAL

- A. Proposals must be formatted in accordance with the following:
1. Bidder must utilize the Form of Proposal, examples of which are included in the Contract Documents; all numbers must be clearly and legibly stated both in writing and in figures; and signatures must be in longhand.
 2. Bids must not contain any recapitulation of the Work to be done.
 3. Bidders must include prices for all Alternate Bid items if they are included in the Form of Proposal.
 - a. Bidders shall bid upon all Alternates indicated in the Form of Proposal. When bidding on alternates for which there is no charge, bidder shall write the words "No Charge" or some similar designation in the space provided on the Form of Proposal. If a bidder fails to bid an alternate, or notes "no bid," it will be construed as meaning that there will be no change in the Contract Sum and that the alternate is included in the Contract Sum.
 4. Bids shall be received either electronically or in hard copy:
 - a. Electronic Bids: Bidders may submit their bid via email to contracts@wsu.edu prior to the bid submission deadline. The emailed bid must include all documents that would have normally been submitted in the sealed envelope, including but not limited to the Form of Proposal and bid bond, in either PDF or Image format.
 - 1) The official clock for receipt of electronic bids will be the time and date stamp by WSU email services, not bidders email services.
 - b. Hard Copy Bids: Each part of the Form of Proposal must be sealed in its own opaque envelope and marked "Proposal, Tri-Cities CIC New Accessible Gender Inclusive Restroom ". Bidders name shall appear on the outside of this sealed envelope. All bids are to be delivered or mailed to Facilities Services, P.O. Box 641150, McCluskey Services Building, Washington State University, Pullman, WA 99164-1150. If mailed, the Bid envelope shall be enclosed in another envelope for mailing.
 - 1) An official clock, at the office location designated for receipt of bids, will be designated by Owner for determining the timely receipt of each bid.
 - c. Bidders are solely responsible for delivery of their proposals at the specified location and before the specified time set for receipt of bids.
 5. Bids will be received on the dates and at the times indicated in the Advertisement for Bids.

6. Proposals received and determined untimely by Owner, may be considered as non-responsive and hard copy bids will be returned to bidder unopened, or notification will be made by email for electronic bids.
7. Bids will be received until the respective times indicated in the Advertisement for Bids. They must be received prior to the respective times stated; i.e., where bids for Part A are required until 2:00 p.m., all bids received by 1:59:59 p.m. are timely; all bids received on or after 2:00:00 p.m. are untimely.
8. Proposals shall consist of the following components:
 - a. Proposal: Completed Part A proposal indicating the following:
 - 1) Base Bid and Alternate Bid (if any) amounts;
 - 2) Acknowledgment of Addenda received;
 - 3) Signature, Corporate Identification, and Contractor License number; and
 - 4) Bid Security to be attached to Part A proposal form.
9. All proposals will remain sealed/unshared until the bid opening.

1.11 BID ALTERNATES, ALLOWANCES AND UNIT PRICES – NOT USED

1.12 BID GUARANTEE

- A. Bidder shall furnish a bid guarantee in the form of a cashier's check or bid bond made payable to the Board of Regents of Washington State University for an amount equal to at least 5% of the total Base Bid amount, as evidence of good faith and as a guarantee that, if awarded the Contract, the bidder will execute the Contract and provide payment and performance bonds as required.
 1. Electronic submission of the Bid Guarantee shall constitute full submittal as if delivered in hard copy.
- B. Should the successful bidder fail to enter into a Contract and furnish satisfactory bonds within 10 Days after its proposal has been accepted, the bid security shall be forfeited as liquidated damages.
- C. Owner reserves the right to hold the bid guarantee of the 3 lowest bidders until the successful bidder has entered into a contract and furnished required bonds.

1.13 MWBE PARTICIPATION

- A. Washington State University is committed to the enhancement of opportunities for minority and women owned and controlled businesses in public contracting. The use or solicitation of minority and women's business enterprise firms is expressly encouraged.

1.14 MODIFICATION OF PROPOSALS

- A. Modifications to proposals already submitted will be permitted only if requested in writing over the signature of the bidder and provided such requests are received prior to the time set for receipt of bids.
- B. The original Form of Proposal will remain unopened until bid opening. Modifications in the form of facsimile transmissions will not be accepted.
- C. Withdrawal of proposals will be permitted only if requested in writing over the signature of the bidder and provided such requests are received prior to the time set for receipt of bids.
- D. Withdrawal requests in the form of facsimile transmissions will not be accepted.
- E. After the scheduled closing time for the receipt of Form of Proposals, no bidder will be permitted to withdraw a proposal unless said award is delayed for a period exceeding 60 Days.

1.15 ALTERATIONS PROHIBITED

- A. Except as otherwise provided herein, Forms of Proposal which are incomplete, or which are conditioned in any way, or which contain items not called for in the Proposal Form, or which are not in conformity to the law, may be rejected.
- B. The Form of Proposal invites bids on specific Drawings and Specifications. Only the amounts and information asked for on the Form of Proposal furnished will be considered.

1.16 BID PROTEST PROCEDURES

- A. A bidder protesting for any reason the bidding documents, a bidding procedure, the University's objection to a bidder or a person or entity proposed by the bidder, including but not limited to, a finding of non-responsibility, the award of the Contract or any other aspect arising from, or relating in any way to, the bidding, shall file a written protest with the University within two (2) business days of the event giving rise to the protest. (Intermediate Saturdays, Sundays, and legal holidays are not counted as business days.) The written protest shall include the name of the protesting bidder, the title of the bid under which the protest is submitted, a detailed description of the specific factual and legal grounds for the protest, copies of all supporting documents, evidence that the apparent low bidder has been given notice of the protest, and the specific relief requested. The written protest shall be sent by email to contracts@wsu.edu.
- B. Upon receipt of the written protest, the University will consider the protest. The University may, within three (3) business days of the University's receipt of the protest, provide any other affected bidder(s) the opportunity to respond in writing to the protest. If the protest is not resolved by mutual agreement of the protesting bidder and the University, the Assistant Vice President for Facilities Services, Capital of the University, or her or his designee, will review the issues

and promptly furnish a final and binding written decision to the protesting bidder, and any other affected bidder(s), within six (6) business days of the University's receipt of the protest. (If more than one (1) protest is received, the University's decision will be provided within six (6) business days of the University's receipt of the last protest.) If no reply is received from the University during the six (6) business-day period, the protest will be deemed rejected.

- C. Failure to comply with these protest procedures will render a protest waived.
- D. Timely and proper compliance with, and exhaustion of, these protest procedures shall be a condition precedent to any otherwise permissible judicial consideration of a protest.

1.17 LOW RESPONSIBLE BIDDER

- A. It is the intent of Owner to award the Contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by Owner to submit documentation demonstrating compliance with the criteria. Bidder must:
 - 1. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;
 - 2. Have a current Washington Unified Business Identifier (UBI) number;
 - 3. If applicable:
 - a. Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
 - b. Have a Washington Employment Security Department number, as required in Title 50 RCW;
 - c. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
 - 5. Not have been found out of compliance by the Washington State Apprenticeship and Training Council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for this project.
 - 6. Not have been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, or through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, any provision of chapter 49.46, 49.48, or 49.52 RCW, as defined in RCW 49.48.82.

- B. In addition to the bidder responsibility criteria above, bidder must also meet the following supplemental bidder responsibility criteria applicable to the Project:
 - 1. The ability, capacity, and skill of bidder to perform the service required;
 - 2. The experience and efficiency of bidder;
 - 3. Whether bidder can perform the Contract within the time specified;
 - 4. The satisfactory completion of previous contracts or services;
 - 5. Such other information having a bearing on the decision to accept a bid proposal.
- C. Whenever Owner evaluates Contractor's responsibility, the foregoing may be taken into account. In addition to Contractor's experience, evaluation of bidder's responsibility will also be based on the documented experience of the Project Manager, Project Engineer, and the Superintendent proposed for the Project. A minimum of three projects of comparable size and scope will be required for bidder.
- D. Within 48 hours of receipt of request, apparent low bidder will provide such information about its team as Owner determines to be reasonably necessary to evaluate the responsibility of the bidder. Failure to reply with requested information will render a bidder non-responsible at Owner's option. At minimum, a bidder shall provide:
 - 1. A financial statement;
 - 2. List of projects currently under construction, including current contract amount and status of each;
 - 3. Names and resumes of proposed Project Manager, Project Engineer, and Superintendent;
 - 4. Name of bonding company/agent; and
 - 5. References including project and owner name, a project contact, and project contact telephone number.
- E. As evidence that bidder meets the bidder responsibility criteria, the apparent low bidder must submit documentation as may be required above to the Owner within 48 hours of the bid submittal deadline. Owner reserves the right to request such documentation from other bidders also.
- F. Owner will review Contractor's past Contract Performance to assist in evaluating the contractor's qualifications and proven ability to successfully perform future contracts only when past performance has been previously documented via the Contract Performance Program.
- G. If Owner determines bidder does not meet the bidder responsibility criteria above and is therefore not a responsible bidder, Owner shall notify bidder in writing with the reasons for its determination. If bidder disagrees with this determination, it may appeal the determination within 24 hours of receipt of Owner's determination

by presenting additional information to Owner. Owner will consider the additional information before issuing its final determination. If the final determination affirms that bidder is not responsible, Owner will not execute a Contract with any other bidder until 2 business days after the bidder determined to be not responsible has received the final determination.

1.18 CONTRACT AWARD

- A. Owner intends but is not required to enter into a contract with the successful bidder, for all Work called for in the Contract Documents.
- B. The determination of the successful bidder will be made on the basis of the sum of the Base Bid.
- C. The responsibility of bidder and its subcontractors will be considered in making the award. Owner reserves the right to reject any or all bids and to waive informalities advantageous to Owner and/or the protection of the public interest.
- D. Reinstatement of Bid Alternate not initially selected shall be in accordance with provisions of the Bid Proposal Form of Proposal.

1.19 CONTRACT FORMS

- A. Owner's standard form Contract is included with the Contract Documents.

END OF SECTION 00 21 13

Washington State University
Tri-Cities CIC Building New Gender Inclusive Restrooms
Richland, WA

Refer to Instructions to Bidders for bid submittal procedures.

Bidder's Firm Name: _____ Date: _____

To: Facilities Services, Capital
McCluskey Services Building, P.O. Box 641150
Washington State University
Pullman, Washington 99164-1150

Pursuant to and in compliance with the Advertisement for Bids and the Instructions to Bidders, the Bidder, having carefully examined the Contract Documents entitled "Tri-Cities CIC Building New Gender Inclusive Restrooms" and having visited the Project site and examined the conditions affecting the Work, hereby proposes and agrees to provide all labor, materials, equipment, services, and incidentals necessary to complete the Work for the following stipulated sums:

A. BASE BID

_____ DOLLARS (\$ _____),

B. UNIT PRICES – NOT USED

C. ALTERNATES – NOT USED

D. REINSTATEMENT OF BID ALTERNATES – NOT USED

E. SALES TAX

The Bidder agrees that the amounts indicated in the proposal do not include Washington State and local sales taxes except as required by the Instructions to Bidders.

F. CONTRACT PROVISIONS

Should the Bidder be notified of the acceptance of this proposal within 60 Days from the date set for the opening thereof or at any time thereafter before this proposal is withdrawn, the bidder agrees to execute a Contract for the Work and to furnish the required bonds.

1. TIME OF COMPLETION

The bidder agrees, if awarded a Contract for the Work, to complete the Work

within the Contract Time specified.

2. LIQUIDATED DAMAGES

The bidder agrees that time is of the essence of the Contract and acknowledges that the amount of damages specified is a measure of the damages which the Owner will sustain should the Bidder fail to complete the Work within the Contract Time.

G. BID GUARANTEE

The Bidder agrees that the bid guarantee accompanying the Part A Form of Proposal is left in escrow with Owner, that the amount of the guarantee is the measure of the damages that Owner will sustain by failure of the bidder to execute a Contract for the Work and furnish required bonds, and that if the bidder fails to deliver said documents within 10 Days after receipt of notice of award to the bidder, the bid guarantee shall become the property of Owner.

H. MINORITY AND WOMEN'S BUSINESS ENTERPRISE (MWBE) PARTICIPATION

Owner is committed to the enhancement of opportunities for minority and women owned and controlled firms in public contracting. While neither required, nor a part of bidder responsiveness, the use or solicitation of minority and women business enterprises is expressly encouraged.

I. ADDENDA

The bidder hereby acknowledges receipt of Addendum by number(s):

J. PREVAILING WAGE CERTIFICATION

The bidder has not been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, or through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, any provision of chapter 49.46, 49.48, or 49.52 RCW, as defined in RCW 49.48.82.

K. DECLARATION

The bidder represents and warrants that he/she possess the authority to sign for and bind bidder.

The Bidder declares under penalty of perjury under the laws of the State of Washington, that all of the foregoing information as recited is true and correct to the best of his/her knowledge.

Bidder's Firm Name: _____

Signed By: _____ Official Title: _____

Print Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: _____ Fax: _____

State of Washington Contractor's License Number: _____

Federal Tax Identification Number: _____

Email Address: _____

The firm represented by the above signature is a:

Sole Proprietorship _____
Partnership _____
Corporation _____
Other _____

State of Incorporation _____

END OF SECTION 00 42 13

Tri-Cities CIC Building New Gender Inclusive Restrooms

Agreement between Owner and Contractor (Fixed Contract Sum)

This AGREEMENT is effective as of the date of the first signature on the Agreement so long as all other parties' authorized signatories have also executed the Agreement. This Agreement is made by and between the following parties in connection with the Project identified below.

OWNER: Washington State University
c/o Facilities Services, Capital
P.O. Box 641150
Pullman, WA 99164-1150

CONTRACTOR: [To be determined]

ARCHITECT (A/E): Arculus Design & Technical Services
5822 W. Yellowstone Ave,
Kennewick WA, 99336

PROJECT: Tri-Cities CIC Building New Gender Inclusive Restrooms
2770 Crimson Way,
Richland, WA 99354

In consideration of the mutual covenants and obligations contained herein, Owner and Contractor agree as set forth herein.

Article 1 The Work of the Contract

- 1.1 Contractor to fully execute the Work. Contractor shall fully execute the entire Work in strict accordance with the Contract Documents, and shall provide all material, equipment, tools, and labor necessary to timely complete the Work described in and reasonably inferable from the Contract Documents, except to the extent specifically indicated to be the responsibility of others.
- 1.2 Contractor to further Owner's interests. Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with Owner to cooperate and collaborate with Owner and others involved with the Project and to exercise Contractor's best skill and judgment; to furnish efficient, professional construction administration, management services and supervision with sufficient quantities of fully qualified, competent and experienced personnel; and to perform the Work in an expeditious and economical manner consistent with Owner's interests. The parties will endeavor to promote harmony, cooperation and mutual respect among the Project participants to the fullest extent possible in order to further the success of the Project and to effect prompt and successful completion of the Project within the requirements of the Contract Documents, the Contract Time and the Contract Sum.

Article 2 **Contract Documents**

- 2.1 The Contract Documents. The "Contract Documents" form the "Contract." The Contract Documents consist of this Agreement (Agreement between Owner and Contractor or the "Agreement"); any attached Exhibits and other documents listed in the Contract Documents; the General Conditions; other documents listed in Article 8 of this Agreement; and written modifications, amendments and Change Orders to the Contract issued after execution of this Agreement.
- 2.2. Contract is complete and integrated agreement. The Contract represents the entire, complete, and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. No oral representations or other agreements have been made by the parties except as specifically established in the Contract.
- 2.3 Contract is between only Owner and Contractor. The Contract Documents shall not be construed to create a contractual relationship of any kind between any Persons other than Owner and Contractor.

Article 3 **Definitions**

- 3.1 Terms, words and phrases to have ordinary meanings. Terms, words and phrases used in the Contract Documents shall have the meanings given them in this Agreement and in the General Conditions or, if not defined, in a manner consistent with construction industry standards. In the event of any inconsistency in such definitions, the definitions in this Agreement shall control.
- 3.2 Construction Documents. The Construction Documents are identified in the General Conditions and other Contract Documents as Drawings and Specifications. The Construction Documents do not include shop drawings or other Submittals.
- 3.3 Contractor. "Contractor" is the Person identified as such in the Agreement and General Conditions. Contractor must be licensed, bonded, and insured as a contractor in the State of Washington, and must legally be permitted to do business. Contractor's authorized representative, including its Designated Representative, shall be authorized to act on Contractor's behalf with respect to the Project.
- 3.4 General Conditions modified. Section 4.03E of the General Conditions is hereby modified to clarify that Contractor and Owner may agree on the number of copies of Submittals to be provided to Owner. If no such agreement is reached, Contractor shall submit five copies.

Article 4 **Notice to Proceed and Substantial Completion**

- 4.1 Notice to Proceed. The date of Notice to Proceed will be specified in a written Notice issued by Owner. Owner may issue separate written authorizations to proceed for different portions of the Work.
- 4.2 Contract Time measured from date of commencement. The Contract Time shall be

measured from the Notice to Proceed date to the contractual date of Substantial Completion established in Section 4.3, subject to adjustments as provided in the Contract Documents. Time is of the essence in completion of the Work.

- 4.3 Substantial Completion and Final Completion. Contractor shall achieve Substantial Completion of the Work by Ninety (90) Days following Notice to Proceed, subject to adjustments as provided in the Contract Documents, and shall achieve Final Completion not later than Thirty (30) Days thereafter. Contractor represents to Owner that the Contract Time is adequate for full performance of the Work. Contractor shall also achieve any interim milestones and phasing requirements set forth in the Contract Documents.
- 4.4 Liquidated damages. Owner will assess, and Contractor will be responsible for, liquidated damages in the amount of One hundred seventy-six dollars and sixty-seven cents (\$176.67) per Day for each Day beyond the contractual date for Substantial Completion that Substantial Completion is not timely achieved, and subsequently Forty-nine dollars and no cents (\$49.00) per Day for each Day beyond the time period established in Section 4.3 that Final Completion of the entire Work is not achieved. Contractor and Owner agree that the liquidated damages amounts are not penalties and are a reasonable estimation of actual damages to Owner, as of this date of Agreement, based on the inherent uncertainty and difficulty in calculating and quantifying damages caused by delays in the construction of university facilities.

Article 5 **Contract Sum**

- 5.1 Contract Sum. For Contractor's performance of the Contract, Owner shall pay to Contractor the Contract Sum of _____ dollars (\$ _____), subject to additions and deductions for changes in the Work as provided in the Contract Documents. The Contract Sum includes by way of example and not limitation all costs of construction; general conditions; all taxes except Washington State sales tax due on the Contract Sum; Contractor's contingency; any approved Allowances; all insurance; overhead; and Contractor's fee.
- 5.2 Alternates. The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by Owner:

Alternate Number	Description	Price (\$0.00)
None		

- 5.3 Unit Prices. Any Unit Prices are as follows:

Description	Units	Price (\$0.00)
None		

Unit Prices as set forth in the Contract Documents are "all in." They include all material, equipment, labor, delivery, installation, and Subcontractor costs, any overhead and profit not included in the fee, and any other costs or expenses in connection with, or incidental to, the performance of that portion of the Work to which such Unit Prices apply.

- 5.4 Allowances. Allowances included in the Contract Sum are as follows:

Allowance	Amount	Included Items
None		

Allowances may be included in the Contract Sum due to uncertainty in scope, price and/or quantity at the time this Agreement is executed. Whenever actual costs are more or less than an allowance, the Contract Sum will be appropriately adjusted. Contractor must provide Owner with written notice of its intent to expend an allowance amount (providing Owner with the opportunity to approve or reject the cost) before expending an allowance amount.

- 5.5 Changes in the Work.

- 5.5.1 Owner may, without invalidating the Contract, order changes in the Work consisting of additions, deletions or other revisions. Owner shall issue such changes in writing.
- 5.5.2 Adjustments of the Contract Sum and/or Contract Time on account of changes in the Work may be determined by any of the methods listed in the General Conditions.

Article 6 **Payments**

- 6.1 Applications for Payment.

- 6.1.1 The Contract Documents detail the requirements for Applications for Payment. Based upon Applications for Payment that Contractor submits to Owner, Owner shall make progress payments to Contractor on account of the Contract Sum.

- 6.2 Progress Payments.

- 6.2.1 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows and in accordance with Section 01 29 00, Applications for Payment:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Contract Sum allocated to that portion in the Schedule of Values. Pending final determination of the cost to Owner of changes in the Work, amounts not in dispute may be included as provided in the General Conditions unless Owner requires that actual cost records be provided;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by Owner, suitably stored and insured off the site at a location agreed upon in writing);
- .3 Subtract the aggregate sum of previous payments made by Owner;
- .4 Subtract amounts, if any, for which Owner has withheld payment; and
- .5 Subtract the statutory retainage of five percent (5%) of the above amount as a

fund for the protection and payment of the claims of any Person arising out of the Work and the State of Washington with respect to taxes.

6.3 Subcontractor Payment Reporting.

6.3.1 All contract payments are subject to compliance tracking using the Washington State Office of Minority & Women's Business Enterprise's business diversity management system, Access Equity (B2Gnow). Contractor and all subcontractors (regardless of certification) will register and report all progress payments made utilizing the system. The Owner reserves the right to withhold payments from the Contractor for non-compliance with this requirement.

6.4 Final Payment.

6.4.1 Final payment, constituting the entire unpaid balance of the Contract Sum, less retainage, shall be made by Owner to Contractor no later than 30 Days after Contractor has fully performed the Contract and Final Completion has occurred (except for Contractor's responsibility to correct non-conforming Work discovered after final payment or to satisfy other requirements, if any, that extend beyond final payment), and Contractor has submitted a final Application for Payment.

6.4.2 Owner shall release retainage to Contractor in accordance with Chapter 60.28 RCW and the Contract Documents.

Article 7
Miscellaneous Provisions

7.1 Designated Representatives.

7.1.1 Owner's Designated Representative, designated below, shall be authorized to act on Owner's behalf with respect to the Project:

Craig Cole
Executive Director and Project Manager
Facilities Services

7.1.2 Contractor's Designated Representative, identified below, shall be authorized to act on Contractor's behalf with respect to the Project:

7.1.3 Neither Owner's nor Contractor's Designated Representatives shall be changed without 10 Days' written notice to the other party.

7.2 Interest. Payments due and unpaid under the Contract Documents shall bear interest as specified by RCW 39.76, not to exceed the Bank of America prime plus two percent (2%) per annum.

7.3 Quality control and assurance and Owner's right to inspect the Work: Contractor shall develop and submit an overall Quality Control and Assurance Plan to ensure

that the Work is inspected by qualified members of Contractor's staff or third parties. The Quality Control and Assurance Plan must be acceptable to Owner. Owner expressly reserves the right to inspect any and all portions of the Work at any time during the Project. Contractor shall provide access to the Work as needed by Owner or its representatives, including the use of scaffolding, platforms, or lifts. All corrections or observations noted by Owner shall be logged by Contractor for correction, tracking and documentation to the satisfaction of Owner.

- 7.4 Contractor to actively manage and supervise Work. Contractor shall review and inspect the Work of Subcontractors on a regular basis for defects and deficiencies in their Work and for conformance with the Construction Documents and other Contract Documents, and shall stop the Work of Subcontractors, if necessary. Contractor shall provide notification at regularly scheduled progress meetings of any major defects or deficiencies and recommend remedial action.
- 7.5 Use of Third Party Neutral. Owner and Contractor intend to utilize a Third Party Neutral to assist in addressing and resolving disputes that may arise during the Project. The Third Party Neutral will be jointly engaged and will have the roles and responsibilities set forth in a Third Party Neutral Agreement, which shall be established in accordance with Section 00 80 10, Third Party Neutral.

Article 8 **Enumeration of the Contract Documents**

- 8.1 The Contract Documents. The Contract Documents, except for modifications issued after execution of this Agreement, are enumerated as follows:
- 8.1.1 This executed Agreement, any attached Exhibits and other documents listed in this Agreement.
- 8.1.2 The General Conditions for Washington State Facility Construction with Washington State University Amendments, and any Supplementary Conditions of the Contract.
- 8.1.3 The Addenda, if any, are as follows:

Number	Date	Pages
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- 8.1.4 Other documents, if any, forming part of the Contract Documents are as follows:

See Contract Documents.
Department of Labor and Industries Prevailing Wage Rates.

OWNER:
WASHINGTON STATE UNIVERSITY

CONTRACTOR:
FIRM NAME
WA CONTRACTOR LICENSE NUMBER

(Signature) (Date)

(Signature) (Date)

(Printed Name)
Assistant Vice President, Capital and Operations
Facilities Services

(Printed Name)
(Title)

END OF SECTION 00 50 00

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WSU amendments to the Washington State Facility Construction
General Conditions are identified by a bar on the right hand side of modified paragraphs

GENERAL CONDITIONS
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PART 1 - GENERAL PROVISIONS

1.01 DEFINITIONS

- A. "Application for Payment" means a written request submitted by Contractor to Owner for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner may require.
- B. "Architect," "Engineer," or "A/E" means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.
- C. An "Allowance" is an amount included in the Contract Sum for a stated part of the Work that is not fully defined and/or quantified at the time the Contract Sum is established. When that part of the Work is adequately defined and/or quantified, the Contract Sum will be adjusted to account for the difference between the Allowance and the actual cost of the item. Following the adjustment, that part of the Work will no longer be an Allowance item. Although not capitalized in Section 5.02B, "allowance" shall mean "Allowance."
- D. "Change Order" means a written instrument signed by Owner and Contractor stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any, and (3) the extent of the adjustment in the Contract Time, if any.
- E. "Claim" means Contractor's exclusive remedy for resolving disputes with Owner arising out of or relating to the Contract Documents or the breach thereof or requesting an adjustment in the Contract Sum or Contract Time, as more fully set forth in Part 8. As used in the Contract Documents, the exclusive meaning of "equitable adjustment" is the ability of Contractor to follow the contractual dispute resolution process in Part 8, including the requirement for submitting a timely Notice, substantiation, and Claim.
- F. The "Contract" is the agreement between Owner and Contractor and is formed by the Contract Documents. The Contract represents the entire and integrated agreement between Owner and Contractor and supersedes prior negotiations, representations or agreements, either written or oral.
- G. "Contract Award Amount" is the sum of the Base Bid and any accepted Alternates, if any, for Design-Bid-Build projects and is the accepted initial Guaranteed Maximum Price for Design-Build and GC/CM projects.
- H. "Contract Documents" means the General Conditions, modifications to the General Conditions, Supplemental Conditions, Agreement, Drawings and Specifications, and all addenda and modifications thereof.
- I. "Contract Sum" is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents, including all taxes imposed by law and properly chargeable to the Work, except Washington State sales tax.
- J. "Contract Time" is the number of Days or other time period allotted in the Contract Documents from the Notice to Proceed for achieving Substantial Completion of the Work.
- K. "Contractor" means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.
- L. "Day(s)" means calendar day(s) unless otherwise specified.

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- M. "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, and may include plans, elevations, sections, details, schedules, and diagrams.
- N. "Final Acceptance" means the written acceptance of the Work by Owner, as more fully set forth in Section 6.08B.
- O. "Final Completion" means that the Work is fully and finally complete in accordance with the Contract Documents and Contractor has submitted its final Application for Payment, as more fully set forth in Section 6.09A.
- P. "Force Majeure" means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in paragraph 3.05A.
- Q. "Notice" means a written notice which has been delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended or, if delivered or sent by registered or certified mail, to the last business address known to the party giving notice. Although not capitalized in the following provisions, "notice" shall mean "Notice" in Sections 3.03B, 3.03C, 3.06A, 5.01D, 5.02C, 5.03, 5.09A, 5.10A, 5.15A, 5.16F, 5.17, 9.01A, 9.02A, and 9.02B.
- R. "Notice to Proceed" means a written Notice from Owner to Contractor that permits pre-construction and construction activities to commence upon specified terms and defines the date on which the Contract Time begins to run.
- S. "Owner" means the Washington State University Board of Regents, which has the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents. Owner shall designate in writing a Representative who shall have authority to bind Owner with respect to all matters requiring Owner's approval or authorization. A/E does not have such authority.
- T. "Person" means a corporation, partnership, business association of any kind, trust, company, or individual.
- U. "Prior Occupancy" means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08A.
- V. "Progress Schedule" means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.02.
- W. "Project" means the total construction of which the Work performed in accordance with the Contract Documents may be the whole or a part and which may include construction by Owner or by separate contractors.
- X. "Project Record" means the separate set of Drawings and Specifications as further set forth in paragraph 4.02A.
- Y. "Schedule of Values" means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail and format as requested by Owner.
- Z. "Specifications" are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

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- AA. "Subcontract" means a contract between Contractor and a Subcontractor for the purpose of obtaining supplies, materials, equipment, work or services of any kind for or in connection with the Work. Although not capitalized in the following provisions, "subcontract" shall mean "Subcontract" in Sections 5.10A, 5.20E, 9.01B, and 9.02B.
- BB. "Subcontractor" means any Person of any tier, other than Contractor, who agrees to furnish or furnishes by contract with, or through Contractor, any supplies, materials, equipment, or services of any kind in connection with the Work. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor. Although not capitalized in the following provisions, "subcontractor" shall mean "Subcontractor" in Sections 5.04B, 5.04C, 5.04G, 5.20A, and 5.21B.
- CC. "Substantial Completion" means that stage in the progress of the Work (or portion of the Work designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so that Owner can fully occupy or utilize the Work (or portion designated by Owner) for its intended use, as more fully set forth in Section 6.07. There may be separate dates of Substantial Completion specified in the Contract Documents for various phases or portions of the Work.
- DD. "Work" means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits, and the manufacture and fabrication of components, performed, furnished, or provided in accordance with the Contract Documents. Although not capitalized in the following provisions, "work" shall mean "Work" in Sections 3.02D, 5.04B, 5.04C, 5.07D, 5.12A, 6.02 and 7.02A.
- EE. A "Work Directive" ("WD") is a binding written order prepared by Owner that directs Work prior to total agreement on adjustment, if any, in the Contract Sum or Contract Time, or both.
- FF. "Work Site" means the space identified and circumscribed on construction documents. The work site is controlled by the Contractor and the Contractor is responsible for compliance to regulatory requirements within the circumscribed area. Changes to the work site shall be submitted by Contractor and approved by Owner.

1.02 ORDER OF PRECEDENCE

Any conflict or inconsistency in the Contract Documents shall be resolved by giving the documents precedence in the following order, with a revision to a Contract Document having precedence over the original document and a later document having precedence over an earlier document:

1. Signed Agreement, with any Change Orders having precedence.
2. Supplemental Conditions.
3. Modifications to the General Conditions.
4. General Conditions.
5. Specifications and Drawings. The Specifications and Drawings are complementary and shall have equal precedence. Thus, anything mentioned in the Specifications but not shown on the Drawings, or shown on the Drawings but not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both. If there is any inconsistency between the Specifications and Drawings, Contractor will make an inquiry to Owner to determine how to proceed. Unless otherwise directed, Contractor will provide the better quality or greater quantity of any Work or materials, as reasonably interpreted by Owner, at no change in the Contract Sum or Contract

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Time. In case of conflict within the Specifications, provisions in Division 1 shall take precedence over provisions of any other Division. In case of conflict within the Drawings, large scale Drawings shall take precedence over small scale Drawings.

1.03 EXECUTION AND INTENT

Contractor Representations: Contractor makes the following representations to Owner:

1. Contract Sum and Contract Time reasonable: The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;
2. Contractor familiar with project: Contractor has carefully reviewed the Contract Documents, visited and examined the Project site, become familiar with the local conditions in which the Work is to be performed, and satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services and other items to be furnished and all other requirements of the Contract Documents, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof;
3. Contractor financially capable: Contractor is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform Contractor's obligations required by the Contract Documents; and
4. Contractor can complete Work: Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform the obligations required by the Contract Documents and has sufficient experience and competence to do so.

PART 2 - INSURANCE AND BONDS

2.01 CONTRACTOR'S LIABILITY INSURANCE

General insurance requirements: Prior to commencement of the Work, Contractor shall obtain all the insurance required by the Contract Documents and provide evidence satisfactory to Owner that such insurance has been procured, including but not limited to (1) Certificates of Insurance on ACORD Form 25, and/or ACORD Form 27 or their equivalents, and which shall list any applicable self-insured retentions, (2) the actual costs (expressed as a percentage) of Contractor's liability insurance under Section 2.01A.1 below, (3) applicable endorsements evidencing proof of compliance with the requirements listed below, (4) evidence of State Workers' Compensation coverage, and (5) a copy of any builder's risk policy required by the Contract Documents. All policies, endorsements and certificates must be signed copies and shall contain a provision that policies will not be cancelled without first giving thirty (30) days (or in the event of non-payment of premium, ten (10) days) prior written Notice to Owner. Contractor shall furnish to Owner copies of any subsequently issued endorsements amending, modifying, altering or restricting coverage terms or limits. Review of Contractor's insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained by Part 2 shall be licensed to do business under Chapter 48 RCW or comply with the Surplus Lines Law of the State of Washington. Contractor shall include in the Contract Sum the cost of all insurance and bond costs required for the Work. Insurance carriers providing insurance shall be acceptable to Owner, and its A. M. Best rating shall be indicated on the insurance certificates.

- A. Term of insurance coverage: Contractor shall maintain the following insurance coverage during the Work and for one year after Substantial Completion. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by Section 5.16.

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1. General Liability Insurance: Commercial General Liability (CGL) on an occurrence-based ISO Form CG 00 01 or broader, including products and completed operations, personal and advertising injury, bodily injury and property damage liability arising from Contractor's operations or Work, including operations or Work Contractor may subcontract or sublet to others.

The policy shall be purchased from a company or companies lawfully authorized to do business in the State of Washington possessing an A.M. Best's policyholder's rating of A or better and a financial rating of no less than XI.

Contractor's policy shall be designated primary and non-contributory to Owner's policies, and shall include a waiver of subrogation against Owner. Any self-insured retentions or deductibles must be disclosed and approved by Owner, and Contractor agrees to be responsible for payment of any and all self-insured retentions or deductibles.
 2. Automobile Liability Insurance: Automobile liability on ISO Form CA 00 01 covering Code 1 (any auto).
 3. Stop Gap Liability Insurance for damages because of bodily injuries to Contractor's employees.
- B. Industrial Insurance compliance: Contractor shall comply with the Washington State Industrial Insurance Act and, if applicable, the Federal Longshoremen's and Harbor Workers' Act and the Jones Act.
- C. Insurance to protect for the following: All insurance coverages shall protect against claims for damages for personal and bodily injury or death, as well as claims for property damage, which may arise from operations in connection with the Work whether such operations are by Contractor or any Subcontractor.
- D. Owner as Additional Insured: All insurance coverages shall be endorsed to include Owner, its officers, and employees, and any required governmental agencies as additional named insureds with coverage at least as broad as ISO Forms CG 20 10, CG 20 37, and CA 20 48, with no self-insured retentions applicable to the additional insureds.
- E. Subcontractor Coverage: Contractor shall ensure and require that Subcontractors have insurance coverage to cover bodily injury and property damage on all operations and all vehicles owned or operated by Subcontractors. Subcontractors shall name Contractor and Owner, any required governmental agencies, and others designated in the Contract Documents as well as their officers and employees, as additional insureds and give at least thirty (30) Days' Notice of cancellation.

2.02 COVERAGE LIMITS

Insurance amounts: The coverage limits shall be not less than the amounts specified in the Agreement; if limits are not specified in the Agreement, coverage limits shall be not less than as follows:

- A. \$1,000,000 per occurrence for bodily injury, property damage, personal and advertising injury.
- B. \$2,000,000 general aggregate to apply separately to each project or location.
- C. \$2,000,000 annual aggregate for products and completed operations.
- D. \$1,000,000 combined single limit each automobile accident or loss.

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- E. \$1,000,000 per accident for bodily injury or occupational disease of Contractor's employees

Coverages and Minimums: Owner's review, specification or approval of the insurance in this Contract or of its coverage or amount shall not relieve or decrease the liability of Contractor under the Contract Documents or otherwise. Coverages are the minimum to be provided and are not limitations of liability under the Contract, indemnification, or applicable law provisions. Contractor may, at its expense, purchase larger coverage amounts.

2.03 PROOF OF INSURANCE COVERAGE

- A. Certificate & endorsements required: Prior to commencement of the Work, Contractor shall furnish to Owner completed certificates of insurance coverage and endorsements evidencing compliance with the additional insured, cancellation, and waiver of subrogation requirements..
- B. List Project info: All insurance certificates shall name Owner's Project number and Project title.
- C. Policy: In the event of a claim or loss, Contractor shall promptly provide Owner with a complete copy of all applicable policies.

2.04 PAYMENT AND PERFORMANCE BONDS

Conditions for bonds: Payment and performance bonds for 100% of the Contract Award Amount, plus Washington State sales tax, shall be furnished for the Work, using the current version of the Payment Bond and Performance Bond form published by and available from the American Institute of Architects (AIA) – form A312. No payment or performance bond is required if the Contract Sum is \$150,000 or less and Contractor requests and the Owner agrees that Owner may, in lieu of the bond, retain 10% of the Contract Sum for the period specified in RCW 39.08.010.

2.05 ALTERNATIVE SURETY

When alternative surety required: Contractor shall promptly furnish payment and performance bonds from an alternative surety if:

- A. Owner has a reasonable objection to the surety; or
- B. Any surety fails to furnish reports on its financial condition if required by Owner.

2.06 BUILDER'S RISK

- A. Owner to buy builder's risk insurance: Owner shall purchase and maintain builder's risk insurance in the amount of the Contract Sum, including all Change Orders, for the Work on a replacement cost basis until Substantial Completion. For projects not involving new building construction, an "Installation Floater" is an acceptable substitute for the builder's risk insurance. The insurance shall cover the interests of Owner, Contractor, and any Subcontractors, as their interests may appear.
- B. Losses covered: Builder's risk insurance shall be placed on an "all risk" basis or equivalent policy form and insure against the perils of fire and extended coverage and physical loss or damage including theft, vandalism, malicious mischief, collapse, false work, flood, wind, temporary buildings, earthquake, debris removal including demolition, and shall cover reasonable compensation for A/E's services and expenses required as a result of an insured loss. Losses up to the deductible amount shall be the responsibility of Contractor.

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- C. Waiver of subrogation rights: Owner and Contractor waive all subrogation rights against each other, any Subcontractors, A/E, A/E's subconsultants, separate contractors described in Section 5.19, if any, and any of their subcontractors, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Section 2.06 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by Owner as fiduciary. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective to a Person or entity even though that Person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the Person or entity had an insurable interest in the property damaged.

PART 3 - TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

Contractor to meet schedule: Contractor shall diligently prosecute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion within the time period specified in the Contract Documents. If Contractor fails to perform in a timely manner in accordance with the Contract Documents and, through the fault of Contractor or Subcontractor(s), fails to meet the Progress Schedule, Contractor shall be in default and shall take such steps as may be necessary to immediately improve its progress without change in the Contract Sum or Contract Time.

3.02 CONSTRUCTION SCHEDULE

- A. Preliminary Progress Schedule: Unless otherwise provided in Division 1, Contractor shall, within 14 Days after issuance of the Notice to Proceed, submit a preliminary Progress Schedule consistent with the requirements of the Contract Documents. The Progress Schedule shall not exceed time limits specified by the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work, and shall show the sequence in which Contractor proposes to perform the Work, and the dates on which Contractor plans to start and finish major portions of the Work, including dates for submission of Submittals per Section 4.03, which shall be coordinated with the Progress Schedule and identify dates for Owner review, and for acquiring materials and equipment.
- B. Form of Progress Schedule: Unless otherwise provided in Division 1, the Progress Schedule shall be in the form of a bar chart, or a critical path method analysis, as specified by Owner. The preliminary Progress Schedule may be general, showing the major portions of the Work, with a more detailed Progress Schedule submitted as directed by Owner.
- C. Owner comments on Progress Schedule: Owner shall return comments on the preliminary Progress Schedule to Contractor within 14 Days of receipt. Review by Owner of Contractor's schedule does not constitute an approval or acceptance of Contractor's construction means, methods, logic or sequencing, or its ability to complete the Work within the Contract Time. Contractor shall revise and resubmit its schedule, as necessary. Owner may withhold a portion of progress payments until a Progress Schedule has been submitted that meets the requirements of this Section 3.02.
- D. Monthly updates and compliance with Progress Schedule: Contractor shall utilize and comply with the Progress Schedule. On a monthly basis, or as otherwise directed by Owner, Contractor shall submit an updated Progress Schedule at its own expense to Owner indicating actual progress. If, in the opinion of Owner, Contractor is not in conformance with the Progress Schedule for reasons other than acts of Force Majeure as identified in Section 3.05, Contractor shall take such steps as are necessary to bring the actual completion dates of its work activities into conformance with the Progress Schedule, and if directed by Owner, Contractor shall submit a

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corrective action plan or revise the Progress Schedule to reconcile with the actual progress of the Work.

- E. Contractor to notify Owner of delays: Contractor shall perform the Work in accordance with the most recent Progress Schedule submitted to Owner. Contractor shall promptly notify Owner in writing of any actual or anticipated event that is delaying or could delay achievement of any milestone or performance of any critical path activity of the Work. Contractor shall indicate the expected duration of the delay, the anticipated effect of the delay on the Progress Schedule, and the action being or to be taken to correct the problem. Provision of such Notice does not relieve Contractor of its obligation to complete the Work within the Contract Time.

3.03 OWNER'S RIGHT TO SUSPEND THE WORK FOR CONVENIENCE

- A. Owner may suspend Work: Owner may, at its sole discretion, order Contractor, in writing, to suspend all or any part of the Work for up to 90 Days, or for such longer period as mutually agreed.
- B. Compliance with suspension; Owner's options: Upon receipt of a written notice suspending the Work, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost of performance directly attributable to such suspension. Within a period up to 90 Days after the notice is delivered to Contractor, or within any extension of that period to which the parties shall have agreed, Owner shall either:
1. Cancel the written notice suspending the Work; or
 2. Terminate the Work covered by the notice as provided in the termination provisions of Part 9.
- C. Resumption of Work: If a written notice suspending the Work is cancelled or the period of the notice or any extension thereof expires, Contractor shall resume Work.
- D. Equitable Adjustment for suspensions: Contractor shall be entitled to an equitable adjustment in the Contract Time, or Contract Sum, or both, for increases in the time or cost of performance directly attributable to such suspension, provided Contractor complies with all requirements set forth in Part 7.

3.04 OWNER'S RIGHT TO STOP AND/OR CARRY OUT THE WORK FOR CAUSE

- A. Owner may stop Work for Contractor's failure to perform: If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until Owner has accepted satisfactory corrective action.
- B. Owner may carry out the Work after Contractor's failure to perform: If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a 14-Day period after receipt of written Notice from Owner to commence and continue to make reasonable progress toward the correction of such default or neglect with diligence and promptness, Owner may, without prejudice to other remedies Owner may have, correct such deficiencies, and an appropriate Change Order shall be issued deducting from payments then or thereafter due Contractor the reasonable cost of correcting the deficiencies, including Owner's expenses and compensation for A/E's additional services made necessary by the default, neglect or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Owner.

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- C. No equitable adjustment for Contractor's failure to perform: Contractor shall not be entitled to an equitable adjustment in the Contract Time or Contract Sum for any increased cost or time of performance attributable to Contractor's failure or refusal to perform or from any reasonable remedial action taken by Owner based upon such failure.

3.05 DELAY

- A. Force Majeure actions not a default; Force Majeure defined: Any delay in or failure of performance by Owner or Contractor shall not constitute a default if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party. Acts of Force Majeure include, but are not limited to:

1. Acts of God or the public enemy;
2. Acts or omissions of any government entity not the fault of Owner or Contractor;
3. Fire or other casualty for which Contractor is not responsible;
4. Quarantine or epidemic;
5. Industry-wide strike or defensive lockout;
6. Unusually severe weather conditions which could not have been reasonably anticipated; and
7. Unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available.
 - a. "Unusually severe weather" shall mean weather conditions that are abnormal for the period of time for which Force Majeure is claimed, that could not reasonably have been anticipated or avoided, and that had an adverse effect on the Progress Schedule. Neither the Contract Time nor the Contract Sum will be adjusted for normal inclement weather or if the Work was behind schedule (unless behind schedule for a reason not the responsibility of the Contractor) at the time the unusually severe weather occurred. The Contractor shall be entitled to a change in the Contract Time only (but not a change in the Contract Sum) if the Contractor can substantiate to the reasonable satisfaction of the Owner that there was unusually severe weather as compared to normal using a ten (10) year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce National Oceanic and Atmospheric Administration for the locale closest to the Project, and that the abnormal inclement weather actually impacted and extended the critical path of the Work. Unusual is defined as a 10-year weather event of either or both precipitation or temperature extremes that fall outside the upper and lower ranges within a 10-year periodicity

- B. Contract Time adjustment for Force Majeure: Contractor shall be entitled to an equitable adjustment in the Contract Time for changes in the time of performance directly attributable to an act of Force Majeure, provided it makes a request for equitable adjustment. Contractor shall not be entitled to an adjustment in the Contract Sum resulting from an act of Force Majeure.

- C. Contract Time or Contract Sum adjustment if Owner at fault: Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in

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Contract Sum, if the cost or time of Contractor's performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request for equitable adjustment.

- D. No Contract Time or Contract Sum adjustment if Contractor at fault: Contractor shall not be entitled to an adjustment in Contract Time or in the Contract Sum for any delay or failure of performance to the extent such delay or failure was caused by Contractor or anyone for whose acts Contractor is responsible.
- E. Contract Time adjustment only for concurrent fault: To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, provided it makes a request for equitable adjustment, but shall not be entitled to an adjustment in Contract Sum.
- F. Contractor to mitigate delay impacts: Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise. Contractor shall not recover damages, an equitable adjustment or an increase in the Contract Sum or Contract Time from Owner where Contractor could have reasonably avoided the delay by the exercise of due diligence.
- G. Types of damages permitted: If Contractor and its Subcontractors are entitled to a change in the Contract Sum, the amount of the change shall be the actual costs incurred by the Contractor and Subcontractors directly related to the change calculated in accordance with Section 7.02. Contractor and its Subcontractors shall not otherwise (not reflected by the actual costs incurred as calculated in accordance with Section 7.02) be entitled to damages arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant underrun; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended overhead; profit upon damages for delay; impact damages including cumulative impacts; or similar damages. Any effect that such alleged events may have on Contractor or its Subcontractors, to the extent not otherwise paid, is subsumed in and fully compensated through the percentage Fee on Change Orders paid through Section 7.02A.3.e and any liquidated damages paid hereunder.

3.06 NOTICE TO OWNER OF LABOR DISPUTES

- A. Contractor to notify Owner of labor disputes: If Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay timely performance in accordance with the Contract Documents, Contractor shall immediately give notice, including all relevant information, to Owner.
- B. Pass through notification provisions to Subcontractors: Contractor agrees to insert a provision in its Subcontracts and to require insertion in all sub-subcontracts, that in the event timely performance of any such contract is delayed or threatened by delay by any actual or potential labor dispute, the Subcontractor or Sub-subcontractor shall immediately notify the next higher tier Subcontractor or Contractor, as the case may be, of all relevant information concerning the dispute.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

- A. Liquidated Damages:
 - 1. Reason for Liquidated Damages: Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence.

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Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.

2. Calculation of Liquidated Damages amount: The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from periodic payments to the Contractor.
 3. Contractor responsible even if Liquidated Damages assessed: Assessment of liquidated damages shall not release Contractor from any obligations or liabilities pursuant to the Contract Documents. If Contractor substantially fails to perform in a timely manner in accordance with the Contract Documents and, through the fault of Contractor or Subcontractor(s), fails to achieve Substantial Completion within the Contract Time, Contractor shall be in default.
- B. Actual Damages: If no liquidated damages are established, actual damages may be assessed for failure to achieve both Substantial Completion and Final Completion within the time provided. Actual damages will be calculated on the basis of direct architectural, administrative, and other related costs attributable to the Project from the date when Substantial and/or Final Completion should have been achieved, as applicable. Owner may offset these costs against any payment due Contractor.

PART 4 - SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

- A. Specifications and Drawings are basis of the Work: The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Drawings, Specifications, and other provisions of the Contract Documents.
- B. Parts of the Contract Documents are complementary: The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.
- C. Contractor to report discrepancies in Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency, or omission in the Contract Documents, it shall promptly and before proceeding with the Work affected thereby, report such conflict, error, inconsistency, or omission to A/E in writing.
- D. Contractor knowledge of discrepancy in documents – responsibility: Contractor shall do no Work without applicable Drawings, Specifications, and, where required, accepted shop drawings and other Submittals, unless instructed to do so in writing by Owner. If Contractor performs any construction activity, and it knows or reasonably should have known that any of the Contract

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Documents contain a conflict, error, inconsistency, or omission, Contractor shall be responsible for the performance and shall bear the cost for its correction.

- E. Contractor to perform Work implied by Contract Documents: Contractor shall provide any work or materials the provision of which is clearly implied and is within the scope of the Contract Documents even if the Contract Documents do not mention them specifically.
- F. Interpretation questions referred to A/E: Questions regarding interpretation of the requirements of the Contract Documents shall be referred to the A/E.

4.02 PROJECT RECORD

- A. Contractor to maintain Project Record Drawings and Specifications: Contractor shall legibly mark in ink on a separate set of the Drawings and Specifications all actual construction, including depths of foundations, horizontal and vertical locations of internal and underground utilities and appurtenances referenced to permanent visible and accessible surface improvements, field changes of dimensions and details, actual suppliers, manufacturers and trade names, models of installed equipment, changes made to the building enclosure, and Change Order Proposals. This separate set of Drawings and Specifications shall be the "Project Record." The Project Record shall include all Architectural, Mechanical, Electrical, Structural and Civil as-built drawings, whether or not any changes occur and shall also include Addenda, Change Orders, WDs and other modifications to the Contract, in good order and marked currently to indicate field changes and selections made during construction, as well as one copy of accepted shop drawings, product data, samples and other required Submittals.
- B. Update Project Record weekly and keep on site: The Project Record shall be maintained on the Project site throughout the construction and shall be clearly labeled "PROJECT RECORD." The Project Record shall be available to A/E and Owner at all times. The Project Record shall be updated at least weekly noting all changes and shall be available to Owner at all times.
- C. Final Project Record to A/E before Final Acceptance: Contractor shall submit the completed and finalized Project Record to A/E prior to Final Acceptance.

4.03 SUBMITTALS

- A. Definition of Submittals: "Submittals" means documents and other information required to be submitted to A/E by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural elements; and the installation (i.e. form, fit, and attachment details) of materials and equipment. Submittals can include, but are not limited to, drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples, and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use, and disclose Submittals provided in accordance with the Contract Documents.
- B. Approval of Submittals by Contractor and A/E: Contractor shall coordinate all Submittals with the Progress Schedule per Section 3.02A, shall review them for accuracy, completeness, and compliance with the Contract Documents, and shall indicate its approval thereon as evidence of such coordination and review. Where required by law, Submittals shall be stamped by an appropriate professional licensed by the state of Washington. Submittals submitted to A/E without evidence of Contractor's approval shall be returned for resubmission. Contractor shall

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review, approve, and submit Submittals with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of Owner or separate contractors. Contractor's submittal schedule shall allow a reasonable time for A/E review. A/E will review, approve, or take other appropriate action on the Submittals. Contractor shall perform no portion of the Work requiring submittal and review of Submittals until the respective submittal has been reviewed and the A/E has approved or taken other appropriate action. Owner and A/E shall respond to Submittal with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Submittals. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

- C. Contractor not relieved of responsibility when Submittals approved: Approval, or other appropriate action with regard to Submittals, by Owner or A/E shall not relieve Contractor of responsibility for any errors or omissions in such Submittals, nor from responsibility for compliance with the requirements of the Contract Documents. Unless specified in the Contract Documents, review by Owner or A/E shall not constitute an approval of the safety precautions employed by Contractor during construction, or constitute an approval of Contractor's means or methods of construction. If Contractor fails to obtain approval before installation and the item or work is subsequently rejected, Contractor shall be responsible for all costs of correction.
- D. Variations between Submittals and Contract Documents: Submittals, including product data, samples and similar submissions, are not Contract Documents. If Submittals vary from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Submittals, at the time it submits the Submittals containing such variations. If Owner approves any such variation, an appropriate Change Order will be issued. If the variation is minor and does not involve an adjustment in the Contract Sum or Contract Time, a Change Order need not be issued; however, the modification shall be approved by Owner in writing and recorded upon the Project Record. Approval for substitutions shall not be sought and shall not be approved through the submission of Submittals.
- E. Contractor to submit 5 copies of Submittals: Unless otherwise provided in Division 1, Contractor shall submit to A/E for approval 5 copies of all Submittals. Unless otherwise indicated, 3 sets of all Submittals shall be retained by A/E and 2 sets shall be returned to Contractor.

4.04 ORGANIZATION OF SPECIFICATIONS

Specification organization by trade: Specifications are prepared in sections which conform generally with trade practices. These sections are for Owner and Contractor convenience and shall not control Contractor in dividing the Work among the Subcontractors or in establishing the extent of the Work to be performed by any trade.

4.05 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

- A. A/E, not Contractor, owns Copyright of Drawings and Specifications: The Drawings, Specifications, and other documents prepared by A/E are instruments of A/E's service through which the Work to be executed by Contractor is described. Neither Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by A/E, and A/E shall be deemed the author of them and will, along with any rights of Owner, retain all common law, statutory, and other reserved rights, in addition to the copyright. All copies of these documents, except Contractor's set, shall be returned or suitably accounted for to A/E, on request, upon completion of the Work.
- B. Drawings and Specifications to be used only for this Project: The Drawings, Specifications, and other documents prepared by the A/E, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor on

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other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner and A/E. Contractor and Subcontractors are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by A/E appropriate to and for use in the execution of their Work.

- C. License granted to Owner: Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional cost or royalty, to use for its own purposes (including reproduction) all Submittals, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Submittals, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Submittals, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in Section 5.03 and 5.22 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Submittals hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this section.
- D. Submittals to be used only for this Project: Submittals prepared by Contractor, Subcontractors of any tier, or its or their equipment or material suppliers, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor of any tier, or material or equipment supplier, on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner. The Contractor, Subcontractors of any tier, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Submittals appropriate to and for use in the execution of their Work under the Contract Documents.
- E. Electronic Files: If the parties intend to transmit the instruments of service or any other information or documentation in digital form (other than PDF), they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Contract Documents.

PART 5 - PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

- A. Contractor responsible for Means and Methods of construction: Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. 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, unless the Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner.
- B. Competent superintendent required: Contractor, as soon as practicable after award of the Contract, shall furnish in writing to Owner the name and qualifications of its proposed superintendent. Owner may reply within 14 Days to Contractor in writing stating (1) whether Owner has reasonable objection to the proposed superintendent or (2) that Owner requires additional time to review. Failure of Owner to reply within the 14-Day period shall constitute Notice of no reasonable objection. The superintendent shall not be employed on any other project during the course of the Work. Unless approved by the Owner's representative and only when overseeing projects on the same campus or location where oversight and supervision will not be degraded. Performance of the Work shall be directly supervised by a competent superintendent who shall be in attendance at the Project site during performance of the Work and who has authority to act on behalf of Contractor. Communications given to the superintendent shall be as binding as if given to Contractor. The superintendent must be satisfactory to Owner and shall not be changed without the prior written consent of Owner. Owner may require

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Contractor to remove the superintendent from the Work or Project site, if Owner reasonably deems the superintendent incompetent, careless, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.

- C. Contractor responsible for acts and omissions of self and agents: Contractor shall be responsible to Owner for acts and omissions of Contractor, Subcontractors, and their employees and agents.
- D. Contractor to employ competent and disciplined workforce: Contractor shall enforce strict discipline and good order among all of the Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor's employees shall at all times conduct business in a manner which assures fair, equal, and nondiscriminatory treatment of all persons. Owner may, by written notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.
- E. Contractor to keep project documents on site: Contractor shall keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Submittals, and permits and permit drawings.
- F. Contractor to comply with ethical standards: Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors' employees, if they are in violation of this act.

5.02 PERMITS, FEES, AND NOTICES

- A. Contractor to obtain and pay for permits: Unless otherwise provided in the Contract Documents, Contractor shall secure and pay for the building, any land use permits and all other permits, licenses, and inspections necessary for proper execution and completion of the Work. Prior to Final Acceptance, the approved, signed permits shall be delivered to Owner.
- B. Allowances for permit fees: If allowances for permits or utility fees are called for in the Contract Documents and set forth in Contractor's bid, and the actual costs of those permits or fees differ from the allowances in the Contract Documents, the difference shall be adjusted by Change Order.
- C. Contractor to comply with all applicable laws: Contractor shall comply with and give notices required by all federal, state, and local laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.
- D. Taxes: Contractor shall pay sales, consumer, use, business and occupation, income and similar taxes for the Work that are legally enacted when the initial Contract Sum is agreed.

5.03 PATENTS AND ROYALTIES

Payment, indemnification, and notice: Contractor is responsible for, and shall pay, all royalties and license fees. Contractor shall defend, indemnify, and hold Owner harmless from any costs, expenses, and liabilities arising out of the infringement by Contractor of any patent, copyright, or other intellectual property right used in the Work; however, provided that Contractor gives prompt notice, Contractor shall not be responsible for such defense or indemnity when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents. If Contractor has reason to believe that use of the required design, process, or product constitutes an infringement of a patent or copyright, it shall promptly notify Owner of such potential infringement.

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5.04 PREVAILING WAGES

- A. Contractor to pay Prevailing Wages: Contractor shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries. The schedule of prevailing wage rates for the locality or localities of the Work, is determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor's responsibility to verify the applicable prevailing wage rate.
- B. Statement of Intent to Pay Prevailing Wages: Before payment is made by the Owner to the Contractor for any work performed by the Contractor and subcontractors whose work is included in the application for payment, the Contractor shall submit, or shall have previously submitted to the Owner for the Project, a Statement of Intent to Pay Prevailing Wages, approved by the Department of Labor and Industries, certifying the rate of hourly wage paid and to be paid each classification of laborers, workers, or mechanics employed upon the Work by Contractor and Subcontractors. Such rates of hourly wage shall not be less than the prevailing wage rate.
- C. Affidavit of Wages Paid: Prior to release of retainage, the Contractor shall submit to the Owner an Affidavit of Wages Paid, approved by the Department of Labor and Industries, for the Contractor and every subcontractor that performed work on the Project.
- D. Disputes: Disputes regarding prevailing wage rates shall be referred for arbitration to the Director of the Department of Labor and Industries. The arbitration decision shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060.
- E. Statement with pay application; Post Statements of Intent at job site: Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the prefilled statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.
- F. Contractor to pay for Statements of Intent and Affidavits: In compliance with chapter 296-127 WAC, Contractor shall pay to the Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification.
- G. Certified Payrolls: Consistent with WAC 296-127-320, the Contractor and any subcontractor shall submit a certified copy of payroll records if requested.

5.05 HOURS OF LABOR

- A. Overtime: Contractor shall comply with all applicable provisions of RCW 49.28 and they are incorporated herein by reference.

5.06 NONDISCRIMINATION

- A. Discrimination prohibited by applicable laws: Discrimination in all phases of employment is prohibited by, among other laws and regulations, Title VII of the Civil Rights Act of 1964, the Vietnam Era Veterans Readjustment Act of 1974, Sections 503 and 504 of the Vocational Rehabilitation Act of 1973, the Equal Employment Act of 1972, the Age Discrimination Act of 1967, the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, Presidential Executive Order 11246, Executive Order 11375, the Washington State Law Against Discrimination, RCW 49.60, and Gubernatorial Executive Order 85-09. These laws and

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regulations establish minimum requirements for affirmative action and fair employment practices which Contractor must meet.

B. During performance of the Work:

1. Protected Classes: Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability, Vietnam era veteran status, or disabled veteran status, nor commit any other unfair practices as defined in RCW 49.60.
2. Advertisements to state nondiscrimination: Contractor shall, in all solicitations or advertisements for employees placed by or for it, state that all qualified applicants will be considered for employment, without regard to race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability.
3. Contractor to notify unions and others of nondiscrimination: Contractor shall send to each labor union, employment agency, or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the labor union, employment agency, or workers' representative of Contractor's obligations according to the Contract Documents and RCW 49.60.
4. Owner and State access to Contractor records: Contractor shall permit access to its books, records, and accounts, and to its premises by Owner, and by the Washington State Human Rights Commission, for the purpose of investigation to ascertain compliance with this section of the Contract Documents.
5. Pass through provisions to Subcontractors: Contractor shall include the provisions of this section in every Subcontract.

5.07 SAFETY PRECAUTIONS

- A. Contractor responsible for safety: Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work. Contractor shall be solely and completely responsible for conditions of the Project site, including safety of all persons and property, during performance of the Work. Contractor shall maintain the Project site and perform the Work in a manner that meets statutory and common-law requirements for the provision of a safe place to work. This requirement shall apply continuously and not be limited to working hours. Any review by Owner or A/E of Contractor's performance shall not be construed to include a review of the adequacy of Contractor's safety measures in, on or near the site of the Work.
- B. Contractor safety responsibilities: In carrying out its responsibilities according to the Contract Documents, Contractor shall protect the lives and health of employees performing the Work and other persons who may be affected by the Work; prevent damage to materials, supplies, and equipment whether on site or stored off-site; and prevent damage to other property at the site or adjacent thereto. Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss; shall erect and maintain all necessary safeguards for such safety and protection; and shall notify owners of adjacent property and utilities when prosecution of the Work may affect them.
- C. Contractor to maintain safety records: Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report

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any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.

- D. Contractor to provide HazMat training: Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.
1. Information. At a minimum, Contractor shall inform persons working on the Project site of:
 - a. WAC: The requirements of chapter 296-62 WAC, General Occupational Health Standards;
 - b. Presence of hazardous chemicals: Any operations in their work area where hazardous chemicals are present; and
 - c. Hazard communications program: The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety data sheets required by chapter 296-62 WAC.
 2. Training. At a minimum, Contractor shall provide training for persons working on the Project site which includes:
 - a. Detecting hazardous chemicals: Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
 - b. Hazards of chemicals: The physical and health hazards of the chemicals in the work area;
 - c. Protection from hazards: The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, or its Subcontractors, or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
 - d. Hazard communications program: The details of the hazard communications program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.
- E. Hazardous, toxic or harmful substances: Contractor's responsibility for hazardous, toxic, or harmful substances shall include the following duties:
1. Illegal use of dangerous substances: Contractor shall not keep, use, dispose, transport, generate, or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous, or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances"), in violation of any such law, regulation, statute, or ordinance, but in no case shall any such hazardous substance be stored more than 90 Days on the Project site.

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2. Contractor notifications of spills, failures, inspections, and fines: Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state, or local law, regulation, or ordinance; all inspections of the Project site by any regulatory entity concerning the same; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.
- F. Public safety and traffic: All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor's responsibilities. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.
- G. Contractor to act in an emergency: In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.
- H. No duty of safety by Owner or A/E: Nothing provided in this Section 5.07 shall relieve Contractor of sole and complete responsibility for safety at the Project site, for sole and complete responsibility for any violation of safety or property protection requirements or the correction thereof, or impose any duty upon Owner or A/E with regard to, or as constituting any express or implied assumption of control or responsibility over, any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public. Any Notice Owner or A/E gives to Contractor of a safety or property protection violation will not: (1) relieve Contractor of sole and complete responsibility for the violation and the correction thereof, or for sole liability for the consequences of said violation; (2) impose any obligation upon Owner or A/E to inspect or review Contractor's safety program or precautions or to enforce Contractor's compliance with the requirements of this Section 5.07; or (3) impose any continuing obligation upon Owner or A/E to provide such Notice to Contractor or any other persons or entity.

5.08 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

- A. Limited storage areas: Contractor shall confine all operations, including storage of materials, to Owner-approved areas.
- B. Temporary buildings and utilities at Contractor expense: Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be provided by Contractor only with the consent of Owner and without expense to Owner. The temporary buildings and utilities shall be removed by Contractor at its expense upon completion of the Work.
- C. Roads and vehicle loads: Contractor shall use only established roadways or temporary roadways authorized by Owner. When materials are transported in prosecuting the Work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by federal, state, or local law or regulation.
- D. Ownership and reporting by Contractor of demolished materials: Ownership and control of all materials or facility components to be demolished or removed from the Project site by Contractor shall immediately vest in Contractor upon severance of the component from the facility or severance of the material from the Project site. Contractor shall be responsible for compliance with all laws governing the storage and ultimate disposal. Contractor shall provide Owner with a copy of all manifests and receipts evidencing proper disposal when required by Owner or applicable law.

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- E. Contractor responsible for care of materials and equipment on-site: Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site. Materials and equipment may be stored on the premises subject to approval of Owner. When Contractor uses any portion of the Project site as a shop, Contractor shall be responsible for any repairs, patching, or cleaning arising from such use.
- F. Contractor responsible for loss of materials and equipment: Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Substantial Completion, and shall repair or replace without cost to Owner any damage or loss that may occur, except damages or loss caused by the acts or omissions of Owner. Contractor shall also protect and be responsible for any damage or loss to the Work, or to the materials or equipment, after the date of Substantial Completion, and shall repair or replace without cost to Owner any such damage or loss that might occur, to the extent such damages or loss are caused by the acts or omissions of Contractor, or any Subcontractor.

5.09 PRIOR NOTICE OF EXCAVATION

- A. Excavation defined; Use of locator services: "Excavation" means an operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than 12 inches in depth for agricultural purposes, or road ditch maintenance that does not change the original road grade or ditch flow line. Before commencing any excavation, Contractor shall provide notice of the scheduled commencement of excavation to all owners of underground facilities or utilities, through locator services.

5.10 UNFORESEEN PHYSICAL CONDITIONS

- A. Notice requirement for concealed or unknown conditions: If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then Contractor shall give written notice to Owner promptly and in no event later than 7 Days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.
- B. Adjustment in Contract Time and Contract Sum: If such conditions differ materially and cause a change in Contractor's cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in Part 7.

5.11 PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES AND IMPROVEMENTS

- A. Contractor to protect and repair property: At all times until Owner's occupancy of the Work or a designated portion of the Work, Contractor shall protect the Work from damage, weather, deterioration, theft, vandalism and malicious mischief and shall bear the risk of any uninsured loss or destruction of, or injury or damage to, all materials, equipment, tools, and other items incorporated or to be incorporated in the Work or designated portion, or consumed or used in the performance of the Work or designated portion, including all Work in process and completed Work. Contractor shall protect from damage all existing structures, equipment, improvements, utilities, streets, curbs, walks and vegetation at or near the Project site or on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage

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promptly, Owner may have the necessary work performed and charge the cost to Contractor. If a governmental authority having jurisdiction requires that the repairing and patching be done with its own labor and/or materials, Contractor shall abide by such regulations, and it shall pay for this work at no additional cost to Owner.

- B. Tree and vegetation protection: Contractor shall only remove trees when specifically authorized to do so, and shall protect vegetation that will remain in place.
- C. Special site conditions: If, in the course of the Work, Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, Contractor shall immediately suspend any operations that would affect them and shall notify Owner and A/E. Upon receipt of such Notice, Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. Contractor shall continue to suspend these operations until otherwise instructed by Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Part 8.

5.12 LAYOUT OF WORK

- A. Advanced planning of the Work: Contractor shall plan and lay out the Work in advance of operations so as to coordinate all work without delay or revision.
- B. Layout responsibilities: Contractor shall lay out the Work from Owner-established baselines and bench marks indicated on the Drawings, and shall be responsible for all field measurements in connection with the layout. Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the Work. Contractor shall be responsible for executing the Work to the lines and grades that may be established. Contractor shall be responsible for maintaining or restoring all stakes and other marks established.

5.13 MATERIAL AND EQUIPMENT

- A. Contractor to provide new and equivalent equipment and materials: All equipment, material, and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of A/E and after submittal and approval of a substitute request, is equal to that named in the Specifications, unless otherwise specifically provided in the Contract Documents.
- B. Contractor responsible for fitting parts together: Contractor shall do all cutting, fitting, or patching that may be required to complete the Work or to make its several parts fit together properly, or receive or be received by work of others set forth in, or reasonably implied by, the Contract Documents. Contractor shall not damage or endanger any work of Owner or separate contractors by cutting, excavating, or otherwise altering the Work and shall not cut or alter the work of any other contractor unless approved in advance by Owner. Contractor shall restore all areas requiring cutting, fitting and patching to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.
- C. Owner may reject defective Work: Should any of the Work be found defective, or in any way not in accordance with the Contract Documents, this Work, in whatever stage of completion, may be

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rejected by Owner. However, neither this authority of Owner nor a decision made either to exercise or not to exercise such authority shall give rise to a duty or responsibility of Owner or its representatives to Contractor, Subcontractors, their agents or employees, or other persons or entities performing portions of the Work.

5.14 AVAILABILITY AND USE OF UTILITY SERVICES

- A. Owner to provide and charge for utilities: Owner shall make all reasonable utilities available to Contractor from existing outlets and supplies, as specified in the Contract Documents. Unless otherwise provided in the Contract Documents, the utility service consumed shall be charged to or paid for by Contractor at prevailing rates charged to Owner or, where the utility is produced by Owner, at reasonable rates determined by Owner. Contractor will carefully conserve any utilities furnished.
- B. Contractor to install temporary connections and meters: Contractor shall, at its expense and in a skillful manner satisfactory to Owner, install and maintain all necessary temporary connections and distribution lines, together with appropriate protective devices, and all meters required to measure the amount of each utility used for the purpose of determining charges. Prior to the date of Final Acceptance, Contractor shall remove all temporary connections, distribution lines, meters, and associated equipment and materials.

5.15 TESTS AND INSPECTION

- A. Contractor to provide for all testing and inspection of Work: Contractor shall maintain an adequate testing and inspection program and perform such tests and inspections as are necessary or required to ensure that the Work conforms to the requirements of the Contract Documents. Contractor shall be responsible for inspection and quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. Contractor shall give Owner timely notice of when and where tests and inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.
- B. Owner may conduct tests and inspections: Owner may, at any reasonable time, conduct such inspections and tests as it deems necessary to ensure that the Work is in accordance with the Contract Documents. Owner shall promptly notify Contractor if an inspection or test reveals that the Work is not in accordance with the Contract Documents. Unless the subject items are expressly accepted by Owner, such Owner inspection and tests are for the sole benefit of Owner and do not:
1. Constitute or imply acceptance;
 2. Relieve Contractor of responsibility for providing adequate quality control measures;
 3. Relieve Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment;
 4. Relieve Contractor of its responsibility to comply with the requirements of the Contract Documents; or
 5. Impair Owner's right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.

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- C. Inspections or inspectors do not modify Contract Documents: Neither observations by an inspector retained by Owner, the presence or absence of such inspector on the site, nor inspections, tests, or approvals by others, shall relieve Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.
- D. Contractor responsibilities on inspections: Contractor shall promptly furnish, without additional charge, all facilities, labor, material and equipment reasonably needed for performing such safe and convenient inspections and tests as may be required by Owner. Owner may charge Contractor any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes reinspection or retest necessary. Owner shall perform its inspections and tests in a manner that will cause no undue delay in the Work.

5.16 CORRECTION OF NONCONFORMING WORK

- A. Work covered by Contractor without inspection: If a portion of the Work is covered contrary to the request of Owner or the requirements in the Contract Documents or a governmental authority having jurisdiction, it must, if required in writing by Owner, be uncovered for Owner's observation and be replaced at Contractor's expense and without change in the Contract Sum or Contract Time.
- B. Payment provisions for uncovering covered Work: If, at any time prior to Final Completion, Owner desires to examine the Work, or any portion of it, which has been covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an adjustment in the Contract Sum for the costs of uncovering and replacement, and, if completion of the Work is thereby delayed, an adjustment in the Contract Time, provided it makes such a request as provided in Part 7. If such Work is not in accordance with the Contract Documents, the Contractor shall pay the costs of examination and reconstruction.
- C. Contractor to correct and pay for non-conforming Work: Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or completed. Contractor shall bear all costs of correcting such nonconforming Work, including additional testing and inspections.
- D. Contractor's compliance with correction and warranty provisions: If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or within one year after the date for commencement of any system warranties established under Section 6.08, or within the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written Notice from Owner to do so. Owner shall give such Notice promptly after discovery of the condition. This period of one year shall be extended, with respect to portions of Work first performed after Substantial Completion, by the period of time between Substantial Completion and the actual performance of the Work. Contractor's duty to correct with respect to Work repaired or replaced shall run for one year from the date of repair or replacement. Obligations under this Section 5.16D shall survive Final Acceptance and are in addition to other warranties provided by contract or law.
- E. Contractor to remove non-conforming Work: Contractor shall remove from the Project site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by Contractor nor accepted by Owner.

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- F. Owner may charge Contractor for non-conforming Work: If Contractor fails to correct nonconforming Work within a reasonable time after written notice to do so, Owner may replace, correct, or remove the nonconforming Work and charge the cost thereof to the Contractor.
- G. Contractor to pay for damaged Work during correction: Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, caused by Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
- H. No Period of limitation on other requirements: Nothing contained in this section shall be construed to establish a period of limitation with respect to other obligations which Contractor might have according to the Contract Documents. Establishment of the time period of one year as described in Section 5.16D relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the Contractor's obligation to comply with the Contract Documents may be sought to be enforced, including the time within which such proceedings may be commenced.
- I. Owner may accept non-conforming Work and charge Contractor: If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable.

5.17 CLEAN UP

Contractor to keep site clean and leave it clean: Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities, and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment, and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat, and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so and the cost thereof shall be charged to Contractor.

5.18 ACCESS TO WORK

Owner and A/E access to Work site: Contractor shall provide Owner and A/E access to the Work in progress wherever located.

5.19 OTHER CONTRACTS

Owner may award other contracts; Contractor to cooperate: Owner may undertake or award other contracts for additional work at or near the Project site. Owner shall help coordinate the activities of Owner's own forces and of each separate contractor engaged by Owner with the Work of Contractor, who shall reasonably cooperate with the other contractors and with Owner's employees and shall carefully adapt scheduling and perform the Work in accordance with these Contract Documents to reasonably accommodate the other work.

5.20 SUBCONTRACTORS AND SUPPLIERS

- A. Subcontractor Responsibility: The Contractor shall include the language of this paragraph in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this paragraph apply to all subcontractors

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regardless of tier. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
 2. Have a current Washington Unified Business Identifier (UBI) number;
 3. If applicable, have:
 - a. Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW;
 - b. A Washington Employment Security Department number, as required in Title 50 RCW;
 - c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - d. An electrical contractor license, if required by Chapter 19.28 RCW;
 - e. An elevator contractor license, if required by Chapter 70.87 RCW.
 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3).
 5. On a project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the Owner's first advertisement of the project.
 6. Meet all supplemental responsibility criteria set forth in the Contract Documents.
- B. Provide names of Subcontractors and use qualified firms: Before submitting the first Application for Payment, Contractor shall furnish in writing to Owner the names, addresses, and telephone numbers of all Subcontractors, as well as suppliers providing materials in excess of \$2,500. Contractor shall utilize Subcontractors and suppliers which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any Subcontractor or supplier to whom Owner has a "reasonable objection," and shall obtain Owner's written consent before making any substitutions or additions. A "reasonable objection" shall include without limitation:
- .1 a proposed Subcontractor differing from the entity listed with a proposal or bid,
 - .2 lack of "responsibility" of the proposed Subcontractor, as defined in RCW 39.04.350 or otherwise in the Contract Documents, or
 - .3 lack of qualification, including technical qualification, as required by the Specifications.
- C. Subcontracts in writing and pass through provision: All Subcontracts must be in writing. By appropriate written agreement, Contractor shall require each Subcontractor, so far as applicable to the Work to be performed by the Subcontractor, to be bound to Contractor by terms of the

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Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this paragraph shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.

- D. Coordination of Subcontractors; Contractor responsible for Work: Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.
- E. Automatic assignment of subcontracts: Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that:
1. Effective only after termination and Owner approval: The assignment is effective only after termination by Owner for cause pursuant to Section 9.01 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; and
 2. Owner assumes Contractor's responsibilities: After the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract.
 3. Impact of bond: The assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

5.21 WARRANTY OF CONSTRUCTION

- A. Contractor warranty of Work: In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed by Contractor.
- B. Contractor responsibilities: With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:
1. Obtain warranties: Obtain, assign if requested, and furnish directly to Owner, all warranties that would be given in normal commercial practice or that are required by the Contract Documents, first executed by the applicable Subcontractor and those suppliers and manufacturers furnishing materials for the Work, and subsequently countersigned by Contractor, which shall extend to Owner all rights, claims, benefits and interests that Contractor may have under express or implied warranties or guarantees against the Subcontractor, supplier or manufacturer for defective or non-conforming Work;
 2. Warranties for benefit of Owner: Require all warranties to be executed, in writing, for the benefit of Owner;
 3. Enforcement of warranties: Enforce all warranties for the benefit of Owner, if directed by Owner; and

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4. Contractor responsibility for subcontractor warranties: Be responsible to enforce any subcontractor's, manufacturer's, or supplier's warranties should they extend beyond the period specified in the Contract Documents.
- C. Warranties beyond Final Acceptance: The obligations under this section shall survive Final Acceptance.

5.22 INDEMNIFICATION

- A. Contractor to indemnify Owner: To the fullest extent permitted by law, Contractor shall defend, indemnify, and hold Owner and A/E, their consultants, and agents and employees, directors, officers, lenders, successors and assigns of any of them (collectively, the "Indemnified Parties"), harmless from and against all third-party claims, demands, losses, damages, or costs, including but not limited to damages arising out of bodily injury or death to persons and damage to property, direct and indirect, or consequential (including but not limited to costs and attorneys' fees incurred on such claims or in proving the right to indemnification), arising out of, caused by or resulting from:
1. Sole negligence of Contractor: The sole negligence or willful misconduct of Contractor or any of its Subcontractors, their agents and anyone directly or indirectly employed by them or anyone for whose acts they may be liable ("Indemnitor");
 2. Concurrent negligence: The concurrent negligence of Indemnitor, but only to the extent of the negligence of Indemnitor; and
 3. Patent infringement: The use of any design, process, or equipment that constitutes an infringement of any United States patent presently issued, or violates any other proprietary interest, including copyright, trademark, and trade secret, unless specifically directed to use such design, process, or equipment by Owner.

The obligations of Contractor under this Section 5.22 shall not be construed to negate, abridge, or otherwise reduce any other right or obligations of indemnity that would otherwise exist as to any party or person described in this Section. To the extent the wording of this Section 5.22 would reduce or eliminate the insurance coverage of Owner or Contractor, this Section 5.22 shall be considered modified to the extent that such insurance coverage is not affected. To the extent that any portion of this Section 5.22 is stricken by a court or arbitrator for any reason, all remaining provisions shall retain their vitality and effect. The provisions of this Section 5.22 shall survive completion, acceptance, final payment and termination of the Contract.

- B. Employee action and RCW Title 51: In any action against Owner and any other entity indemnified in accordance with this section, by any employee of Contractor, its Subcontractors, Sub-subcontractors, agents, or anyone directly or indirectly employed by any of them, the indemnification obligation of this section shall not be limited by a limit on the amount or type of damages, compensation, or benefits payable by or for Contractor or any Subcontractor under RCW Title 51, the Industrial Insurance Act, or any other employee benefit acts. In addition, Contractor waives immunity as to Owner and A/E only, in accordance with RCW Title 51.

PART 6 - PAYMENTS AND COMPLETION

6.01 CONTRACT SUM

Owner shall pay Contract Sum: Owner shall pay Contractor the Contract Sum plus Washington State sales tax for performance of the Work, in accordance with the Contract Documents.

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6.02 SCHEDULE OF VALUES

Contractor to submit Schedule of Values: Before submitting its first Application for Payment, Contractor shall submit to Owner for approval a breakdown allocating the total Contract Sum to each principal category of work, in such detail as requested by Owner ("Schedule of Values"). The approved Schedule of Values shall allocate at least the percentage of the original Contract Sum so designated in the Contract Documents to that portion of the Work between Substantial Completion and Final Completion to recognize not-yet-earned costs for demobilization, Project Record, O&M manuals, and any other requirements for Project closeout and in advancing the Work from Substantial Completion to Final Completion. The approved Schedule of Values shall be used by Owner as a basis for reviewing progress payments. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.

6.03 APPLICATION FOR PAYMENT

- A. Monthly Application for Payment with substantiation: At monthly intervals, unless determined otherwise by Owner, Contractor shall submit to Owner an itemized Application for Payment for Work (using Owner's form) completed in accordance with the Contract Documents and the approved Schedule of Values. Each application shall be supported by such substantiating data as Owner may require.
- B. Contractor certifies Subcontractors paid: By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.011, as their interests appeared in the last preceding Application for Payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in Section 1.03 are true and correct, to the best of Contractor's knowledge, as of the date of the Application for Payment. Owner has the right to request written evidence from Contractor that Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by Owner to Contractor for subcontracted Work. Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Owner shall not have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.
- C. Reconciliation of Work with Progress Schedule: At the time it submits an Application for Payment, Contractor shall analyze and reconcile, to the satisfaction of Owner, the actual progress of the Work with the Progress Schedule. The submission of an Application for Payment constitutes a certification that the Work is current on the Progress Schedule.
- D. Payment for material delivered to site or stored off-site: If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. Payment may similarly be requested for material stored off the Project site, provided Contractor complies with or furnishes satisfactory evidence of the following:
1. Suitable facility or location: The material will be placed in a facility or location that is structurally sound, dry, lighted and suitable for the materials to be stored or otherwise approved by Owner;
 2. Facility or location within 10 miles of Project: The facility or location is located within a 10-mile radius of the Project. Other locations may be utilized, if approved in writing, by Owner;

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3. Facility or location exclusive to Project's materials: Only materials for the Project are stored within the facility or location (or a secure portion of a facility or location set aside for the Project);
4. Insurance provided on materials in facility or location: Contractor furnishes Owner a certificate of insurance extending Contractor's insurance coverage for damage, fire, and theft to cover the full value of all materials stored, or in transit;
5. Facility or location locked and secure: The facility or location (or secure portion thereof) is continuously under lock and key, and only Contractor's authorized personnel shall have access;
6. Owner right of access to facility or location: Owner shall at all times have the right of access in company of Contractor;
7. Contractor assumes total responsibility for stored materials: Contractor and its surety assume total responsibility for the stored materials; and
8. Contractor provides documentation and Notice when materials moved to site: Contractor furnishes to Owner certified lists of materials stored, bills of lading, invoices, and other information as may be required, and shall also furnish Notice to Owner when materials are moved from storage to the Project site.

6.04 PROGRESS PAYMENTS

- A. Owner to pay within 30 Days: Owner shall make progress payments, in such amounts as Owner determines are properly due, within 30 Days after receipt of a properly executed Application for Payment. Owner shall notify Contractor in accordance with chapter 39.76 RCW if the Application for Payment does not comply with the requirements of the Contract Documents.
- B. Withholding retainage; Options for retainage: Owner shall retain 5% of the amount of each progress payment until 45 Days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including, at Owner's request, consent of surety to release of the retainage. In accordance with chapter 60.28 RCW, Contractor may request that monies reserved be retained in a fund by Owner, deposited by Owner in a bank or savings and loan, or placed in escrow with a bank or trust company to be converted into bonds and securities to be held in escrow with interest to be paid to Contractor. Owner may permit Contractor to provide an appropriate bond in lieu of the retained funds.
- C. Title passes to Owner upon payment: Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not, however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents. A progress payment, or partial or entire use or occupancy of the Project by Owner, shall not constitute acceptance of Work.
- D. Interest on unpaid balances: Payments due and unpaid in accordance with the Contract Documents shall bear interest as specified in chapter 39.76 RCW.

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6.05 PAYMENTS WITHHELD

- A. Owner's right to withhold payment: Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary to protect Owner from loss or damage for reasons including but not limited to:
1. Non-compliant Work: Work not in accordance with the Contract Documents;
 2. Remaining Work to cost more than unpaid balance: Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum;
 3. Owner correction or completion of Work: Work by Owner to correct defective Work or complete the Work in accordance with Section 5.16;
 4. Third party claims for which Contractor may be responsible: Claims (except where an insurer has unconditionally accepted coverage without prior payment of any deductibles or self-insured retentions) filed or reasonable evidence indicating probable filing of such claims unless Contractor provides security acceptable to Owner;
 5. Failure to pay Subcontractor: The failure of Contractor to make payments to Subcontractors for labor, materials or equipment;
 6. Damages: Damage to Owner or a separate contractor (except where an insurer has unconditionally accepted coverage);
 7. Affidavits of Wages Paid: Failure to submit affidavits pertaining to wages paid as requested or otherwise required by statute;
 8. Progress Schedule: Failure to submit a properly updated Progress Schedule;
 9. Maintenance of Project Record: Failure to properly maintain as the Project Record;
 10. Other construction records: Failure to properly submit any other required construction reports or records;
 11. Certified payrolls: Failure to properly submit certified payrolls when requested;
 12. Contractor's failure to perform: Contractor's failure otherwise to perform in accordance with the Contract Documents; or
 13. Contractor's negligent acts or omissions: Cost or liability that may occur to Owner as the result of Contractor's fault or negligent acts or omissions.
- B. Owner to notify Contractor of withholding for unsatisfactory performance: In any case where part or all of a payment is going to be withheld for unsatisfactory performance, Owner shall notify Contractor in accordance with chapter 39.76 RCW.

6.06 RETAINAGE, BOND CLAIM RIGHTS, AND LIENS

- A. Chapters 39.08 RCW and 60.28 RCW incorporated by reference: Chapters 39.08 RCW and 60.28 RCW, concerning the rights and responsibilities of Contractor and Owner with regard to the performance and payment bonds and retainage, are made a part of the Contract Documents by reference as though fully set forth herein.

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- B. Liens: Contractor shall promptly pay (and secure the discharge of any liens asserted by) all persons properly furnishing labor, equipment, materials or other items in connection with the performance of the Work (including, but not limited to, any Subcontractors) to the extent that Owner has paid Contractor for this Work. Owner may, at its option, withhold payment, in whole or in part, to Contractor until lien and claim releases are furnished. Contractor may provide other security acceptable to Owner, such as a bond, in lieu of paying disputed liens or claims. Contractor shall defend, indemnify, and hold harmless Owner from any liens, including all expenses and attorneys' fees, except to the extent a lien has been recorded because of a failure of payment by Owner for the Work implicated in any such lien.

6.07 SUBSTANTIAL COMPLETION

- A. Substantial Completion defined: Substantial Completion is the stage in the progress of the Work (or portion thereof designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so Owner has full and unrestricted use and benefit of the facilities (or portion thereof designated and approved by Owner) for the use for which it is intended, the Project has been constructed in substantial accordance with the Contract Documents, and at a minimum the following elements have been accomplished (see also, Section 01 70 00 Project Completion):

1. A written punch list has been prepared;
2. The Authority Having Jurisdiction has granted a certificate of occupancy; and
3. The first final draft of the Operation and Maintenance manuals has been submitted to Owner.

All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if the Work cannot achieve Final Completion within the time specified in the Agreement. The date Substantial Completion is achieved shall be established in writing by Owner. Contractor may request an early date of Substantial Completion which must be approved by Change Order. Owner's occupancy of the Work or designated portion thereof does not necessarily indicate that Substantial Completion has been achieved.

- B. Contractor to provide weekly reports before Substantial Completion: Beginning at least 30 Days before the scheduled date of Substantial Completion, Contractor shall prepare reports weekly, identifying items to be completed in order to obtain necessary occupancy certificates and permits, and make recommendations to Owner for effectuating the earliest possible completion. When Contractor considers that the Work, or a portion thereof that Owner agrees to accept separately, has achieved Substantial Completion, Contractor shall prepare and submit to Owner a comprehensive list of items to be completed or corrected prior to final payment. Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on the list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents.
- C. Owner to determine if Work is complete: Upon receipt of Contractor's list, Owner will make an inspection to determine whether the Work or designated portion thereof has achieved Substantial Completion. If Owner's inspection discloses any item, whether or not included on Contractor's list, that is not sufficiently complete in accordance with the Contract Documents so that Owner can occupy or utilize the Work or designated portion thereof for its intended use, Contractor shall, before the occurrence of Substantial Completion, complete or correct the item upon notification by Owner, and Contractor shall then submit a request for another inspection by Owner to determine Substantial Completion. If Owner determines that the Work or designated portion has not achieved Substantial Completion, Contractor shall expeditiously complete the Work or

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designated portion, again request an inspection, and pay the costs associated with the re-inspection.

- D. Owner may take over punch list: If, at 30 Days after the date of Substantial Completion, Owner considers that the remaining items on its list ("punch list") are unlikely to be completed within the time period specified in the Contract Documents for Final Completion, Owner may, upon seven Days' written Notice to Contractor, take over and perform some or all of the punch list items. If Contractor fails to correct the deficiencies within the time period specified, Owner may deduct the actual cost of performing this punch list work, including any design costs, plus ten 10% to account for Owner's transaction costs, from the Contract Sum.
- E. Owner to establish date of Substantial Completion: When the Work or designated portion thereof has achieved Substantial Completion, Owner shall establish the date of Substantial Completion in writing, establish responsibilities of Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which Contractor shall finish all items on the list accompanying the document. The writing establishing Substantial Completion shall be submitted to Contractor for its written acceptance of the responsibilities assigned to it. Any items not included in the document but required or necessary for Final Completion of the Work shall be supplied and installed by Contractor as a part of the Contract Sum, notwithstanding their not being included in the punch list. Upon written acceptance of the writing establishing Substantial Completion by Contractor and Owner, and upon Contractor's Application for Payment, Owner shall make payment as provided in the Contract Documents. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents. No further payment will be due or owing until the payment following Final Completion.
- F. Contractor to complete punch list in timely manner: Contractor shall prepare, continue to monitor, and cause to be completed, all punch lists with respect to the activity of each Subcontractor and report weekly to Owner on outstanding punch list items.

6.08 PRIOR OCCUPANCY

- A. Prior Occupancy defined; Restrictions: Owner may, when legally permissible to do so and upon written Notice to Contractor, take possession of or use any completed or partially completed portion of the Work ("Prior Occupancy") at any time prior to Substantial Completion, and Contractor shall cooperate with such occupancy and use and the establishment of a punch list. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the Work; accelerate the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date of Substantial or Final Completion; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.
- B. Damage; Duty to repair and warranties: Notwithstanding anything in the preceding paragraph, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor's one year duty to repair any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.09 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

- A. Final Completion defined: Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing, but in no case shall it constitute Final Acceptance, which is a subsequent, separate, and distinct action (see also, Section 01 70 00 Project Completion).

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- B. Final Acceptance defined: Unless otherwise determined by Owner, Final Acceptance shall be achieved after Contractor has completed all the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Pursuant to RCW 60.28, "Lien for Labor, Materials, Taxes on Public Works," completion of the Contract Work shall occur upon Final Acceptance. Neither Final Acceptance nor final payment shall release Contractor or its sureties from any obligations of these Contract Documents or the payment and performance bonds, or constitute a waiver of any claims by Owner arising from Contractor's failure to perform the Work in accordance with the Contract Documents (see also, Section 01 70 00 Project Completion).
- C. Final payment waives Claim rights: Acceptance of final payment by Contractor or any Subcontractor shall constitute a waiver and release to Owner of all claims by Contractor or any such Subcontractor for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits, set forth in Part 8.

PART 7 - CHANGES

7.01 CHANGE IN THE WORK

- A. Changes in the Work: Changes in the Work may be accomplished after execution of the Contract without invalidating the Contract. Changes in the Work that adjust the Contract Sum and/or Contract Time are incorporated into the Contract solely by Change Order and are subject to the limitations stated in this Part 7 and elsewhere in the Contract Documents. A Change Order may be bilateral or unilateral, as described below. Change Orders may be initiated by mutual agreement or through a Contract Change Proposal ("CCP") or Work Directive ("WD").
- B. Change Orders:
1. A Bilateral Change Order is signed by Owner and Contractor to record their agreement on the terms of a change in the Work. A Bilateral Change Order may reflect the agreement of Owner and Contractor on a standalone issue, or it may incorporate one or more mutually agreed upon CCPs or WDs. A Bilateral Change Order shall constitute full payment and final settlement of all claims for time and cost, including direct, indirect, impact and consequential costs, related to the Change Order and Work covered by, affected by and related to the events giving rise to the Change Order.
 2. A Unilateral Change Order is initially signed only by Owner to set forth, subject to the Contract, the terms of a change in the Work based upon one or more CCPs and/or WDs to which the parties have not yet fully agreed. Within 7 Days of its receipt of a Unilateral Change Order, Contractor shall notify Owner in writing either (a) of its acceptance of its terms, in which case the Unilateral Change Order will automatically become a Bilateral Change Order, or (b) of Contractor's rejection, in which case Contractor must submit a written rejection within 14 Days after Contractor delivered written Notice of rejection to Owner as noted above. The written rejection must fully explain the reasons for rejecting the Unilateral Change Order and include all necessary supporting documentation. The rejection will then be considered in accordance with Section 8.02 (Informal Resolution of Disputes). Failure to submit a written Notice of rejection within 7 Days of Contractor's receipt of a Unilateral Change Order or a written rejection within 14 Days shall constitute Contractor's acceptance of the terms of the Unilateral Change Order.

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C. Change Orders via Contract Change Proposal:

1. Contractor shall be responsible for maintaining an Issues Log. If Contractor at any time believes that a change in the Work has or may have occurred, Contractor shall add such item to the Issues Log. At a minimum, the Issues Log shall identify:
 - a. Detailed scope of the change in the Work;
 - b. Contract Time impact noting specifically how it impacted the critical path of the project, if any;
 - c. The amount of any anticipated, proposed, or approved change in the Contract Sum;
 - d. Date first included on the Issues Log;
 - e. Owner-initiated or Contractor-initiated; and
 - f. Action status.
2. If the Contractor believes an item on the Issues Log warrants a CCP, Contractor shall provide written Notice to Owner in accordance with Section 8.02, and shall submit a written CCP in accordance with this Section. All CCPs shall be substantiated and submitted within 7 Days of being added to the Issues Log along with a revised progress schedule identifying the time impact affecting the critical path, if any. The CCP shall identify the proposed full compensation for implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time. Upon receipt of the CCP, Owner may accept the proposal and incorporate it into a Bilateral Change Order, reject the proposal and either issue a WD or elect not to proceed with the proposal, request further documentation, or negotiate acceptable terms with Contractor.

D. Work Directives:

1. A WD is a written order prepared by Owner that directs Contractor to perform Work prior to total agreement on an adjustment, if any, in the Contract Sum and/or Contract Time. Owner may direct Contractor, at any time and without invalidating the Contract, through a WD to proceed with a change in the Work or to perform Work that Contractor contends to be a change in the Work, with or without the agreement of Contractor and prior to agreement of the basis for adjustment, if any, to the Contract. Owner's use of a WD does not constitute agreement that the directive constitutes a change in the Work, the Contract Sum or the Contract Time.
2. A WD normally includes:
 - a. The scope of the directed Work,
 - b. Any proposed adjustment to the Contract Sum or not-to-exceed amount,
 - c. Any proposed change to the Contract Time,
 - d. The proposed method of determining any change in the Contract Sum and/or Contract Time, and

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- e. The supporting data that Contractor must submit in accordance with the requirements of Part 7 of the General Conditions.
- 3. Upon receipt of a WD, Contractor shall promptly commence and proceed diligently with performance of the directed Work. Within 7 Days of its receipt of a WD, Contractor shall notify Owner in writing either (a) of its acceptance of its terms, in which case the terms will become effective, and the WD will be incorporated into a Bilateral Change Order, or (b) of Contractor's rejection of the terms, in which case Contractor must submit a written rejection within 14 Days after Contractor delivered written Notice to Owner as noted above. The written rejection must fully explain the reasons for rejecting the WD and include all necessary supporting documentation. The rejection will then be considered in accordance with Section 8.02. Contractor's rejection of a WD shall not relieve Contractor of its obligation to comply promptly with the WD.
- E. Contractor fault or negligence alleged as basis for change in Contract Sum: No change in the Contract Sum shall be allowed to the extent Contractor's changed cost of performance is due to the fault or negligence of Contractor or anyone for whose acts Contractor is responsible; or to the extent Contractor is responsible for change concurrently caused by Contractor and Owner; or to the extent the change is caused by an act of Force Majeure as defined in Section 3.05.

7.02 CHANGE IN THE CONTRACT SUM

A. General Application

- 1. Contract Sum changes only by Change Order: The Contract Sum shall only be changed by a Change Order.
- 2. Allowances: Any Allowances stated in the Contract Documents shall be included in the Contract Sum. Items covered by Allowances shall be supplied for such amounts and by such persons or entities as Owner may direct, but Contractor shall not be required to employ persons or entities to whom Contractor has made reasonable and timely objection. Owner shall select materials and equipment under an Allowance with reasonable promptness. Allowances shall cover the net cost to Contractor of materials and equipment delivered and/or installed at the site, as identified in the Allowance, and all required taxes, less applicable trade discounts. Whenever actual costs are more than or less than Allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual, reasonable costs and the Allowances.
- 3. Pricing Components: Contractor shall maintain and submit a complete itemization of the costs incurred as a result of any change in the Work, including labor, material, Subcontractor costs, and fee. The total cost of any change in the Work or of any other increase or decrease in the Contract Sum, including a Claim, shall be limited to the actual, reasonable amounts for the following components, itemized in the manner set forth below and submitted on breakdown sheets in a form approved by Owner. If the total cost of the change in the Work does not exceed \$5,000.00, Contractor shall not be required to submit a breakdown if the description of the change in the Work is sufficiently definitive for Owner to determine fair value.
 - a. Labor costs: The labor cost component is determined by multiplying the estimated or actual additional number of hours needed to perform the change in the Work by the fully burdened hourly labor costs. The fully burdened hourly costs shall include the following:

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- (1) Basic wages and benefits: Hourly rates and benefits as stated on the Department of Labor and Industries approved "Statement of Intent to Pay Prevailing Wages" shall be applicable unless a high, documented amount is actually paid by a contractor for the laborers, apprentices, journeymen, foremen, and other staff performing and/or directly supervising the change in the Work at the site. Any amount in excess of approved "Statement of Intent to Pay Prevailing Wages" shall be substantiated and subject to audit.
 - (2) Worker's insurance: Direct contributions to the State of Washington for industrial insurance; medical aid; and supplemental pension, by the class and rates established by the Department of Labor and Industries.
 - (3) Federal insurance: Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.
 - (4) Supervision: The labor cost component may include the actual, demonstrated additional supervision hours (not already compensated by Owner) directly related to a change in the Work.
 - (5) Travel and Per Diem allowance: Travel allowance and/or subsistence, if applicable, required by regional labor union agreements, which are itemized and identified separately.
- b. Material costs: The material cost component must be itemized and include material invoices or reasonable lump-sum estimates of the quantity and cost of additional materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs; second from supplier quotations; and, if neither of these is available, then from standard industry pricing guides acceptable to Owner. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges shall be itemized.
- c. Equipment costs: The equipment cost component must be itemized by the type of equipment and include the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work on site. Costs will be allowed for construction equipment only to the extent used solely for the changed Work, or for additional rental costs actually incurred by Contractor solely for the changed Work. Equipment charges shall be computed on the basis of actual invoice costs or, if owned, from the current edition of the Associated General Contractors Washington State Department of Transportation (AGC WSDOT) Equipment Rental Agreement current edition as of the Contract execution date. The EquipmentWatch Rental Rate Blue Book shall be used as a basis for establishing rental rates of equipment not listed in the above source. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement. The rate for Contractor-owned equipment necessarily standing by for future use on the changed Work shall be no more than 50% of the rate established above unless otherwise approved by Owner. The total rental cost shall not exceed the cost of purchasing the equipment outright.
- d. Subcontractor costs: The Subcontractor cost component consists of payments Contractor makes to Subcontractors for the cost of changed Work performed by

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Subcontractors. Subcontractors' costs shall be calculated and itemized in the same manner as prescribed herein for Contractor.

- e. Fee: The Fee component is compensation for all items and costs not listed in subparagraphs a through d above, and is added to the total cost to Owner of the sum of these items. The Fee shall compensate Contractor, Subcontractor and suppliers for, among other things, combined overhead, profit and other costs, including all office, home office and site overhead, employee per diem, subsistence and travel costs not separately reimbursable under subparagraph a above, warranty, safety costs, printing and copying, quality control/assurance, purchasing, small or hand tool (a tool that costs \$250 or less and is normally furnished by the performing contractor) or expendable charges, temporary construction facilities, field engineering, schedule updating, Project Record, home office cost, taxes (including all taxes except B&O tax and Washington State sales tax payable based on the amount of the approved Application for Payment), office engineering, estimating costs, additional overhead because of extended time, Claim and change preparation, direct and indirect delay, acceleration or impact, and any other cost incidental to the change in the Work. The Fee shall be strictly limited in all cases to the rates below.
- (1). Contractor markup on Contractor Work: Contractor is allowed a Fee for any Work actually performed by Contractor's own forces of 16% of the first \$50,000 of the cost of such Work and 4% of the remaining cost, if any.
 - (2). Subcontractor markup for Subcontractor Work: Each Subcontractor (including lower-tier Subcontractors) is allowed a Fee for any Work actually performed by its own forces of 16% of the first \$50,000 of the cost of such Work and 4% of the remaining cost, if any.
 - (3). Contractor markup for Subcontractor Work: Contractor is allowed a Fee for any Work performed by its Subcontractor(s) of 6% of the first \$50,000 of the amount due each Subcontractor for such Work and 4% of the remaining amount, if any.
 - (4). Subcontractor markup for lower-tier Subcontractor Work: Each Subcontractor is allowed a Fee for any Work performed by its Subcontractor(s) of any lower-tier of 4% of the first \$50,000 of the amount due the lower-tier Subcontractor for such Work and 2% of the remaining amount, if any.
 - (5). Basis of cost applicable for markup: The cost of the Work to which the Fee is to be applied shall be based on the cost components in subparagraphs 7.02.A 3.a – d.
 - (6). Application of Fee: The Fee shall not be included on deductive changes in the Work. Where a change in the Work involves additive and deductive work by Contractor or the same Subcontractor, the Fee as well as bond and insurance markups will apply to the net difference.
- f. Insurance and bond premiums: The cost of any change in insurance or bond premium is added to the sum of the cost components in subparagraphs 7.02.A 3.a – e and is limited to the following:

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- (1) Contractor's liability insurance: The cost of any changes in Contractor's contractually required liability insurance arising directly from the Change Order; and
- (2) Payment and Performance Bond: The cost of any additional premium for Contractor's contractually required bond arising directly from the Change Order.
- g. Tax: Washington State sales tax and B&O tax arising directly from the Change Order shall be added to the cost of the Change Order.
- h. Unit Prices: If Unit Prices, including pre-agreed rates for material quantities, are applicable to a change in the Work, the Unit Prices shall be applied to the quantities of the items involved as determined in Section 7.02A. Quantities must be supported by field measurement statements signed by Owner. Owner shall be afforded access and be permitted to measure quantities. Contractor shall not exceed any cost limit(s) without Owner's prior written approval. Unit Prices shall include reimbursement for all direct and indirect costs of the Work, but exclude Fee (7.02 A.e), bond, and insurance costs (7.02 A.f).s.

7.03 CHANGE IN THE CONTRACT TIME

- A. Changes in Contract Time: The Contract Time shall only be changed by a Change Order.
- B. Time extension permitted only if delay is not Contractor's fault: If Contractor is delayed at any time in the commencement or progress of the Work (1) by an act or neglect of Owner or anyone for whose acts Owner is responsible; or (2) by changes ordered by Owner in the Work; or (3) by Force Majeure; or (4) by delay authorized by Owner pending dispute resolution; or (5) by other causes that Owner determines may justify delay, then Contractor shall reasonably attempt to mitigate the delay, and the Contract Time shall be extended by Change Order for such reasonable time as Owner may reasonably determine consistent with the provisions of the Contract Documents. No adjustment in the Contract Time shall be allowed to the extent Contractor's changed time of performance is due to the fault or negligence of Contractor or anyone for whose acts Contractor is responsible.
- C. Contractor must demonstrate impact on critical path of schedule: Any change in the Contract Time covered by a Change Order or Claim shall be limited to the change in the critical path of the Work attributable to the change or event(s) giving rise to the Change Order or Claim. Contractor shall be responsible for showing clearly on the Progress Schedule that the change or event had a specific impact on the critical path and, except in case of concurrent delay, was the sole cause of such impact, and could not have been avoided by resequencing of the Work or other reasonable alternatives in accordance with Section 01 32 13 Project Schedule.
- D. Cost arising from change in Contract Time: Contractor is entitled to compensation for the cost of a change in Contract Time only if all the following conditions are met:
 - 1. Must be solely fault of Owner: The change in Contract Time must solely be caused by the fault or negligence of Owner or others for whom Owner is responsible;
 - 2. Procedures: Contractor must follow the procedure set forth in Section 7.03B and Section 8.02;
 - 3. Demonstrate impact on critical path: Contractor must establish the extent of the change in Contract Time in accordance with Section 7.03C and Section 01 32 13 Project

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Schedule. Owner is not obligated directly or indirectly for damages or an increase in the Contract Sum for any delay suffered by a Subcontractor that does not increase the Contract Time; and

4. Cost measured exclusively by the pricing components of Section 7.02A.3: If Contractor or a Subcontractor of any tier is entitled to compensation arising from or related to a change in Contract Time, the pricing components of Section 7.02A.3 shall exclusively be used to measure the actual costs incurred as a result of the change in Contract Time. Neither Contractor nor a Subcontractor of any tier is entitled to payment for costs arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; home office overhead; expectant underrun; trade stacking; reassignment of workers; rescheduling of work; concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended overhead; profit upon damages for delay; impact damages, including cumulative impact; or similar damages.

PART 8 - CLAIMS AND DISPUTE RESOLUTION

8.01 CLAIMS

- A. Definition: A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of the Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract Documents. The term "Claim" also includes other disputes and matters in question between Owner and Contractor arising out of or relating to the Contract Documents. Claims must be initiated in writing and be made in accordance with the Contract Documents. Neither a CCP, a Request for Information, a Bilateral or Unilateral Change Order, a reservation of rights, minutes of a meeting, a daily report, or a log entry shall constitute a Claim or Notice of a Claim. However, Owner and Contractor may agree in a signed writing to supplement how Contractor can provide a Notice of Claim as specified in this Part 8.
- B. Continuing Contract performance: Pending final resolution of a Claim, including the dispute resolution process in Part 8, and except as otherwise agreed in writing or in the Contract Documents, Contractor shall proceed diligently with performance of the Work and maintain the Progress Schedule, and Owner shall continue to make payments of undisputed amounts in accordance with the Contract Documents.
- C. Claims for additional cost: If Contractor wishes to make a Claim for an increase in the Contract Sum, written Notice as provided herein shall be given before proceeding to execute the Work, and written Notice and a written Claim must be made in accordance with this Part 8, or it will be waived.
- D. Claims for additional time: If Contractor wishes to make a Claim for an increase in the Contract Time, written Notice as provided herein shall be given, and a written Claim must be made in accordance with this Part 8, or it will be waived.
- E. Claims for consequential damages: Contractor and Owner waive certain Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes damages incurred by Owner for profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and damages incurred by Contractor for principal and home office overhead and expenses including but not limited to the compensation of personnel stationed there, for loss of financing, business and/or reputation, for losses on other projects, for loss of profit, and for interest or financing costs. This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination. Nothing contained in this subparagraph E, however, shall be deemed to preclude an

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award of liquidated or other delay damages, when applicable, in accordance with the Contract Documents, or to preclude or limit Contractor's obligation to procure and maintain the insurance policies required by this Contract or indemnify Owner for damages, including direct, indirect or consequential damages, alleged by a third party.

8.02 INFORMAL RESOLUTION OF DISPUTES

- A. Procedure to reduce disputes: In an effort to reduce the incidence and cost to all parties of extended disputes, all disputes, direct or indirect, arising out of or relating to the Contract Documents or the breach thereof, except those that have been waived under the terms of the Contract Documents, shall be decided exclusively by the dispute resolution procedure of Part 8 unless the parties mutually agree in writing otherwise. To the extent that Owner and Contractor agree to a partnering or dispute review process to help address disputes, these processes shall be in addition to, and not in place of, the mandatory contractual dispute resolution procedures.
- B. Notice: Except for disputes requiring Notice before proceeding with the affected Work as otherwise described in the Contract Documents, Contractor shall submit a written Notice of any Claim to Owner's Project Manager, consistent with the requirements of the Contract Documents, within 7 Days of the occurrence of the event giving rise to a dispute. If Contractor did not have actual knowledge of such an event, the written Notice shall be submitted within 7 Days of the date that Contractor reasonably should have been aware of the event. The Notice shall set forth, at a minimum, a description of the event(s) leading to or causing the dispute, the nature of the impacts to Contractor and its Subcontractors, if any, and an estimate of any claimed adjustments in the Contract Sum and/or Contract Time. Without waiving any rights, Owner and Contractor may discuss and attempt to resolve a dispute identified in a Notice of Claim directly with each other or with a third-party neutral or dispute review board if utilized on a Project.
- C. Substantiation: If an issue remains unresolved, Contractor shall submit timely written substantiation to support Contractor's position relating to the Notice of Claim. Such substantiation, which shall include an explanation of Contractor's position and any supporting documentation, shall be provided within 30 Days of submitting a Notice. Contractor may delay submitting data by an additional 14 Days if it notifies Owner that substantial data must be assembled.
- D. Owner's Project Manager to make initial decision on all disputes: After Contractor has submitted written substantiation to Owner that complies with all applicable provisions of Parts 7 and 8, as well as Section 01 32 13, Project Schedule, Owner's Project Manager will endeavor to respond, in writing, to Contractor within 7 Days of the date substantiation is received, or with Notice to Contractor of the date by which Owner's Project Manager expects to render a decision. If necessary to fully and fairly evaluate an issue, the Project Manager may request additional information or extend the time in which to respond. If the issue is not resolved, or if Project Manager does not respond within the later of 7 Days of the date written substantiation is received or the date specified for rendering a decision, the dispute may be escalated by Contractor to Owner's Assistant Vice President, Facilities Services, Capital as set forth in Section 8.02E below.
- E. Contractor may respond to initial decision: The initial decision of the Project Manager will be final and conclusive unless, within 7 Days of the date Contractor receives the initial decision or the date specified for rendering a decision, Contractor notifies Owner's Project Manager in writing of Contractor's disagreement with the initial decision, in which case Contractor must then submit a written rejection to Owner's Assistant Vice President, Facilities Services, Capital within 14 Days. The written rejection must attach the submitted Notice and substantiation and fully explain the reasons for Contractor's disagreement with the initial decision. It must also include all applicable supporting documentation. Failure to submit a written rejection to Owner's Assistant Vice

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President, Facilities Services, Capital within 14 Days shall constitute Contractor's acceptance of the initial decision.

- F. Assistant Vice President, Facilities Services, Capital decision: Following Contractor's full compliance with the procedure above, Owner's Assistant Vice President, Facilities Services, Capital will endeavor to respond in writing to Contractor with a decision within 7 Days of delivery of the Contractor's rejection or with Notice to Contractor of the date by which Owner's Assistant Vice President, Facilities Services, Capital expects to render a decision. If Owner's Assistant Vice President, Facilities Services, Capital does not respond within the later of 7 Days after delivery of the rejection or the date specified to render a decision, the dispute will be deemed denied and Contractor may further escalate the dispute as set forth in Section 8.02G below.
- G. Claim: If Contractor disagrees with the decision of the Assistant Vice President, Facilities Services, Capital, or if no decision is timely received, Contractor shall timely submit a Claim if it wishes to pursue formal dispute resolution or seek additional relief against Owner of any kind. A Claim must be consistent with the Notice, substantiation and rejection previously provided, be submitted to Owner in writing within 14 Days of the date the decision of the Assistant Vice President, Facilities Services, Capital is received by Contractor or due, and comply with Section 8.04. Any claim of a Subcontractor of any tier may be brought only through, and after review by, Contractor. Contractor acknowledges and agrees that no additional documentation from what was submitted to Owner's Assistant Vice President, Facilities Services, Capital (per part 'F' of this section) may be submitted and considered in any subsequent dispute resolution proceeding. Contractor's failure to provide timely information for Owner's consideration during the dispute resolution procedure of Part 8 has a substantial impact upon and prejudices Owner, including but not limited to its inability to fully investigate or verify a Claim, mitigate damages, choose alternative options, adjust the budget, delete or modify the impacted Work, and/or monitor time, cost and quantities.

8.03 FORMAL RESOLUTION OF CLAIMS

- A. Option for direct discussions: At any time following Contractor's initiation of formal dispute resolution, Owner may require that an officer of Contractor and Owner's Assistant Vice President, Facilities Services, Capital (all with authority to settle) meet, confer, and attempt to resolve the Claim. If the Claim is not resolved during such meeting, or if no such meeting is requested, Contractor may bring no litigation against Owner unless Contractor complies with the procedures described in Sections 8.03B and C. This requirement cannot be waived except by an explicit written waiver signed by Owner and Contractor.
- B. Mediation:
1. Mediation required: Claims, disputes, or other matters in controversy arising out of or related to the Contract shall be subject to mediation as a condition precedent to the initiation of binding dispute resolution. This requirement cannot be waived except by an explicit written waiver signed by both Owner and Contractor. Unless Owner and Contractor mutually agree in writing otherwise, all unresolved Claims shall be considered at a single mediation session that shall occur after Substantial Completion and prior to Final Acceptance by Owner.
 2. Mediation procedure: The parties shall endeavor to resolve Claims by mediation. A request for mediation shall be delivered in writing to the other party to the Contract, and the parties shall promptly attempt to mutually agree on a mediator. If the parties do not agree on a mediator within 30 Days of a party's demand, the mediation, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect

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on the date of the Agreement. Mediation shall proceed in advance of binding dispute resolution proceedings.

3. Mediation fee to be shared: The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction.
 4. Representatives with authority must attend mediation: Representatives of Contractor and Owner must attend the mediation session in person with authority to settle the Claim. To the extent there are other parties in interest, such as A/E, insurers or Subcontractors, their representatives, also with authority to settle the Claim, shall also attend the mediation session in person.
- C. Litigation: Contractor may bring no litigation on a Claim unless the Claim has been raised and considered in accordance with the procedures of this Part 8, including mandatory mediation. Contractor shall have the burden to demonstrate in any litigation that it has complied with all requirements of this Part 8. All unresolved Claims of Contractor shall be waived and released unless Contractor has complied with the time limits of the Contract Documents, and litigation is served and filed within 180 Days after the Date of Substantial Completion approved in writing by Owner. This requirement cannot be waived except by an explicit, written waiver signed by Owner and Contractor. The pendency of a mediation, which shall mean the time period between a party's receipt of a written mediation demand and the date of the initial mediation session, shall stay this deadline for serving and filing a lawsuit. The deadline may also be stayed for an additional period by agreement of the parties or court order. Neither Contractor nor a Subcontractor, whether claiming under a bond or lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from Owner (but may recover attorneys' fees from the bond or statutory retainage fund itself to the extent allowable under law).

8.04 CLAIMS PROCESS

- A. Notice and Claims: Any Notice and any Claim of Contractor, whether under the Contract or otherwise, must be made pursuant to and in strict accordance with the applicable provisions of the Contract Documents. No act, omission, or knowledge, actual or constructive, of Owner or anyone for whose acts Owner is responsible shall in any way be deemed to be a waiver of the requirement for timely written Notice and a timely written Claim unless Owner and Contractor sign an explicit, unequivocal written waiver. The fact that Owner and Contractor may consider, discuss, or negotiate a Claim that has or may have been procedurally or substantively defective or untimely under the Contract shall not constitute a waiver of the provisions of the Contract Documents unless Owner and Contractor sign an explicit, unequivocal written waiver. Contractor acknowledges and agrees that Contractor's failure to timely submit required Notices and/or timely submit Claims has a substantial impact upon and prejudices Owner, including but not limited to its inability to fully investigate or verify the Claim, mitigate damages, choose alternative options, adjust the budget, delete or modify the impacted Work, and/or monitor time, cost and quantities.
- B. Claim must cover all costs and be documented: A Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor (and Subcontractors) may be entitled and may not contain reservations of rights without Owner's written approval; any such unapproved reservations of rights shall be without effect. Any requests by Contractor for an adjustment in both the Contract Sum and Contract Time that arise out of the same event(s) shall be submitted together. A Claim must be fully substantiated and documented. At a minimum, a Claim shall contain the following information:

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1. Factual statement of Claim: A detailed factual statement of the Claim for additional compensation and/or time, if any, providing all necessary dates, locations, and items of Work affected by the Claim, that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of;
 2. Dates: The date on which event(s) arose which gave rise to the Claim;
 3. Owner and A/E employee's knowledgeable about Claim: The name of each employee of Owner and/or A/E believed to be knowledgeable about the Claim;
 4. Support from Contract Documents: The specific provisions of the Contract Documents that support the Claim;
 5. Identification of other supporting information: The identification of any documents and the substance of any oral communications that support the Claim;
 6. Copies of supporting documentation: Data and copies of any identified documents, other than the Contract Documents, that support the Claim, including without limitation a complete explanation as to why the relief sought is not within the scope of the Contract Documents;
 7. Details on Claim for Contract Time: If an adjustment in the Contract Time is sought, the specific days and dates for which it is sought; the specific reasons Contractor believes an extension in the Contract Time should be granted, and Contractor's analysis of its Progress Schedule to demonstrate the reason for the extension in Contract Time showing cause and analysis of the resultant delay to the critical path and other information required by the Contract Documents and Section 01 32 13, Project Schedule;
 8. Details on Claim for adjustment of Contract Sum: If an adjustment in the Contract Sum is sought, the exact amount sought and a breakdown of that amount into the categories and with the detail required by Section 7.02; and
 9. Statement certifying Claim: A statement certifying, under penalty of perjury, that the Claim is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the Claim is fully supported by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes Owner is responsible.
- C. False Claims: Contractor shall not make any negligent or fraudulent misrepresentations, concealments, errors, omissions, or inducements to Owner in the formation or performance of this Contract. If Contractor or a Subcontractor submits false or frivolous substantiation or a Claim to Owner, which for purposes of this Section 8.01C is defined as substantiation or a Claim based in whole or in part upon a materially incorrect fact, statement, representation, assertion, or record, Owner shall be entitled to collect from Contractor by offset or otherwise (without prejudice to any right or remedy of Owner) any and all costs and expenses, including investigation and consultant costs, incurred by Owner in investigating, responding to, and defending against such false or frivolous substantiation or Claim.
- D. Notification of surety: Owner may, but is not obligated to, notify Contractor's surety, if any, of the nature and amount of any claim it may assert against Contractor. If the claim relates to a possibility of Contractor's default, Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

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- E. Liens: If a Claim relates to or is the subject of a lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice and filing deadlines.
- F. All Claims must be submitted for final resolution within the time period specified by applicable law: Owner and Contractor shall commence all Claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of this Part 8 and within the time period specified by applicable law.
- G. Waiver of rights: Any Claim of Contractor against Owner shall be conclusively deemed to have been waived by Contractor unless made in accordance with the requirements of Part 8.
- H. Owner may investigate: To assist in the review of a Claim, Owner may at any time visit the Project site, communicate directly with Subcontractors, or request additional information (including requesting an audit as authorized below) in order to fully evaluate the issues raised by the Claim.
- I. Owner may audit Claims: All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor or Subcontractors of any tier to permit Owner access to the books and records of Contractor or Subcontractors of any tier, or to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim, shall constitute a waiver of the Claim and shall bar any recovery.
- J. Contractor to make documents promptly available: In support of Owner's audit of any Claim, Contractor and any Subcontractor shall, upon request, promptly make available to Owner within seven Days of Owner's request, at the office of Contractor or any requested Subcontractor during normal business hours, at least the following documents and other documents requested by Owner; failure to fully comply with this requirement shall constitute a material breach of contract and waiver of any Claim:
1. Daily time sheets and supervisor's daily reports;
 2. Collective bargaining agreements;
 3. Insurance, welfare, and benefits records;
 4. Payroll registers;
 5. Earnings records;
 6. Payroll tax forms;
 7. Material invoices, requisitions, and delivery confirmations;
 8. Material cost distribution worksheet;
 9. Equipment records (list of company equipment, rates, etc.);
 10. Vendors', rental agencies', Subcontractors', and agents' invoices;
 11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
 12. Subcontractors' and agents' payment certificates;

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13. Cancelled checks (payroll and vendors);
 14. Job cost reports, including job cost summary and job cost detail reports, related labor and equipment reports, and monthly totals;
 15. Job payroll ledger;
 16. Planned resource loading schedules and summaries;
 17. General ledger;
 18. Cash disbursements journal;
 19. Financial statements for all years during performance of the Work. In addition, Owner may require, if it deems it appropriate, additional financial statements for 3 years preceding execution of the Work;
 20. Depreciation records on all company equipment whether these records are maintained by the company involved, its accountant, or others;
 21. If a source other than depreciation records is used to develop costs for Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents;
 22. All non-privileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in the Contract Sum or Contract Time sought by each Claim;
 23. Work sheets or software used to prepare and establish the cost components for items of the Claim, including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors, all documents that establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals;
 24. Work sheets, software, and all other documents used by Contractor to prepare its bid;
 25. The above items for its Subcontractors; and
 26. Any other information in any form or media not expressly protected from discovery by applicable law.
- K. Contractor to cooperate and provide facilities for audit: The audit may be performed by employees or representatives of Owner. Contractor and its Subcontractors shall provide adequate facilities acceptable to Owner for the audit during normal business hours. Contractor and all Subcontractors shall make a good faith effort to cooperate with Owner's auditors.
- L. Reciprocal RCW 42.56 rights: Contractor agrees, on behalf of itself and Subcontractors, that any invocation of RCW 42.56 at any time by Contractor or a Subcontractor, or their respective representatives, shall initiate an equivalent right to disclosures from Contractor and Subcontractors for the benefit of Owner. Failure to fully comply with these requirements shall constitute a material breach of the Contract and shall constitute a waiver of all Claims by Contractor and any Subcontractor that does not fully comply.

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PART 9 - TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

- A. 7 Day Notice to Terminate for Cause: Owner may, upon 7 Days written notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:
1. Contractor fails to prosecute Work: Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Substantial Completion of the Work within the Contract Time;
 2. Contractor bankrupt: Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
 3. Contractor fails to correct Work: Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
 4. Contractor fails to supply workers or materials: Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
 5. Contractor failure to pay Subcontractors or labor: Contractor repeatedly fails to make prompt payment due to Subcontractors or for labor;
 6. Contractor violates laws: Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
 7. Contractor in material breach of Contract: Contractor is otherwise in material breach of any provision of the Contract Documents.
- B. Owner's actions upon termination: Upon termination, Owner may at its option:
1. Take possession of Project site: Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;
 2. Accept assignment of Subcontracts: Accept assignment of subcontracts pursuant to Section 5.20; and
 3. Finish the Work: Finish the Work by whatever other reasonable method it deems expedient.
- C. Surety's role: Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.
- D. Contractor's required actions: When Owner terminates the Work in accordance with this section, Contractor shall take the actions set forth in paragraph 9.02B, and shall not be entitled to receive further payment until the Work is accepted.
- E. Contractor to pay for unfinished Work: Contractor shall not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E's services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of

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Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. These obligations for payment shall survive termination.

- F. Contractor and Surety still responsible for Work performed: Termination of the Work in accordance with this section shall not relieve Contractor or its surety of any responsibilities for Work performed.
- G. Conversion of "Termination for Cause" to "Termination for Convenience": If Owner terminates Contractor for cause and it is later determined that none of the circumstances set forth in paragraph 9.01A exist, then such termination shall be deemed a termination for convenience pursuant to Section 9.02.

9.02 TERMINATION BY OWNER FOR CONVENIENCE

- A. Owner Notice of Termination for Convenience: Owner may, upon written notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.
- B. Contractor response to termination Notice: Unless Owner directs otherwise, after receipt of a written notice of termination for either cause or convenience, Contractor shall promptly:
1. Cease Work: Stop performing Work on the date and as specified in the notice of termination;
 2. No further orders or Subcontracts: Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;
 3. Cancel orders and Subcontracts: Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;
 4. Assign orders and Subcontracts to Owner: Assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts;
 5. Take action to protect the Work: Take such action as may be necessary or as directed by Owner to preserve and protect the Work, Project site, and any other property related to this Project in the possession of Contractor in which Owner has an interest; and
 6. Continue performance not terminated: Continue performance only to the extent not terminated.
- C. Terms of adjustment in Contract Sum if Contract terminated: If Owner terminates the Work or any portion thereof for convenience, Contractor shall be entitled to make a request for an equitable adjustment for its reasonable direct costs incurred prior to the effective date of the termination, plus reasonable allowance for overhead and profit on Work performed prior to termination, plus the reasonable administrative costs of the termination, but shall not be entitled to any other costs or damages, whatsoever, provided however, the total sum payable upon termination shall not exceed the Contract Sum reduced by prior payments. Contractor shall be required to make its request in accordance with the provisions of Part 7.
- D. Owner to determine whether to adjust Contract Time: If Owner terminates the Work or any portion thereof for convenience, the Contract Time shall be adjusted as determined by Owner.

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9.03 TERMINATION BY CONTRACTOR FOR CAUSE

- A. Contractor termination: Except as provided by RCW 60.28.080, Contractor may terminate the Contract for any of the following reasons:
1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped permanently;
 2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped permanently;
 3. Because Owner has improperly not made payment of undisputed amounts within the time stated in the Contract Documents; or
 4. The Work is stopped for a period of 60 consecutive Days through no act or fault of Contractor, a Subcontractor, or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor,
- B. Contractor termination procedure: If one of these reasons exists, Contractor may, upon seven Days' written Notice to Owner (during which period Owner has the opportunity to cure), terminate the Contract and recover from Owner payment for Work executed in accordance with the Contract Documents, including reasonable overhead and profit on Work executed and costs incurred by reason of such termination. The total recovery of Contractor shall not exceed the unpaid balance of the Contract Sum.

PART 10 - MISCELLANEOUS PROVISIONS

10.01 GOVERNING LAW

Applicable law and venue: The Contract Documents and the rights of the parties herein shall be governed by the internal laws of the state of Washington, without regard to its choice-of-law provisions. Venue shall be in the county in which the Project is located, unless otherwise specified.

10.02 SUCCESSORS AND ASSIGNS

Bound to successors; Assignment of Contract: Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to the partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party shall assign the Contract without written consent of the other, except that Contractor may assign the Work for security purposes to a bank or lending institution authorized to do business in the state of Washington. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents. If a majority of the ownership or the control of Contractor is acquired by a third party, and such acquisition reasonably imperils performance or creates a conflict of interest that Owner, in its sole discretion, cannot reasonably reconcile, then Owner may terminate this Contract at any time for cause under Section 9.01.

10.03 MEANING OF WORDS

Meaning of words used in Contract Documents: Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard Specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority, whether such reference is specific or by implication, shall be to the latest

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standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in the Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such items as are shown on the Drawings, or required to complete the installation.

10.04 RIGHTS AND REMEDIES

- A. No waiver of rights: Waiver of any provisions of the Contract Documents must be in writing and authorized by Owner. No other waiver is valid on behalf of Owner. No action, delay in acting, or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded under the Contract Documents, nor shall action, delay in acting, or failure to act constitute approval or an acquiescence in a breach therein, or otherwise prejudice the right of Owner to enforce a right or remedy at any subsequent time, except as may be specifically agreed in writing.
- B. Rights under Contract do not limit other rights: Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.
- C. If portion of Contract is void, remainder is enforceable: If any portion of this Contract is held to be void or unenforceable, the remainder of the Contract shall be enforceable without such portion.

10.05 CONTRACTOR REGISTRATION AND COMPLIANCE

- A. Contractor must be registered and licensed: Pursuant to RCW 39.06, Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27. Contractor shall also have a current state unified business identifier number; have industrial insurance coverage for Contractor's employees working in Washington as required in Title 51 RCW; have an employment security department number as required in Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
- B. Employer contributions: Pursuant to RCW 50.24, "Contributions by Employers," in general and RCW 50.24.130 in particular, Contractor shall pay contributions for wages for personal services performed under this Contract or arrange for a bond acceptable to the Commissioner.
- C. Apprenticeship requirements: If the Contract Sum for the Project exceeds one million dollars, Contractor shall comply with all applicable apprenticeship requirements.

10.06 TIME COMPUTATIONS

Computing time: When computing any period of time, the day of the event from which the period of time begins shall not be counted. The last day is counted unless it falls on a weekend or legal holiday, in which event the period runs until the end of the next day that is not a weekend or holiday. When the period of time allowed is less than 7 days, intermediate Saturdays, Sundays, and legal holidays are excluded from the computation.

10.07 RECORDS RETENTION

Six year records retention period: The wage, payroll, and cost records of Contractor, and its Subcontractors, and all records subject to audit in accordance with Section 8.03, shall be retained for a period of not less than 6 years after the date of Final Acceptance.

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10.08 THIRD-PARTY AGREEMENTS

No third party relationships created: The Contract Documents shall not be construed to create a contractual relationship of any kind between: A/E and Contractor; Owner and any Subcontractor; or any persons other than Owner and Contractor.

10.09 ANTITRUST ASSIGNMENT

Contractor assigns overcharge amounts to Owner: Owner and Contractor recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the purchaser. Therefore, Contractor hereby assigns to Owner any and all claims for such overcharges as to goods, materials, and equipment purchased in connection with the Work performed in accordance with the Contract Documents, except as to overcharges which result from antitrust violations commencing after the Contract Sum is established and which are not passed on to Owner under a Change Order. Contractor shall put a similar clause in its Subcontracts, and require a similar clause in its sub-Subcontracts, such that all claims for such overcharges on the Work are passed to Owner by Contractor.

10.10 HEADINGS AND CAPTIONS

Headings for convenience only: All headings and captions used in these General Conditions are only for convenience of reference, and shall not be used in any way in connection with the meaning, effect, interpretation, construction, or enforcement of the General Conditions, and do not define the limit or describe the scope or intent of any provision of these General Conditions.

10.11 INDEPENDENT CONTRACTOR

Contractor is independent contractor: Contractor shall be and operate as an independent contractor in the performance of the Work and shall have complete control over and responsibility for all personnel performing the Work. Contractor is not authorized to enter into any agreements or undertakings for or on behalf of Owner or to act as or be an agent or employee of Owner.

10.12 OWNER'S ROLE

Owner's role is limited. Owner will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely Contractor's responsibility under the Contract Documents. The presence of Owner at the Project site shall not in any manner be construed as assurance that the Work is being completed in compliance with the Contract Documents, nor as evidence that any requirement of the Contract Documents of any kind, including Notice, has been met or waived. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Owner will not have control over or charge of and will not be responsible for acts or omissions of Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

END OF SECTION 00 72 00

THIRD PARTY NEUTRAL AGREEMENT

Contract No. _____

This THREE PARTY AGREEMENT, hereinafter referred to as Agreement, by and between WASHINGTON STATE UNIVERSITY, hereinafter referred to as Owner, _____, hereinafter referred to as the Contractor, and _____, hereinafter referred to as the Third Party Neutral (TPN). Together, the three Parties to the Agreement shall hereinafter be referred to as the Parties. The date of commencement of all requirements of this agreement shall be the signing of this agreement by all parties.

RECITALS

Owner and Contractor are now engaged in the construction of the[Project Title] project and desire an expeditious, non-litigious method for resolving disputes and claims, which may arise during the course of construction.

Owner and Contractor desire to create the Third Party Neutral consisting of one member.

NOW, THEREFORE, in consideration of the terms, conditions, covenants and performance contained and incorporated herein and amending the Contract Documents to include this Agreement in accordance with Section 8.02 of the WSU General Conditions, the Parties agree to the following:

I.
DESCRIPTION OF WORK

In order to assist in the resolution of problems, disputes and claims between Owner and Contractor, the Parties agree upon the establishment of a Third Party Neutral, whose purpose is to impartially consider disputes and/or claims placed before it and provide decisions to the Owner and Contractor. The Third Party Neutral shall perform services in accordance with the following Scope of Work. Selection of the TPN shall be by mutual consent with the Contractor recommending a candidate for Owner review and approval. In the event the Contractor does not have an appropriate candidate the Owner shall recommend a candidate for the Contractor's review and approval.

II.
SCOPE OF WORK

The Scope of Work of the TPN includes, but is not limited to, the following items of work:

A. TPN Selection

Discussion during construction document preparation resulted in agreement that a more

cost effective approach to dispute resolution would be the use of a Third Party Neutral (TPN) in lieu of the more traditional Disputes Review Board. Selection of the TPN will follow an approach where a candidate will be presented by either party. Confirmation of the candidate by the other party will finalize the selection process. Failure to achieve confirmation will result in presentation of a candidate by the objecting party. Confirmation of this candidate will finalize the selection process. Alternate presentation of candidates will occur until confirmation is achieved.

B. TPN Replacement

Should the need arise to appoint a replacement TPN, the replacement shall be appointed in the same manner as the original TPN. The selection of a replacement TPN shall begin promptly upon notification of the necessity for a replacement and shall be completed within 30 calendar days. The Agreement will be supplemented to indicate change in the TPN.

C. Objective

The principal objective of the TPN is to assist in the resolution of disputes and/or claims without resort to litigation. If this objective is achieved, such disputes and/or claims can be resolved promptly with minimum expense and with minimum disruption to the administration and performance of the Work. It is not intended that the Owner or Contractor default on their normal responsibility to settle their differences by indiscriminately assigning them to the TPN. It is intended that the TPN will encourage settlement of differences at the job level and that the existence of the TPN will encourage Owner and Contractor to resolve potential disputes and/or claims without resorting to this appeal procedure. When a dispute and/or claim that is serious enough to warrant the TPN's review does develop, the process for prompt and efficient action will be in place.

D. Responsibility of the TPN

TPN decisions shall be based on the pertinent Contract provisions, facts and circumstances involved in the dispute and/or claim. Primarily, the TPN will consider claims and disputes involving interpretation of the Plans and Specifications, delays, acceleration of the Work, scheduling, classification of extra work, changed conditions, design changes and the like. It is expressly understood that the TPN is to act impartially and independently in the consideration of facts and conditions surrounding any dispute and/or claim and that the recommendations or decisions concerning any dispute and/or claim shall be rendered upon the entitlement issues brought before the TPN. After appointment, the TPN serves the project, not an individual party or interest.

The TPN will refrain from officially giving any advice or consultative services to either Party. The TPN will act in a completely independent manner and will have no consultative or business connections with either Party during the course of service as TPN.

E. TPN Meetings

1. TPN will attend one regularly scheduled construction progress meeting every other month. The Contractor will chair the progress meetings and be responsible

- to take and distribute minutes of same. The TPN will attend progress meetings as an interested observer. Any cost incurred by the TPN for attendance at these meetings will be shared by the Owner and the Contractor.
2. Upon agreement of the Owner and the Contractor, the TPN will be employed to review and act upon a dispute/claim presented by either the Owner or the Contractor. Within twenty (20) working days of receipt of the dispute/claim, the TPN will convene a hearing in Richland, WA, at which the parties will present their position on the issue at hand. After properly considering the positions of both parties, but in no case more than twenty (20) working days after the hearing, the TPN will render a written decision to both parties. Cost of the TPN for these hearings will be shared equally by the Owner and the Contractor.

F. Procedures

After the Contractor has presented its Claim pursuant to Section 8.01 C of the WSU General Conditions and Owner has issued its written decision pursuant to Section 8.01 D, if the Contractor disagrees with Owner's decision, the Contractor shall be required to provide Owner with a written appeal within 30 days of Owner's decision. The Contractor's appeal shall then be heard by the TPN within 30 days of the Owner's decision, unless another time is mutually agreed to by Owner and the Contractor. Failure to file a written appeal within the 30 day period shall result in Owner's decision being final and binding upon the Contractor.

Contractor and Owner shall each be afforded an opportunity to be heard by the TPN and offer evidence in support of its position. In order to provide Owner the opportunity to fully evaluate Contractor Claims, the full disclosure and presentation at the Hearing of all relevant facts and circumstances giving rise to the Claim shall be a condition precedent to Contractor's right to further pursue its Claim in any subsequent proceeding with authority to render binding decisions.

TPN decisions shall be given in writing to both Owner and Contractor within 7 days of the Hearing and shall be based on the pertinent Contract provisions, facts and circumstances involved in the dispute and/or claim. The TPN shall make every attempt to reach a decision. Pending final TPN decision of a dispute and/or claim, Contractor shall diligently proceed with the Work.

Within 15 days of receipt of the TPN's written decision, both Owner and Contractor shall respond to the other, in writing, indicating whether the dispute and/or claim is resolved or unresolved. If Owner and Contractor resolve the dispute and/or claim attendant to or with the aid of the TPN's decision, the terms of the resolution shall be incorporated in a Change Order. If the dispute and/or claim is unresolved according to either party, that party shall file and serve a lawsuit with the appropriate court within 60 days of receipt of the TPN's decision. This contractual requirement cannot be waived except by express written waiver signed by Owner and Contractor. Failure to file a lawsuit within the said period shall result in the TPN's decision as final and binding upon Owner, Contractor, and all Subcontractors at any tier.

At any time either before or after a lawsuit has been commenced by Contractor, Owner may require Contractor to participate in alternative dispute resolution, in any form or format as determined by Owner.

The TPN's findings, decisions and testimony shall be admissible in any further

proceedings, litigation, or alternative dispute resolution techniques. The TPN may be called as a witness in any subsequent proceeding or litigation.

The time requirements indicated in this Section F may not necessarily match the dates of TPN Hearings, Section E. The intent is to bring issues developed, in a timely manner, to each TPN Hearing for TPN decision.

III.
CONTRACTOR'S RESPONSIBILITY

Contractor shall furnish one copy of all documents that are pertinent to the performance of the TPN.

IV.
OWNER'S RESPONSIBILITY

Owner shall provide the following services and items:

A. Contract Related Documents

The Owner shall provide the TPN with a copy of the Contract Documents, change orders, written instructions issued by the Owner to Contractor, or other documents pertinent to the performance of the Work and therefore, necessary to the TPN's work.

B. Coordination

Owner will, in cooperation with Contractor, coordinate the operations of the TPN.

C. TPN Cost Record

Owner will maintain complete cost records of the TPN with records being available for inspection by Contractor. These expenses include the TPN's wages, travel expense and local lodging, and direct general costs associated with TPN operations.

V.
TIME FOR COMPLETION

Once the TPN is established, it shall be in operation through Final Completion of the Project, unless otherwise agreed by and between the Parties. The TPN shall not begin any work under the terms of this Agreement until authorized in writing by the Parties.

VI.
PAYMENT

TPN shall be paid by the Owner and Contractor for services rendered under this Agreement as provided hereinafter. Such payments shall be full compensation for work performed or services

rendered, and for all labor, materials, supplies, equipment, taxes and incidentals necessary to serve on the TPN.

The TPN will bill the Owner and Contractor each for ½ of amounts due monthly.

A. Fee: TPN

Payment for services rendered as the TPN shall be at an hourly billing rate not to exceed \$150.00. Travel time shall be compensated at an hourly rate of \$50.00. Hourly rates include all direct labor costs, taxes, overhead and profit.

Subsequent change in the billing rate or the maximum amount are subject to agreement between the Owner, the Contractor and the TPN and must be authorized by Supplemental Agreement.

B. Reimbursable Expense

Reimbursable expenses include, but are not limited to, automobile mileage no greater than the State of Washington allowed maximum, air travel, rental car, taxi, lodging, restaurant meals, and printing costs, in accordance with State of Washington and/or agency guidelines.

Subsistence and lodging expenses will be reimbursed at a rate not to exceed \$125.00 per day.

Billings directly identifiable with the Project shall be formatted as an itemized listing of the charges supported by the original bills, invoices, expense accounts and miscellaneous supporting data. Automobile mileage shall be supported by the date and time of each trip with origin and destination of such trips.

C. Payments

The TPN shall submit separate invoices to Owner and Contractor not more often than once a month, billing each party for one-half of fee and reimbursables. Such invoices shall be in a format approved by the Owner and Contractor and accompanied by a general description of activities performed and reimbursable expenses incurred during the billing period. Supporting documents listed in "Reimbursable Expenses" above shall be included when requesting payment for such.

E. Inspection

The TPN shall keep available for inspection by representatives of Owner and Contractor, for a period of six years after final payment, the costs records and accounts pertaining to this Agreement. If any litigation, claim or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the six-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

VII.
ASSIGNMENT OF TASKS OR WORK

The TPN shall not assign any of the work of this Agreement without written permission from the Parties.

VIII.
TERMINATION OF TPN

The TPN may withdraw from the AGREEMENT by providing thirty calendar days' written notice to the Owner and Contractor. The TPN may be terminated for convenience or cause only by the Owner and the Contractor jointly.

IX.
LEGAL RELATIONS

The parties mutually understand and agree that the TPN performs all duties as an independent party and not as an agent or employee of either Owner or Contractor.

X.
DISPUTES

The Parties acknowledge and agree the TPN is immune from suit for any and all causes of actions alleging personal liability for acts or omissions arising out of service. Any dispute and/or claim between the Parties hereto, arising out of the work of the TPN or other terms of this Agreement, which cannot be resolved by negotiation, or mutual concurrence between the parties, shall be referred to the Superior Court for Benton County as provided in Section XI following.

XI.
VENUE, APPLICABLE LAW AND PERSONAL JURISDICTION

After exhausting Hearings Processes before the TPN, in the event a party deems it necessary to institute legal action or proceedings to enforce any right, claim or obligation under this Agreement or the Project, such action shall be initiated in the Superior Court of the State of Washington, situated in Benton County. This Agreement and the rights of the parties hereunder shall be governed by the laws of the State of Washington. All parties and individuals hereby consent to the personal jurisdiction of the Superior Court of the State of Washington, Benton County.

XII.
INCORPORATION BY REFERENCE

The provisions of this Agreement form a part of, and are incorporated in the Contract Documents of the GC/CM Contract between Owner and Contractor. All terms defined

elsewhere in the Contract Documents shall have the same meaning here.

The parties hereto have caused this Agreement to be executed on their behalf. The Signators represent and warrant they possess the authority to sign for and bind their respective entities.

THIRD PARTY NEUTRAL

By: _____

Printed Name: _____

Title: _____

Date: _____

OWNER

By: _____
Washington State University

Printed Name: _____

Title: _____

Date: _____

CONTRACTOR

By: _____

Printed Name: _____

Title: _____

Date: _____

END OF SECTION 00 80 10

PART 1 GENERAL

1.01 SUMMARY

- A. Contractor shall perform the entire Work in accordance with the Contract Documents.
- B. Without limiting the requirements of the Contract Documents, the Work of the Contract can be summarized as follows:
 - 1. This project is to construct a new gender inclusive restroom on the 2nd floor of the Consolidated Information Center Building. This new 126 square foot space will include two new ADA water closet stalls along with a room containing 2 lavatory sinks. The HVAC system will adjusted to provide dedicated supply and exhaust for these new rooms. All plumbing will be connected to existing plumbing lines in a nearby restroom plumbing chase. Fire sprinkler system will be altered to add additional heads to two new rooms. Electrical system will be adjusted to provide new lighting and extend circuit to new faucets.
- C. Expected Owner-supplied Contractor-installed Work: NONE
- D. Expected Work by Owner: None

1.02 SCHEDULE OF ALTERNATES – NOT USED

1.03 SCHEDULE OF ALLOWANCES – NOT USED

1.04 SCHEDULE OF UNIT PRICES – NOT USED

1.05 GENERAL INFORMATION

- A. Owner and Owner's Designated Representative:
 - 1. Owner: Board of Regents
Washington State University
Pullman, WA 99164-1045
 - 2. Owner's Designated Representative:
 - a. All Owner capital projects are administered by the Department of Facilities Services, Capital. Project specific designated representatives are listed within the Agreement.
 - 3. Consulting Services: Owner has retained an Architect/Engineer to design the entire project. The Architect/Engineer is identified below, as are others involved as members of the Owner team working on the Project:
 - a. Architect/Engineer: Arculus Design, Kennewick, WA

1.06 SPECIAL CONDITIONS

A. Site Access:

1. Contract may access building and the project site through the building loading dock entrance.

B. Owner Occupancy:

1. The project location will be occupied during construction.
2. The server room will require a significant dust barrier between the construction site and the existing server racks to eliminate the possibility of dust clogging the HVAC unit or server fans.

C. Building Permits:

1. Owner has obtained and paid for the initial building permit. Contractor shall obtain and pay for any required renewals. Contractor shall identify costs for permit renewals, if applicable, on the Schedule of Values for permits obtained.

END OF SECTION 01 11 00

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the administrative and procedural requirements for executing changes in the Work. This Section is subject to and governed by the Agreement and General Conditions. In the event of any conflict, the Agreement and General Conditions will have a higher precedence as established in the General Conditions.

1.02 SUBMITTALS

- A. Contractor shall submit a breakdown of its actual wage rates prior to commencement of construction activities. The breakdown must show:
 - 1. Basic wage rate (Based on L&I Intent to Pay Prevailing Wages);
 - 2. Fringe Package (Based on L&I Intent to Pay Prevailing Wages);
 - 3. FUI (Federal Unemployment Insurance);
 - 4. FICA (Federal Insurance Compensation Act);
 - 5. SUI (State Unemployment Compensation Act);
 - 6. Medicare; and
 - 7. WC (Workers Compensation).
- B. Contractor shall submit detailed supporting documentation to verify the above rates, if requested by Owner. All such rates shall be subject to audit.
- C. Contractor shall submit prior to commencement of construction activities a list of all equipment that it anticipates will be used on the Project and the actual operating cost of each piece of equipment. The General Conditions describe allowable equipment charges. All costs shall be subject to audit.

1.03 CONTRACT CHANGE PROPOSAL PROCEDURES

- A. Contractor shall maintain an Issues Log/ CCP Log as described in the General Conditions:
 - 1. The action status shall indicate which party is currently responsible and when it is appropriate to submit a CCP to Owner. Contractor shall submit a Contract Change Proposal (CCP) with Substantiating Documentation, as described in subsection C below, to Owner within 7 Days of this action status change.
 - 2. Upon final agreement and authorization by Owner a CCP may be incorporated into the Contract via Change Order and shall be reflected on the Issues Log.

B. Direction to perform Work:

1. Owner may directly order Work by a written Work Directive (WD). WDs may be unilateral or bilateral as described in the General Conditions and may be issued on a fixed price or on a "cost-not-to-exceed" basis. The WD may include the following:
 - a. A detailed description of the proposed change, products, and location of modification to the Work;
 - b. Supplementary or revised Drawings and/or Specifications; and
 - c. Projected time for making the change and a statement as to whether overtime work is, or is not, acceptable.

C. Substantiating Documentation required with all CCPs:

1. Contractor shall provide back-up documentation required to substantiate any proposed change in the following format:
 - a. CCP narrative, including:
 - 1) Description of proposed change. In order to allow for efficient review of a change proposal Contractor shall provide enough narrative to the line item breakdown to allow Owner to properly assess that the change is fair and reasonable;
 - 2) Cause of or reason for making change with a statement of why proposed change is not covered by Contract Documents
 - 3) Both credited and additive elements relating to a change in Contract Sum and/or Contract Time;
 - 4) A specific period of time during which Contractor's pricing will be considered valid;
 - 5) Any schedule considerations that may trigger further impact to the Contract Time if acceptance of the proposed change is delayed beyond a specific date; and
 - 6) Date change Work is to be completed.
 - b. Owner supplied Change Proposal Submittal Form.
 - c. CCP Cost Estimate Detail Sheet(s), or other form acceptable to Owner, including:
 - 1) Line-item estimate detailing material, labor, equipment, Subcontractor, and supplier costs and quantities; and
 - 2) Subcontractor and supplier proposals with supporting line-item estimates.
 - d. CCP Progress Schedule with Contemporaneous Period Analysis detailing if any impact to the planned progress of the Work and

critical path.

- e. Other supporting documentation, as appropriate.

D. Correlation with Contractor's Submittals:

1. Application for Payment forms shall record each Unilateral and Bilateral Change Order as a separate item of Work.
2. The Progress Schedule shall be revised to reflect changes in the Contract Time.
3. Project Record shall incorporate all changed Work.

END OF SECTION 01 26 00

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes procedures for preparation and submittal of Applications for Payment.

1.02 SUBMITTALS

- A. Prior to submitting its first Application for Payment, Contractor shall:
1. Submit a preliminary Progress Schedule per Section 01 32 13 – Progress Schedule.
 2. If requested, submit a projected monthly cash-flow analysis for the duration of the Project.
 3. Submit an approved Intent to Pay Prevailing Wages form prior to commencing the Work. An approved Intent to Pay Prevailing Wages form must be on file with Owner for each classification of laborers, workers, or mechanics employed by Contractor or Subcontractors whose Work is included in an Application for Payment.
 4. **“Washington State Prevailing Wage Rates for Public Works Contracts/Benton County” are made a part of the Contract Documents and are included at the end of this Section.** It is Contractor’s responsibility to verify with the Washington State Department of Labor and Industries the most current and applicable prevailing wage rates for this Project.
 5. Submit and receive approval of the Schedule of Values per Section 01 29 73 – Schedule of Values, and the General Conditions. All Applications for Payment shall be in the same format.
 6. Submit a list of all Subcontractors with points of contact and other contact information, including phone number, email address, and mailing address.
 7. Submit a list of all major material suppliers with points of contact and other contact information, including phone number, email address, and mailing address.
 8. Submit Retainage Option Form to Owner for the disposition of retainage funds.
 - a. In accordance with Chapter 60.28 of the Revised Code of Washington (RCW), Owner shall reserve retainage not to exceed 5% of the monies earned by Contractor as a trust fund for the protection and payment of:
 - 1) The claims of any person and/or Owner arising out of or relating to Work performed on the Project; and
 - 2) The State with respect to taxes, fees, or penalties that may

be imposed and due from Contractor (see General Conditions).

- b. Retainage will be released per Section 01 70 00 - Project Close-Out.
- c. At the option of Contractor, the moneys reserved by Owner shall be:
 - 1) Retained in a fund by Owner;
 - 2) Bonded for all of the retainage using a bond form acceptable to Owner;
 - 3) Placed in escrow with a bank or trust company by Owner.
 - a) Escrow: If the retained funds are to be placed in escrow, Contractor will select the escrow agent, subject to approval by Owner. The selected agent must be a bank or trust company in the State of Washington.
 - b) Escrow Agent: If Contractor elects the escrow option, an escrow agreement shall be executed by Contractor, Owner, and bank or trust company. Three copies of the agreement should be completed and executed by Contractor and returned to Owner for execution; Owner will forward copies to the bank or trust company for receipt, acceptance, and execution. The bank or trust company will retain one copy and return one copy each to Contractor and Owner. A completed and signed escrow agreement must be on file with Owner before Contractor's first Application for Payment is processed.
 - c) Escrow Investments: The bank or trust company may invest the retained funds in bonds and other securities selected by Contractor, except stocks, subject to the written approval of Owner.
 - d) The investments selected must mature on or prior to the date 45 Days following Final Acceptance of the Work. Interest on such investments may be paid to Contractor as it accrues.
 - e) Escrow Costs and Fees: All escrow costs and fees shall be paid by Contractor.
 - f) Release of Escrow Investments to Contractor: Retainage will be released per Section 01 70 00 - Project Close-Out. Once Contractor has fully complied with the Contract Documents and statute, Owner shall issue written instructions to the bank or trust company to release to Contractor the investment held in escrow.

B. Draft Application for Payment:

1. Contractor shall submit a draft, itemized Application for Payment within the last 7 Days of the month.
2. The draft application does not constitute a payment request and shall not be signed.
3. Contractor shall carefully check all extensions, totals, and required information for accuracy before submittal.
4. Contractor and Owner may meet to confer regarding the current progress of the Work and the amount of payment to which Contractor is entitled. Owner may request that Contractor provide supporting documentation substantiating its right to payment. Contractor is not entitled to make a final payment request, nor is any payment due Contractor, until such data is furnished. Contractor may include in its Application for Payment projected costs to the end of the month.
 - a. Fill in the following information within Owner's Application for Payment form:
 - 1) Percentage of Work completed based upon the approved schedule of values.
 - 2) List Change Orders approved by Owner prior to submission date. Use Owner's designations. Do not bill for changed Work until a fully executed Change Order has been received.
 - 3) Certification of Participation WBE and MBEs, all certification types acceptable, supply this regardless of having firms to report upon.
 - 4) List all Subcontractors that have performed Work at the site during the pay period.
 - 5) If applicable, Apprentice/Journeyman Participation.
5. Contractor shall submit or make available for review the following prior to the draft Application for Payment:
 - a. Project Record; (see Section 01 78 39 – Project Record)
 - b. Updated Progress Schedule in native format (see section 01 32 13 – Progress Schedule);
 - c. Contractor Quality Control Reports (see Section 01 45 00 - Quality Control); and
 - d. Stored Materials: Requests for payment of stored materials may only be made for materials properly stored on or off-site and in full compliance with the General Conditions.

- C. Application for Payment:
1. Contractor may not submit the approved Application for Payment (or payment will be withheld) until all requirements of the draft application for payment are met.
 2. Upon approval of the Draft Application for Payment, contractor will be authorized to submit the agreed upon Application for Payment for processing and payment. This application for payment shall be signed by hand by a responsible officer of the Contractor and may be submitted in scanned format electronically.
 3. Formal submittal must include all parts of the Application for Payment form.
 4. Owner shall make progress payments in such amounts as it determines are properly due within 30 Days of receipt of a properly executed Application for Payment.
 5. Owner shall notify Contractor in accordance with Chapter 39.76 RCW if the Application for Payment does not comply with the requirements of the Contract Documents.
- D. Disputed Amounts: If Contractor believes it is entitled to payment for Work performed during the prior calendar month in addition to the agreed-upon amount, Contractor may, also within the same period, submit to Owner along with the approved Application for Payment a separate, written payment request specifying the exact additional amount claimed due, the category in the Schedule of Values in which the payment is claimed due, the specific Work for which the additional amount is due, and why the additional payment is due. Furthermore, for the submittal to be considered, Contractor and all Subcontractors shall file with Owner by the same date certified copies of all payroll records relating to the additional amount due, pursuant to WAC 296-127-320.
- E. Payments to Subcontractors: Contractor shall pay each Subcontractor no later than 10 Days after receipt of payment from Owner the amount to which the Subcontractor is entitled. Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to lower-tier Subcontractors in a similar manner.
1. Applications for Payment shall not request payment for portions of the Work that Contractor does not intend to pay a Subcontractor, unless such Work has been performed by others whom Contractor intends to pay.
 2. If, after making an Application for Payment but before paying a Subcontractor for its performance covered by the Application, Contractor discovers that part or all of the payment otherwise due to the Subcontractor is subject to withholding from the Subcontractor under the Subcontract (such as for unsatisfactory performance or non-payment of lower-tier Subcontractors), Contractor may withhold the amount as allowed under the Subcontract, but it shall:
 - a. Give the Subcontractor and Owner written notice of the

- withholding as soon as practicable once Contractor determines the cause for the withholding but before the due date of the Subcontractor payment;
- b. Include the reasons for the withholding and the actions the Subcontractor must take to release the payment; and
 - c. Once Subcontractor has taken the required remedial actions, pay Subcontractor within 8 Days.
3. Owner may, at its sole option, issue joint checks to Contractor and to any Subcontractor. If Owner makes payments by joint check, such value shall be reflected on the next Application for Payment.
- F. Subcontractor Payment Reporting: Contractor and all tiers of subcontractors will utilize Access Equity accessed at the Office of Minority and Women's Business Enterprises (OMWBE) at <https://omwbe.diversitycompliance.com/> to report subcontractor payment information. The Contractor shall:
1. Complete the OMWBE user training.
 2. Register and enter all required Subcontractor information into Access Equity upon Owner creation of the contract record.
 3. Monitor and report amount and date of all payments:
 - a. Received from Owner;
 4. Made to Subcontractor(s); Resolve any discrepancies between reported and received payments.
 5. Require each Subcontractor to:
 - a. Register in Access Equity and complete the user training.
 - b. Verify amounts and date of receipt of payments from Prime Contractor or higher tier Subcontractor.
 - c. Report any payments made to a lower tier Subcontractor.
 - d. Resolve any discrepancies between reported and received payments.
- G. Application for Final Payment:
1. Application for Final Payment will be accepted for processing only after Contractor has completed the requirements of Final Completion as described in Section 01 70 00 – Project Close-Out.
- H. Release of Retainage:
1. Retainage will be released per Section 01 70 00 - Project Close-Out.

END OF SECTION 01 29 00

State of Washington
Department of Labor & Industries
Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 06/13/2023

<u>County</u>	<u>Trade</u>	<u>Job Classification</u>	<u>Wage</u>	<u>Holiday</u>	<u>Overtime</u>	<u>Note</u>	<u>*Risk Class</u>
Whitman	Asbestos Abatement Workers	Journey Level	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Boilermakers	Journey Level	\$74.29	<u>5N</u>	<u>1C</u>		View
Whitman	Brick Mason	Journey Level	\$55.44	<u>5A</u>	<u>1M</u>		View
Whitman	Building Service Employees	Janitor	\$15.74		<u>1</u>		View
Whitman	Building Service Employees	Shampooer	\$15.74		<u>1</u>		View
Whitman	Building Service Employees	Waxer	\$15.74		<u>1</u>		View
Whitman	Building Service Employees	Window Cleaner	\$15.74		<u>1</u>		View
Whitman	Cabinet Makers (In Shop)	Journey Level	\$15.74		<u>1</u>		View
Whitman	Carpenters	Acoustical Worker	\$53.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Carpenters	Bridge, Dock & Wharf Carpenter	\$57.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Carpenters	Floor Layer & Floor Finisher	\$53.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Carpenters	Form Builder	\$53.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Carpenters	General Carpenter	\$53.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Carpenters	Heavy Construction Carpenter	\$57.36	<u>7E</u>	<u>4X</u>	<u>9E</u>	View
Whitman	Carpenters	Scaffold/Shoring Erecting & Dismantling	\$57.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Cement Masons	Journey Level	\$52.83	<u>7B</u>	<u>1N</u>		View
Whitman	Divers & Tenders	Assistant Tender	\$61.33	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Bell/Vehicle or Submersible Operator Not Under Pressure	\$64.43	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Dive Supervisors	\$112.37	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Diver	\$110.87	<u>7E</u>	<u>4X</u>	<u>8V</u>	View
Whitman	Divers & Tenders	Diver on Standby	\$63.43	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Diver Tender	\$64.43	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Diving Master	\$74.42	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Manifold Operator	\$64.43	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Manifold Operator Mixed Gas	\$68.43	<u>7E</u>	<u>4X</u>		View
Whitman	Divers & Tenders	Remote Operated Vehicle Operator	\$64.43	<u>7E</u>	<u>4X</u>		View

Whitman	Divers & Tenders	Remote Operated Vehicle Tender/Technician	\$61.33	7E	4X		View
Whitman	Dredge Workers	Assistant Engineer	\$76.56	5D	3F		View
Whitman	Dredge Workers	Assistant Mate (Deckhand)	\$75.97	5D	3F		View
Whitman	Dredge Workers	Boatmen	\$76.56	5D	3F		View
Whitman	Dredge Workers	Engineer Welder	\$78.03	5D	3F		View
Whitman	Dredge Workers	Leverman, Hydraulic	\$79.59	5D	3F		View
Whitman	Dredge Workers	Mates	\$76.56	5D	3F		View
Whitman	Dredge Workers	Oiler	\$75.97	5D	3F		View
Whitman	Drywall Applicator	Journey Level	\$53.36	7E	4X	8N	View
Whitman	Drywall Tapers	Journey Level	\$48.68	7E	1P		View
Whitman	Electrical Fixture Maintenance Workers	Journey Level	\$15.74		1		View
Whitman	Electricians - Inside	Journeyman	\$61.86	7G	1E		View
Whitman	Electricians - Motor Shop	Craftsman	\$15.74		1		View
Whitman	Electricians - Motor Shop	Journey Level	\$15.74		1		View
Whitman	Electricians - Powerline Construction	Cable Splicer	\$93.00	5A	4D		View
Whitman	Electricians - Powerline Construction	Certified Line Welder	\$85.42	5A	4D		View
Whitman	Electricians - Powerline Construction	Groundperson	\$55.27	5A	4D		View
Whitman	Electricians - Powerline Construction	Heavy Line Equipment Operator	\$85.42	5A	4D		View
Whitman	Electricians - Powerline Construction	Journey Level Lineperson	\$85.42	5A	4D		View
Whitman	Electricians - Powerline Construction	Line Equipment Operator	\$73.35	5A	4D		View
Whitman	Electricians - Powerline Construction	Meter Installer	\$55.27	5A	4D	8W	View
Whitman	Electricians - Powerline Construction	Pole Sprayer	\$85.42	5A	4D		View
Whitman	Electricians - Powerline Construction	Powderperson	\$63.50	5A	4D		View
Whitman	Electronic Technicians	Journey Level	\$50.89	5I	1B		View
Whitman	Elevator Constructors	Mechanic	\$107.49	7D	4A		View
Whitman	Elevator Constructors	Mechanic In Charge	\$116.13	7D	4A		View
Whitman	Fabricated Precast Concrete Products	Journey Level	\$15.74		1		View
Whitman	Fabricated Precast Concrete Products	Journey Level - In-Factory Work Only	\$15.74		1		View
Whitman	Fence Erectors	Fence Erector	\$47.62	7B	1M	8Z	View
Whitman	Flaggers	Journey Level	\$44.88	7B	1M	8Z	View
Whitman	Glaziers	Journey Level	\$40.20	7L	4L		View
Whitman	Heat & Frost Insulators And Asbestos Workers	Journey Level	\$59.24	5K	1U		View
Whitman	Heating Equipment Mechanics	Journey Level	\$65.36	6Z	1B		View
Whitman	Hod Carriers & Mason Tenders	Journey Level	\$48.46	7B	1M	8Z	View
Whitman	Industrial Power Vacuum Cleaner	Journey Level	\$15.74		1		View

Whitman	Inland Boatmen	Journey Level	\$15.74		<u>1</u>		View
Whitman	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	\$15.74		<u>1</u>		View
Whitman	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	\$15.74		<u>1</u>		View
Whitman	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	\$15.74		<u>1</u>		View
Whitman	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	\$15.74		<u>1</u>		View
Whitman	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	\$15.74		<u>1</u>		View
Whitman	Insulation Applicators	Journey Level	\$53.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Ironworkers	Journeyman	\$68.91	<u>15K</u>	<u>11N</u>		View
Whitman	Laborers	Air And Hydraulic Track Drill	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Asphalt Raker	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Asphalt Roller, Walking	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Brick Pavers	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Brush Hog Feeder	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Brush Machine	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Caisson Worker, Free Air	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Carpenter Tender	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Cement Finisher Tender	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Cement Handler	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Chain Saw Operator & Faller	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Clean-up Laborer	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Compaction Equipment	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Concrete Crewman	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Concrete Saw, Walking	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Concrete Signalman	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Concrete Stack	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Confined Space Attendant	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Construction Specialist	\$48.39	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Crusher Feeder	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Demolition	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Demolition Torch	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Dope Pot Fireman, Non-mechanical	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Driller Helper (when Required To Move & Position Machine)	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Drills With Dual Masts	\$48.50	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Dry Stack Walls	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Dumpman	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Erosion Control Laborer	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Firewatch	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View

Whitman	Laborers	Form Cleaning Machine Feeder, Stacker	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Form Setter, Paving	\$47.91	7B	1M	8Z	View
Whitman	Laborers	General Laborer	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Grade Checker	\$50.33	7B	1M	8Z	View
Whitman	Laborers	Grout Machine Header Tender	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Guard Rail	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Guniting	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Hazardous Waste Worker (level A)	\$48.50	7B	1M	8Z	View
Whitman	Laborers	Hazardous Waste Worker (level B)	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Hazardous Waste Worker (level C)	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Hazardous Waste Worker (level D)	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Hdpe Or Similar Liner Installer	\$47.62	7B	1M	8Z	View
Whitman	Laborers	High Scaler	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Industrial Technician	\$61.41	7B	1M	8Z	View
Whitman	Laborers	Jackhammer Operator Miner, Class "b"	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Laser Beam Operator	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Miner, Class "a"	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Miner, Class "c"	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Miner, Class "d"	\$48.50	7B	1M	8Z	View
Whitman	Laborers	Monitor Operator, Air Track Or Similar Mounting	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Mortar Mixer	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Nipper	\$47.62	7B	1M	8Z	View
Whitman	Laborers	Nozzleman	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Nozzleman, Water (to Include Fire Hose), Air Or Steam	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Pavement Breaker, 90 Lbs. & Over	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Pavement Breaker, Under 90 Lbs.	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Pilot Car	\$44.88	7B	1M	8Z	View
Whitman	Laborers	Pipelayer	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Pipelayer, Corrugated Metal Culvert And Multi-Plate	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Pipewrapper	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Plasterer Tenders	\$48.20	7B	1M	8Z	View
Whitman	Laborers	Pot Tender	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Powderman	\$49.97	7B	1M	8Z	View
Whitman	Laborers	Powderman Helper	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Power Buggy Operator	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Power Tool Operator, Gas, Electric, Pneumatic	\$47.91	7B	1M	8Z	View
Whitman	Laborers	Rad-Con Technician	\$61.41	7B	1M	8Z	View

Whitman	Laborers	Railroad Equipment, Power Driven, Except Dual Mobile	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Railroad Power Spiker Or Puller, Dual Mobile	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Remote Equipment Operator	\$48.50	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Remote Equipment Operator (i.e Compaction And Demolition)	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Rigger/signal Person	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Riprap Person	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Rodder & Spreader	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Sand Hogs Under Compressed Air Conditions	\$95.15	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Sandblast Tailhoseman	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Scaffold Erector, Wood Or Steel	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Scaleman	\$44.88	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Stake Jumper	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Structural Mover	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Tailhoseman (water Nozzle)	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Timber Buckler & Faller (by Hand)	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Track Laborer (rr)	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Traffic Control Laborer	\$44.88	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Traffic Control Supervisor	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Trencher, Shawnee	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Trenchless Technology Technician	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Truck Loader	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Truck Mounted Attenuator	\$44.88	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Tugger Operator	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Vibrators, All	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Wagon Drills	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Water Pipe Liner	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Welder, Electrical, Manual Or Automatic (hdpe Or Similar Pipe And Liner)	\$48.50	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Well-point Person	\$47.62	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Wheelbarrow, Power Driven	\$47.91	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers	Window Washer, Cleaner	\$44.88	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers - Underground Sewer & Water	General Laborer & Topman	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Laborers - Underground Sewer & Water	Pipe Layer	\$48.20	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Landscape Construction	Landscape Laborer	\$44.88	<u>7B</u>	<u>1M</u>	<u>8Z</u>	View
Whitman	Landscape Construction	Landscape Operator	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Landscape Maintenance	Groundskeeper	\$15.74		<u>1</u>		View
Whitman	Lathers	Journey Level	\$53.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Marble Setters	Journey Level	\$55.44	<u>5A</u>	<u>1M</u>		View

Whitman	Metal Fabrication (In Shop)	Fitter	\$15.74		<u>1</u>		View
Whitman	Metal Fabrication (In Shop)	Laborer	\$15.74		<u>1</u>		View
Whitman	Metal Fabrication (In Shop)	Machine Operator	\$15.74		<u>1</u>		View
Whitman	Metal Fabrication (In Shop)	Painter	\$15.74		<u>1</u>		View
Whitman	Metal Fabrication (In Shop)	Welder	\$15.74		<u>1</u>		View
Whitman	Millwright	Journey Level	\$73.35	<u>5A</u>	<u>1B</u>		View
Whitman	Modular Buildings	Journey Level	\$15.74		<u>1</u>		View
Whitman	Painters	Commercial Painter	\$43.01	<u>6Z</u>	<u>1W</u>		View
Whitman	Painters	Industrial Painter	\$50.32	<u>6Z</u>	<u>1W</u>	<u>9D</u>	View
Whitman	Pile Driver	Journey Level	\$57.36	<u>7E</u>	<u>4X</u>	<u>8N</u>	View
Whitman	Plasterers	Journey Level	\$53.51	<u>7K</u>	<u>1N</u>		View
Whitman	Playground & Park Equipment Installers	Journey Level	\$15.74		<u>1</u>		View
Whitman	Plumbers & Pipefitters	Journey Level	\$88.41	<u>6Z</u>	<u>1Q</u>		View
Whitman	Power Equipment Operators	A-frame Truck (2 Or More Drums)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	A-frame Truck (single Drum)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	All Tower Cranes	\$59.25	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Asphalt Plant Operator	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Assistant Plant Operator, Fireman Or Pugmixer (asphalt)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Assistant Refrigeration Plant & Chiller Operator (over 1000 Ton)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Assistant Refrigeration Plant (under 1000 Ton)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Automatic Subgrader (ditches & Trimmers)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backfillers (cleveland & Similar)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backhoe & Hoe Ram (under 3/4 Yd.)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backhoe (45,000 Gw & Under)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backhoe (45,000 Gw To 110,000 Gw)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backhoe (over 110,000 Gw)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backhoes & Hoe Ram (3 Yds & Over)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Backhoes & Hoe Ram (3/4 Yd. To 3 Yd.)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Bagley Or Stationary Scraper	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Batch & Wet Mix Operator (multiple Units, 2 & Incl. 4)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Batch Plant & Wet Mix Operator, Single Unit (concrete)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Batch Plant (over 4 Units)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Belt Finishing Machine	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Belt Loader (kocal Or Similar)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View

Whitman	Power Equipment Operators	Belt-crete Conveyors With Power Pack Or Similar	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Bending Machine	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Bit Grinders	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Blade (finish & Bluetop), Automatic, Cmi, Abc, Finish Athey & Huber & Similar When Used As Automatic	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Blade Operator (motor Patrol & Attachments)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Blower Operator (cement)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Boat Operator	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Bob Cat (skid Steer)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Bolt Threading Machine	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Boom Cats (side)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Boring Machine (earth)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Boring Machine (Rock Under 8 inch Bit - Quarry Master, Joy Or Similar)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Bump Cutter (wayne, Saginaw Or Similar)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Cableway Controller (dispatcher)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Cableway Operators	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Canal Lining Machine (concrete)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Carrydeck & Boom Truck (under 25 Tons)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Cement Hog	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Chipper (without Crane) Cleaning & Doping Machine (pipeline)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Clamshell, Dragline	\$57.63	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Compactor (self-propelled With Blade)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Compressor (2000 Cfm Or Over, 2 Or More, Gas Diesel Or Electric Power)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Compressors (under 2000 Cfm, Gas, Diesel Or Electric Power)	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Concrete Cleaning / Decontamination Machine Operator	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Concrete Pump Boon Truck	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Concrete Pumps (squeeze-crete, Flow-crete, Whitman & Similar)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Concrete Saw (multiple Cut)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Concrete Slip Form Paver	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Conveyor Aggregate Delivery Systems (c.a.d.)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View

Whitman	Power Equipment Operators	Crane Oiler & Cable Tender, Mucking Machine	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Crane Oiler - Driver (cdl Required)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Cranes (100 to 299 Tons) All Attachments	\$58.49	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Cranes (25 Tons & Under), All Attachments Incl. Clamshell, Dragline	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Cranes (25 Tons To And Including 44 Tons), All Attachments Incl. Clamshell, Dragline	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Cranes (300 Tons and Over) All Attachments	\$59.25	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Cranes (45 Tons To 55 Tons), All Attachments Incl. Clamshell And Dragline	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Cranes (56 to 99 tons) and overhead, rail and Quick Tower. All attachment incl. Clamshell, Dragline	\$57.63	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Crusher Feeder	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Crusher, Grizzle & Screening Plant Operator	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Curb Extruder (asphalt Or Concrete)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Deck Engineer	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Deck Hand	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Derricks & Stifflegs (65 Tons & Over)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Derricks & Stifflegs (under 65 Tons)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Distributor Leverman	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Ditch Witch Or Similar	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Dope Pots (power Agitated	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Dozer / Tractor (up To D-6 Or Equivalent) And Traxcavator	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Dozer / Tractors (d-6 & Equivalent & Over)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Dozer, 834 R/t & Similar	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Drill Doctor	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Driller Licensed	\$57.63	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Drillers Helper	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Drilling Equipment (8 inch Bit & Over - Robbins, Reverse Circulation & Similar)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Drills (churn, Core, Calyx Or Diamond)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Elevating Belt (holland Type)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Elevating Belt-type Loader (euclid, Barber Green &	\$54.96	ZZ	4S	9A	View

		Similar)					
Whitman	Power Equipment Operators	Elevating Grader-type Loader (dumor, Adams Or Similar)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Elevator Hoisting Materials	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Equipment Serviceman, Greaser & Oiler	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Fireman & Heater Tender	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Fork Lift Or Lumber Stacker, Hydra-life & Similar	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Generator Plant Engineers (diesel Or Electric)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Gin Trucks (pipeline)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Grade Checker	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Gunite Combination Mixer & Compressor	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	H.d. Mechanic	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	H.d. Welder	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Heavy Equipment Robotics Operator	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Helicopter Pilot	\$57.63	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Helper, Mechanic Or Welder, H.D	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Hoe Ram	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Hoist (2 Or More Drums Or Tower Hoist)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Hoist, Single Drum	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Hydraulic Platform Trailers (goldhofer, Shaurerly And Similar)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Hydro-seeder, Mulcher, Nozzleman	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Lime Batch Tank Operator (recycle Train)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Lime Brain Operator (recycle Train)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Loader (360 Degrees Revolving Koehring Scooper Or Similar)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Loader Operator (front-end & Overhead, 4 Yds. Incl. 8 Yds.)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Loaders (bucket Elevators And Conveyors)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Loaders (overhead & Front-end, Over 8 Yds.)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Loaders (overhead & Front-end, Under 4 Yds.. R/t)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Loaders (overhead And Front-end, 10 Yds. & Over)	\$57.63	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Locomotive Engineer	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Longitudinal Float	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Master Environmental Maintenance Technician	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View

Whitman	Power Equipment Operators	Mixer (portable - Concrete)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Mixermobile	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Mobile Crusher Operator (recycle Train)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Mucking Machine	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Multiple Dozer Units With Single Blade	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Pavement Breaker, Hydra-hammer & Similar	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Paving (dual Drum)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Paving Machine (asphalt And Concrete)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Piledriving Engineers	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Plant Oiler	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Posthole Auger Or Punch	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Power Broom	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Pump (grout Or Jet)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Pumpman	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Quad-track Or Similar Equipment	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Railroad Ballast Regulation Operator (self-propelled)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Railroad Power Tamper Operator (self-propelled)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Railroad Tamper Jack Operator (self-propelled)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Railroad Track Liner Operator (self-propelled)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Refrigeration Plant Engineer (1000 Tons & Over)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Refrigeration Plant Engineer (under 1000 Ton)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Rollerman (finishing Asphalt Pavement)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Rollers, All Types On Subgrade, Including Seal And Chip Coating (farm Type, Case, John Deere And Similar,or Compacting Vibrator), Except When Pulled B	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Roto Mill (pavement Grinder)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Rotomill Groundsman	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Rubber-tired Scrapers (multiple Engine With Three Or More Scrapers)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Rubber-tired Skidders (r/t With Or Without Attachments)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Scrapers, All, Rubber-tired	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Screed Operator	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Shovels (3 Yds. & Over)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators	Shovels (under 3 Yds.)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View

Whitman	Power Equipment Operators	Signalman (whirleys, Highline, Hammerheads Or Similar)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Soil Stabilizer (p & H Or Similar)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Spray Curing Machine (concrete)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Spreader Box (self-propelled)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Spreader Machine	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Steam Cleaner	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Straddle Buggy (ross & Similar On Construction Job Only)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Surface Heater & Planer Machine	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Tractor (farm Type R/t With Attachments, Except Backhoe)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Traverse Finish Machine	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Trenching Machines (7 Ft. Depth & Over)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Trenching Machines (under 7 Ft. Depth Capacity)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Tug Boat Operator	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Tugger Operator	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Turnhead (with Re-screening)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Turnhead Operator	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Ultra High Pressure Waterjet Cutting Tool System Operator, (30,000 Psi)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Vactor Guzzler, Super Sucker	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Vacuum Blasting Machine Operator	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Vacuum Drill (reverse Circulation Drill Under 8 Inch Bit)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Welding Machine	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators	Whirleys & Hammerheads, All	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	A-frame Truck (2 Or More Drums)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	A-frame Truck (single Drum)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	All Tower Cranes	\$59.25	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operator	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Assistant Plant Operator, Fireman Or Pugmixer (asphalt)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Assistant Refrigeration Plant & Chiller Operator (over 1000 Ton)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Assistant Refrigeration Plant (under 1000 Ton)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-	Automatic Subgrader (ditches	\$55.61	ZZ	4S	9A	View

	Underground Sewer & Water	& Trimmers)					
Whitman	Power Equipment Operators- Underground Sewer & Water	Backfillers (cleveland & Similar)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Backhoe & Hoe Ram (under 3/4 Yd.)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Backhoe (45,000 Gw & Under)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Backhoe (45,000 Gw To 110,000 Gw)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Backhoe (over 110,000 Gw)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Backhoes & Hoe Ram (3 Yds & Over)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Backhoes & Hoe Ram (3/4 Yd. To 3 Yd.)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Bagley Or Stationary Scraper	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Batch & Wet Mix Operator (multiple Units, 2 & Incl. 4)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Batch Plant & Wet Mix Operator, Single Unit (concrete)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Batch Plant (over 4 Units)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Belt Finishing Machine	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Belt Loader (kocal Or Similar)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Belt-crete Conveyors With Power Pack Or Similar	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Bending Machine	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Bit Grinders	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Blade (finish & Bluetop), Automatic, Cmi, Abc, Finish Athey & Huber & Similar When Used As Automatic	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Blade Operator (motor Patrol & Attachments)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Blower Operator (cement)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Boat Operator	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Bob Cat (skid Steer)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Bolt Threading Machine	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Boom Cats (side)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators- Underground Sewer & Water	Boring Machine (earth)	\$54.96	ZZ	4S	9A	View

Whitman	Power Equipment Operators-Underground Sewer & Water	Boring Machine (Rock Under 8 inch Bit - Quarry Master, Joy Or Similar)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Bump Cutter (wayne, Saginaw Or Similar)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cableway Controller (dispatcher)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cableway Operators	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Canal Lining Machine (concrete)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Carrydeck & Boom Truck (under 25 Tons)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cement Hog	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Chipper (without Crane) Cleaning & Doping Machine (pipeline)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Clamshell, Dragline	\$57.63	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Compactor (self-propelled With Blade)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Compressor (2000 Cfm Or Over, 2 Or More, Gas Diesel Or Electric Power)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Compressors (under 2000 Cfm, Gas, Diesel Or Electric Power)	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Concrete Cleaning / Decontamination Machine Operator	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Concrete Pump Boon Truck	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Concrete Pumps (squeeze-crete, Flow-crete, Whitman & Similar)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Concrete Saw (multiple Cut)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Concrete Slip Form Paver	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Conveyor Aggregate Delivery Systems (c.a.d.)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Crane Oiler & Cable Tender, Mucking Machine	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Crane Oiler - Driver (cdl Required)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cranes (100 to 299 Tons) All Attachments	\$58.49	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cranes (25 Tons & Under), All Attachments Incl. Clamshell, Dragline	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cranes (25 Tons To And Including 44 Tons), All Attachments Incl. Clamshell, Dragline	\$55.61	ZZ	4S	9A	View

Whitman	Power Equipment Operators-Underground Sewer & Water	Cranes (300 Tons and Over) All Attachments	\$59.25	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cranes (45 Tons To 55 Tons), All Attachments Incl. Clamshell And Dragline	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Cranes (56 to 99 tons) and overhead, rail and Quick Tower. All attachment incl. Clamshell, Dragline	\$57.63	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Crusher Feeder	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Crusher, Grizzle & Screening Plant Operator	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Curb Extruder (asphalt Or Concrete)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Deck Engineer	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Deck Hand	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Derricks & Stifflegs (65 Tons & Over)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Derricks & Stifflegs (under 65 Tons)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Distributor Leverman	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Ditch Witch Or Similar	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Dope Pots (power Agitated	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Dozer / Tractor (up To D-6 Or Equivalent) And Traxcavator	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Dozer / Tractors (d-6 & Equivalent & Over)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Dozer, 834 R/t & Similar	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Drill Doctor	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Driller Licensed	\$57.63	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Drillers Helper	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Drilling Equipment (8 inch Bit & Over - Robbins, Reverse Circulation & Similar)	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Drills (churn, Core, Calyx Or Diamond)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Elevating Belt (holland Type)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Elevating Belt-type Loader (euclid, Barber Green & Similar)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Elevating Grader-type Loader (dumor, Adams Or Similar)	\$54.96	ZZ	4S	9A	View

Whitman	Power Equipment Operators-Underground Sewer & Water	Elevator Hoisting Materials	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Equipment Serviceman, Greaser & Oiler	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Fireman & Heater Tender	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Fork Lift Or Lumber Stacker, Hydra-life & Similar	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Generator Plant Engineers (diesel Or Electric)	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Gin Trucks (pipeline)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Grade Checker	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Guniting Combination Mixer & Compressor	\$54.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	H.d. Mechanic	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	H.d. Welder	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Heavy Equipment Robotics Operator	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Helicopter Pilot	\$57.63	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Helper, Mechanic Or Welder, H.D	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Hoe Ram	\$55.31	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Hoist (2 Or More Drums Or Tower Hoist)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Hoist, Single Drum	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Hydraulic Platform Trailers (goldhofer, Shaurerly And Similar)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Hydro-seeder, Mulcher, Nozzleman	\$53.96	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Lime Batch Tank Operator (recycle Train)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Lime Brain Operator (recycle Train)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Loader (360 Degrees Revolving Koehring Scooper Or Similar)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Loader Operator (front-end & Overhead, 4 Yds. Incl. 8 Yds.)	\$55.61	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Loaders (bucket Elevators And Conveyors)	\$54.30	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Loaders (overhead & Front-end, Over 8 Yds.)	\$55.90	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Loaders (overhead & Front-end, Under 4 Yds.. R/t)	\$55.13	ZZ	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Locomotive Engineer	\$54.96	ZZ	4S	9A	View

Whitman	Power Equipment Operators-Underground Sewer & Water	Longitudinal Float	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Master Environmental Maintenance Technician	\$55.90	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Mixer (portable - Concrete)	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Mixermobile	\$54.96	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Mobile Crusher Operator (recycle Train)	\$55.61	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Mucking Machine	\$54.96	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Multiple Dozer Units With Single Blade	\$55.61	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker, Hydra-hammer & Similar	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Paving (dual Drum)	\$55.31	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Paving Machine (asphalt And Concrete)	\$55.61	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Piledriving Engineers	\$55.31	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Plant Oiler	\$53.96	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Posthole Auger Or Punch	\$54.96	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Power Broom	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Pump (grout Or Jet)	\$54.96	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Pumpman	\$53.96	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Quad-track Or Similar Equipment	\$55.61	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Railroad Ballast Regulation Operator (self-propelled)	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Railroad Power Tamper Operator (self-propelled)	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Railroad Tamper Jack Operator (self-propelled)	\$54.30	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Railroad Track Liner Operator (self-propelled)	\$55.31	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Refrigeration Plant Engineer (1000 Tons & Over)	\$55.31	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Refrigeration Plant Engineer (under 1000 Ton)	\$55.13	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Rollerman (finishing Asphalt Pavement)	\$55.61	7Z	4S	9A	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Rollers, All Types On Subgrade, Including Seal And Chip Coating (farm Type, Case, John Deere And Similar,or	\$53.96	7Z	4S	9A	View

		Compacting Vibrator), Except When Pulled B					
Whitman	Power Equipment Operators-Underground Sewer & Water	Roto Mill (pavement Grinder)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Rotomill Groundsman	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Rubber-tired Scrapers (multiple Engine With Three Or More Scrapers)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Rubber-tired Skidders (r/t With Or Without Attachments)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Scrapers, All, Rubber-tired	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Screed Operator	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Shovels (3 Yds. & Over)	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Shovels (under 3 Yds.)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Signalman (whirleys, Highline, Hammerheads Or Similar)	\$55.31	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Soil Stabilizer (p & H Or Similar)	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Spray Curing Machine (concrete)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Spreader Box (self-propelled)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Spreader Machine	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Steam Cleaner	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Straddle Buggy (ross & Similar On Construction Job Only)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Surface Heater & Planer Machine	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Tractor (farm Type R/t With Attachments, Except Backhoe)	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Traverse Finish Machine	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Trenching Machines (7 Ft. Depth & Over)	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Trenching Machines (under 7 Ft. Depth Capacity)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Tug Boat Operator	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Tugger Operator	\$54.30	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Turnhead (with Re-screening)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Turnhead Operator	\$54.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Ultra High Pressure Waterjet Cutting Tool System Operator,	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View

		(30,000 Psi)					
Whitman	Power Equipment Operators-Underground Sewer & Water	Vactor Guzzler, Super Sucker	\$55.61	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Vacuum Blasting Machine Operator	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Vacuum Drill (reverse Circulation Drill Under 8 Inch Bit)	\$55.13	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Welding Machine	\$53.96	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Equipment Operators-Underground Sewer & Water	Whirleys & Hammerheads, All	\$55.90	<u>7Z</u>	<u>4S</u>	<u>9A</u>	View
Whitman	Power Line Clearance Tree Trimmers	Journey Level In Charge	\$57.22	<u>5A</u>	<u>4A</u>		View
Whitman	Power Line Clearance Tree Trimmers	Spray Person	\$54.32	<u>5A</u>	<u>4A</u>		View
Whitman	Power Line Clearance Tree Trimmers	Tree Equipment Operator	\$57.22	<u>5A</u>	<u>4A</u>		View
Whitman	Power Line Clearance Tree Trimmers	Tree Trimmer	\$51.18	<u>5A</u>	<u>4A</u>		View
Whitman	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	\$38.99	<u>5A</u>	<u>4A</u>		View
Whitman	Refrigeration & Air Conditioning Mechanics	Journey Level	\$88.41	<u>6Z</u>	<u>1Q</u>		View
Whitman	Residential Brick Mason	Journey Level	\$55.44	<u>5A</u>	<u>1M</u>		View
Whitman	Residential Carpenters	Journey Level	\$25.00		<u>1</u>		View
Whitman	Residential Cement Masons	Journey Level	\$16.24		<u>1</u>		View
Whitman	Residential Drywall Applicators	Journey Level	\$25.64		<u>1</u>		View
Whitman	Residential Drywall Tapers	Journey Level	\$48.68	<u>7E</u>	<u>1P</u>		View
Whitman	Residential Electricians	Journey Level	\$31.82		<u>1</u>		View
Whitman	Residential Glaziers	Journey Level	\$20.72		<u>1</u>		View
Whitman	Residential Insulation Applicators	Journey Level	\$15.74		<u>1</u>		View
Whitman	Residential Laborers	Journey Level	\$22.44		<u>1</u>		View
Whitman	Residential Marble Setters	Journey Level	\$55.44	<u>5A</u>	<u>1M</u>		View
Whitman	Residential Painters	Journey Level	\$25.08		<u>1</u>		View
Whitman	Residential Plumbers & Pipefitters	Journey Level	\$21.92		<u>1</u>		View
Whitman	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	\$15.74		<u>1</u>		View
Whitman	Residential Sheet Metal Workers	Journey Level (Field or Shop)	\$65.36	<u>5I</u>	<u>1B</u>		View
Whitman	Residential Soft Floor Layers	Journey Level	\$17.62		<u>1</u>		View
Whitman	Residential Sprinkler Fitters (Fire Protection)	Journey Level	\$15.74		<u>1</u>		View
Whitman	Residential Stone Masons	Journey Level	\$55.44	<u>5A</u>	<u>1M</u>		View
Whitman	Residential Terrazzo Workers	Journey Level	\$20.61		<u>1</u>		View
Whitman	Residential Terrazzo/Tile Finishers	Journey Level	\$17.92		<u>1</u>		View
Whitman	Residential Tile Setters	Journey Level	\$20.61		<u>1</u>		View
Whitman	Roofers	Journey Level	\$44.79	<u>5I</u>	<u>1R</u>		View

Whitman	Roofers	Using Irritable Bituminous Materials	\$46.79	5I	1R		View
Whitman	Sheet Metal Workers	Journey Level (Field or Shop)	\$73.36	6Z	1B		View
Whitman	Sign Makers & Installers (Electrical)	Journey Level	\$15.74		1		View
Whitman	Sign Makers & Installers (Non-Electrical)	Journey Level	\$15.74		1		View
Whitman	Soft Floor Layers	Journey Level	\$55.76	5A	3J		View
Whitman	Solar Controls For Windows	Journey Level	\$15.74		1		View
Whitman	Sprinkler Fitters (Fire Protection)	Journey Level	\$65.00	7J	1R		View
Whitman	Stage Rigging Mechanics (Non Structural)	Journey Level	\$15.74		1		View
Whitman	Stone Masons	Journey Level	\$55.44	5A	1M		View
Whitman	Street And Parking Lot Sweeper Workers	Journey Level	\$15.74		1		View
Whitman	Surveyors	Chain Person	\$15.74	0	1	9H	View
Whitman	Surveyors	Instrument Person	\$15.74	0	1	9H	View
Whitman	Surveyors	Party Chief	\$15.74	0	1	9H	View
Whitman	Telecommunication Technicians	Journey Level	\$50.89	5I	1B		View
Whitman	Telephone Line Construction - Outside	Cable Splicer	\$39.15	5A	2B		View
Whitman	Telephone Line Construction - Outside	Hole Digger/Ground Person	\$26.29	5A	2B		View
Whitman	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	\$32.72	5A	2B		View
Whitman	Telephone Line Construction - Outside	Telephone Lineperson	\$37.00	5A	2B		View
Whitman	Terrazzo Workers	Journey Level	\$43.81	5A	1M		View
Whitman	Tile Setters	Journey Level	\$43.81	5A	1M		View
Whitman	Tile, Marble & Terrazzo Finishers	Journey Level	\$35.93	5A	1M		View
Whitman	Traffic Control Stripers	Journey Level	\$51.90	7A	1K		View
Whitman	Truck Drivers	Asphalt Mix Over 20 Yards	\$54.60	5D	1V	8M	View
Whitman	Truck Drivers	Asphalt Mix To 20 Yards	\$54.40	5D	1V	8M	View
Whitman	Truck Drivers	Dump Truck	\$54.40	5D	1V	8M	View
Whitman	Truck Drivers	Dump Truck & Trailer	\$54.60	5D	1V	8M	View
Whitman	Truck Drivers	Other Trucks	\$54.29	5D	1V	8M	View
Whitman	Truck Drivers - Ready Mix	Transit Mixers 20 yards and under	\$54.60	5D	1V	8M	View
Whitman	Truck Drivers - Ready Mix	Transit Mixers over 20 yards	\$54.94	5D	1V	8M	View
Whitman	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	\$15.74		1		View
Whitman	Well Drillers & Irrigation Pump Installers	Oiler	\$15.74		1		View
Whitman	Well Drillers & Irrigation Pump Installers	Well Driller	\$18.00		1		View

Overtime Codes

Overtime calculations are based on the hourly rate actually paid to the worker. On public works projects, the hourly rate must be not less than the prevailing rate of wage minus the hourly rate of the cost of fringe benefits actually provided for the worker.

1. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.
 - B. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - C. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - D. The first two (2) hours before or after a five-eight (8) hour workweek day or a four-ten (10) hour workweek day and the first eight (8) hours worked the next day after either workweek shall be paid at one and one-half times the hourly rate of wage. All additional hours worked and all worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.
 - G. The first ten (10) hours worked on Saturdays and the first ten (10) hours worked on a fifth calendar weekday in a four-ten hour schedule, shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - H. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions or equipment breakdown) shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - I. All hours worked on Sundays and holidays shall also be paid at double the hourly rate of wage.
 - J. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage.
 - K. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
 - M. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - N. All hours worked on Saturdays (except makeup days) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

1. O. The first ten (10) hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays, holidays and after twelve (12) hours, Monday through Friday and after ten (10) hours on Saturday shall be paid at double the hourly rate of wage.
- P. All hours worked on Saturdays (except makeup days if circumstances warrant) and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
- Q. The first two (2) hours after eight (8) regular hours Monday through Friday and up to ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays (except Christmas day) shall be paid at double the hourly rate of wage. All hours worked on Christmas day shall be paid at two and one-half times the hourly rate of wage.
- R. All hours worked on Sundays and holidays shall be paid at two times the hourly rate of wage.
- U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays (except Labor Day) shall be paid at two times the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.
- V. All hours worked on Sundays and holidays (except Thanksgiving Day and Christmas day) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Thanksgiving Day and Christmas day shall be paid at double the hourly rate of wage.
- W. All hours worked on Saturdays and Sundays (except make-up days due to conditions beyond the control of the employer)) shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
- X. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage. When holiday falls on Saturday or Sunday, the day before Saturday, Friday, and the day after Sunday, Monday, shall be considered the holiday and all work performed shall be paid at double the hourly rate of wage.
- Y. All hours worked outside the hours of 5:00 am and 5:00 pm (or such other hours as may be agreed upon by any employer and the employee) and all hours worked in excess of eight (8) hours per day (10 hours per day for a 4 x 10 workweek) and on Saturdays and holidays (except labor day) shall be paid at one and one-half times the hourly rate of wage. (except for employees who are absent from work without prior approval on a scheduled workday during the workweek shall be paid at the straight-time rate until they have worked 8 hours in a day (10 in a 4 x 10 workweek) or 40 hours during that workweek.) All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and Labor Day shall be paid at double the hourly rate of wage.
- Z. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid the straight time rate of pay in addition to holiday pay.

Overtime Codes Continued

2. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.
- B. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.
- F. The first eight (8) hours worked on holidays shall be paid at the straight hourly rate of wage in addition to the holiday pay. All hours worked in excess of eight (8) hours on holidays shall be paid at double the hourly rate of wage.
- M. This code appears to be missing. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.
- O. All hours worked on Sundays and holidays shall be paid at one and one-half times the hourly rate of wage.
- R. All hours worked on Sundays and holidays and all hours worked over sixty (60) in one week shall be paid at double the hourly rate of wage.
- U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked over 12 hours in a day or on Sundays and holidays shall be paid at double the hourly rate of wage.
3. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.
- F. All hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.
- H. All work performed on Sundays between March 16th and October 14th and all Holidays shall be compensated for at two (2) times the regular rate of pay. Work performed on Sundays between October 15th and March 15th shall be compensated at one and one half (1-1/2) times the regular rate of pay.
- J. All hours worked between the hours of 10:00 pm and 5:00 am, Monday through Friday, and all hours worked on Saturdays shall be paid at a one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- K. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the eight (8) hours rest period.

Overtime Codes Continued

4. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- A. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage
- C. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay. On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay. All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.
- D. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturday, Sundays and holidays shall be paid at double the hourly rate of pay. Rates include all members of the assigned crew.

EXCEPTION:

On all multipole structures and steel transmission lines, switching stations, regulating, capacitor stations, generating plants, industrial plants, associated installations and substations, except those substations whose primary function is to feed a distribution system, will be paid overtime under the following rates:

The first two (2) hours after eight (8) regular hours Monday through Friday of overtime on a regular workday, shall be paid at one and one-half times the hourly rate of wage. All hours in excess of ten (10) hours will be at two (2) times the hourly rate of wage. The first eight (8) hours worked on Saturday will be paid at one and one-half (1-1/2) times the hourly rate of wage. All hours worked in excess of eight (8) hours on Saturday, and all hours worked on Sundays and holidays will be at the double the hourly rate of wage.

All overtime eligible hours performed on the above described work that is energized, shall be paid at the double the hourly rate of wage.

- E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one and one half (1½) times the regular shift rate for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- G. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- I. The First eight (8) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) per day on Saturdays shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. J. The first eight (8) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) hours on a Saturday shall be paid at double the hourly rate of wage. All hours worked over twelve (12) in a day, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- K. All hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked over twelve (12) in a day Monday through Saturday, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- L. The first twelve (12) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on a Saturday in excess of twelve (12) hours shall be paid at double the hourly rate of pay. All hours worked over twelve (12) in a day Monday through Friday, and all hours worked on Sundays shall be paid at double the hourly rate of wage. All hours worked on a holiday shall be paid at one and one-half times the hourly rate of wage, except that all hours worked on Labor Day shall be paid at double the hourly rate of pay.
- U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- S. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, work performed in excess of (10) hours shall be paid at one and one half (1-1/2) times the hourly rate of pay. On Monday through Friday, work performed outside the normal work hours of 6:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations).

All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Multiple Shift Operations: When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. Special Shifts: The Special Shift Premium is the basic hourly rate of pay plus \$2.00 an hour. When due to conditions beyond the control of the employer or when an owner (not acting as the contractor), a government agency or the contract specifications require more than four (4) hours of a special shift can only be performed outside the normal 6am to 6pm shift then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid the special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday).

Overtime Codes Continued

4. V. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established or outside the normal shift (5 am to 6pm), and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.

In the event the job is down due to weather conditions, then Saturday may, be worked as a voluntary make-up day at the straight time rate. However, Saturday shall not be utilized as a make-up day when a holiday falls on Friday. All work performed on Sundays and holidays and work in excess of twelve (12) hours per day shall be paid at double (2x) the straight time rate of pay.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

- X. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. Work performed outside the normal shift of 6 am to 6pm shall be paid at one and one-half the straight time rate, (except for special shifts or three shift operations). All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. Shifts may be established when considered necessary by the Employer.

The Employer may establish shifts consisting of eight (8) or ten (10) hours of work (subject to WAC 296-127-022), that shall constitute a normal forty (40) hour work week. The Employer can change from a 5-eight to a 4-ten hour schedule or back to the other. All hours of work on these shifts shall be paid for at the straight time hourly rate. Work performed in excess of eight hours (or ten hours per day (subject to WAC 296-127-022) shall be paid at one and one-half the straight time rate.

When due to conditions beyond the control of the Employer, or when contract specifications require that work can only be performed outside the regular day shift, then by mutual agreement a special shift may be worked at the straight time rate, eight (8) hours work for eight (8) hours pay. The starting time shall be arranged to fit such conditions of work.

When an employee returns to work without at a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

11. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- B After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

- C The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, and all hours on Sunday shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage. All non-overtime and non-holiday hours worked between 4:00 pm and 5:00 am, Monday through Friday, shall be paid at a premium rate of 15% over the hourly rate of wage.

Overtime Codes Continued

11. D. All hours worked on Saturdays and holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.
- E. The first two (2) hours after eight (8) regular hours Monday through Friday, the first ten (10) hours on Saturday, and the first ten (10) hours worked on Holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, and Sundays shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.
- F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one-half times the hourly rate of wage for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- G. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.
- All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of nine (9) hours or more. When an employee returns to work without at least nine (9) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the nine (9) hours rest period.
- H. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.
- All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of ten (10) hours or more. When an employee returns to work without at least ten (10) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the ten (10) hours rest period.

Overtime Codes Continued

11. J. All hours worked on holidays shall be paid at double the hourly rate of wage.
- K. On Monday through Friday hours worked outside 4:00 am and 5:00 pm, and the first two (2) hours after eight (8) hours worked shall be paid at one and one-half times the hourly rate. All hours worked over 10 hours per day Monday through Friday, and all hours worked on Saturdays, Sundays, and Holidays worked shall be paid at double the hourly rate of wage.
- L. An employee working outside 5:00 am and 5:00 pm shall receive an additional two dollar (\$2.00) per hour for all hours worked that shift. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.
- M. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay.
- Work performed outside the normal work hours of 5:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations). When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. When due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift of 5:00 am to 6:00 pm, then a special shift may be worked at the straight time rate, plus the shift pay premium when applicable. The starting time of work will be arranged to fit such conditions of work. Such shift shall consist of eight (8) hours work for eight (8) hours pay or ten (10) hours work for ten (10) hours pay for four ten shifts.
- On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay. All work performed after 6:00 pm Saturday to 5:00 am Monday, all work performed over twelve (12) hours, and all work performed on holidays shall be paid at double the straight time rate of pay.
- Shift Pay Premium: In an addition to any overtime already required, all hours worked between the hours of 6:00 pm and 5:00 am shall receive an additional two dollars (\$2.00) per hour.
- N. All work performed over twelve hours in a shift and all work performed on Sundays and Holidays shall be paid at double the straight time rate.
- Any time worked over eight (8) hours on Saturday shall be paid double the straight time rate, except employees assigned to work six 10-hour shifts per week shall be paid double the straight time rate for any time worked on Saturday over 10 hours.

Benefit Code Key – Effective 3/3/2023 thru 8/30/2023

Holiday Codes

5. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, and Christmas Day (7).
- B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, the day before Christmas, and Christmas Day (8).
- C. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).
- D. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8).
- H. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Day after Thanksgiving Day, And Christmas (6).
- I. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).
- K. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9).
- L. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (8).
- N. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, The Friday After Thanksgiving Day, And Christmas Day (9).
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday And Saturday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9). If A Holiday Falls On Sunday, The Following Monday Shall Be Considered As A Holiday.
- Q. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).
- R. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day After Thanksgiving Day, One-Half Day Before Christmas Day, And Christmas Day. (7 1/2).
- S. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, And Christmas Day (7).
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).
6. G. Paid Holidays: New Year's Day, Martin Luther King Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Christmas Eve Day (11).
- H. Paid Holidays: New Year's Day, New Year's Eve Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, Christmas Day, The Day After Christmas, And A Floating Holiday (10).

Holiday Codes Continued

6. T. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Last Working Day Before Christmas Day, And Christmas Day (9).
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.
7. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any Holiday Which Falls On A Sunday Shall Be Observed As A Holiday On The Following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- C. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Unpaid Holidays: President's Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas day and Christmas day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- G. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

Holiday Codes Continued

7. J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- L. Holidays: New Year's Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- V. Holidays: New Year's Day, President's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year's Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- W. Holidays: New Year's Day, Day After New Year's, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year's Day, and a Floating Holiday.
- X. Holidays: New Year's Day, Day before or after New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.
- Y. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, Christmas Eve, and Christmas Day (9). Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday. Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

Holiday Codes Continued

15. G. New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

Note Codes

8. D. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.
- L. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$0.75, Level B: \$0.50, And Level C: \$0.25.
- M. Workers on hazmat projects receive additional hourly premiums as follows: Levels A & B: \$1.00, Levels C & D: \$0.50.
- N. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$1.00, Level B: \$0.75, Level C: \$0.50, And Level D: \$0.25.
- S. Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.
- T. Effective August 31, 2012 – A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

Note Codes Continued

8. U. Workers on hazmat projects receive additional hourly premiums as follows – Class A Suit: \$2.00, Class B Suit: \$1.50, And Class C Suit: \$1.00. Workers performing underground work receive an additional \$0.40 per hour for any and all work performed underground, including operating, servicing and repairing of equipment. The premium for underground work shall be paid for the entire shift worked. Workers who work suspended by a rope or cable receive an additional \$0.50 per hour. The premium for work suspended shall be paid for the entire shift worked. Workers who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation receive an additional \$0.50 per hour.
- V. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.
- Depth premiums apply to depths of fifty feet or more. Over 50' to 100' - \$2.00 per foot for each foot over 50 feet. Over 101' to 150' - \$3.00 per foot for each foot over 101 feet. Over 151' to 220' - \$4.00 per foot for each foot over 220 feet. Over 221' - \$5.00 per foot for each foot over 221 feet.
- Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25' to 300' - \$1.00 per foot from entrance. 300' to 600' - \$1.50 per foot beginning at 300'. Over 600' - \$2.00 per foot beginning at 600'.
- W. Meter Installers work on single phase 120/240V self-contained residential meters. The Lineman/Groundmen rates would apply to meters not fitting this description.
- X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: \$2.00, Class B Suit: \$1.50, Class C Suit: \$1.00, and Class D Suit: \$0.50. Special Shift Premium: Basic hourly rate plus \$2.00 per hour.
- When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)
- Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.
- Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.
- Z. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.
- Special Shift Premium: Basic hourly rate plus \$2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as a contractor), a government agency or the contract specifications require that more than (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they will be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Note Codes Continued

9. A. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.

Special Shift Premium: Basic hourly rate plus \$2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications require that more than four (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Certified Crane Operator Premium: Crane operators requiring certifications shall be paid \$0.50 per hour above their classification rate.

Boom Pay Premium: All cranes including tower shall be paid as follows based on boom length:

(A) – 130' to 199' – \$0.50 per hour over their classification rate.

(B) – 200' to 299' – \$0.80 per hour over their classification rate.

(C) – 300' and over – \$1.00 per hour over their classification rate.

- B. The highest pressure registered on the gauge for an accumulated time of more than fifteen (15) minutes during the shift shall be used in determining the scale paid.

Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

- C. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. These classifications are only effective on or after August 31, 2012.

- D. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, bridges, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.
- E. Heavy Construction includes construction, repair, alteration or additions to the production, fabrication or manufacturing portions of industrial or manufacturing plants, hydroelectric or nuclear power plants and atomic reactor construction. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$1.00, Level B: \$0.75, Level C: \$0.50, And Level D: \$0.25.
- F. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.

Note Codes Continued

9. H. One (1) person crew shall consist of a Party Chief. (Total Station or similar one (1) person survey system). Two (2) person survey party shall consist of at least a Party Chief and a Chain Person. Three (3) person survey party shall consist of at least a Party Chief, an Instrument Person, and a Chain Person.

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Procedures for preparation and submittal of the Schedule of Values.

1.02 SUBMITTALS

- A. Contractor shall submit an initial Schedule of Values per the Pre-Construction Submittal Requirements of Section 01 33 00.
- B. Contractor shall submit supporting documentation justifying the amounts in the Schedule of Values if requested by Owner.

1.03 SCHEDULE OF VALUES

- A. Contractor shall submit a typed schedule on Owner's form. Once approved, Contractor shall not revise the Schedule of Values without prior approval by Owner.
- B. Format:
 1. Separate each category of Work into a separate line item.
 2. List all major Work activities indicated on the Progress Schedule.
 3. Separate floors, phases, and other easily recognized building divisions when appropriate.
 4. Separate labor, materials and equipment for each item.
 5. Identify site mobilization, demobilization, bonds, and insurance as individual line items.
 6. Include a line item for close-out Work between Substantial Completion and Final Completion.
 7. If applicable, include a line item for allowances. For unit cost allowances, give quantities measured from the Contract Documents multiplied by the unit cost.
 8. When required by Owner, include separate line items for "separately funded Work."

END OF SECTION 01 29 73

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Preconstruction Meeting;
2. Progress Meetings; and
3. Other meetings, as requested by Owner.

1.02 PRECONSTRUCTION MEETING

A. Meeting Location: Owner will schedule a meeting prior to the start of construction. The purpose of this meeting is to review Contract administration requirements and mobilization procedures. Attendance is required for the following:

1. Architect/Engineer and design Subconsultants;
2. Contractor's Superintendent and Project Manager;
3. Representative of major Subcontractors, as appropriate;
4. Others, as appropriate.

B. Owner's Designated Representative shall:

1. Preside over and conduct meeting.
2. Record, reproduce, and distribute copies of minutes within 7 Days of the meeting to all meeting participants.

C. Agenda for the meeting will include at a minimum:

1. The Work;
2. Progress Schedule, including Work sequence, phasing, and occupancy requirements;
3. Communications chain and persons authorized to direct changes;
4. Use of the Project site;
5. Special Project procedures;
6. Procedures and processing:
 - a. Application for Payments and Schedule of Values;
 - b. Contract Change Proposals (CCP), Work Directive (WD);
 - c. Change Orders (CO);

- d. Requests for Information (RFI);
- e. Submittals; and
- f. Others as appropriate.
- 7. Project Record;
- 8. Construction facilities, controls, and construction aids;
- 9. Temporary utilities;
- 10. Security procedures;
- 11. Safety and first-aid procedures;
- 12. Environmental Health and Safety;
- 13. Housekeeping procedures;
- 14. AHJ representative(s) and inspection procedures;
- 15. Utility shutdowns;
- 16. Parking;
- 17. Existing conditions;
- 18. Subcontractor list;
- 19. Emergency phone and keys to site;
- 20. Progress meeting scheduling;
- 21. Shipment and deliveries; and
- 22. Other(s) as appropriate.

1.03 PROGRESS MEETINGS

- A. Progress meetings will occur weekly.
- B. Meeting Location: Contractor's Project field office, unless otherwise agreed.
- C. Attendance: Representatives attending meetings must be qualified and authorized to act on behalf of their firms. Attendance shall include:
 - 1. Architect/Engineer and Subconsultants, as appropriate;
 - 2. Owner's Designated Representatives;
 - 3. Contractor's Superintendent and Project Manager;
 - 4. Subcontractors, as appropriate;
 - 5. Suppliers, as appropriate; and
 - 6. Others, as appropriate.
- D. Owner's Designated Representative shall:

1. Administer progress and other specially scheduled meetings;
 2. Record, reproduce, and distribute copies of minutes within 6 Days of meeting to all meeting participants; and
- E. Contractor shall, at each meeting, provide each meeting attendant with:
1. Short-interval (look-ahead) schedule coordinated with the Progress Schedule;
 2. Updated Progress Schedule, if appropriate;
 3. Updated submittal log and schedules;
 4. Updated RFI log;
 5. Issues Log;
 6. Quality Control Log; and
 7. Any applicable tracking mechanisms.
- F. Agenda for these meetings will include at a minimum:
1. Project safety;
 2. Review and approval of minutes from previous meeting;
 3. Review Work progress since previous meeting;
 4. Review plans for progress for subsequent Work period and short-interval (look-ahead) schedule;
 5. Review Progress Schedule;
 6. Present corrective measures and procedures to regain Progress Schedule, as applicable;
 7. Present field observations, problems, and conflicts;
 8. Discuss RFIs;
 9. Review quality control;
 10. Review submittal log and schedules and present methods to expedite as required;
 11. Review off-site fabrication;
 12. Review delivery schedules;
 13. Review coordination issues;
 14. Review proposed changes for:
 - a. Effect on Progress Schedule and on completion date.
 - b. Effect on any other contracts of the Project.
 15. Review Issues Log;

16. Review draft Application for Payment (at end of month);
17. Review Project Record; and
18. Review any other issues.

1.04 OTHER MEETINGS

- A. Owner may call additional Project meetings as appropriate.
- B. Meetings as required by other sections.
- C. Format and agenda of these meetings will follow that of Progress Meetings unless Owner determines otherwise.

END OF SECTION 01 31 19

PART 1 GENERAL

1.01 GENERAL COMMUNICATION

- A. Subcontractors: Informal communication between Owner, Owner's consultants, and other Subcontractors is permitted. If written clarification or direction is required to resolve questions, transmit questions in writing using a Request for Information (RFI) through the Contractor to Owner.
- B. In case of an EMERGENCY, dial 9-1-1 if appropriate; otherwise, contact Owner's Designated Representative. If he or she is not available contact Facilities Services, Capital at 509-335-9000.

1.02 CORRESPONDENCE

- A. Address all correspondence to Owner's Designated Representative.
- B. Contractor shall copy Architect/Engineer on all correspondence to and from Owner.
- C. Include Project title and Owner Project number on all correspondence.

1.03 REQUEST FOR INFORMATION

- A. When field conditions or Contract Document require clarification, a written Request for Information (RFI) must be submitted per the following:
 - 1. Identify the nature and location of each clarification/verification using a RFI form and provide at least the following information:
 - a. Project name and number;
 - b. Date;
 - c. Date response requested;
 - d. RFI number;
 - e. Subject;
 - f. Initiator of the question;
 - g. Indication of costs;
 - h. Indication of schedule impact;
 - i. Location on site;
 - j. Contract Drawing reference;
 - k. Contract Specification section and paragraph reference;
 - l. Descriptive text;
 - m. Recommended solution(s); and

- n. Space for reply on same page as questions.
- B. Each RFI must be limited to a single issue, but shall reference other related RFI's.
- C. Route and copy RFIs in same manner as correspondence.
- D. Allow a minimum of 14 Days for Owner response to RFI.

1.04 NONCONFORMANCE REPORT

- A. Reference Document: Owner Nonconformance Report (NCR).
- B. Procedure: If Contractor proceeds to install deficient Work or fails to correct Work that in the opinion of Owner fails to conform to the Contract Documents, an NCR may be issued. Upon receipt of a NCR, Contractor shall take immediate action to correct nonconforming Work. Correction of nonconforming Work will be reviewed at progress meetings.

1.05 COORDINATION

- A. Special Coordination:
 - 1. Contractor shall notify the University Representative regarding any building system shutdowns that are necessary, and will try and arrange those shutdowns during times where the building is not occupied.
 - 2. The ITS Manager will need to evaluate and approve of the dust barrier placed between the work site and the server room to ensure there is not openings where dust can get through.
 - 3. Part of the library area may be used for contractor material staging, but that area will be kept clean and organized.
 - 4. Loading dock restrictions - once loading or unloading is accomplished, remove vehicles from the dock and park them in appropriate areas. Work with University representative to determine usual time for waste pick-up and avoid that time.
 - 5. Material/equipment staging areas – space will be provided inside of the Library area for material staging.
 - 6. Access routes – contractor will move items into the building using the loading dock area, but since the only elevator that goes to this area is within the Learning Commons area, the contractor can use that elevator to move materials and equipment to the upper floor.
 - 7. Determine if an elevator is accessible for Contractor's use. There is a single elevator that goes to this area of the building that is in the Learning Commons area. Access to the penthouse mechanical room requires a special key that can be checked out by the University representative. Protect elevator cab finishes during movement of materials and equipment.

B. General Coordination: Contractor shall:

1. Coordinate with Work of other sections to ensure that all fixtures, devices, switches, outlets, ducts, pipes, and similar items can be installed as shown without modifications to framing. Provide all blockouts, raceways and similar framing, as required;
2. Coordinate the Work and not delegate responsibility for coordination to any Subcontractor. Contractor must make available to each Subcontractor, prior to the execution of each Subcontract, copies of the Contract Documents to which the Subcontractor will be bound. Subcontractor will similarly make copies of the Contract Documents available to their respective lower-tier Subcontractors. Contractor must provide Owner copies of the written agreements between Contractor and any Subcontractor upon request;
3. Anticipate interrelationship of all Subcontractors and their relationship with the total Work;
4. Resolve differences or disputes between Subcontractors and materials suppliers concerning coordination, interference, or extent of Work between sections;
5. Be in charge of and responsible for the Work and the Project site, including directing and scheduling all Work; and
6. Cooperate with Separate Contractors. Work by others may be occurring within the building or at locations adjacent or near to the Project site. Contractor must cooperate with all such work.

C. Mechanical and Electrical Coordination: Contractor shall:

1. Resolve all "tight", restricted, or inaccessible areas involving Work of various disciplines in advance of installation.
2. If necessary, and before Work proceeds in these areas, prepare coordination drawings for review showing all Work in "tight", restricted, or inaccessible areas.
3. Provide coordination drawings necessary to resolve "tight", restricted, or inaccessible areas, at no increase in Contract Sum.

D. Job Site Field Measurements and Templates: Contractor shall:

1. Obtain field measurements required for accurate fabrication and installation of Work. Exact measurements are Contractor's responsibility.
2. Furnish or obtain templates, patterns, and setting instructions as required for installation of all Work. Contractor shall verify in field, as needed.

E. Contractor Identification:

1. All employees of Contractor and Subcontractors, vendors, or consultants

retained by Contractor must be clearly identifiable, either with a company shirt, logo, or some other identification option

END OF SECTION 01 31 23

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies the administrative and procedural requirements to comply with the requirements of the General Conditions regarding preparation of Contractor's Progress Schedules, monthly update to the Progress Schedules, and other schedules as specified herein. The purposes of these schedules and reports are to:
 - 1. Ensure adequate planning and execution of the Work by Contractor;
 - 2. Establish a standard against which progress of the Work can be tracked;
 - 3. Assist in monitoring progress;
 - 4. Evaluate the impact of any changes to the Contract; and
 - 5. Support the basis for progress payments.
- B. All schedule submittals including updated Progress Schedules will be reviewed by Owner for compliance with Contract terms and the needs of the University. Review of any schedule does not constitute approval or acceptance of Contractor's construction means, methods, or sequencing, or an assessment by Owner of Contractor's ability to complete the Work within the Contract Time.

1.02 WORK INCLUDED

- A. Contractor shall submit a preliminary Progress Schedule, as required by the Pre-Construction Submittal Requirements of Section 01 33 00.
- B. Contractor shall prepare and submit Progress Schedules and reports as required by this Section. NOTE: Processing and payment of the second Application for Payment is contingent upon receipt, review, and subsequent acceptance of the updated Progress Schedule.
- C. Contractor shall participate in monthly scheduling meetings and provide updated Progress Schedules as required by this Section.
- D. Contractor shall perform Contemporaneous Period Analysis (CPA) of any delays associated with the critical path schedule as required by this Section.
- E. Contractor shall provide weekly Short-Interval (look-ahead) schedules as required by this Section.
- F. Contractor shall submit a Submittal Schedule as required by this Section.

1.03 PRELIMINARY PROGRESS SCHEDULE

- A. Contractor shall submit a preliminary Progress Schedule as part of the Pre-

Construction Submittal Requirements in Section 01 33 00 - Submittals. The schedule shall include activity description, activity start and end dates. The schedule shall emphasize milestone dates and date of Substantial Completion. Schedule shall clearly identify the critical path schedule elements.

- B. Progress Schedule shall be in Bar Chart format.
- C. Schedule activities longer than 14 days shall be sufficiently detailed.
- D. Participate in schedule update meetings and provide updated Progress Schedules.

1.04 CONTRACTOR'S PROGRESS SCHEDULE

- A. Within three calendar days of receiving WSU comments on the preliminary Progress (Bar Chart) Schedule, the Contractor shall prepare and submit a detailed Progress (Bar Chart) Schedule. This schedule shall be the Contractor's as-planned schedule and shall be used to plan, organize, and execute the Work, record and report actual performance and progress through updates, as well as show how the Contractor plans to complete all remaining Work. The accepted Contractor's Progress (Bar Chart) Schedule and subsequent updates shall be the basis for consideration and analysis of requests for time extensions.
- B. Updates:
 - 1. The Contractor is required to prepare and submit an updated Progress (Bar Chart) Schedule as agreed upon at the Pre-construction Meeting.
 - 2. The Contractor and Owner's Designated Representative will review the updated schedule and will discuss any differences or issues raised. Decisions made and agreed to by all parties are binding. However, no contracted completion dates will be modified except by an approved Contract Change Proposal and subsequent Change Order.
 - 3. Timely submission of updates is of significant and crucial importance to the management of this Project. Lack of or late receipt of updates diminishes their value to the Project. Therefore, at the Owner's Designated Representative discretion, partial payment may be withheld for a late update as may be determined by the Owner's Designated Representative in consideration of the value of the update at the time of receipt, the circumstances of the late submittal, and the level of progress achieved on the Project.
- C. The Contractor shall submit the Progress Schedule, consisting of the reports and diagrams as specified by this subsection, in the following formats quantities:
 - 1. Electronic PDF file of all reports, schedules, etc.
 - 2. Native electronic copy of the CPM Progress Schedule.
- D. Float: Contractor is not entitled to any adjustment in the Contract Time or the Contract Sum, or to any additional payment or equitable adjustment of any sort,

by reason of the loss or the use of any float time, including time between Contractor's anticipated completion date and the end of the Contract Time, whether or not the float time is described as such on the Progress Schedule.

- E. Qualifications: Contractor shall submit the resume(s) of the person(s) designated as responsible for schedules and reports (the Contractor's scheduler) Prior to commencing construction activities. Contractor's scheduler shall have demonstrable capability to plan, coordinate, execute, and monitor a CPM schedule as required for this Project. Owner's Designated Representative will approve or disapprove the Contractor's proposed scheduler. In the event of disapproval, a new scheduler shall be proposed within 7 Days and be subject to the same consideration criteria as noted above.

1.05 MONTHLY UPDATES

- A. Contractor shall prepare and submit updated Progress Schedules and participate in schedule update meetings with the Owner each month. Participation in the meeting and submission of the monthly update is a condition precedent for payment of the line item value for scheduling Work.
 - 1. Updated monthly schedule submittals:
 - a. A PDF electronic version of complete Project schedule showing the critical path accompanied by a narrative of any deviations from the previous month.
 - b. Electronic schedule file in native format.
 - c. Short-interval schedules or look-ahead schedules shall not be an acceptable submittal.
- B. Contractor shall prepare an update of the current Progress Schedule each month to reflect Work progress achieved since the previous update. Progress updating shall be performed without changes to the schedule logic or the original duration of activities. Monthly progress updating is required and necessary prior to performing a Contemporaneous Period Analysis of any change to the calculated completion date from the prior update.
- C. Contractor may, in a second report, incorporate any logic and duration changes that represent revised planning. All such changes must be clearly identified and submitted for acceptance.
- D. The Progress Schedule must clearly identify the current Substantial and Final Completion dates.
- E. Contractor shall account for all adverse weather days and similar excusable noncompensable delays. By whatever method Contractor chooses to account for such delays and events, a narrative description and CPA of the accounting shall be included with the narrative report.
- F. Monthly schedule update meetings:
 - 1. Monthly schedule update meetings shall be held at Contractor's Project

field office one week prior to the due date of Contractor's monthly Application for Payment, unless otherwise agreed.

2. The Contractor shall provide updated Project schedule submittals.
 3. The Contractor shall also provide a narrative report including:
 - a. A description of the Work accomplished during the preceding period;
 - b. A discussion of the Work that had been scheduled to be performed during the previous period but was not, and explain why it was not performed; and
 - c. A discussion of the Work scheduled for the upcoming period noting any issues or events that could impact this Work. If Contractor intends to make logic or original activity duration changes, the report must specifically identify such changes.
 4. Contractor, Owner, and Architect/Engineer will review these reports and will discuss any differences or issues raised. No contractual completion dates will be modified except by approved Change Order.
- G. Timely submission of updates is of significant and crucial importance to the Project. Owner may withhold payment as per Section 01 29 00 Applications for Payment.

1.06 THE CONTEMPORANEOUS PERIOD ANALYSIS

- A. It is Owner's intent to resolve all issues affecting the Contract completion date in a timely, efficient and effective manner. To achieve this goal, and in addition to contractor's obligation to follow the contractual dispute resolution procedure, Contractor shall analyze any delays to the critical path or completion date by application of the Contemporaneous Period Analysis method. A CPA shall normally coincide with the monthly schedule update meetings.
- B. Assessment of impacts due to changes or other events, in accordance with the CPA method, must be based on the most recent accepted updated Progress Schedule. No logic or duration changes shall be made to updates until progress related data has been incorporated into the Progress Schedule and the Progress Schedule is updated to reflect actual progress for the period. All data shall be provided to Owner.
- C. Submission of an accurate and properly updated Progress Schedule and completion of the Contemporaneous Period Analysis are conditions precedent to the review and approval of any request for an extension in the Contract Time. Owner may assess liquidated damages, if any, regardless of the status of any requests for time extensions pending, until any such requests are resolved.
- D. The process for preparing and submitting a CPA is as follows:
 1. Contractor will notify Owner in writing of event(s) or occurrence(s) which constitute a delay of the critical path or completion date affecting progress

of the Work.

2. Contractor shall evaluate the event(s) or occurrence(s) and produce a narrative of the resulting delay describing the effect upon concurrent or logically connected subsequent activities.
 3. Consistent with the narrative, Contractor shall produce a subnet to graphically describe the event(s) or occurrence(s) and the effect upon the Progress Schedule.
 4. Contractor will recalculate the Progress Schedule and provide an updated PDF and Native Progress Schedule.
- E. The CPA will be reviewed at the monthly schedule update meeting or at a special meeting scheduled with Owner. At the CPA review meeting, Contractor shall present the CPA and respond to questions.
- F. Until and unless substantiated delay is accepted by Owner, the time effect shall not be incorporated into any monthly update. If accepted after a monthly update in which the event(s) or occurrence(s) took place, that monthly update may be recalculated, resubmitted and shall be included in an approved Change Order.

1.07 SHORT-INTERVAL SCHEDULE

- A. Prepare a weekly Short-Interval (look-ahead) Schedule based upon the Contractor's Work plan and the updated Progress Schedule.
- B. Format for the Short-Interval (look-ahead) Schedule shall be acceptable to Owner. The format shall include comment annotation as necessary.
- C. Content of the Short-Interval (look-ahead) Schedule shall include the Work planned for the next 3-week period and the Work that was performed in the previous week.
- D. Copies of the Short-Interval (look-ahead) Schedule shall be provided at the weekly progress meetings to be used as a basis for discussion of progress and of planned Work.

1.08 SUBMITTAL SCHEDULE

- A. Provide a Submittal Schedule within 10 Days of Owner's Acceptance of the Project Schedule per Section 01 33 00 - Submittals.

PART 2 PRODUCTS

2.01 SCHEDULING SOFTWARE

- A. Contractor shall utilize Microsoft Project or Primavera P6 unless otherwise agreed to by Owner.
- B. Contractor shall provide a licensed and royalty pre-paid copy of the mutually

agreed upon scheduling software. The selected software must be capable of performing target-to-current schedule comparisons, cost and resource loading functions and have the option of executing calculations in retained logic. Activities must be able to process lead and lag time relationships, start-to-finish or finish-to-finish relationships, and be capable of being hammocked, if required. The software must be registered with Owner and be provided in a format compatible with Owner's systems.

END OF SECTION 01 32 13

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preconstruction photography.
- B. Construction photography of Work-in-progress.

1.02 GENERAL

- A. Contractor shall provide photographs taken from locations coordinated with Owner.
- B. Photographer: Experienced in taking construction photography.
- C. Equipment: All photos shall be in digital format.
- D. Video images may be acceptable for certain operations. Confirm with Owner.

PART 2 PRODUCTS

2.01 PRECONSTRUCTION PHOTOGRAPHS

- A. Contractor shall provide electronic files containing photographs of the existing conditions at the site, surroundings, and haul routes per the Pre-Construction Submittal Requirements of Section 01 33 00. Coordinate with Owner the extent of the preconstruction photographic record that is required.

2.02 CONSTRUCTION PHOTOGRAPHS

- A. Contractor shall provide electronic files containing photographs of construction progress on a monthly basis.

2.03 PHOTOGRAPHIC SUBMITTALS

- A. Photographs shall be submitted each month during the Contract Time, or as otherwise agreed upon by Owner. The number of photographs shall be sufficient to document the site to the satisfaction of the Owner and Contractor.
- B. Photographs shall be representative of Project progress, showing all major Work and any critical concealed conditions.
- C. The files in each monthly photograph submittal must each be labeled with the Project name, Project number, and submittal date. Additionally, each photograph shall be dated, labeled, and accompanied by a brief description identifying the location and direction the photo was taken. Date stamp using month/date/year format.

PART 3 EXECUTION

3.01 PRECONSTRUCTION PHOTOGRAPHS

- A. Coordinate the scope of preconstruction photographic record survey with Owner.
- B. Take preconstruction photographs to identify and establish a baseline record of existing conditions.
- C. A preconstruction photographic record survey shall include, but not be limited to, all areas that may be impacted or damaged by construction phase activities.
- D. The extent or nature of the existing site and adjacent surroundings shall be thoroughly documented.

3.02 CONSTRUCTION PHOTOGRAPHS

- A. Contractor shall take construction photographs each month during construction of the Project.
- B. Contractor shall document concealed conditions (once exposed) that differ from expectations.
 - 1. It is critical that Contractor photographically document concealed conditions that may benefit Owner's future maintenance and operations activities. Take photographs (with a reference point) prior to cover or concealment. For example:
 - a. Underground pipe arrangements/valves/structures.
 - b. Under-slab utility rough-in.
 - c. Wall cavity utility routing.
 - d. Above-ceiling installation after ceiling support system installed, but prior to cover.
 - 2. The photograph record described above shall be considered minimum and shall not be deemed to limit the quantity or quality of the photographic record.

END OF SECTION 01 32 33

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes administrative and procedural requirements for submittals required for performance of the Work, including:
 - 1. Pre-Construction Submittal Requirements;
 - 2. Shop Drawings;
 - 3. Product data;
 - 4. Samples; and
 - 5. Mock-ups.

1.02 SUBMITTAL PROCEDURES

- A. Provide submittal schedule as required by Section 01 32 13 – Progress Schedule. The Submittal Schedule shall meet all of the requirements below.
- B. Coordination: Review of the submittals by Owner is not for the purpose of determining their accuracy and/or completeness, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of Contractor as required by the Contract Documents.
 - 1. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are provided.
 - 2. Allow at least 14 Days for review of each submittal by Owner. Complex or interrelated submittals, or the submission of multiple submittals at or near the same time, will require additional time. Provide a "priority list" when submitting multiple submittals at or near the same time. Submittal sequencing should coincide with the submittal schedule (see Section 01 32 13 – Progress Schedule).
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification.
 - 1. Include the following information on the label or title block:
 - a. Project name, Project number, and date;
 - b. Name and address of Owner;
 - c. Name and address of Contractor and submitting Subcontractor, if applicable;
 - d. Name and address of supplier and manufacturer, if applicable;
 - e. Number and title of appropriate Specification section; and
 - f. Drawing number and detail references, as appropriate.

2. Provide adequate space for action stamps to record review.
- D. Submittal Transmittal: Package submittals in manageable quantities and transmit to Owner and Architect/Engineer, if applicable, simultaneously. Submittals received from sources other than Contractor will be returned without action. By submitting submittals, Contractor represents to Owner that Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements, and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within each submittal with the requirements of the Work and of the Contract Documents.
1. Address one topic or related set of topics in each transmittal based upon Specification sections (i.e., mechanical items should not be submitted under same transmittal with electrical items).
 2. Clearly call out relevant information, deviations, and requests for data, including minor variations from the Contract Documents on both the transmittal and all copies of a submittal.
 3. Shop drawings, product data, samples, and mock-ups shall be submitted to Owner's Designated Representative for review/approval. The minimum number of submittals to be provided are:
 - a. Pre-Construction, Shop Drawings, Product Data: Electronic copies.
 - b. Samples: As required by the technical Specification section.
 - c. Mock-ups: As required by the technical Specification section.
 - d. Demonstrations: As required to facilitate installation and inspection.
 - e. Reference technical Specifications for additional submittal requirements.
 4. Owner may modify the required submittal quantities.
- E. Material and Color Submittal: Submit samples of actual colors and/or materials.
- F. Number submittals by Specification section number and revision letter.
- G. In the event of the need to "revise and resubmit" a submittal, resubmit same in acceptable form/content, clearly identifying deviations from the previous rejected submittal. Contractor shall also keep accurate records of the receipt, review, and delivery of all submittals and shall submit to Owner, as requested, status reports.
- H. Provide a final electronic copy of all approved submittals.

1.03 PRE-CONSTRUCTION SUBMITTAL REQUIREMENTS

- A. All Pre-Construction Submittals are required before onsite construction activities may commence. Contractor shall submit the following Pre-

Construction Submittals within 14 days of Notice to Proceed. Submittal review for these items only shall be supplied within 14 days of receipt by Owner.

1. Indoor Air Quality Management Plan
2. Site Safety and Health Plan (for information only)
3. Quality Control / Quality Assurance Plan
4. Waste Management Plan
5. Progress Schedule
6. Schedule of Values
7. Pre-Construction Photographs
8. Emergency Points of Contact
9. List of Subs and Suppliers
10. Demolition Plan
11. Asbestos Safety Plan
12. List of Long Lead Items

1.04 SHOP DRAWINGS

- A. Submit Shop Drawings drawn to accurate scale. Do not reproduce Contract Documents or copy standard information for use as Shop Drawings. Standard information prepared without specific references to the Project will not be accepted as a Shop Drawing.
- B. Shop Drawings Include: fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings. Include the following information:
 1. Dimensions;
 2. Products and materials;
 3. Compliance with specified standards;
 4. Coordination requirements;
 5. Notation of dimensions established by field measurements;
 6. Any deviation from Drawings or Specifications; and
 7. Date when review is requested to maintain Progress Schedule.

1.05 PRODUCT DATA

- A. Product data includes: Manufacturer's printed installation instructions, catalog cuts, standard color charts, rough-in diagrams and templates, standard wiring diagrams, and performance curves.
 1. Where product data must be specially prepared because standard printed data is not suitable, the submittal must be provided as a Shop Drawing.
- B. Requirements: Mark each copy to show applicable options. Include the

following information:

1. Manufacturer's printed recommendations;
2. Compliance with recognized trade-association standards;
3. Compliance with recognized testing-agency standards;
4. Application of testing-agency labels and seals;
5. Notation of dimensions verified by field measurement;
6. Notation of coordination requirements;
7. Any deviation from Drawings or Specifications; and
8. Date when review requested to maintain Progress Schedule.

1.06 SAMPLES AND MOCK-UPS

- A. Submit samples and mock-ups that are identical to the material or product proposed. Samples include partial sections of components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
 1. Package samples to facilitate review. Include the following:
 - a. Generic description of the sample;
 - b. Source;
 - c. Product name or name of manufacturer;
 - d. Compliance with recognized standards;
 - e. Availability and delivery time; and
 - f. Specification section.
- B. Requirements: Submit samples and mock-ups for review of kind, color, pattern, and texture for a comparison of these characteristics before actual installation.
 1. Where variation in color, pattern, texture or other characteristics are inherent in the material, submit not less than four units to show limits of variation.
- C. Submittals: Where samples are for selection of appearance from a range of standard choices, submit a full set of choices for the material or products.
- D. Maintain sets of approved samples and mock-ups at the Project site for quality comparisons throughout the course of construction.
- E. Demolish and remove all samples and mock-ups prior to Substantial Completion but not sooner than directed by Owner.

1.07 OWNER's ACTION

- A. Review: Except for submittals for information or a similar purpose, Owner will review each submittal, mark to indicate action taken, and return promptly.

- B. Owner approval of submittals does not supersede or alter Contract Document requirements.

END OF SECTION 01 33 00

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the administrative and procedural requirements for any general alterations to be performed during the Project, including but not limited to products, transition and adjustments, cutting, patching, and repair and cleaning.

1.02 SUBMITTALS

- A. Contractor shall submit a written request in advance of cutting or alteration that impacts:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of any operational elements.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or a separate contractor.
- B. Contractor must include in its written request, when required:
 - 1. Identification of Project.
 - 2. Location and description of affected Work.
 - 3. Necessity for cutting or alteration.
 - 4. Description of proposed Work and products to be used.
 - 5. Alternatives to cutting and patching.
 - 6. Effect on Work of Owner or separate contractor.
 - 7. Written permission of affected separate contractor.
 - 8. Date and time Work will be executed.

1.03 QUALITY ASSURANCE

- A. Limits of Work:
 - 1. Contractor shall maintain existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and nonstructural roofing material) not indicated to be removed; do not cut such existing conditions beyond indicated limits.
 - 2. Contractor shall maintain existing interior nonstructural elements (interior walls, doors, floor coverings, and ceiling systems) not indicated to be removed; do not cut such existing conditions beyond indicated limits.
 - 3. Contractor shall maintain existing nonshell, nonstructural components (walls, flooring, and ceilings) not indicated to be removed; do not cut such existing conditions beyond indicated limits.

- B. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
 - 1. Primary operational systems and equipment.
 - 2. Air or smoke barriers.
 - 3. Fire-suppression systems.
 - 4. Mechanical systems piping and ducts.
 - 5. Control systems.
 - 6. Communication systems.
 - 7. Conveying systems.
 - 8. Electrical wiring systems.
 - 9. All low voltage systems.
 - 10. Operating systems of special construction in Division 13.
 - 11. Other operating systems as appropriate.
- D. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended that result in increased maintenance or decreased operational life or void of warranty, or could adversely affect safety. Miscellaneous elements include the following:
 - 1. Water, moisture, or vapor barriers.
 - 2. Firestopping or fire barriers.
 - 3. Membranes and flashings.
 - 4. Exterior curtain-wall construction.
 - 5. Equipment supports.
 - 6. Piping, ductwork, vessels, and equipment.
 - 7. Noise and vibration-control elements and systems.
 - 8. Other miscellaneous systems as appropriate.
- E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exterior conditions or in occupied spaces in a manner that would, in Owner's opinion, reduce the building's aesthetic qualities. Contractor shall remove and replace conditions that have been cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. New Materials: Match existing products and Work when patching and extending Work.

- B. Type and Quality of Existing Products: Determine by inspection and testing products where necessary; refer to existing Work as a standard.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents related to that portion of the Work, as well as other information available to Contractor, take field measurements, and inspect any existing conditions, including elements subject to damage or movement during cutting and patching.
- B. After uncovering existing Work, inspect conditions affecting performance of Work.
- C. By beginning any cutting or patching, Contractor represents and warrants its acceptance of existing conditions.
- D. Contractor shall verify that demolition is complete and areas are ready for installation of new Work.

3.02 PREPARATION

- A. Contractor shall cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- B. Contractor shall remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, deteriorated masonry, concrete, and disturbed subgrade material. Replace materials as specified for finished Work.
- C. Contractor shall remove debris and abandoned items from area and from concealed spaces.
- D. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.
- E. Contractor shall close openings in exterior surfaces to protect existing Work. Contractor shall insulate ductwork and piping to prevent moisture and condensation in exposed areas.
- F. Contractor shall provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect Work from damage.

3.03 PERFORMANCE

- A. Contractor shall coordinate alterations and renovations to expedite completion of the Work.

- B. Remove, cut, and patch Work in a manner to minimize damage. Provide a means of restoring products and finishes to their original or specified condition.
- C. Refinish remaining existing surfaces in renovated rooms and spaces, to specified condition for each material, with a neat and clean transition to adjacent finishes.
- D. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full original operational condition.
- E. Install products as specified in individual sections.
- F. Remove samples of installed Work for testing when requested.
- G. Provide openings in the Work for penetration of mechanical and electrical Work.
- H. Cut rigid materials using the appropriate equipment and tool. Pneumatic tools not allowed without prior approval.
 - 1. Concrete Walls: Saw-cut walls using accurately located straight lines, unless directed otherwise. Minimize overcuts.
 - 2. Masonry Walls: Saw-cut along mortar joints, cutting block uniformly in accurately located straight lines, unless otherwise directed. Remove all mortar adhering to edges. Overcuts not allowed.
 - 3. Wood Framed Walls: Demolish plaster or gypsum wallboard, removing wall framing only as required. Cut wall finish materials in straight uniform lines.
 - 4. Concrete Floors: Saw-cut floors and remove. Core drill as required.
- I. Restore Work with new products in accordance with requirements of Contract Documents.
- J. Fit Work to existing pipes, sleeves, ducts, conduit, and other penetrations through surfaces, while maintaining assemblies.
- K. At penetrations of fire rated walls, partitions, ceilings, or floors, completely seal voids with firestopping material to full thickness of the penetrated element, while maintaining assemblies.
- L. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01 35 16

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements pertaining to regulatory requirements.
- B. List of regulatory requirements.

1.02 CONTRACTOR RESPONSIBILITY

- A. Contractor is solely responsible for compliance with all codes, laws, or regulatory requirements.
- B. Inspections performed or not performed by the City of Richland, Labor and Industries, Owner, Owner Designated Representative, or others who are under contract to Owner do not waive or change Contractor's obligations, nor do such inspections constitute approval or acceptance of portions of the Work.

1.03 CONTRACTOR REQUIREMENTS

- A. Contractor shall perform the Work in accordance with the requirements of governing agencies and applicable regulatory requirements, including those included in this Section and elsewhere in the Contract Documents. Contractor must comply with all applicable laws, building codes, regulations, and rules, including, when applicable, the Washington State University campus code.
- B. Contractor shall schedule and coordinate inspections and gain approvals required by the City of Richland and other governing agencies in a timely manner and as required for Owner occupancy of the Project within the Contract Time.
- C. Contractor shall inform the City of Richland Building and Fire Departments, Labor and Industries, and other governing agencies of changes in the Work affecting regulatory requirements in a timely manner.
- D. Contractor shall promptly forward to Owner all inspection reports, orders, permits, and other directives and correspondence received from the City of Richland inspectors or other governing agencies having jurisdiction over the Work.
- E. Contractor shall promptly notify Owner when the Contract Documents appear to be in conflict with Regulatory Requirements.
- F. Contractor shall, at all times, use its best efforts and exercise its judgment as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes where reasonably possible and practical under the circumstances, and shall, at all times, maintain Project-wide labor harmony.

1.04 REGULATORY REQUIREMENTS

- A. Authority Having Jurisdiction (AHJ) shall be the organization, office, or individual responsible for enforcing the requirements of the applicable code(s) or standard(s), and or for approving equipment, materials, installation(s), or procedure(s).
- B. Regulatory authorities establish minimum requirement levels. Where provisions of the Contract Documents and regulatory requirements differ or conflict, the more stringent requirement governs.
- C. Regulatory requirements added by other sections of the Contract Documents or otherwise applicable are binding upon the Work in accordance with the provisions of this Section. The regulatory-requirements list provided below is intended to assist Contractor in determining the regulatory requirements for the Project, but neither the inclusion nor omission of any item from the list shall be construed to relieve Contractor of obligations that otherwise exist under the law or the Contract.

1.05 LIST OF REGULATORY REQUIREMENTS

- A. International Building Code (IBC), current adopted edition.
- B. International Fire Code (IFC), current adopted edition.
- C. National Fire Protection Association (NFPA) Codes.
- D. American Society of Mechanical Engineers (ASME), ASME A17.1 Safety Code for Elevators and Escalators, current adopted edition.
- E. American Society of Mechanical Engineers (ASME), ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts, current adopted edition.
- F. State of Washington, WAC-51-50-1101, Accessibility, as adopted by the State of Washington.
- G. International Code Council (ICC)/American National Standards Institute (ANSI) A117.1 Accessible and Usable Buildings and Facilities, current adopted edition.
- H. State of Washington, WAC Chapters 173, 246, and 296, as applicable.
- I. U.S. Environmental Protection Agency 40 CFR, as applicable.
- J. U.S. Transportation Department Title 49, Parts Pertaining to Transportation of Hazardous Materials.
- K. U.S. Nuclear Regulatory Commission Title 10, Parts Pertaining To Radioactive Materials Management.
- L. Washington State Ventilation and Indoor Air Quality Code, WAC 51-13.

- M. Washington State Energy Code, WAC 51-11C. Shortened
- N. Mechanical Work: International Mechanical Code (IMC), current adopted edition.
- O. Plumbing Work: Uniform Plumbing Code (UPC) as amended and adopted by the State of Washington, in the Washington Administrative Code (WAC).
- P. Federal Emergency Management Agency (FEMA) requirements for floodway/floodplain development.
- Q. Electrical Work:
 - 1. NFPA 70, National Electrical Code (NEC), most recent adopted edition.
 - 2. Underwriters' Laboratories (UL).
 - 3. National Electrical Manufacturer's Association (NEMA).
 - 4. National Electric Safety Code (NESC).

1.06 PERMITS REQUIRED

- A. Owner has obtained and paid for the initial building permit. Contractor shall obtain and pay for any required renewals. Contractor shall identify costs for permit renewals, if applicable, on the Schedule of Values for permits obtained.
- B. All trade permits (e.g. electrical, pressure vessel, elevator, etc.) must be included in each Subcontractor bid.

1.07 APPRENTICESHIP REQUIREMENTS – NOT USED

END OF SECTION 01 41 00

PART 1 GENERAL

1.01 SUMMARY

- A. Conduct portions of the Work requiring special procedures due to hazardous materials and conditions in accordance with regulatory standards and guidance provided in this Section.

1.02 SUBMITTALS

- A. Contractor shall deliver a current copy of its site specific Health and Safety Plan to the Owner per the Pre-Construction Submittal Requirements of Section 01 33 00. The submittal must include each Subcontractor's site specific Health and Safety Plan. Submittal to Owner is for information only, not for review, acceptance, or approval of the Health and Safety Plan, nor for analysis of content or completeness.

1.03 QUALIFICATIONS OF HEALTH AND SAFETY PERSONNEL

- A. Contractor shall employ a competent person for each hazardous construction task in accordance with the requirements of WAC 296-155.
- B. Contractor shall submit to Owner the names of its employees performing duties as competent persons, as well as the names of Subcontractor employees performing duties as competent persons.

1.04 HAZARDOUS MATERIALS MANAGEMENT

- A. Dangerous Waste Management:
 - 1. Contractor agrees and acknowledges that:
 - a. Contractor has direct and exclusive control over the Work and operations at the Project site and is responsible for any Contractor generated, created, or disturbed Washington State dangerous waste and its collection, labeling, accumulation, transportation, and disposal. Owner's EH&S department will provide assistance to Contractor upon request, and will coordinate transportation and disposal of Project-generated Washington State dangerous waste.
 - b. Contractor must provide Owner immediate notification of any pre-existing unanticipated Washington State dangerous waste or site contamination.
 - 2. Contractor is responsible for securing its own waste generator identification number, and Contractor shall sign all manifests associated with the Contractor-generated waste.
 - a. Contractor shall obtain an EPA/State ID number in accordance with WAC 173-303-360 before conducting activities generating chemical waste designated as Washington State dangerous waste.

- b. Contractor shall cancel the EPA/State ID number when:
 - 1) All activities generating or managing waste have ceased;
 - 2) All regulated wastes have been removed from the Project site under proper manifests, and all site contamination is remediated; and
 - 3) All annual dangerous-waste reporting requirements are complete.
 - c. Contractor may call the Washington State Department of Ecology (DOE) to request a reporting package for early submittal.
 - d. Contractor shall furnish to Owner's EH&S Department, Pullman, WA, within 3 Days from submittal or receipt, copies of the following documents:
 - 1) Form 2 Notification of Dangerous Waste Activities;
 - 2) All signed Uniform Hazardous Waste Manifests (original copy when shipping wastes and copy returned from the treatment, storage, disposal, or recycling facility), Land Disposal Restriction Notification forms, Certificates of Recycling/Disposal/Destruction, and Exception Reports;
 - 3) All Annual Reports; and
 - 4) All correspondence from the DOE.
 - 3. Owner remains responsible for Washington State dangerous waste and site contamination: (1) pre-existing Contractor's activities at the site, (2) not listed in the Contract Documents, and (3) not disturbed by Contractor through improper construction activities.
 - 4. For waste identified in contract document and for unanticipated Washington State dangerous waste or site contamination discovered during the course of the Work on the site, Contractor shall:
 - a. Collect, containerize, and accumulate all Washington State dangerous waste or site contamination in accordance with applicable Federal, State, and local regulations.
 - b. Coordinate all transportation and disposal activities through Owner's EH&S department, who will utilize the Washington State Hazardous Waste Disposal Services contract or equivalent pre-approved contractor. Owner's disposal contractor shall complete all applicable dangerous waste shipping papers including all Uniform Hazardous Waste Manifests, Land Disposal Restriction Notification forms, profiles and barrel packing lists.
- B. Hazardous Materials Spills and Releases:
- 1. Contractor and Subcontractor(s) shall immediately report all hazardous materials spills at the Project site to Owner. If a hazardous material spill occurs at a Project site in Whitman County, and if any individual may be affected by the spill, Contractor and/or Subcontractor(s) must immediately

report the spill to Whitcom (emergency dispatch). In other counties, Contractor and Subcontractor(s) must report spills to the appropriate emergency response agency in that area.

2. Contractor shall be responsible for spill containment, cleanup, decontamination, post-cleanup monitoring, disposal of any wastes generated from cleanup activities, and generation of any reports required by regulatory agencies and/or regulations including, but not limited to, WAC 173-303 and WAC 173-340.

C. Spill Prevention Control and Countermeasures:

1. Owner's EH&S department is responsible for Owner's SPCC Plan. Any of Contractor's on-site activities involving the handling and/or storage of materials meeting the definition of oil per 40 CFR 112 in containers and/or equipment with a capacity greater than 42 gallons must be included in the Owner's SPCC Plan. Contractor shall provide Owner's EH&S department with an inventory of this equipment or containers at least 14 Days prior to the equipment or containers being brought to the Project site.
2. Contractor shall provide and utilize secondary containment for containers and tanks of oil with a capacity greater than 42 gallons. Owner may waive this requirement in its sole discretion upon Contractor's request after Owner reviews Contractor's written explanation as to why secondary containment is unnecessary for a particular container or tank.

D. Asbestos:

1. All Contractor employees involved in excavation or demolition shall be asbestos awareness trained. Contractor shall submit to Owner the name of Contractor's competent trainer, the names of each of Contractor's trained personnel, and the date of each training. Contractor's submittal must also state that the training was conducted for asbestos awareness for the Work.
2. All asbestos abatement Work shall be performed by persons trained in Washington State-approved courses and certified by the State of Washington.
3. All asbestos abatement Work performed shall be overseen by a consultant hired by the Owner to ensure the Work meets regulatory standards and Owner requirements.
4. All asbestos cement pipe Work shall be performed by persons trained in an asbestos cement pipe procedures course whose content is reviewed and approved by the Washington State Department of Labor and Industries, per WAC 296-62-07722(3)(ii)(C).
5. If suspected asbestos-containing material is discovered during Contractor's execution of the Work, and abatement of the material is not a requirement of the Contract, Contractor shall suspend any Work that affects the material and immediately notify Owner. Contractor shall safeguard the area to prevent entry until certified personnel determine

whether the material is non-asbestos containing or the material is abated, at which time the Work in that area may resume.

E. Lead:

1. Owner shall inform Contractor of lead-containing coatings and materials that the Contractor may encounter while performing the Work. These materials or coatings may release lead into the air, soil, or water, or may be a source of contamination due to skin contact. Owner shall provide general data about the percentage of lead content of each suspected lead-containing material or coating and/or provide Contractor with data showing the amount of lead per surface area.
2. Contractor is responsible for protecting its employees from lead exposure, as required by Washington law.
3. Contractor shall manage all paint chips, building components, soil, and/or other material considered by Owner to be dangerous waste according to the Dangerous Waste Management paragraph.

F. Polychlorinated Biphenyls:

1. Owner may survey oil-filled equipment prior to commencement of construction. This equipment includes, but is not limited to, transformers, electrical switches, hydraulic elevators, emergency generators, capacitors and light ballasts. Owner's survey shall usually determine if the equipment is filled with oil containing polychlorinated biphenyl (PCB). Owner shall remove, or arrange for the removal of, any equipment that contains oil in concentrations qualifying the equipment as dangerous waste per WAC 173-303.
2. If oil-filled equipment is discovered during Contractor's execution of the Work, Contractor shall suspend any Work that may affect the equipment and immediately notify Owner. Owner shall test the equipment and determine the appropriate management method for the equipment and the oil it contains.

G. Mercury:

1. Owner may survey all equipment suspected of containing mercury prior to commencement of construction. This equipment includes, but is not limited to, switches and thermostats. Owner's survey shall determine if the equipment contains mercury. Owner shall remove, or arrange for the removal of, any such equipment.
2. If mercury-containing equipment is discovered during Contractor's execution of the Work, Contractor shall suspend any Work that may affect the equipment and immediately notify Owner. Owner shall test the equipment and determine the appropriate management method for the equipment and the mercury it contains.

H. Hazardous Materials or Equipment:

1. Fixed equipment such as fume hoods, safety cabinets, and vacuum systems, and related ductwork, fans, and appurtenances, may contain or be contaminated with hazardous materials. Owner may test this equipment to determine what, if any, hazards are present. If equipment contains a hazard, or if the equipment itself is a dangerous waste, Owner shall inform Contractor of the nature of the hazard including any information necessary for Contractor to protect its workers. If the equipment is a dangerous waste, Contractor shall dispose of, or make arrangements for the disposal of, the equipment per the above Dangerous Waste Management paragraph.

I. Underground Storage Tanks (USTs): NOT REQUIRED

J. Department of Homeland Security (DHS) Chemicals of Interest (COI)

1. Contractor and Subcontractors shall report any COI to Owner as required by the DHS. Contractor may contact Owner's Representative in conjunction with the University's EH&S Department for the specific means of reporting.

1.05 WATER AND STORMWATER POLLUTION PREVENTION:

A. Water Pollution:

1. Discharge of any pollutants (including sewage and chlorinated water from water line disinfection) into surface or ground waters of the State (including storm drains, ditches and any other water conveyances) is prohibited.
2. Contractor removal of snow, ice, soil, and mud from roadways and sidewalks shall be accomplished without polluting storm drains or surface waters. Mud and soil removal shall be undertaken on a full-time basis, not just once or twice a day. Soil or mud that is dropped onto streets and sidewalks by vehicles at the Project site shall immediately be cleaned by Contractor. Contractor may not use water to clean streets and sidewalks. Under no circumstances may dust mitigation cause soil erosion or pollution of surface waters.
3. If a discharge to surface or ground waters does occur, Contractor shall immediately notify Owner.

B. Stormwater Pollution Prevention Plan (SWPPP): NOT REQUIRED

C. Wetlands: NOT REQUIRED

1.06 AIR POLLUTION

- A. Contractor shall comply with all provisions of the Owner's Air Operating Permit, WAC 173-400 and WAC 173-401 requirements as applicable.

- B. Contractor shall control pollutants, such as diesel emissions, chemical emissions, and dust generated by the Project, so that pollutants do not adversely impact the Project site or the surrounding-area air quality.
- C. Contractor shall submit to Owner within 30 Days of the Notice to Proceed a list of any stationary air emission-generating equipment included in the Work, such as: fuel-powered electrical generators, internal combustion engines, boilers, paint booths, CFC-containing equipment, or other regulated emission sources. Contractor shall assist Owner in the preparation of necessary permit applications, and Owner shall obtain necessary permits. Contractor shall abide by any conditions or requirements of permits.
- D. Per WAC 173-400, Contractor shall mitigate all fugitive emissions (such as dust, vehicle exhausts, and other emissions that do not pass through a stack, chimney, or vent) generated by the Work. Contractor shall mitigate dust at the Project site throughout the entire duration of the Work. Dust mitigation may include application of specific chemical compounds approved by Owner, or may be accomplished with intermittent watering and sprinkling at such a frequency as will satisfactorily settle dust (excluding paved surfaces). Paved surfaces shall be cleaned mechanically without the discharge of water or chemicals to storm drains and/or surface waters. Under no circumstances shall Contractor permit dust mitigation cause soil erosion or pollution of surface waters.
- E. No materials shall be burned without required permits. If permitted burning is done, odors shall be minimized in accordance with the Owner's Air Operating Permit.
- F. CFCs (chlorofluorocarbons) or HCFCs (hydrochlorofluorocarbons) are not permitted as refrigerants in new or renovation projects. New permanently installed refrigeration equipment, such as chillers, temperature controlled chambers, air conditioning equipment, compressors, etc., must contain HFC (hydrofluorocarbon) refrigerants only (i.e., R-134A, R-404A, or R-507). At the completion of the Project, Contractor must provide detailed documentation to Owner about the refrigeration equipment installed, including identifying markings, capacity, and type of refrigerant. Refrigerant must be installed only by persons certified to do so.
- G. Indoor Air Quality:
 - 1. Owner shall notify Contractor of the location of fresh air supply intakes for buildings in the immediate area of the Work, and of fresh air supply intakes for buildings that may be affected by emissions from Contractor operations.
 - 2. Contractor shall notify Owner 3 Days prior to commencing Work in which Contractor must operate vehicles or equipment in areas where fresh air supply intakes are located.
 - 3. Contractor shall notify Owner 3 Days prior to commencing Work in which Contractor will be using solvents or other volatile chemicals, or processes

which emit fumes, smoke, or strong odors that may affect fresh air supply intakes, or may enter Owner's buildings through doorways or windows.

4. Contractor shall not allow its activities that emit vapors, fumes, smoke or strong odors to negatively affect fresh air supply intakes.
5. If air releases of hazardous chemicals must occur, Contractor shall submit no later than 30 Days after the Notice to Proceed a chemical release plan detailing how such incidents may adversely affect Owner. Such a plan shall also specify protection to be provided to the employees of Owner and Contractor actions required to minimize chemical overexposure.
6. During welding activity, Contractor shall confine fumes to the Project site, and the fumes must not adversely affect Owner's employees or students.

1.07 PUBLIC HEALTH

A. Solid Waste Disposal:

1. Contractor shall legally dispose of or recycle all solid waste at an off-site location. Contractor shall not burn, dump, or bury waste materials, debris, or rubbish on Owner property. Contractor shall clean the Project site at the end of each work shift. Contractor is liable for any and all damage resulting from improper waste handling and disposal (see Section 07 74 19 - Construction Waste Management).

B. Environmental Noise:

1. Per WAC 173-60, and applicable local requirements, Contractor shall not exceed maximum permissible environmental noise levels for the duration of the Work.

C. General Sanitation:

1. Per WAC 246-203, Contractor shall supply adequate water for drinking and hand washing purposes. The use of common drinking cups or towels is prohibited. For hand washing purposes, Contractor shall supply hot running water, soap, disposable towels, and a waste receptacle.

D. Drinking Water Protection:

1. Per WAC 246-290 and 246-291, Contractor shall protect all public water supplies. No portion of a public water system containing potable water shall be put into service nor shall service be resumed until the facility has been effectively disinfected and a satisfactory bacteriological sample has been obtained from a DOE-certified laboratory. Results of sampling shall be sent to Owner. The procedure used for disinfection shall conform to current standards of the American Water Works Association.
2. A minimum sanitary control area around all wells shall be maintained at all times. The sanitary control area shall extend at least 100 feet from

any well. No source of contamination may be constructed, stored, disposed or applied within the sanitary control area.

3. If wells are being constructed or abandoned, Owner shall procure the appropriate water rights and construction permits per WAC 173-160. Owner shall provide copies of these documents to Contractor. Wells shall be constructed/abandoned properly by a licensed well driller. Contractor shall submit a plan to Owner detailing how all disinfection shall be accomplished.
4. Backflow Prevention:
 - a. Any connection made by Contractor to Owner's drinking water system, including connection to a fire hydrant, must be made through a backflow prevention assembly approved by a Washington State certified cross connection control specialist (CCS) engaged by Owner and inspected and tested by a Washington State certified backflow assembly tester (BAT).
 - b. Contractor shall label all non-potable water outlets, in a manner acceptable to the Owner, "Non-potable Water / Do Not Drink".

E. Vector Control:

1. Buildings shall be constructed so as to minimize the attraction and/or harborage of pests and vectors such as birds and rodents. Minimize bird roosting areas by not constructing exposed pipes, beams, or flat ledges on openings, especially underneath covered areas directly accessible to the outside. Openings 1/4-inch or larger shall be sealed. Leave a minimum of a 3-foot swath around the building that is bare. Do not plant trees, shrubs and grass immediately adjacent to building.
2. The presence of standing water shall be minimized or eliminated to prevent mosquito breeding.

F. On-Site Sewage Disposal:

1. Contractor is responsible for fully complying with WAC 246-272. A construction permit application shall be submitted to the appropriate jurisdictional authority for approval. The jurisdictional authority shall issue a construction permit prior to the commencement of construction and shall perform pre-opening inspections. Contractor shall ensure that the appropriate authority inspects and approves the site prior to construction and when the project is substantially complete.

G. Water Recreation Facilities: NOT REQUIRED

H. Food Service Facilities: NOT REQUIRED

1.08 OCCUPATIONAL HAZARD MANAGEMENT

A. Chemical Hazard Communication:

1. If any hazardous chemicals will be used in the Work or present at the Project site, copies of applicable Material Safety Data Sheets (MSDS) shall be made immediately available to Owner prior to use by Contractor and during any use of the hazardous chemicals in the Work.
2. If the use or presence of hazardous chemicals at the Project site may affect the health of individuals outside the Project site, Contractor shall submit a written plan to Owner at least 30 Days prior to such use or presence detailing how Owner can avoid exposure to the products. Contractor shall submit MSDS / SDS to Owner for any hazardous chemical to which persons outside the project site may be exposed. The exposure avoidance plan shall also specify actions that should be taken if inadvertent exposure occurs. Owner shall provide Contractor with a written plan detailing how Contractor employees can avoid exposure to hazardous chemicals used by Owner that may impact the Project site, and shall specify actions which should be taken if inadvertent exposure occurs. Owner shall submit MSDS / SDS to Contractor for any hazardous chemical to which persons inside the project site may be exposed.

B. Lock-Out/Tag-Out:

1. When Owner and Contractor are to be engaged in coordinated activities requiring the control of hazardous energy, Owner and Contractor shall inform each other of their respective lock-out or tag-out procedures.

C. Confined Space:

1. When Contractor employees are to enter permit-required confined spaces, Owner shall:
 - a. Inform Contractor that the Project site contains permit required spaces and that permit-space entry is allowed only through compliance with a confined-space program meeting WAC 296-809.
 - b. Inform Contractor of hazards that have been identified.
 - c. Coordinate entry operations with Contractor when both Owner and Contractor personnel will be working in or near permit spaces.
 - d. Debrief Contractor at the conclusion of the entry operations regarding any hazards confronted or created in permit spaces during entry operations.

END OF SECTION 01 41 19

PART 1 GENERAL

1.01 SUMMARY

- A. Contractor shall perform all Work in a skillful and workmanlike manner. Materials and equipment furnished by Contract and any Subcontractor(s) must be of good quality and new unless the Contract Documents require or permit otherwise. Materials shall conform to the manufacturer's standards in effect at the date of execution of the Contractor and shall be installed in accordance with the manufacturer's instructions, specifications, and directions. Contractor shall, if requested by Owner, furnish satisfactory evidence regarding the kind and quality of any materials identifying thereon the source, and warranting their quality and compliance with the Contract Documents.
- B. Section includes:
 - 1. Contractor's Quality Control Program;
 - 2. Field samples;
 - 3. Mock-ups;
 - 4. Manufacturer's instructions;
 - 5. Manufacturer's field services;
 - 6. Testing laboratory services; and
 - 7. Contractor tests and inspections.

1.02 QUALITY CONTROL PROGRAM SUBMITTALS

- A. Contractor shall submit a written Quality Control Program for the Project per the Pre-Construction Submittal Requirements of Section 01 33 00. This submittal shall include but not be limited to the following:
 - 1. An overview of Contractor's Quality Control Program.
 - 2. Identification and resume of Contractor's on-site Quality Control Manager (QCM).
 - 3. A description of the activities, record keeping, and correspondence that the QCM will perform and be accountable for throughout the duration of the Project.
 - 4. A description of the quality control meetings to be conducted, sample inspection check lists (i.e., samples of actual inspection check list forms that will be submitted to Owner when scheduling inspections), and Subcontractors' quality control representatives. All forms that Contractor intends to use in its Quality Control Program shall be part of the submittal.
 - 5. A description of the QCM activities when inspections fail to verify compliance with the Contract Documents.
 - a. These activities are to include, as a minimum, follow-up with

- applicable Subcontractors, correction and/or completion of Work required for re-inspection, and the re-inspection.
- b. Contractor shall submit its weekly Non-Compliance Logs at least 2 Days prior to each Progress Meeting.
- 6. A description of the QCM activities to provide the required notifications for inspections.
 - 7. A description of record keeping and information turn-over to Owner as a component of the Operating and Maintenance data (i.e. factory representative's start-up reports and permission to energize, verification of correct voltage and phasing to motors, etc.).
 - 8. Contractor will submit a daily report within 3-business days for any day work is performed. The daily report should include the following information; the list may be adjusted or relaxed with Owners Representative approval depending on size and scope of the project requirements:
 - a. progress photo's,
 - b. list of contractor's and work-force #'s for each contractor,
 - c. RFI's or questions,
 - d. equipment quantities in use or idle,
 - e. weather (if work is being performed outside),
 - f. construction delays or likely delays,
 - g. 3rd part inspections or city visits,
 - h. safety issues,
 - i. meetings conducted,
 - j. substantive material deliveries, and
 - k. any other relevant facts occurring on the site.

1.03 CONTRACTOR'S QUALITY CONTROL PROGRAM

- A. Contractor shall establish and maintain a written Quality Control Program which shall be issued by Contractor to Subcontractors performing Work on the Project and utilized to verify that the execution of the Work is consistent with the requirements of the Contract Documents.
- B. The Quality Control Program shall include, but not be limited to the following:
 - 1. Preparatory Phase:
 - a. Prior to beginning Work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. Contractor shall:
 - b. Review of each paragraph of applicable specifications, reference codes, and standards. Make a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field at the preparatory inspection. Maintain these copies in the field, available for use by Owner's Designated Representative until final acceptance of the work.

- c. Review the Drawings.
 - d. Check to assure that all materials and/or equipment have been tested, submitted, and approved.
 - e. Review provisions that have been made to provide required control inspection and testing.
 - f. Examine the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
 - g. Perform a physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
 - h. Review appropriate accident safety procedures.
 - i. Discuss procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
 - j. Check to ensure that the portion of the plan for the work to be performed has been accepted by the Owner's Designated Representative.
 - k. Schedule, manage and record the minutes of each preparatory meeting.
 - l. Review all RFIs associated with the Work.
2. Initial Phase:
- a. At the beginning of the Work, Contractor shall:
 - b. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
 - c. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing. Resolve all differences and deficiencies.
 - d. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
 - e. Check safety to include compliance with and upgrading of the Safety Plan. Review with each worker. Particular attention should be given to high hazard work.
 - f. Prepare and attach to the daily CQC report separate minutes of this phase.
 - g. Repeat the initial phase any time acceptable specified quality standards are not being met.
3. Follow Up Phase:
- a. Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract

requirements, until completion of the Work. The checks shall be made a matter of record in the QC documentation. Conduct final follow-up checks and correct deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

- C. Contractor's Quality Control Program shall be independent of any inspections and testing performed by Owner or by any independent testing and inspection agencies hired by Owner.
- D. Within the Quality Control Program, Contractor shall have available on the jobsite at all times a written report of quality control activities. At a minimum, the report shall note Project site quality control inspections, performance of scheduled tests and follow-up testing, other required inspections, deficiency log, and examinations of workmanship and quality.
- E. Test results shall identify applicable Contract (including Specification) requirements, the test or analysis procedures used, and the actual test results. A statement shall be included that the item tested or analyzed conforms or fails to conform to the Contract Documents. Each report shall be conspicuously stamped on the cover sheet "CONFORMS" or "DOES NOT CONFORM" as the case may be. All test reports shall be signed by a testing laboratory representative authorized to sign certified test reports. Copies of all test reports shall be available on the jobsite at all times.
- F. If the Quality Control Program is found to be defective and Contractor does not promptly correct the deficiency, Owner may:
 - 1. Withhold payment until satisfactory corrective action has been taken, or
 - 2. Issue a stop work order until satisfactory corrective action has been taken.
- G. Pre-Inspections: Contractor shall pre-inspect Work that requires normal, special, and additional inspections as indicated in the Contract Documents.

1.04 FIELD SAMPLES

- A. Field samples are defined as the partial installation of selected materials at the Project site for Owner's review and acceptance of visual features and workmanship. Generally, accepted field samples are incorporated into the Work.
- B. Contractor shall provide field samples as required by the Contract Documents at location acceptable to Owner.
- C. Perform Work in accordance with the Contract Documents.
- D. Approved samples will serve as an acceptable standard of quality and workmanship.
- E. Maintain samples until completion of relevant Work.

- F. Upon completion of relevant Work or when directed by Owner, demolish and remove samples from Project site unless sample is accepted as part of completed Work.

1.05 MOCK-UPS

- A. Contractor shall provide mock-ups as required by the Contract Documents. Provide additional mock-ups, as required by Owner, until approval is obtained.
- B. Do not proceed with subsequent Work until approval of the mock-up is obtained.
- C. The approved mock-up shall be the standard of workmanship and materials for the Work that is represented by the mock-up.
- D. Maintain mock-up in approved condition, until directed otherwise by Owner.
- E. Unless specified otherwise, remove mock-up at completion of the Work or when directed by Owner.
- F. Unless specified or approved otherwise, mock-ups shall be completed and approved prior to the pre-installation meeting at which the Work represented by the mock-up will be discussed.
- G. Notify Owner a minimum of 7 Days prior to requesting mock-up approval.

1.06 MANUFACTURERS' INSTRUCTIONS

- A. Contractor shall comply with manufacturers' instructions in full detail, including each step in sequence. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.
- B. Should instructions conflict with Contract Documents, Contractor shall request clarification before proceeding.

1.07 MANUFACTURERS' FIELD SERVICES

- A. When specified, Contractor must require product manufacturer to furnish a qualified representative to observe field conditions and quality of workmanship, and to provide recommendations, certifications, and other specified services.
- B. Representative shall submit written report to Owner listing observations and recommendations.

1.08 TESTING LABORATORY SERVICES

- A. Owner will arrange for services of an independent Testing Laboratory to inspect and test the Work to verify compliance with Contract Documents.
- B. Contractor's Responsibilities:

1. Cooperate with Testing Laboratory personnel, and furnish access, tools, samples, certifications, test reports, design mixes, equipment, storage, and assistance as requested by the Testing Laboratory.
2. Notify Owner and Testing Laboratory a minimum of 7 Days in advance of all required tests and 48 hours in advance of all required inspections. When tests or inspections cannot be performed, through fault of Contractor, Contractor shall reimburse Owner for costs incurred by Owner.
3. Contractor shall remove and replace Work found to not comply with Contract Documents.
4. If initial tests and inspections indicate deficient work, Contractor shall reimburse Owner for costs of all subsequent tests and inspections related to such deficiency.
5. All damage to Work as a result of normal testing operations shall be repaired by Contractor to match surrounding surfaces.
6. Schedule testing and inspection so that work of testing and inspection personnel will be as continuous and brief as possible.
7. Contractor shall reimburse Owner for travel and lodging expenses incurred for testing and inspection services performed outside a radius of 100 miles of the Project site.

1.09 CONTRACTOR TESTS AND INSPECTIONS

- A. Inspection and testing performed exclusively for Contractor's convenience shall be the Contractor's sole responsibility.
- B. Earthwork Compaction Testing Requirements:
 1. Owner will engage the services of a Testing Laboratory to perform all soil and structural fill compaction testing. Compactions of any fill material shall be equal to or exceed the specified percentage of maximum dry density as defined by ASTM test procedure D1557 (modified proctor). Obtaining such specified compaction performance is the sole responsibility of Contractor.
 2. During any of Contractor's operations, Owner reserves the right to perform compaction tests for its own information only. At Owner's discretion, copies of such tests may be made available to Contractor. The taking of any such tests by Owner in no way relieves Contractor from testing to assure itself of compliance with the Contract Documents.
- C. Approved Structural Steel Fabricators:
 1. Contractor shall pay for any required structural steel fabrication special inspections.
- D. Cast-in-Place Concrete Strength Testing Requirements:

1. Concrete test cylinders will be made by Owner or Owner's Testing Laboratory. Contractor shall be responsible for proper care of cast cylinders while on the Project site (with respect to temperature, humidity and protection).
2. Contractor is also responsible for timely transportation to the laboratory in Spokane (or closer) on a schedule that will permit adequate laboratory curing before testing.
3. Contractor shall notify the Owner at least 48 hours before any concrete pour to allow time for observation.
4. Frequency and location of tests are to be determined. As a minimum, four test cylinders will be made for each day's pour or for every hundred cubic yards, whichever is greater.
5. The results of Owner's tests will be made available to Contractor.
6. The quality of all concrete is to be the sole responsibility of Contractor. If Contractor feels that additional testing is required to assure continued quality control, the frequency, testing, and payment therefore is Contractor's responsibility.

E. All Other Work Inspection and Testing Requirements:

1. Contractor shall, at no additional cost to Owner, provide all inspections and tests required to assure full compliance with the Contract Documents. Unless specifically required, Contractor is not required to submit copies of such test results to Owner. Contractor, however, shall maintain copies of all testing and inspection reports at the Project site for inspection and copying by Owner.
2. The performance of testing or inspection by Owner or Owner's Testing Laboratory does not relieve Contractor from responsibility for meeting all requirements of the Contract Documents.

END OF SECTION 01 45 00

PART 1 GENERAL

1.01 SUMMARY

- A. General: Owner will select and employ an independent testing agency, engineering service, or a special inspector to conduct the tests and inspections to be provided by Owner. Inspections that are normally associated with obtaining State approval (e.g., electrical work as specified in Division 26, etc.) shall be provided and paid for by Contractor. Contractor shall comply with all applicable building codes and provide all testing services required by the Contract Documents unless specifically identified as Owner's responsibility.
- B. Owner's testing agency shall prepare test reports, logs and certificates applicable to the Work for which Owner will provide testing and shall deliver the specified number of copies to the designated parties. If any inspection or testing 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 Owner's services and expenses, shall be at Contractor's expense.

1.02 DESCRIPTION

- A. Definition: For the purpose of this Section, all references made herein to testing laboratory, testing agency, or special inspector shall refer to as the tests or inspections conducted by a special inspector provided by Owner.

1.03 QUALITY ASSURANCE

- A. Qualifications: Contractor's inspection personnel must be approved by Owner and possess certain qualifications as stated in this Section. The testing agency shall comply with all requirements of ASTM E329.
 - 1. The inspector for waterproofing and roofing shall have specialized technical knowledge and experience specific to waterproofing and roofing.
 - 2. The testing agency for concrete testing and inspection services should be an agency other than the agency employed by Contractor for the purpose of establishing concrete mix designs, etc.
 - 3. Geotechnical inspection will be performed by a licensed geotechnical consulting firm.

1.04 DUTIES OF OWNER'S TESTING AGENCY

- A. General: Testing agencies shall conduct testing and inspection services, interpret them, evaluate the results for compliance with the Contract Documents, and report the findings to the Owner, Contractor, and local building authority, as applicable. Testing and inspection services shall be performed in accordance with applicable ASTM standard methods or other specified procedures.

- B. Testing: Materials to be tested are those so specified and others as Owner or authorities having jurisdiction over the Project may direct.
- C. Inspection: Inspections, continuous and special, shall be performed by the inspectors as required by the Contract Documents and authorities having jurisdiction.
- D. Rejected Work: Inspectors shall have the right to recommend rejection of materials and workmanship that is defective. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the Project site without charge to Owner. If Contractor does not correct rejected work within a reasonable time, Owner may elect to correct the work and charge the expense to Contractor.
- E. Inspectors are not authorized to do the following:
 - 1. Release, revoke, waive, alter, or enlarge on requirements of the Contract Documents;
 - 2. Approve or accept any portion of the Work, except as specified for soil conditions (i.e. bearing capacities, etc.);
 - 3. Perform any duties of Contractor; or
 - 4. Stop Work.
- F. Should the Owner elect at any time before Final Acceptance to make an examination of Work already completed by removing or tearing out the same, Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such Work is found to be defective in any respect, Contractor shall be responsible for the cost of such examinations and of satisfactory reconstruction. If such Work is found to meet the requirements of the Contract, however, Owner shall be responsible for the cost of such examinations and of satisfactory reconstruction.

1.05 PAYMENTS

- A. Owner shall pay for the cost of initial testing and inspection, except as otherwise specified in the Contract Documents. Initial tests and inspections are defined as the first tests and inspections as hereinafter specified.
- B. In the event any test or inspection reveals Work not in compliance with the Contract Documents, Contractor shall pay for or be backcharged for all costs of re-testing and/or re-inspection.
- C. Additional tests and inspections not herein specified but requested by Owner shall be paid for by Owner, unless the results of such tests or inspections reveal Work not in compliance with the Contract Documents, in which case Contractor shall pay for or be backcharged for all costs of testing, re-testing, re-inspection, and any related Owner costs.

- D. Costs for additional tests or inspections required because of any change in materials or change in the source of supply from that specified shall be paid by or backcharged to Contractor.
- E. Contractor is responsible for all work required to correct any deficiencies.
- F. Contractor is responsible for the cost of any testing required for the convenience of Contractor in the scheduling and performance of the Work.
- G. Contractor is responsible for the cost to verify testing done without prior notice, with improper supervision, or contrary to construction practice, and for testing of materials for which mill reports are required but not furnished.
- H. Contractor is responsible for the cost of any testing that is required to be performed by Contractor by the Contract Documents.

1.06 TESTS AND INSPECTION REPORTS

- A. Copies of Test and Inspection Reports: Copies of test and inspection reports will be distributed at weekly intervals. Such reports shall include all tests performed, regardless of whether such tests indicate that material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations shall also be reported. Test and inspection reports shall be distributed electronically as requested by Owner.
- B. Test and inspection reports shall be distributed as follows:
 - 1. Architect/Engineer;
 - 2. Owner; and
 - 3. Contractor.

1.07 CONTRACTOR'S RESPONSIBILITIES

- A. Coordination: Contractor shall initiate and coordinate all required tests and inspections, including conforming with requirements of applicable public agencies and authorities. Inspection of the Work does not relieve Contractor of any obligation under the Contract. The Owner's Designated Representative shall have authority to reject Work that is not in compliance with the Contract Documents.
- B. Access: Inspectors shall at all times have free access to the Work, wherever the Work is in preparation. Contractor shall at all times provide and maintain proper facilities and safe access for such inspection. Contractor shall also cooperate with testing personnel and furnish access, tools, samples, certifications, test reports, design mixes, equipment, storage, and requested assistance.
- C. Storage Facilities: Contractor shall furnish adequate storage facilities for the sole use of the testing laboratory for safe storage of specimens that must remain on the site.

- D. Data: Furnish records, drawings, certificates and similar data, including Shop Drawings and Change Orders, as may be required by the testing and inspection personnel to confirm compliance with the Contract Documents.
- E. Notice: Contractor shall furnish notice to Owner and inspector at least 48 hours in advance of all required tests and inspections, unless otherwise specified.
- F. Defective Work: Contractor shall remove and replace any Work found defective by Owner or not complying with the Contract Documents at no additional cost or Contract Time. Where testing personnel take cores or cut-outs to verify compliance, repair prior to acceptance. Where defective Work requires redesign, any redesign costs shall be paid for by Contractor.
- G. Cancellations: Contractor shall give sufficient advance notice to the inspector to allow in the event of any cancellation or rescheduling of a previously scheduled test or inspection. Any charges due to insufficient advance notice of cancellations or delay shall be paid by or backcharged to Contractor.

1.08 TEST FAILURES

- A. Where a sample fails to pass a required test, Owner may permit re-testing of the sampled material. In such cases, two samples shall be tested and the material shall be rejected if either of the two subsequent samples fail.

1.09 REPORTING TEST FAILURES

- A. Immediately upon inspector's determination of a test failure, inspector shall notify Owner. On the same day, inspector shall send written test results to those named on the distribution list above.

1.10 REMOVAL OF MATERIALS

- A. Unless otherwise directed, materials not conforming to the requirements of the Contract Documents shall be promptly removed from the Project site and properly disposed of without additional expense to Owner.

END OF SECTION 01 45 23

PART 1 GENERAL

1.01 SUMMARY

- A. Contractor shall be evaluated on performance throughout the course of the contract to provide past performance documentation for future projects.
- B. Section includes:
 - 1. Program Objectives;
 - 2. Performance Categories and Assessment;
 - 3. Evaluation Reports;
 - 4. Notice, Review and Appeal.

1.02 PROGRAM OBJECTIVES

- A. The Contract Performance Evaluation Program is intended to improve contractor selection given the following primary objectives:
 - 1. Assist the Owner in evaluating the contractor's qualifications and proven ability to successfully perform future contracts when past performance has been previously documented;
 - 2. Provide the University objective data relating to Contractor responsibility;
 - 3. Provide contractors with a means of enhancing their qualifications and reputation by receiving recognition for exceptional performance;
 - 4. Encourage better working relationships between the University and the Contractor and to provide feedback to the contractor during and after the contract period;

1.03 PERFORMANCE CATEGORIES AND ASSESSMENT

- A. Contractor shall be evaluated based upon the following categories:
 - 1. Schedule and Time Management;
 - 2. Quality Management;
 - 3. Communication Effectiveness;
 - 4. Management Approach;
 - 5. Code and Compliance; and
 - 6. Cost.
- B. Each of the above categories will be assessed by multiple key project stakeholders and provided one of the following performance levels based upon objective and cumulative data:

1. Outstanding (5): Contractor has exceeded the majority of all of the significant contract criteria and has met or exceeded the Schedule, Quality, Communications, Management, Code Compliance and Cost requirements of the contract. The contractor was extremely or completely knowledgeable of the contract requirements and applicable laws and regulations. A very consistent high level of cooperation, project management, and job site control appreciably contributed to an unusually good result.
2. Very Good (4): Contractor has exceeded many of the significant contract criteria and has met or exceeded some of the Schedule, Quality, Communications, Management, Code Compliance, and Cost requirements of the contract. The contractor was knowledgeable of the contract requirements and applicable laws and regulations. Was generally cooperative and performed their work with minimal prompting. Their performance results were very good.
3. Satisfactory (3): Contractor has satisfactorily met the overall contract criteria and has met the overall Schedule, Quality, Communications, Code Compliance and Cost requirement of the contract. The contractor occasionally had to be prompted or reminded of the contract requirements, but overall the project was acceptable, producing an acceptable result.
4. Marginal (2): Contractor may have met many, but not all, of the contract criteria and failed to meet one or more of the Schedule, Quality, Communications, Code Compliance or Cost performance requirements of the contract. Even though the project may have been accepted, the contractor's performance, as evaluated, was marginal overall. The contractor frequently had to be prompted or reminded of the contract requirements; overall the project was less than satisfactory.
5. Unsatisfactory (1): Contractor failed to meet many or most of the contract criteria and failed to meet the overall Schedule, Quality, Communications, Code Compliance and Cost performance requirements of the contract. While the project may have been accepted by the owner, the effort expended in prompting the contractor to perform was excessive. The contractor's poor or uncooperative performance created serious unnecessary and avoidable difficulties in achieving contract completion.

1.04 EVALUATION REPORTS

- A. At the midpoint of project completion, Owner shall provide contractor with a draft Contract Evaluation Report based upon the current performance during the contract. This shall provide the Contractor an opportunity improve performance levels during the contract, and provide an opportunity for Contractor-Owner communication and working relationship.
- B. A final Contract Performance Evaluation Report will be completed upon contract completion and shall become the official report of record.

1. A Summary Contract Performance Evaluation will be provided to the Contractor within 30 calendar days after Final Completion.
 2. Final Contract Performance Evaluation Reports will remain on record for a minimum of 5 years from date issued.
- C. Upon receipt of the Summary Contract Performance Evaluation, Contractor shall review the report and may request a debrief conference within 21 calendar days of receipt.
- D. If after the debrief, Contractor would like to dispute the evaluation findings the Contractor shall submit in writing, the specific reasons for disagreement and include the basis for their appeal within 14 calendar days following the debrief.
1. Upon receipt of appeal, Owner shall convene a review with the Assistant Vice President, Facilities Services, Capital to consider the objectivity, accuracy, completeness and fairness of the Contract Performance Evaluation.
 2. The Contractor shall be notified and issued a final determination within 30 calendar days of receipt of the appeal.

END OF SECTION 01 45 34

PART 1 GENERAL

1.01 TEMPORARY UTILITIES

- A. Owner may furnish to Contractor temporary Owner-owned utilities when available and upon Owner written approval. Owner reserves the right to restrict the use of its utilities if, in its opinion, Contractor fails to adequately conserve utilities or to use utilities appropriately. When using Owner-owned utilities, Contractor is to make metered connections to the nearest available service and disconnect same when no longer needed.
- B. If Owner-owned utilities are not available at the Project site, or if Owner restricts use of Owner-owned utilities, Contractor shall obtain required services from commercial sources or public utilities, and Contractor is responsible to pay for all utility costs.
- C. Contractor shall field verify the availability of utility services provided by Owner and coordinate the Work accordingly.
- D. In remodeling projects where portions of the building are to remain in service, Contractor shall be responsible for coordinating the Work to maintain utility services to the occupied portions of the building.

1.02 TEMPORARY ELECTRICAL SERVICE

- A. Contractor shall provide all services required for construction operations and may connect to existing services when available upon Owner approval. .
- B. Contractor shall provide lighting for construction operations.
- C. Contractor may use existing lighting when available and adequate.
- D. Contractor shall maintain site lighting throughout the duration of the Work.

1.03 HEAT AND VENTILATION

- A. Contractor shall provide heat and ventilation as required to maintain specified conditions for construction operations and to protect materials and finishes from damage due to temperature or humidity.
- B. After a building is substantially enclosed, the permanent heating system or a temporary hook-up of equipment from the permanent system may be used for temporary heat provided that the equipment is properly installed by the responsible electrical and mechanical Subcontractors and available for supplying temporary heat. Owner shall be the sole judge of the adequacy of the building enclosure for temporary heating or cooling purposes.
- C. Contractor shall arrange with the electrical and mechanical Subcontractors installing said systems and equipment for the use, operation, and maintenance of

the systems. Contractor shall pay for all connections and attendants for temporary heating, including necessary accessories such as temporary (construction) air filters to protect the air distribution systems from contamination.

- D. Contractor shall provide a dust free air distribution system and correct all damage to this system caused by the Work.
- E. In existing facilities, Contractor shall coordinate use of the existing systems with Owner. Contractor shall extend and supplement with temporary units as required to maintain specified conditions for construction operations.
- F. Use of electric resistance type heating systems for temporary heat is prohibited.
- G. The warranty period for any permanent equipment used during construction will not commence until Contractor achieves Substantial Completion.

1.04 TEMPORARY WATER SERVICE

- A. Unless available from an Owner-owned utility, Contractor shall provide service required for construction operations. At all times, Contractor shall utilize backflow/cross-connection devices, certified by Owner, to safeguard water supply.
- B. For Work in existing facilities, Contractor shall connect to existing services when approved by Owner and extend branch piping with outlets so that water is available for use by all persons associated with the Work.
- C. Provide drinking water from a safe source for all those associated with the Work.

1.05 SANITARY FACILITIES

- A. Use of permanent and/or existing Owner's facilities will be allowed as long as proper cleanliness is maintained. If, in the opinion of the Owner, restrooms are not being properly maintained, Contractor will be required to provide its own sanitary facilities at its own expense.
- B. Owner will designate any restrooms that can be used by Contractor personnel.

1.06 BARRIERS

- A. Contractor shall provide barriers as required to prevent public entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. When temporary fencing is indicated by the Drawings, or if fencing is provided at Contractor's option, enclosures shall be constructed of 6 feet high commercial grade chain link with vehicular and personnel gates, as required.

1.07 ENCLOSURES

- A. Contractor shall provide temporary weather-tight closures of openings to provide acceptable working conditions, protect materials, facilitate temporary heating, and prevent entry of unauthorized persons. Provide doors with self-closing hardware and locks.
- B. Contractor shall provide temporary roofing when so indicated by the Drawings or when made necessary by the Project requirements.
- C. Contractor shall provide temporary dust-proof partitions when required to confine dust and moisture to the immediate Work area.
- D. Contractor shall provide temporary noise-proof partitions when required to confine noise to the immediate Work area.

1.08 PROTECTION OF EXISTING FACILITIES

- A. Utility Tunnel Protection: Contractor shall provide adequate planking across any tunnels to distribute loads and prevent damage. If necessary, Contractor shall provide temporary shoring inside tunnel areas.
- B. Low Overhead Clearance: Contractor shall be fully responsible for addressing all vehicular limitations caused by low overhead restrictions throughout campus. Route all traffic to avoid damage to overhead structures. Review proposed routing with Owner prior to commencement of construction.
- C. Tree and Plant Protection: Contractor shall protect trees and other plants not scheduled for removal; maintain protection until Project completion.
 - 1. In the event that a tree or plant is damaged as a result of the Work that, in the opinion of Owner, requires replacement, Contractor shall be responsible for such replacement.
 - 2. If at any time Contractor judges that the protection of plant materials designated to be saved is incompatible with Work required, or if operations necessarily threaten the health of any plant material, Contractor shall immediately notify Owner and cease Work affecting the area until a written agreement is reached concerning acceptable procedure.

1.09 SECURITY

- A. Contractor shall provide security to protect the Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, and theft. Coordinate with Owner's security program.
- B. During construction, all openings to Owner's utility tunnel system must be protected against unauthorized entry. Contractor shall provide closures, approved by Owner, including locked doors or hatches at any openings created

by the Work.

1.10 PROTECTION OF INSTALLED WORK

- A. Contractor shall provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- B. Contractor shall provide protective coverings for walls, projections elevator cabs, jambs, sills, and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects, and storage.
- C. Contractor shall prohibit traffic and storage on waterproofed and roofed surfaces and on lawns and landscaped areas.

1.11 CLEANING DURING CONSTRUCTION

- A. Contractor shall clean the site each day during construction and shall prevent the accumulation of waste materials and rubbish.
- B. Contractor shall clean interior areas prior to the start of finish Work and maintain areas free of dust and other contaminants during finishing operations.

1.12 OFF-SITE CLEAN UP

- A. Contractor shall continuously keep sidewalks, lawns, parking areas, and streets clear of construction materials, debris, gravel, rock, and dirt related to the Project.

1.13 LIFTING DEVICES AND HOISTING FACILITIES

- A. Contractor shall provide cranes, hoists, towers, and other lifting devices necessary for the proper and efficient movement of materials.

1.14 MECHANICAL AND ELECTRICAL SYSTEM SHUT-DOWNS

- A. Any shut-down of mechanical or electrical systems affecting Owner's operations shall be scheduled by Contractor during off-hours. Contractor shall submit a written shut-down request providing at least 14 Days advance notice. Any shut-down must be coordinated with and approved by Owner.

1.15 CONSTRUCTION PARKING

- A. Contractor's employees may park only in accordance with campus traffic and parking regulations and pay all required fees.
- B. When working in Pullman's central campus, Contractor's vehicular use will be limited to the following:
 - 1. Delivery of materials to and from Project site;
 - 2. Single vehicle for use by Project supervisor of each major Contractor

(four total vehicles maximum); and

3. Workers' vehicles shall not be allowed to park in the central mall.

1.16 NOISE CONTROL

- A. Any construction related noise that interferes or is likely to interfere with normal use of adjacent space(s) shall be scheduled and approved by Owner.
- B. Contractor shall restrict any construction related noise to the hours approved by Owner and in accordance with the state and local noise ordinance.
- C. Owner may approve Contractor working extended hours. Request any extended hours of operation with Owner.

1.17 TRAFFIC OBSTRUCTIONS

- A. Contractor shall submit a written traffic control plan for all traffic obstructions, either pedestrian or vehicular, for approval by Owner, per the Pre-Construction Submittal Requirements of Section 01 33 00.
- B. In some cases, it may be necessary to develop special routes for large or unwieldy deliveries that could interfere with pedestrian movement, especially at peak times.
- C. Contractor shall avoid deliveries or equipment operations that block street traffic during peak times.
- D. Pedestrian Obstructions: Any equipment on sidewalks or other pedestrian ways shall be barricaded. Barricades shall include a horizontal member at a maximum of two feet above the walking surface.

1.18 REMOVAL OF TEMPORARY FACILITIES

- A. Contractor shall remove temporary materials, equipment, services, and construction facilities prior to Substantial Completion inspection.
- B. Contractor shall clean and repair damage caused by installation or use of temporary facilities.
- C. Contractor shall restore existing facilities used during construction to specified or original condition.

END OF SECTION 01 50 00

PART 1 GENERAL

1.01 PRODUCTS

- A. Products include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.
- D. All materials shall be new unless specifically noted otherwise.

1.02 TRANSPORTATION AND HANDLING

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.03 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

1.04 VARIATION FROM SPECIFIED PRODUCTS

- A. Subsequent to Bid Opening/Proposal - Approved Equivalents:
 - 1. Requests for approved equivalents will only be considered when approved equivalent statements, used in reference to product

specifications, are specifically provided for within individual Specification sections.

2. The terms "or an approved equivalent", "approved equivalent", or similar statements, when used herein in connection with manufacturers' products, shall be understood to mean products that are equally effective and suitable for their intended use; based on the judgment of the Owner, whose decision shall be final.
3. Written requests for consideration by the Owner of approved equivalents may be submitted throughout the Project.
4. Time extensions and additional costs resulting from use of approved equivalent products will not be considered.

B. No Substitutions:

1. The terms "No Substitutions", "Alternative Products not Acceptable", or similar statements used in reference to product specifications, shall mean that only the specified product will meet the needs of the University and that no other products will be considered at any time before or during the Project.

C. Requirements and Procedures for Product Variations:

1. The Contract is based on the standards of quality established in the Contract Documents.
2. Substitution or approved equivalent revisions shall be made only with the prior written acceptance of the Owner.
3. All requests for substitutions or approved equivalents must be on the proposer's letterhead and shall be accompanied by complete specifications, samples, records of performance, certified copies of tests by impartial and recognized laboratories, and such other information as the Owner may request to prove the merit of the proposed revisions.
4. The Contractor assumes the responsibility for capacity, dimensions, clearance, etc., of the named manufacturer's particular item to assure that the revision meets the requirements.
5. The Contractor shall assume the cost of any redesign, in the form of changes to the Drawings, or for the Work of any other trades, or any other costs required to properly incorporate any revision associated with substitutions or use of approved equivalent products.
6. Final decisions as to the quality and suitability of proposed revisions will rest solely with the Owner and will be based on proof submitted.
7. When the Owner approves a substitution or approved equivalent proposed by the Contractor, it is with the understanding that the Contractor certifies that the article or material is equivalent to or better than that specified.

END OF SECTION 01 60 00

PART 1 GENERAL

1.01 PURPOSE

- A. Provide for an orderly, timely, and efficient completion of the Work for Owner.

1.02 SUBSTANTIAL COMPLETION

- A. Requirements for Substantial Completion: Contractor shall comply with all requirements for Substantial Completion identified in the General Conditions and other Contract Documents. Prior to Substantial Completion, Contractor must have constructed the Work in substantial accordance with the Contract Documents, and:
1. Certificate of Occupancy received from the AHJ.
 2. All elements of the Work must be operational and in good working order and condition, except for incidental punchlist Work;
 3. The fire and life safety systems, if any, must be tested and accepted;
 4. Any elevators must be operational, functioning, and in good working order and condition, and be fully approved for use;
 5. All mechanical, electrical, plumbing, telecommunications, security, and access control systems must operate and function in good working order and condition, including commissioning;
 6. The finish portion of the Work must be complete including but not limited to paint, trim, doors, partitions, cabinetry, floor coverings, ceilings, wall finish, and other finish surfaces, except for incidental punchlist Work;
 7. All roadway improvements, paving, sidewalks, parking areas, other street improvements, lighting, landscaping and irrigation must be complete;
 8. Utilities must be complete, connected, and operating normally;
 9. Contractor must have removed all construction facilities, temporary controls, and construction debris;
 10. Contractor must have completed training Owner's personnel on all operating instructions and submitted training DVDs; and
 11. Final cleaning.
- B. Prior to Substantial Completion Contractor shall request in writing that Owner grant Substantial Completion. Accompanying the request Contractor submit the following:
1. A list of all items remaining to be completed or corrected;
 2. Signed originals from authorities having jurisdiction of all certificates of compliance and final approval, as applicable;
 3. All system software files required by the Contract Documents, including

- but not limited to lighting and environmental controls;
 - 4. Revised Draft Operation & Maintenance manuals; and
 - 5. Draft Project Record.
- C. Upon satisfactory completion of the requirements for Substantial Completion, Owner shall prepare and forward to Contractor a letter of Substantial Completion. The letter will identify the date of Substantial Completion and include a punch list identifying all remaining incomplete Work. Contract warranties shall begin as of the date of Substantial Completion.

1.03 FINAL COMPLETION

- A. Requirements for Final Completion: Upon receipt of Contractor's written Notice that Contractor has inspected and completed punch list items and that the Work is ready for final inspection and acceptance, Owner will promptly make such inspection accompanied by Contractor. If Owner determines that some or all of the punch list items are not complete, Contractor shall be responsible to Owner for all costs, including re-inspection fees, for any subsequent inspection to determine completion of the punch list. When Owner finds all punch list items complete and the Work and Contract fully performed, Owner shall establish the date of Final Completion. Owner is not required to establish Final Completion until the following are complete:
- 1. Complete all requirements listed in the Contract Documents for Substantial Completion of the Work;
 - 2. Complete all remaining punch list items and remaining Work, and obtain approval by Owner that all Work is complete;
 - 3. Obtain permanent occupancy permits (if only a temporary occupancy permit was issued at Substantial Completion);
 - 4. Submit Project Record, any final property survey, and final Operation and Maintenance manuals (if not previously submitted) required by the Contract Documents;
 - 5. Deliver any required tools, spare parts, extra stock of material and similar physical items to Owner as required by the Contract Documents;
 - 6. Complete cleaning after completion of punch list;
 - 7. Submit executed warranties;
 - 8. Complete any required sustainability documentation for which Contractor is responsible;
 - 9. Submit a final comprehensive list of all Subcontractors of all tiers and suppliers for the Project; and
 - 10. Submit certification that materials used in the Work are "asbestos-free" and that all requirements of governing jurisdictions related to the Project have been addressed.

11. Final Project Record.

- B. Upon satisfactory completion of the requirements for Final Completion, Contractor shall submit a final Application for Payment.

1.04 FINAL ACCEPTANCE

- A. Requirements for Final Acceptance: Final Acceptance shall be established by Owner in writing. Owner shall not be obligated to accept the Project as complete before Final Completion has occurred and Contractor has submitted the following:
1. An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which Owner or Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, except for any claims that are specifically identified on the affidavit (Affidavit of Payment of Debts and Claims, AIA form G706 or equivalent).
 2. A certificate or written statement evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 Days' prior written Notice has been given to Owner.
 3. Receipt of consent of surety, if any, to final payment (AIA form G707 or equivalent).
 4. If required by 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. If a Subcontractor refuses to furnish a release or waiver required by Owner, Contractor may furnish a bond satisfactory to Owner to indemnify Owner against such lien. If such lien remains unsatisfied after payments are made, Contractor shall refund to Owner all money that Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
 5. Provide copy to Owner of all "Affidavits of Wages Paid". Pursuant to RCW 39.12.040, an "Affidavit of Wages Paid" from Contractor and from each Subcontractor certified by the Industrial Statistician of the Washington State Department of Labor and Industries, with the fees paid by Contractor or Subcontractor.
- B. Contingent upon completion of all Affidavits of Wages Paid, the "Notice of Completion of Public Works Contract" form may be completed by Owner.

1.05 RETAINAGE

- A. Retainage must be held at least 45 Days following Final Acceptance. If there are either unpaid taxes or fees, or unsatisfied claims of lien against the retained percentage, disbursement of retainage funds will be made in accordance with Washington law.

- B. The retainage will be held and applied by Owner as a trust fund in the manner required by RCW 60.28. Release of the retainage will be processed in the ordinary course of business following Final Acceptance of the Work by Owner, provided no notice of lien has been given as provided in RCW 60.28, no claims have been brought to the attention of Owner, Owner has no claims under the Contract, and the requirements below have been met.
- C. Owner shall not release retainage until the following requirements have been satisfied.
 - 1. "Certificate of Payment of State Excise Taxes by Public Works Contractor": Following receipt of Owner's notice of completion and after determining that all taxes, increase and penalties due from Contractor have been paid, the Department of Revenue will issue this certificate to Owner.
 - 2. "Certificate of Payment of Contributions, Penalties and Interest on Public work Contract": Upon receiving a copy of Owner's notice of completion and after determining that Contractor is in compliance with the provisions of the Employment Security Act, the Employment Security Department will issue this certificate to Owner.
 - 3. "Certificate of Release": Upon receipt of Contractor's request for release and verification from its records that required premiums have been paid by Contractor and each Subcontractor, the Department of Labor and Industries will issue a statement to that effect.

END OF SECTION 01 70 00

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for field engineering services, including but not limited to the following:
 - 1. Land survey Work; and
 - 2. Establishment of coordinated reference points for general building layout and location.

1.02 SUBMITTALS

- A. Project Record: Contractor shall submit a record of Work performed and record survey data as required by the Contract Documents.

1.03 QUALITY ASSURANCE

- A. Surveyor: Contractor shall engage a registered Professional Land Surveyor registered in the State of Washington to perform the required land-surveying services.
- B. Owner may furnish surveys describing physical characteristics, legal limitations, utility locations, and a legal description for the Project site. Contractor may rely on the information furnished by Owner but must exercise proper precautions to ensure the safe performance of the Work. Contractor shall assume that the locations of any underground or hidden utilities, underground tanks, plumbing, or electrical runs indicated in the surveys or Contract Documents are shown in approximate locations, but Contractor is responsible for verifying the location of all utilities impacted by the Work. Additionally, Owner may make available to Contractor the results of investigations of hidden or subsurface conditions for the convenience of Contractor. While Contractor may rely upon such investigation results, there is no guarantee, express or implied, that the conditions indicated are representative of those existing throughout the Project site, or that unforeseen developments may not occur. Contractor is solely responsible for interpreting the information and extrapolating beyond the location, including each individual boring, test pit, or other locations.

1.04 EXAMINATION

- A. Identification: Contractor shall verify the location of benchmarks and control points provided by Owner.
- B. Contractor shall verify layout information on Drawings in relation to the property survey and existing benchmarks before proceeding to layout the Work.

Contractor shall also locate and protect existing benchmarks and control points and preserve permanent reference points during construction.

1. Do not change or relocate benchmarks or control points without prior written approval of Owner. Promptly report lost or destroyed reference points and requests to relocate reference points because of changes in grades or locations.
 2. Promptly replace lost or destroyed Project control points. Base replacements on the original survey control points.
- C. Contractor shall establish and maintain a minimum of two permanent benchmarks at the Project site.
1. Record benchmark locations, with horizontal and vertical data, on Project Record.
- D. Existing utilities and equipment: The existence and location of underground and other utilities are not guaranteed. Before beginning the Work, Contractor shall investigate and verify the existence and location of underground and other utilities (including irrigation and snow melt systems).
1. Prior to construction, verify the locations and invert elevation at points of connection sanitary sewer, storm sewer, and water service piping.

1.05 PERFORMANCE

- A. Contractor shall work from lines and levels established by the property survey; establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to locate each element of the Project; and calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
1. Advise entities engaged in Work activities of marked lines and levels provided for their use.
 2. As construction proceeds, check every major element for line, level, and plumb.
- B. Surveyor's Log: Contractor shall maintain a surveyor's log of control points and other survey Work. Make this log available to Owner for reference.
1. Record deviations from required lines and levels and advise Owner when deviations that exceed indicated or recognized tolerances are detected. On Project Record, record deviations that are accepted and not corrected.
 2. Following completion of foundation walls, major site improvements, and other Work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and site Work.

- C. Site Improvements: Contractor shall locate and lay out site improvements, including pavement, stakes for grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Existing Utilities: Contractor shall furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances affected by construction. Contractor shall coordinate with local authorities having jurisdiction.
- E. Contractor shall record accurately on the Project Record the principal metes, bounds, lines, and levels of the Project.

END OF SECTION 01 71 23

PART 1 GENERAL

1.01 SUMMARY

- A. This Section describes the waste management and recycle management criteria for debris and solid waste generated as part of the Work.
- B. Contractor shall be responsible for furnishing waste collection containers for the project, servicing those containers, and disposing solid waste from the Project. Contractor shall be responsible for segregating and disposing all unacceptable and dangerous wastes as defined below.
- C. Waste that is disposed of by Contractor shall be in accordance with all applicable local, state, and federal regulations, including WAC 173-350, Solid Waste Handling Standards, and WAC 173-303, Dangerous Waste Regulations.

1.02 DEFINITIONS

- A. Construction Waste: Waste resulting from the Work.
- B. Dangerous Waste: Solid waste designated in WAC 173-303 and/or 40 CFR. As used in this Section, the words "dangerous waste" will refer to the full universe of wastes regulated by WAC 173-303 and 40 CFR.
- C. Demolition Waste: Largely inert waste, resulting from the selective demolition of buildings, roads and other man-made structures such as cured concrete, asphaltic compounds, brick and masonry, ceramic, glass, steel, and aluminum, and non-inert materials such as clean wood, composition roofing and roofing paper, and minor amounts of metal. Plaster (i.e., sheetrock or plaster board) or any other material, other than clean wood, that is likely to produce gases or leachate during its decomposition process and asbestos waste are not considered to be demolition waste.
- D. Land Clearing Waste: Natural vegetation and clean soils from clearing and grubbing land for development such as stumps, brush, weeds, tree branches, tree bark, mud, dirt, sod and rocks.
- E. Recycle/Recycling: The process of separating waste materials for remanufacturing or reprocessing into usable or marketable materials. Examples of recycling include separating wood off-cuts for recycling by a wood processor into paper pulp, or separating cardboard, plastic, beverage containers, or miscellaneous metals for recycling.
- F. Reuse: To use a construction waste material again in roughly its same form. Materials can be reused on-site or on other projects off-site. Examples of reuse include removing a hardwood floor and reinstalling it in a new project, or using soil from one site as fill on another site.
- G. Salvage: To remove a construction waste material or equipment from an existing

building for reuse on-site or reuse on other projects off-site. Items to be salvaged shall be designated by Owner for removal and delivery to Owner.

- H. Unacceptable Waste: All waste not authorized for disposal by Owner. This includes any waste that is now or hereafter defined by federal law or by the governing jurisdiction as radioactive, dangerous, hazardous or extremely hazardous waste, unsanitary waste, and vehicle tires in excess or those permitted to be disposed of by the laws of the governing jurisdiction. It does not include any waste destined for salvage, recycling, or general demolition.
- I. Waste: All solid waste generated within the limits of the Project, or extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable and recyclable materials, masonry, and concrete.
- J. Waste Management Plan: A Project-specific plan for the salvage, collection, transportation, recycling, and disposal of the waste generated at the Project site. A waste management plan includes procedures for separating, storing, and transporting waste and includes methods to assure proper implementation of the plan.

1.03 WASTE MANAGEMENT PLAN

- A. Draft Waste Management Plan: Per the Pre-Construction Submittal Requirements of Section 01 33 00, Contractor shall submit to Owner a Draft Waste Management Plan. The Draft Plan shall contain the following:
 - 1. List of materials to be salvaged, materials to be recycled, and materials to be disposed of as solid waste, and dangerous waste.
 - 2. General material handling methods, including segregation and sorting, and placing solid waste into designated containers, on-site storage, and any special procedures for removing and protecting materials.
 - 3. Plan for communicating salvage and recycling requirements on the Project.
 - 4. Dangerous waste identification, accumulation, and disposal management procedures.
 - 5. Materials to be sorted, salvaged, and recycled:
 - a. At a minimum, the following types of materials in reusable condition shall be salvaged and sorted. Contractor shall remove and deliver to the Owner at designated location on the Tri-Cities campus.
 - 1) Dimensional lumber;
 - 2) Lighting fixtures, without asbestos or PCBs;
 - 3) Shelving; and
 - 4) Surplus building materials (new, leftover, unwanted). Review with Owner for clarification.

- b. At a minimum, the following types of materials shall be sorted and included for recycling:
 - 1) All metals (from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze);
 - 2) Beverage containers;
 - 3) Cardboard (from supplies and packaging);
 - 4) Clean wood (all unpainted, untreated wood scrap including pallets and engineered wood);
 - 5) Mixed office paper (including blue prints);
 - 6) Film plastic (from shrink wrap and other packaging, and sheeting used as protection or erosion control); and
 - 7) Plate glass.
 - c. With the exception of unacceptable waste, all materials not designated for salvage or recycle per Paragraph 1.03(A)(5) above, may be co-mingled and disposed of as waste.
- B. Dangerous Waste Management:
- 1. Contractor is responsible for all dangerous waste generated during the Project shall be identified, accumulated and disposed in accordance with WAC 173-303. Contractor generated dangerous waste must be shipped for disposal within 90 Days of generation.
 - 2. Contractor may accumulate dangerous waste in accordance with WAC 173-303 and Washington Department of Ecology Technical Information Memorandum 94-120, Satellite Accumulation. If Contractor accumulates dangerous waste in volume greater than 55 gallons or acutely hazardous waste in a volume greater than one quart, Contractor shall establish and operate a "90-Day" accumulation area in accordance with WAC 173-303.
 - 3. Contractor shall dispose dangerous waste only through vendor(s) approved by Owner. Contractor shall arrange all dangerous waste shipments. Utilization of the vendor and facilities included in the State of Washington Hazardous Waste Disposal contract is authorized. Any other proposed vendor(s) and/or facilities are subject to audit by Owner, prior to utilization. Contractor shall pay for said audits. Contractor shall coordinate with Owner's Environmental Health & Safety (EH&S) Department for transportation and disposal of all Project generated dangerous waste. EH&S will sign all Uniform Hazardous Waste Manifests.
- C. Final Waste Management Plan: Once Owner has reviewed the draft Waste Management Plan and responded with comments or corrections, Contractor shall submit a final plan within 14 Days.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 WASTE CONTAINMENT

- A. Contractor will provide and service containers for all wastes.
- B. Contractor shall provide separate waste containers for and properly dispose of all unacceptable waste, including dangerous waste, in accordance with applicable law.

3.02 CONTAMINATION OF WASTE

- A. Contractor shall take extraordinary care to ensure construction wastes are properly sorted, segregated, and placed within the correct containers.
- B. Should any waste containers designated for salvage, recycle, or general disposal be cross-contaminated with dangerous or unacceptable waste, Contractor shall pay all costs of legally disposing the contaminated waste.
- C. Project progress meetings shall include review of construction waste management as an agenda item.

END OF SECTION 01 74 19

PART 1 GENERAL

1.01 PURPOSE

- A. Contractor shall submit advance/draft electronic of Operation & Maintenance manuals (O&Ms) at or immediately following the 80% Application for Payment. Subsequent Applications for Payment will not be processed until an advance/draft copy of the O&Ms has been submitted for review.
- B. Contractor shall submit a final draft of O&Ms on or before Substantial Completion and provide training of Owner's staff in the operation and maintenance of the facility.

1.02 PROCEDURES

- A. Together with a request for Substantial Completion, Contractor shall provide one revised draft electronic version of O&Ms.
- B. To achieve Final Completion, Contractor shall submit :
 - 1. Two final copies of O&Ms;
 - 2. A text-searchable PDF electronic file of the O&Ms;
 - 3. Separate Test & Balance Reports and Telecommunications Test Reports in an independent three ring binder;
 - 4. A text-searchable PDF electronic file of the Test & Balance Reports and Telecommunications Test Reports.

PART 2 PRODUCTS

2.01 O&M MANUAL MATERIALS

- A. O&M Manuals shall be bound into 3-ring binders (three sets) with the cover and spine to be composed and laid out per the cover page template on the last page of this Section.
- B. The maximum thickness for each manual shall be 3". Multiple manual sets shall be organized by:
 - 1. General,
 - 2. Vertical Transportation,
 - 3. Mechanical,
 - 4. Electrical, and
 - 5. Other (Laboratory Equipment, Special Equipment, etc.).

- C. Paper shall be 8 1/2" x 11", 20 lb. white paper. Divisions within volumes are to be accomplished and annotated with permanently imprinted tabs (insertable indexes are not permitted) which indicate Specification Section numbers only.
- D. Copies must be legible. Facsimile transmission copies are not acceptable. Original equipment manufacturer (OEM) printed material is preferred.

PART 3 EXECUTION

3.01 PRODUCTION

- A. O&Ms are to be as follows:
 - 1. Table of Contents – a listing of the contents of all volumes. This table of contents shall be inserted at the beginning of each volume in the set.
 - a. Identify Contractor, include name, address, phone and fax number, and provide a contact name.
 - 2. Subcontractor List – a list or spreadsheet, organized by Specification Section, of all suppliers and Subcontractors of all tiers who performed Work on the Project. Include the name, address, phone and fax number of Subcontractor or supplier, the Specification Section, and the description of the Work. When Subcontractors perform Work of more than one Specification Section, provide a separate listing of each Specification Section. This listing shall be at the beginning of volume #1 only.
 - a. Written certification from Contractor attesting that no asbestos containing products have been incorporated into the Work.
 - 3. Warranty List – a list or spreadsheet containing Contractor's one-year correction period obligation and all extended (greater than one-year) warranties, organized by Specification Section that indicates:
 - a. Item Description (include here special warranty numbers or codes),
 - b. Length of warranty,
 - c. Specification Section, and
 - d. Contractor's contact information, followed by physical copies of the Contractor's one-year correction period obligation and all extended warranties. Note that 1-year warranties from Subcontractors are not to be bound into each volume of the O&Ms. This warranty list and attendant warranties shall be at the beginning of volume #1 only, immediately following the asbestos certification.
 - 4. Provide data as outlined in each specification section.
- B. Original equipment manufacturer (OEM) information is required to be a part of all equipment information within the O&Ms.

- C. Shop Drawings and product data initially submitted for acceptance are generally not acceptable for O&M use (one notable exception is snow melting cable layout drawing – a manufacturer detailed item). Routine Project components such as asphalt, concrete, pipe, fittings, conduit, etc., are not to be included in O&Ms.

END OF SECTION 01 78 23
(O&M cover and spine data on next page)

Facility #9512, Consolidated Information Center Building

Tri-Cities CIC Building New Gender Inclusive Restrooms 2023

General O&M Manual

Vol. X of Y

(Spine and Cover)

PART 1 GENERAL

1.01 PURPOSE AND PROCEDURE

- A. Contractor shall submit draft Project Record drawings on or before Substantial Completion. Requests for Substantial Completion will not be considered if submission of Project Record drawings has not occurred.
- B. Contractor shall submit final Project Record drawings before Final Completion may be achieved.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Project Record drawings are to be red-line markings on original Drawings which clearly indicate the as-built dimensions (both horizontally and vertically) for all installed Work.
- B. Identify on Project Record drawings all underground utilities encountered during the Work. Locate these utilities both horizontally and vertically and tie the dimension string(s) back to permanent and visible structures.
- C. Clearly label each sheet with the words "PROJECT RECORD DRAWINGS."
- D. Do not affix requests for information (RFIs), change proposals (CCPs) or architectural supplemental instructions (ASIs) to the Project Record drawings. If all or part of a Drawing has been modified, it is acceptable to affix the revised layout over top of the original. However, all dimensions that have been modified are to be red-lined or yellow highlighted.
- E. Copies must be legible.

PART 3 EXECUTION

3.01 PRODUCTION

- A. During construction, Project Record information will be reviewed not less than monthly concurrent with the monthly review of the draft Application for Payment.

END OF SECTION 01 78 39

PART 1 GENERAL

1.01 DESCRIPTION

- A. Owner has set the following indoor air quality requirements for site operations on the Project, within the limits of the Progress Schedule, Contract Sum, and available materials, equipment, products, and services. These include:
 - 1. Protect workers on the site from air quality problems during construction.
 - 2. Prevent indoor air quality problems in the completed facility.
 - 3. Prevent indoor air quality problems in adjacent facilities.
- B. To achieve these requirements, Contractor shall develop an "Indoor Air Quality (IAQ) Management Plan" for this Project.
- C. Comply with current LEED Reference Guide.

1.02 IAQ MANAGEMENT PLAN MANAGER

- A. Contractor shall identify an IAQ Management Plan Manager who will be responsible to monitor construction activities to ensure that the requirements of the IAQ Management Plan are met. The IAQ Manager may also be the Contractor's Quality Control Manager. The IAQ Manager will be responsible for the following:
 - 1. Draft and submit the IAQ Management Plan to Owner for acceptance.
 - 2. Document IAQ Management Plan progress on a weekly basis.
 - 3. Conduct meetings as required with all participants in the construction process to communicate the IAQ procedures and understand the importance of the requirements of the IAQ Management Plan. If necessary, post signs to ensure workers' safety.
 - 4. Identify IAQ problems and institute remedial action as necessary.
 - 5. Be present at regular Progress Meetings, as appropriate, and be responsible for providing a monthly written status report as it relates to IAQ for the Project and be prepared to discuss construction related IAQ procedures currently in effect.
 - 6. At time of building flush-out, IAQ Manager shall be the contact person and shall be responsible for overseeing the entire flush-out process.

1.03 IAQ MANAGEMENT PLAN

- A. Draft IAQ Management Plan: Submit a Draft IAQ Management Plan within 14 Days after Notice to Proceed, which contains preliminary descriptions of the following procedures for which Contractor is responsible (initial installation, verification that element(s) are in place, daily inspection and upkeep, and

removal):

1. List of indoor air quality protective measures to be instituted at Project site, including HVAC system protection during construction and any other control measure applicable to the Project;
 2. A plan and schedule for inspection and maintenance of indoor air quality measures;
 3. Installation sequencing for porous materials, including paint;
 4. Measures to be employed to protect ducts and stored on-site or installed absorptive materials from moisture damage;
 5. Type of filtration media used during construction and at time of building flush-out; and
 6. Cleanup of contaminated components after construction, but before scheduled flush-out of building ventilation system.
- B. Include with the "Draft IAQ Management Plan" written procedures that describe building flush-out process that will be followed upon completion of construction.
- C. The Draft IAQ Management Plan shall meet or exceed the minimum requirements of the current Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines.
- D. Final IAQ Management Plan: After review and comment on the "Draft IAQ Management Plan," Contractor shall submit a "Final IAQ Management Plan" that includes the finalized written procedures for above noted elements as well as building flush-out. This final plan and written flush-out procedures shall address all review comments noted on the draft submittal and be submitted prior to the commencement of construction.

1.04 BUILDING FLUSH-OUT SCHEDULE

- A. Contractor shall include a separate activity on the Progress Schedule, which indicates the targeted start date and duration of the building flush-out process.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 IAQ MANAGEMENT PLAN IMPLEMENTATION

- A. Contractor shall implement and maintain the approved IAQ Management Plan for the duration of the Project and update procedures at any time due to unanticipated building conditions. Contractor shall:
1. Use temporary filtration media during construction to protect HVAC at each return air grille; filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 8 as determined by ASHRAE 52.2 - 1999.

- Isolate the return side of the HVAC system from the surrounding environment as much as possible. Return side shall have the heaviest Work areas dampered off and all return system openings sealed with plastic. Return side shall be shut down and sealed whenever possible.
2. Avoid the use of products, materials and operations that would cause IAQ problems or concerns.
 3. Protect the ventilation system components (equipment and ductwork) from contamination, and provide cleaning of the ventilation components, including ductwork exposed to contamination during construction. Protect during transit and installation.
 4. Provide ventilation as may be necessary to protect workers' health and avoid the accumulation of volatile compounds, dust and other harmful airborne contamination.
 5. Provide weekly reports and photographs of construction IAQ management measures such as protection of ducts and stored or installed absorptive materials. In each report, describe and illustrate IAQ measures (installation, effectiveness, upkeep, etc.) during construction along with a description of the SMACNA approach employed.
 6. Provide data sheets of filtration media used during construction and installed immediately prior to building flush-out and prior to building occupancy.
 7. During installation of carpet, resilient flooring, paints, furnishings, and other VOC emitting products, provide supplemental (spot) ventilation for at least 72 hours after Work is completed and describe these activities in the weekly reports.
- B. Contractor shall conduct regular inspection and maintenance of indoor air quality measures, including ventilation system protection and ventilation rate.
- C. Contractor shall use low-toxic cleaning supplies for surfaces and equipment.
- D. When dry sanding for gypsum board assemblies, Contractor shall provide the following protection:
1. Isolate the space;
 2. Provide plastic sheet separation during sanding;
 3. Close and seal all air system devices and ductwork; and
 4. Sequence the Work to avoid contamination of other spaces with gypsum dust.

3.02 VENTILATION OF CONSTRUCTION FUMES

- A. When hazardous chemicals, mineral-spirit based paints, adhesives, or other similar materials are used, the Contractor shall exhaust toxic, noxious, or odor producing fumes from the building in a manner approved by Owner. Contractor's

method of exhaust shall ensure the safety of building occupants and pedestrians in and around the Project site. All supply and return air ductwork within the construction area shall be capped air-tight to prevent distribution of fumes.

3.03 BUILDING FLUSH-OUT

- A. Contractor shall coordinate with the Owner on scheduling the building flush-out. For the air handling units and ductwork that are impacted by the project scope, the Contractor will confirm that new filtration media has been installed and then accomplish the flush-out at 100% outside air after construction ends and prior to testing, adjusting and balancing of systems. Filtration media shall have a MERV of 13 as determined by current ASHRAE 52.2. This flush-out is different from and additional to the 72-hour flush-outs described in 3.01.A above.
- B. Relocate information signs as required by Work progress.

3.04 COMPLETION PROCEDURES

- A. Remove all IAQ measures as well as signs, framing, and supports at completion of Project.
- B. All testing, adjusting and balancing of systems, including training of Owner personnel, shall be completed after flush-out. All flush-out filtration media must be replaced with required filtration media prior to testing and adjusting of systems.
- C. Actual procedures employed during building flush-out must receive prior approval from Owner.
- D. Punch list items that do not affect the mechanical systems may be conducted during flush-out upon approval of the Owner.
- E. Upon completion of building flush-out, replace all filtration media. Filtration media shall be the same as used for occupancy.
- F. Submit a report upon completion of building flush-out stating that all procedures stated in the approved IAQ Management Plan have been complied with. This report shall contain all weekly reports and photographs, as well as any IAQ management plan activities that occurred during the Project.

END OF SECTION 01 81 19

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and Owner's operational needs. This begins in the design phase and continues through construction. The commissioning process incorporates the traditionally separate functions of system documentation, equipment startup, control system calibrations, testing and balancing, performance testing, and training. Commissioning during the construction phase is intended to achieve the following specific objectives:
 - 1. Verify that applicable equipment and systems are installed according to the Contract, manufacturer's recommendations, and industry accepted standards and that they receive adequate operational checkout by installing contractors.
 - 2. Verify and document proper functional performance of equipment and systems.
 - 3. Document all non-performing equipment and systems and track corrective actions through to final resolution.
 - 4. Ensure compliance with State Energy Code Requirements (WA NREC Latest Revision).
- B. Work includes the completion of formal commissioning procedures on selected equipment and systems. Commissioning procedures will be designed and coordinated under the direction of a Commissioning Agent (CA). Contractor is not responsible for hiring the CA. The CA will work directly for Owner. Contractor is responsible for coordinating and cooperating with the CA as necessary to complete the training and commissioning processes.

1.02 DEFINITION OF TERMS

- A. Commissioning Agent (CA): Is an independent third-party consultant under contract with Owner. CA responsibilities are listed in Subsection 1.03 for information, reference, and clarification.
- B. Installation Verification Audit: Includes the on-site inspection and review of related system components for conformance to the Contract. The CA will check for proper systems installation and verify systems readiness for function testing. Noted deficiencies will be documented and must be satisfactorily resolved prior to continuing with commissioning on the affected component or system.
- C. Commissioning Plan: Outlines the commissioning process. Provides a brief overview of each start-up and functional test to be performed and identifies the responsible Contractor and/or supplier. It also outlines the responsibilities of all personnel to the commissioning process, estimates the commissioning schedule and provides sample Installation Verification, Start-Up, and Functional Performance Test Procedures and related documentation for information.

- D. Start-Up Testing: Initial test checkout of component or systems completed prior to functional performance testing. The start-up tests verify that the equipment is installed and operating properly per the Contract.
- E. Testing, Adjusting and Balancing (TAB): Testing, adjusting and balancing is a process where heating and air conditioning systems are tested against design standards, adjusted for maximum efficiency, and balanced to provide optimum performance. The Work typically covers balancing and adjusting air and water distribution in areas of the building served by an HVAC system, and verification and adjustment of heating and cooling loads to insure proper indoor environmental conditions. Areas that do not meet the design standards are referred to the appropriate party for correction. Reports are prepared documenting performance and compliance with design standards.
- F. Function Performance Testing: Includes the documented testing of individual components and equipment under actual operating conditions. Final performance commissioning of systems will begin only after Contractor certifies that system components are 100% complete, start-up test results have been accepted, and the CA agrees that systems are ready for functional testing.
- G. Commissioning Issues Log: Generated by the CA, includes deficiencies discovered during the commissioning process. The log identifies the responsible contractor, current disposition of issues, and the date of final resolution as confirmed by the CA. Deficiencies are defined as those issues where products, execution or performance do not satisfy the Contract, the design intent or Owner's need.
- H. Final Commissioning Report: Includes the overall final commissioning document, prepared by the CA, which details the actual commissioning procedures performed, inspection and testing results, and the final version of the Commissioning Issues Log indicating that all issues discovered through the commissioning process have been verified as resolved.

1.03 COMMISSIONING AGENT'S DUTIES AND RESPONSIBILITIES

- A. Meet and communicate with the Owner's Designated Representative, Contractor, equipment representatives, and others as necessary to facilitate the commissioning process.
- B. Write the commissioning plan.
- C. Review commissioning-related Specifications, submittals, and Contract Documents. Communicate noted deficiencies and concerns to Owner.
- D. Review the Owner Project requirements and Basis of Design documents to insure Owner's intent and design requirements are met.
- E. Chair controls integration meetings to ensure acceptance of control strategies and determine methods to achieve the required sequence of operation.

- F. Develop installation and start-up checklists from:
 - 1. Information in the Contract Documents; and
 - 2. Information from equipment manufacturers as provided by Contractor.
- G. Coordinate functional testing procedures with Contractor and integrate into Progress Schedule.
- H. Develop detailed and specific inspection and functional testing procedures for equipment and systems to be commissioned.
- I. Confirm completion of all static piping and duct tests and flushing and cleaning as performed by Contractor.
- J. Complete a detailed physical inspection and visual checkout of commissioning related equipment and components. Document specific deficiencies for resolution.
- K. Confirm completion of equipment and systems start-up procedures as performed by Contractor and equipment representatives. Verify appropriate documentation is completed and provided for inclusion in the final commissioning report. Record noted deficiencies.
- L. Schedule and coordinate the final on-site functional testing process. Complete a documented checkout of every specified operating parameter and mode. Document deficiencies and resolutions.
- M. Review Contractor-provided O&Ms. Ensure the manuals provide in-depth, Project-specific information. Provide formal comment.
- N. Work with Owner, Architect/Engineer, if any, and Contractor to satisfactorily resolve outstanding issues.
- O. Provide Owner with final, complete, and documented verification to ensure commissioned systems are 100% operational per Contract, prior to Owner's acceptance. Exceptions may be made for seasonal commissioning.
- P. Perform seasonal commissioning as required to verify proper system operation during peak heating and cooling seasons.
- Q. Complete all other items noted in Contract as Commissioning Agent responsibilities.
- R. Provide a final Commissioning Report to Owner.

1.04 DUTIES AND RESPONSIBILITIES FOR COMMISSIONING

- A. The commissioning process will require the active participation of persons qualified to represent the following interests:

1. Owner,
 2. Contractor,
 3. Equipment manufacturer's representatives,
 4. Mechanical Subcontractor,
 5. HVAC Subcontractor,
 6. Controls Subcontractor,
 7. TAB Subcontractor,
 8. Electrical Subcontractor, and
 9. Others as appropriate.
- B. The CA will coordinate, schedule, and oversee the final functional performance commissioning process. Participants shall include in their contracts all costs necessary to participate in and complete the commissioning process.
- C. Contractor will assure the participation and cooperation of Subcontractors and coordinate with Owner and Architect/Engineer, as required for the commissioning process.

Owner will assure the participation of its chosen representatives.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES FOR COMMISSIONING

- A. Contractor shall provide material, equipment, and tools to facilitate completing the functional performance testing process. The CA will provide specialized and calibrated test equipment to perform the calibration and functional performance testing.
- B. Contractor shall budget and provide sufficient time and qualified personnel to participate on-site in this process until the process is successfully completed and all deficiencies have been corrected or otherwise resolved.
- C. Contractor shall provide training to Owner. Specified training on related systems and equipment operation and maintenance shall only commence after final performance commissioning is successfully completed, and systems are verified by the CA to be 100% complete and functional.
- D. Contractor shall reimburse the CA for repeated test failures. After a second failed start-up or functional performance test, the CA and Owner shall be entitled to additional compensation for time and expenses involved with re-testing. The compensation shall be at published company billing rates.
- E. Owner will not accept equipment and systems, and Owner will generally not make final payment, until all equipment and systems have been successfully

commissioned and all specified requirements have been satisfied.

- F. Include a line item for commissioning in the Schedule of Values. Ensure sufficient costs are included for Contractor's expenses related to all commissioning tasks.

END OF SECTION 01 91 00

SECTION 05 40 00

COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes interior wall, and framing; and formed steel joist, framing and bridging.
- B. Related Sections:
 - 1. Section 06 40 20 – Interior Finish Woodwork
 - 2. Section 07 21 00 - Building Insulation
 - 3. Section 09 26 00 - Gypsum Board Assemblies.

1.2 REFERENCES

- A. American Iron and Steel Institute:
 - 1. AISI General - Standard for Cold-Formed Steel Framing - General Provisions.
 - 2. AISI Header - Standard for Cold-Formed Steel Framing - Header Design.
- B. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - 3. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - 4. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - 5. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
 - 6. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.
- C. American Welding Society:
 - 1. AWS D1.1 - Structural Welding Code - Steel.
 - 2. AWS D1.3 - Structural Welding Code - Sheet Steel.
- D. Green Seal:
 - 1. GC-03 - Anti-Corrosive Paints.
- E. National Association of Architectural Metal Manufacturers:
 - 1. NAAMM ML/SFA 540 - Lightweight Steel Framing Systems Manual.
- F. SSPC: The Society for Protective Coatings:
 - 1. SSPC Paint 15 - Steel Joist Shop Paint.
 - 2. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).
- G. Steel Stud Manufacturers Association:
 - 1. SSMA - Product Technical Information.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Submit data on standard framing members; describe materials and finish, product criteria, limitations and.
- C. Manufacturer's Installation Instructions: Submit special procedures, perimeter conditions requiring special attention.
- D. Mill Certifications: Submit mill certifications for steel delivered to site. Certify steel bare metal thickness in 0.001 inch (0.025 mm), yield strength, tensile strength, total elongation in 2 inch (50 mm) or 8 inch (200 mm) gauge length, chemical analysis, and galvanized coating thickness.

1.4 QUALITY ASSURANCE

- A. Furnish framing materials in accordance with SSMA - Product Technical Information.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
 - 1. Current member of Steel Stud Manufacturers Association.
- B. Installer: Company specializing in performing Work of this section with minimum three (3) years documented experience approved by manufacturer.
- C. Form, fabricate, provide, and connect components in accordance with NAAMM ML/SFA 540 - Lightweight Steel Framing Systems Manual.

1.6 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate placement of components within stud framing system specified in Section.

PART 2 PRODUCTS

2.1 COLD-FORMED METAL FRAMING

- A. Manufacturers:
 - 1. Scafco.
 - 2. Substitutions: Section 01 60 00 - Product Requirements, Not permitted.
- B. Cold-Formed Metal Framing: ASTM C955.

2.2 FRAMING COMPONENTS

- A. Studs: Steel sheet, formed to channel shape, solid punched web, knurled faces. * See Structural Drawings for sizes and spacing.
- B. Track: Steel sheet, formed to channel shape; same width as studs, tight fit; solid web.

2.3 ACCESSORIES

- A. Bracing, Furring, Bridging: Formed sheet steel, 20 ga thick.
- B. Plates, Gussets, Clips: Formed sheet steel, 20 ga thick.
- C. Shop Primer: SSPC Paint 15, Type 1, red oxide.
- D. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20 Type I Inorganic Type II Organic.
 - 1. Interior Anti-Corrosive Paints: Maximum volatile organic compound content in accordance with GC-03.

2.4 FASTENERS

- A. Self-drilling, Self-tapping Screws, Bolts, Nuts, and Washers: Steel, hot dip galvanized.
- B. Anchorage Devices: Power actuated, drilled expansion bolts, screws with sleeves, and.
- C. Welding: In conformance with AWS D1.1 and AWS D1.3.

2.5 FABRICATION

- A. Fabricate assemblies of formed sections of sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.
- C. Fit and assemble in largest practical sections for delivery to site, ready for installation.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify substrate surfaces building framing components are ready to receive Work.
- C. Verify rough-in utilities are in proper location.

3.2 ERECTION OF STUDS

- A. Align floor and ceiling tracks; locate to wall partition layout. Secure in place with fasteners by welding at maximum 24 inches (600 mm) oc. Coordinate installation of acoustic sealant with floor and ceiling tracks.

END OF SECTION 05 40 00

SECTION 06 40 20

INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Plastic-laminate cabinets.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated, including cabinet hardware and accessories and finishing materials and processes.
- B. Samples for Initial Selection:
 - 1. Plastic laminates.
 - 2. PVC edge material.
- C. Woodwork Quality Standard: AWI Custom Quality, certificate not required.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.6 PROJECT CONDITIONS

- A. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
 - 2. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
 - a. Formica Corporation.
 - b. Wilsonart International; Div. of Premark International, Inc.
 - c. Or, approved equal..

2.2 MISCELLANEOUS MATERIALS

- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
 - a. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
 - b. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - c. Interior Woodwork Grade: AWI Custom-grade interior woodwork.
 - d. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
 - e. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - f. Grade: Custom.
 - g. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
 - i. Retain grade designations from options in subparagraphs below. Grade HGS is 1.2 mm thick, Grades HGL and HGP are 1.0 mm thick, and Grade VGS is 0.7 mm thick. AWI and WI standards require minimum thickness of 0.028 inch (0.7 mm) regardless of surface type.
 - ii. Horizontal Surfaces Other Than Tops: Grade HGS.
 - iii. Post-formed Surfaces: Grade HGP.
 - iv. Vertical Surfaces: Grade HGS, VGS.
 - v. Retain one edge construction from subparagraph below. Coordinate with standards and grade selection.
 - vi. Edges: Grade HGS, Grade VGS.

- h. Materials for Semi-exposed Surfaces:
 - i. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
 - ii. Retain one edge construction from subparagraph below if retaining high-pressure decorative laminate in subparagraph above.
 - iii. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
 - iv. Retain first subparagraph below if required to provide balanced construction.
 - v. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS, CLS.
- i. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - i. Retain one of three subparagraphs and associated subparagraphs below. If retaining first, indicate colors, patterns, and finishes in a separate schedule.
 - ii. Match existing backpack shelf surfaces standard in adjacent restrooms.

END OF SECTION 06 40 20

SECTION 07 21 00

BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Sound attenuation insulation.
- B. Related Sections include the following:
 - 1. Division 9 Section Gypsum wallboard assemblies

1.3 DEFINITIONS

- A. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers; produced in boards and blanket with latter formed into batts (flat-cut lengths) or rolls.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: Full-size units for each type of exposed insulation indicated.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.
- D. Research/Evaluation Reports: For foam-plastic insulation.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated.
 - 1. Surface-Burning Characteristics: ASTM E 84.
 - 2. Fire-Resistance Ratings: ASTM E 119.
 - 3. Combustion Characteristics: ASTM E 136.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect plastic insulation as follows:
 - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
 - 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - 2. Products: Subject to compliance, provide one of the products specified.
 - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers:
 - 1. CertainTeed Corporation.
 - 2. Guardian Fiberglass, Inc.
 - 3. Johns Manville.
 - 4. Owens Corning.
- B. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
 - 1. 3-5/8 inches (92 mm) thick with a thermal resistance of 11 deg F x h x sq. ft./Btu at 75 deg F (1.9 K x sq. m/W at 24 deg C).
 - 2. 5-1/2 inches (140 mm) thick with a thermal resistance of 19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C).

2.3 INSULATION FASTENERS

- A. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.
 - 1. Products:

- a. AGM Industries, Inc.; TACTOO Adhesive.
- b. Eckel Industries of Canada; Stic-Klip Type S Adhesive.
- c. Gemco; Tuff Bond Hanger Adhesive.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions for application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation.
- D. Water-Piping Coordination: If water piping is located within the walls, coordinate location of insulation that encapsulates piping.

3.4 INSTALLATION OF INSULATION IN CEILINGS FOR SOUND ATTENUATION

- A. Install ~~3-inch-~~ (76-mm-) thick, unfaced glass-fiber blanket insulation over suspended ceilings at partitions in a width that extends insulation ~~48 inches~~ (1219 mm) on either side of partition.

END OF SECTION 07 21 00

SECTION 07 72 00

ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preformed boot/ flashing.

1.3 SUBMITTALS

- A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations.
 - 1. Other roof-mounted items including mechanical piping and conduit.
- C. Warranty: Special warranty specified in this Section.

1.4 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
 - 1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers listed in other Part 2 articles. MISCELLANEOUS MATERIALS
- C. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

- D. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.
- E. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.
- F. Elastomeric Sealant: ASTM C 920, polyurethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

2.2 PREFORMED FLASHINGS

- A. Vent Stack Flashing: Metal flashing sleeve, with integral deck flange, uninsulated, and as follows:
 - 1. Manufacturers:
 - a. Thaler Metal Industries Ltd.
 - 2. Metal: Aluminum sheet, 0.064 inch (1.6 mm) thick, mill finished.
 - 3. Height: 13 inches (330 mm).
 - 4. Diameter: As indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
 - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
 - 2. Verify dimensions of roof openings for roof accessories.

3.2 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Install roof accessories to fit substrates and to result in watertight performance.
- C. Preformed Flashing Installation:
 - 1. Secure to roof membrane according to vent and stack flashing manufacturer's written instructions.

END OF SECTION 07720

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:
 - 1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Tile control and expansion joints.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - c. Joints between plumbing fixtures and adjoining walls, floors, and counters.
- B. Related Sections include the following:
 - 1. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
 - 2. Division 9 Section "Ceramic Tile" for sealing tile joints.

1.3 PERFORMANCE REQUIREMENTS

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

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in **1/2-inch- (13-mm-)** wide joints formed between two **6-inch- (150-mm-)** long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Qualification Data: For Installer.
- E. Warranties: Special warranties specified in this Section.

1.5 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.
- B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:

1. Products:
 - a. Pecora Corporation; 898.
 - b. Tremco; Tremsil 600 White.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
 - a. Use O Joint Substrates: ceramic tile.

E. Single-Component Nonsag Urethane Sealant:

1. Products:
 - a. Sika Corporation, Inc.; Sikaflex - 1a.
 - b. Sonneborn, Division of ChemRex Inc.; Ultra.
 - c. Sonneborn, Division of ChemRex Inc.; NP 1.
 - d. Tremco; Vulkem 116.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
 - a. Use O Joint Substrates: , ceramic tile, and wood.

2.4 PREFORMED TAPE SEALANTS

- A. Back-Bedding Mastic Tape Sealant:** Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 804.3 tape, where indicated.
 2. AAMA 806.3 tape, for applications in which tape is subject to continuous pressure.
 3. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Tape Sealant:** Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
1. Type 1, for applications in which tape acts as the primary sealant.
 2. Type 2, for applications in which tape is used in combination with a full bead of liquid sealant.

2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), O (open-cell material) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to **minus 26 deg F (minus 32 deg C)**. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

- a. Metal.
- b. Glazed surfaces of ceramic tile.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Interior joints between plumbing fixtures adjoining walls and floors.
 1. Joint Sealant: Single-component mildew-resistant neutral -curing silicone sealant.
 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- B. Joint-Sealant Application: Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 1. Joint Sealant: Latex sealant.
 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 07 92 00

SECTION 08 11 00

STEEL DOOR FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Standard hollow metal doors and frames.
- B. Related Sections
 - 1. Division 8 Section "Door Hardware" for door hardware for hollow metal doors.
 - 2. Division 9 Section "Interior Painting" for field painting hollow metal doors and frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door design.
 - 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition, anchorages, joints, field splices, connections, moldings, removable stops, and glazing.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Other Action Submittals:
 - 1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
 - 1. Provide additional protection to prevent damage to finish of factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum **4-inch- (102-mm-)** high wood blocking. Do not store in a manner that traps excess humidity.
 - 1. Provide minimum **1/4-inch (6-mm)** space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.8 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Amweld Building Products, LLC.
 - 2. Ceco Door Products; an Assa Abloy Group company.
 - 3. Curries Company; an Assa Abloy Group company.
 - 4. Deansteel Manufacturing Company, Inc.
 - 5. Fleming Door Products Ltd.; an Assa Abloy Group company.
 - 6. Habersham Metal Products Company.
 - 7. Kewanee Corporation (The).
 - 8. Pioneer Industries, Inc.
 - 9. Security Metal Products Corp.
 - 10. Steelcraft; an Ingersoll-Rand company.
 - 11. Windsor Republic Doors.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A 153M.
- E. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.
- F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to 192-kg/cu. m) density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
 - 1. Fabricate frames with mitered or coped corners.
 - 2. Fabricate frames as full profile welded unless otherwise indicated.
 - 3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
- B. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

2.4 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.
- B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.5 STOPS AND MOLDINGS

- A. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of **5/8 inch (16 mm)** high unless otherwise indicated.

2.6 ACCESSORIES

- A. Grout Guards: Formed from same material as frames, not less than **0.016 inch (0.4 mm)** thick.

2.7 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/NAAMM-HMMA 861.
- C. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
 - 2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 - 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Stud-Wall Type: Locate anchors not more than **18 inches (457 mm)** from top and bottom of frame. Space anchors not more than **32 inches (813 mm)** o.c. and as follows:
 - 1) Three anchors per jamb up to **60 inches (1524 mm)** high.
 - 2) Four anchors per jamb from **60 to 90 inches (1524 to 2286 mm)** high.
 - 3) Five anchors per jamb from **90 to 96 inches (2286 to 2438 mm)** high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each **24 inches (610 mm)** or fraction thereof above **96 inches (2438 mm)** high.
 - 5) Two anchors per head for frames above **42 inches (1066 mm)** wide and mounted in metal-stud partitions.
 - 5. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
- D. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
- E. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/NAAMM-HMMA 861.
2. Reinforce doors and frames to receive non-templated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 16 Sections.

2.8 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
- B. Factory-Applied Paint Finish: Manufacturer's standard, complying with ANSI/SDI A250.3 for performance and acceptance criteria.
 1. Color and Gloss: Match adjacent existing door frames.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 1. Squareness: Plus or minus **1/16 inch (1.6 mm)**, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 2. Alignment: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs on a horizontal line parallel to plane of wall.
 3. Twist: Plus or minus **1/16 inch (1.6 mm)**, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 4. Plumbness: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs on a perpendicular line from head to floor.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with HMMA 840.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - b. Install frames with removable glazing stops located on secure side of opening.
 - c. Install door silencers in frames before grouting.
 - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - e. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - f. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 4. Retain one or both of first two subparagraphs below if grouted frames are required. See Evaluations for discussion.
 5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus **1/16 inch (1.6 mm)**, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus **1/16 inch (1.6 mm)**, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: **1/8 inch (3 mm)** plus or minus **1/16 inch (1.6 mm)**.
 - b. Between Edges of Pairs of Doors: **1/8 inch (3 mm)** plus or minus **1/16 inch (1.6 mm)**.
 - c. Between Bottom of Door and Top of Threshold: Maximum **3/8 inch (9.5 mm)**.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum **3/4 inch (19 mm)**.
- 3.4 ADJUSTING AND CLEANING
- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 08 11 00

SECTION 08 21 10

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors with wood-veneer faces.
 - 2. Factory finishing flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Sections:
 - 1. Section 08 11 00 metal Door Frames
 - 2. Division 9 Sections "Interior Painting".

1.3 SUBMITTALS

- A. Product Data: For each type of door indicated. Include details of core and edge construction, louvers, and trim for openings.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate requirements for veneer matching.
 - 4. Indicate doors to be factory finished and finish requirements.
- C. Samples for Initial Selection: For factory-finished doors.
- D. Samples for Verification:
 - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
- E. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.
- C. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
 - 1. Provide AWI Quality Certification Labels indicating that doors comply with requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than **1/4 inch (6.4 mm)** in a **42-by-84-inch (1067-by-2134-mm)** section.
 - b. Telegraphing of core construction in face veneers exceeding **0.01 inch in a 3-inch (0.25 mm in a 76.2-mm)** span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Algoma Hardwoods, Inc.
 - 2. Ampco, Inc.
 - 3. Buell Door Company Inc.
 - 4. Poncraft Door Company.
 - 5. Vancouver Door Company.
 - 6. VT Industries Inc.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- B. WDMA I.S.1-A Performance Grade: Heavy Duty.

2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
 - 1. Grade: Premium, with Grade AA faces.
 - 2. Species: Select white birch.
 - 3. Cut: Plain sliced (flat sliced).
 - 4. Match between Veneer Leaves: Book match.
 - 5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
 - 6. Core: Particleboard or Structural composite lumber.
 - 7. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.
 - 8. Construction: Seven plies, either bonded or nonbonded construction.
 - 9. WDMA I.S.1-A Performance Grade: Heavy Duty.

2.4 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 - 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.5 SHOP PRIMING

- A. Doors for Transparent Finish: Shop prime doors with stain (if required), other required pretreatments, and first coat of finish as specified in Division 9 Section." Seal all four edges, edges of cutouts, and mortises with first coat of finish.

2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Finish doors at factory.

- C. Finish doors at factory that are indicated to receive transparent finish.
- D. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: AWI catalyzed polyurethane system.
 - 3. Staining: Match Architect's sample.
 - 4. Effect: Filled finish.
 - 5. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 8 Section "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide **1/8 inch (3.2 mm)** at heads, jambs, and between pairs of doors. Provide **1/8 inch (3.2 mm)** from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide **1/4 inch (6.4 mm)** from bottom of door to top of threshold unless otherwise indicated.
- D. Factory-Finished Doors: Restore finish before installation if fitting.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 21 10

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 8 Section "Standard Steel Frames" for hardware used with hollow metal frames.
 - 2. Division 8 Section "Flush Wood Doors" for factory prefitting and factory premachining of doors for door hardware.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
 - 1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.

- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
 - C. Submit fire test data showing compliance with UBC Std. 7-2 and supplemental "S" label requirements.
- 1.5 PRODUCT HANDLING
- A. Tag each item, or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following. Submittals for approved substitutions must be received no later than 10 days before bid date. Only requests for substitutions submitted by a distributor firm will be considered. No substitutions will be allowed after bid opening.
 - 1. Butts and Hinges:
 - a. Bommer Industries, Inc.
 - b. Hager Hinge Co.
 - c. Ives, Div. Ingersoll-Rand Door Hardware Group
 - d. McKinney Products Co.
 - e. Stanley Hardware, Div. Stanley Works.
 - 2. Locks:
 - a. Corbin Emhart
 - 3. Cylinders:
 - a. Schlage Everest
 - 4. 5.Overhead Closers:
 - a. LCN Closers, Div. Ingersoll-Rand Door Hardware Group
 - 6. Door Control Devices:
 - a. Rockwood Mfg. Co.
 - b. Triangle Brass Manufacturing Company (Trimco).
 - c. Ives, Div. Ingersoll-Rand Hardware Group.
 - d. Glynn-Johnson, Div. Ingersoll-Rand Hardware Group.
 - 7. Door Trim Units:
 - a. Rockwood Mfg. Co.
 - b. Triangle Brass Manufacturing Company (Trimco).

- c. Ives, Div. Ingersoll-Rand Hardware Group.
- 8. Kick Plates:
 - a. Rockwood Mfg. Co.
 - b. Triangle Brass Manufacturing Company (Trimco).
 - c. Ives, Div. Ingersoll-Rand Hardware Group.
- 9. Door Stripping and Seals:
 - a. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.
 - c. Reese Enterprises, Inc.

2.2 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in the "Hardware Schedule" at the end of this Section. Products are identified by using hardware designation numbers of the following:

- | | |
|------------------------------|--|
| 1. Butts and Hinges: | Bommer Industries, Inc. |
| 2. Mortise Locks: | Corbin Emhart |
| 3. Cylinder: | Schlage Everest |
| 3. Overhead Closers: | LCN Closers, Div Ingersoll-Rand Hardware Group |
| 4. Door Controls: | Glynn-Johnson, Ingersoll-Rand Hardware Group, Ives |
| 5. Door Stripping and Seals: | Pemko Manufacturing Co., Inc. |

2.3 LOCK CYLINDERS AND KEYING

- A. All cylinders shall be integrated into existing Schlage master key system.
- B. All cylinders shall be keyed as directed by owner,
- C. Supplier shall meet with Owner's representative to obtain keying information.

2.4 Door Silencers

- A. Furnish silencers at all doors, suitable for frame type listed, wood or metal. All cylinders shall be furnished by Owner, integrated into existing master key system.

2.5 HARDWARE SETS

- A. Hardware sets indicate quantity, item, manufacturer and product designation, size, and finish or color, as applicable. Hw 01:

3	EA	HINGE	BB5000-450	652	BOM
1	EA	PUSH PLATE	70F 8 X 16	630	ROC
1	EA	SURFACE CLOSER	4011	689	LCN
2	EA	KICK PLATE	K1050 10 X 34	630	ROC
3	EA	SILENCER	SR64	GRY	IVE
1	EA	LOCKSET	L9040 06A TUB	626	SCH
1	EA	WALL BUMPER	WS402CCV	626	IVE
2	EA	GASKET	S88D 20'	BRZ	PEM

1	EA	INDICATOR	L283426	626	SCH
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PART 3 - EXECUTION

INSTALLATION:

- 1) Mount hardware units at heights indicated in Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as otherwise directed.
- 2) Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- 3) Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- 4) Drill and counter sink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

ADJUST AND CLEAN:

- 5) Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustments of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors.
- 6) Continued Maintenance Service: Approximately six months after the acceptance of hardware the installer shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware. Consult with and instruct Owner's personnel.

END SECTION 08 71 00

SECTION 08 83 00

MIRRORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following types of silvered flat glass mirrors.
 - 1. Tempered glass mirrors qualifying as safety glazing.

1.3 DEFINITIONS

- A. Deterioration of Mirrors: Defects developed from normal use that attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning mirrors contrary to mirror manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide mirrors that will not fail under normal usage. Failure includes glass breakage and deterioration attributable to defective manufacture, fabrication, and installation.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Mirrors. Include description of materials and process used to produce silvered flat glass mirror specified indicating source of glass, glass coating components, and edge sealer.
 - 2. Mirror mastic.
 - 3. Mirror hardware.
- B. Product Certificates: For each type of mirror and mirror mastic.
- C. Glazing Publications: Comply with the following published recommendations:
 - 1. GANA's "Glazing Manual" unless more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined in this Section or in referenced standards.
 - 2. GANA Mirror Division's "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors, protected from moisture including condensation.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, made out to Owner and signed by mirror manufacturer agreeing to replace mirrors that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below:
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering mirrors that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to required compliance, provide mirrors by one of the following:
 - 1. Arch Aluminum & Glass Co., Inc.
 - 2. Gardner Glass Products.
 - 3. Gilded Mirrors, Inc.
 - 4. Guardian Industries Corp.
 - 5. Independent Mirror Industries, Inc.
 - 6. Sunshine Mirror.
 - 7. Virginia Mirror Company, Inc.
 - 8. VVP America, Inc.; Binswanger Mirror Products.
 - 9. Walker Glass Co., Ltd.

2.2 SILVERED FLAT GLASS MIRROR MATERIALS

- A. Clear Glass Mirrors: ASTM C 1503, Mirror Select Quality.
 - 1. Nominal Thickness: 5.0 mm.

2.3 MISCELLANEOUS MATERIALS

- A. Setting Blocks: Elastomeric material with a Type A Shore durometer hardness of 85 +/- 5.
- B. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.

- C. Mirror Mastic: An adhesive setting compound, produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

2.4 FABRICATION

- A. Mirror Sizes: To suit Project conditions, cut mirrors to final ADA required size.
- B. Mirror Edge Treatment: Flat polished edge.
 - 1. Seal edges of mirrors after edge treatment to prevent chemical or atmospheric penetration of glass coating.
 - 2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating surfaces with mastic manufacturer's special bond coating where applicable.

3.2 INSTALLATION

- A. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.

3.3 CLEANING AND PROTECTION

- A. Protect mirrors from breakage and contaminating substances resulting from construction.
- B. Do not permit edges of mirrors to be exposed to standing water.
- C. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

END OF SECTION 08 83 00

SECTION 09 00 01**FINISH Schedule**

Product	Manufacturer	Symbol	Color/Finish	Remarks
Duration Paint	Sherwin Williams	P-1	To be selected from manufacture's standard	Wall field paint
		P-2	To be selected from manufacture's standard palette	Ceiling -Next shade lighter
		P-3	Match existing	Library walls
VCT	Armstrong	VCT-1	56790 Black	entry threshold
Tile - Wall tile	Daltile	T-1	Field wall tile	Match existing tile color.
Tile - Wall Tile	Daltile	T-2	Highlite wall tile	Match existing tile color.
Rubber Base	Johnsonite	RB-1	To be selected from manufacture's standard	
Plastic Laminate	Wilsonart	P.LAM-1	To be selected from manufacture's standard palette	
Acoustical Panel Ceiling	Armstrong	AC-1	2'x2' Cirrius Tegular - White	

SECTION 09 26 00

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum wallboard.
- B. Related Sections include the following:
 - 1. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in gypsum board assemblies.

1.3 SUBMITTALS

- A. Gypsum wallboard brand and types by location

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Steel Framing and Furring:
 - a. National Gypsum Company.
 - b. Scafco Corporation.

2. Gypsum Board and Related Products:

- a. American Gypsum Co.
- b. G-P Gypsum Corp.
- c. National Gypsum Company.
- d. United States Gypsum Co.

2.2 STEEL SUSPENDED CEILING FRAMING

- A. Components, General: Comply with ASTM C 754 for conditions indicated.
- B. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.
- C. Hangers: As follows:
 - 1. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch (1.37 mm), a minimum 1/2-inch- (12.7-mm-) wide flange, with manufacturer's standard corrosion-resistant zinc coating.
 - 1. Depth: As indicated or required by conditions of installation.
- E. Furring Channels (Furring Members): Commercial-steel sheet with manufacturer's standard corrosion-resistant zinc coating.
 - 1. Cold Rolled Channels: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange, 3/4 inch (19.1 mm) deep.
 - 2. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.
 - a. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).
 - 3. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.
 - a. Configuration: Asymmetrical or hat shaped, with face attached to single flange by a slotted leg (web) or attached to two flanges by slotted or expanded metal legs.
- F. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Armstrong World Industries, Inc.; Furring Systems/Drywall.
 - b. Chicago Metallic Corporation; Drywall Furring 660 System.
 - c. USG Interiors, Inc.; Drywall Suspension System.

2.3 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
 - 1. Type "X" and Regular:
 - a. Thickness: 5/8 inch (15.9 mm).
 - b. Long Edges: Tapered.
 - 2. Type "Water resistant"- Greenboard:
 - a. Thickness: 5/8 inch (15.9 mm).
 - b. Long Edges: Tapered.
 - c. Location: Within 4' of the finished floor and where shown on drawings.

2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc.
 - 2. Shapes:
 - a. Cornerbead: Use at outside corners.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound; use at exposed panel edges.

2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.6 ACOUSTICAL SEALANT

- A. Available Products: See Section 07 92 00.

2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLING STEEL FRAMING, GENERAL

- A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's written recommendations or, if none available, with United States Gypsum's "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
 - 1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.

3.3 INSTALLING STEEL SUSPENDED CEILING

- A. Suspend ceiling hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by standards.
 3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
 4. Secure rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or fail.
 5. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- B. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member and transversely between parallel members.
- C. Sway-brace suspended steel framing with hangers used for support.
- D. Wire-tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.
- E. Install suspended steel framing components in sizes and spacings at not less than that required by the referenced steel framing and installation standards.

3.4 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force.
- E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- F. Attach gypsum panels to framing provided at openings and cutouts.
- G. Form control and expansion joints with space between edges of adjoining gypsum panels.

- H. Cover both faces of partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area. Fit gypsum panels around ducts, pipes, and conduits.
 - 2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- I. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- J. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.

3.5 PANEL APPLICATION METHODS

- A. Single-Layer Application:
 - 1. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
- B. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.6 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

3.7 FINISHING GYPSUM BOARD ASSEMBLIES

- A. Gypsum Board Finish Levels: Finish panels to levels indicated below:
 - 1. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that receive light textured finish, wall coverings and flat paint and will be exposed to view.

END OF SECTION 09 26 00

SECTION 09 31 00

CERAMIC TILE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes ceramic tile products on walls and floors in toilet rooms. Substrates include cementitious backer board at walls. Materials include the following:
 - 1. Ceramic mosaic tile.
 - 2. Porcelain tile.
 - 3. Cementitious Backer board (Optional)
 - 4. Elastomeric Joint Sealant in tile fields
- B. Related Sections include the following:
 - 1. Division 9 Section "Gypsum Board Assemblies" for cementitious backer units installed in gypsum wallboard assemblies.

1.2 SUBMITTALS

- A. Product Data: For each type of tile, mortar, grout, and other products specified.
- B. Grout Samples for Initial Selection: Manufacturer's color charts consisting of actual sections of grout showing the full range of colors available for each type of grout indicated.
- C. Samples for Verification: Of each item listed below, prepared on Samples of size and construction indicated. Where products involve normal color and texture variations, include Sample sets showing the full range of variations expected.
 - 1. Each type and composition of tile and for each color and texture required, at least 12 inches (300 mm) square, mounted on braced cementitious backer units, and with grouted joints using product complying with specified requirements and approved for completed work in color or colors selected by Architect.
 - 2. Full-size units of each type of trim and accessory for each color required.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.
- C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

- D. Source Limitations for Other Products: Obtain each of the following products specified in this Section from one source and by a single manufacturer for each product:
 - 1. Joint sealants.
- E. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects.
 - 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with ANSI A137.1 for labeling sealed tile packages.
- B. Prevent damage or contamination to materials by water, foreign matter, and other causes.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer's written instructions.

1.6 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.
 - 2. Obtain a written receipt from the Owner's Representative, to include in Closeout Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Basis of Specification is Dal-Tile Company products indicated in the ceramic tile installation schedules in the Finish Schedule and interior elevations.
- B. Manufacturers: Subject to compliance with requirements, and properties of the specified products, including color selection, products by the following will be considered if submitted before Bids are received in accordance with the Instructions to Bidders:
 - 1. Tile, tile-Setting and -Grouting Materials:
 - a. Dal-Tile Corporation.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard Grade requirements, unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting Materials" and "Grouting Materials" articles.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
 - 1. Match colors, textures, and patterns indicated by referencing manufacturer's standard designations for these characteristics.
 - 2. Provide tile trim and accessories as indicated in the Schedule.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless another mounting method is indicated.

2.3 TILE PRODUCTS

- A. Glazed Ceramic Wall Tile: Provide the following requirements:
 - 1. Style: Semi-Gloss.
 - 2. Module Size: 4-1/4 inches by 4-1/4 inches.
 - 3. Thickness: 1/4 inch.
 - 4. Colors: Match adjacent restrooms
- B. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:
 - 1. Size: As indicated, coordinated sizes and coursing of adjoining flat tile where applicable.
 - 2. Shapes: As indicated on the Drawings or if not indicated, as follows, selected from manufacturer's standard shapes:
 - a. Provide highlight bands to match existing bands as shown in interior elevations.
 - b. Provide coved base at ceramic mosaic floor tile.
 - c. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose.
 - d. External Corners for Thin-Set Mortar Installations: Surface bullnose.
 - e. Internal Corners: Field-buttet square corners, except with coved base and cap angle pieces designed to member with stretcher shapes.

2.4 SETTING MATERIALS

- A. Portland Cement Mortar Installation Materials: Provide materials complying with ANSI A108.1A and as specified below:

1. Latex additive (water emulsion) described below, serving as replacement for part or all of gaging water, of type specifically recommended by latex additive manufacturer for use with job-mixed portland cement and aggregate mortar bed.

- a. Latex Additive: Manufacturer's standard.

- B. Latex-Portland Cement Mortar: ANSI A118.4, composed as follows:

1. Prepackaged Dry-Mortar Mix: Factory-prepared mixture of portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to which only water needs to be added at Project site.

- a. For wall applications, provide nonsagging, latex-portland cement mortar complying with ANSI A118.4 for mortar of this type defined in Section F-2.1.2.

2.5 GROUTING MATERIALS

- A. Latex-Portland Cement Grout: ANSI A118.6 for materials described in Section H-2.4, composed as follows:

1. Factory-Prepared, Dry-Grout Mixture: Factory-prepared mixture of portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to produce the following:

- a. Unsanded grout mixture for joints 1/8 inch (3.2 mm) and narrower.

2.6 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements of Division 7 Section "Joint Sealants."

- B. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.

1. Provide at joints of ceramic wall tile and ceiling surface, around pipe penetrations, plumbing fixtures and trim.
 2. Provide at perimeter of toilet room accessories such as grab bars, towel bars, paper and soap dispensers provided on or within walls in accordance with UBC, 1997 Edition, Section 807.1.2

- C. Products: Subject to compliance with requirements, provide one of the following:

1. One-Part, Mildew-Resistant Silicone Sealants:
 - a. Dow Corning 786; Dow Corning Corporation.
 - b. Sanitary 1700; GE Silicones.
 - c. Pecora 898 Sanitary Silicone Sealant; Pecora Corp.
 - d. Rhodorsil 6B White; Rhone-Poulenc, Inc.
 - e. Tremsil 600 White; Tremco, Inc.

2. Multipart, Pourable Urethane Sealants:
 - a. Chem-Calk 550; Bostik.
 - b. Vulkem 245; Mameco International, Inc.

2.7 CEMENTITIOUS BACKER UNITS

- A. See Gypsum Board Assemblies for cementitious backer units for wall tile substrate applications
 - a. Durock.
 - b. Hardie Cement Backer board, JamesHardie

2.8 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved by tile and grout manufacturer.

2.9 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 series of tile installation standards for installations indicated.
 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust latter in consultation with Architect.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove coatings, including curing compounds, and other substances that contain soap, wax, oil, or silicone and are incompatible with tile-setting materials by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- B. Provide concrete substrates for tile floors installed with dry-set or latex-portland cement mortars that comply with flatness tolerances specified in referenced ANSI A108 series of tile installation standards for installations indicated.
 - 1. Use trowelable leveling and patching compounds per tile-setting material manufacturer's written instructions to fill cracks, holes, and depressions.
 - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- C. Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, verify that tile has been blended in the factory and packaged so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- F. Lay out tile wainscots (if indicated) to next full tile beyond dimensions indicated.
- G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealants."

- H. Grout tile to comply with the requirements of the following tile installation standards:
 - 1. For ceramic tile grouts (sand-portland cement, dry-set, commercial portland cement, and latex-portland cement grouts), comply with ANSI A108.10.

3.4 FLOOR TILE INSTALLATION (BASE)

- A. General: Install tile to comply with requirements in the Ceramic Tile Floor Installation Schedule, including those referencing TCA installation methods and ANSI A108 series of tile installation standards.
- B. Joint Widths: Install tile on floors with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch (1.6 mm).
- C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

3.5 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Ceramic Tile Wall Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with the following joint widths:
 - 1. Wall Tile: 1/16 inch (1.6 mm).

3.6 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-portland cement grout residue from tile as soon as possible.
 - 2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure tile is without damage or deterioration at the time of Substantial Completion.
 - 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
 - 2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.7 CERAMIC TILE INSTALLATION SCHEDULE

- A. Glazed Ceramic Wall Tile over water resistant gypsum backing board substrate: Comply with the following:
 - 1. Tile Type: Glazed ceramic wall tile. Provide products according to the Finishes Legend at the end of the Finish Schedule.
 - 2. Provide according to TCA Installation Method W243-2K,
 - a. Gypsum Backing Board, ASTM C-36
 - b. Latex portland cement mortar, ANSI A118.4
 - c. Latex portland cement grout, ANSI A118.6

END OF SECTION 09 31 00

SECTION 09 51 10

ACOUSTICAL PANEL CEILINGS (REPAIR)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Repair of existing acoustical panel ceilings installed with exposed suspension systems.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for Project.
- B. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- C. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components.

1.5 DELIVERY, STORAGE, AND HANDLING

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

1.6 CRITICAL PROJECT CONDITIONS

- A. Space Enclosure: Very carefully protect equipment in the server room from dust or damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Specification is based on the existing system.
 - 1. Use existing panels in remaining locations at new wall.

2.2 METAL SUSPENSION SYSTEMS, GENERAL

- A. Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements to match the existing suspension system.
- B. Finishes and Colors: Match the existing track and edge supports.
- C. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
 - 1. Retain and reuse existing materials

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 10

SECTION 09 66 00

RESILIENT FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Vinyl composition floor tile.
 - 2. Resilient wall base, reducer strips, and other accessories installed with resilient floor.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Samples for verification or initial selection purposes in form of manufacturer's color charts consisting of actual tiles or sections of flooring showing full range of colors and patterns available for each type of resilient flooring indicated.
- D. Maintenance data for resilient flooring, to include in Operating and Maintenance Manual specified in Division 1.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Flooring: Obtain each type, color, and pattern of flooring from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver flooring and installation accessories to Project site in original manufacturer's unopened packages and containers each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store flooring materials in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F (10 deg C) and 90 deg F (32 deg C).

1.6 PROJECT CONDITIONS

- A. Maintain a minimum temperature of 70 deg F (21 deg C) in spaces to receive flooring for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F (13 deg C).
- B. Do not install flooring until they are at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during tile installation.

1.7 SEQUENCING AND SCHEDULING

- A. Install flooring and accessories after other finishing operations, including painting, have been completed.
- B. Do not install flooring over concrete slabs until the slabs have cured and are sufficiently dry to bond with adhesive as determined by tile manufacturer's recommended bond and moisture test.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Specification is based on the products as listed in the Finishes Legend. Subject to compliance with requirements and properties of the products listed, products by other manufacturers will be considered if submitted in accordance with the stipulations in the Supplementary Instructions to Bidders.

2.2 RESILIENT TILE

- A. Vinyl Composition Floor Tile: Subject to compliance with requirements, provide the following:
 - 1. Armstrong World Industries, Inc.
- B. Tile Standard: ASTM F 1066, Class 1, solid-color tile. Excelon.
- C. Wearing Surface: Smooth.
- D. Thickness: 0.125 inch (3.2 mm).
- E. Size: 12 by 12 inches (305 by 305 mm).
- F. Colors and Patterns: Solid black.

2.3 RESILIENT BASE AND EDGE REDUCER STRIPS

- A. Products: Rubber wall base, FS SS-W-40, match existing end stops and pre-formed exterior corner units; 4" high x 1/8" gauge, continuous roll, topset cove at resilient flooring.

1. RB-1: Johnsonite: Library – Match existing.
 2. RB-2: Johnsonite: Server Room - match existing
- B. Subfloor Leveler System at tile floor/ other floor covering interfaces:
1. Johnsonite LS-40.
- D. Vinyl composition tile control joint transition strip.
1. Johnsonite CTA-KX-N.
- 2.4 INSTALLATION ACCESSORIES
- A. Adhesives (Cements): Water-resistant type recommended by tile manufacturer to suit resilient floor tile products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. General: Examine areas where installation of flooring will occur, with Installer present, to verify that substrates and conditions are satisfactory for tile installation and comply with tile manufacturer's requirements and those specified in this Section.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by tile manufacturer..
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with manufacturer's installation specifications to prepare substrates indicated to receive tile.
- B. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- D. Broom or vacuum clean substrates to be covered by flooring immediately before tile installation. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
- E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

3.3 INSTALLATION, GENERAL

- A. Scribe, cut, and fit flooring to butt tightly to vertical surfaces, permanent fixtures, built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.
- B. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent marking device.
- C. Adhere flooring to flooring substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed tile installation.
- D. Use full spread of adhesive applied to substrate in compliance with tile manufacturer's directions including those for trowel notching, adhesive mixing, and adhesive open and working times.

3.4 INSTALLATION, TILE

- A. General: Comply with tile manufacturer's installation directions and other requirements indicated that are applicable to each type of tile installation included in Project.
- B. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles with grain running in one direction.
 - 2. Lay tiles in pattern with respect to location of colors, patterns, and sizes as indicated on Drawings.

3.5 INSTALLATION OF ACCESSORIES

- A. Apply wall base to walls, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout the length of each piece, with continuous contact at horizontal and vertical surfaces.
- B. Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which would otherwise be exposed.

3.6 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing flooring installation:
 - 1. Remove visible adhesive and other surface blemishes using cleaner recommended by tile manufacturers.
 - 2. Sweep or vacuum floor thoroughly.
 - 3. Do not wash floor until after time period recommended by resilient flooring manufacturer.
 - 4. Damp-mop flooring to remove black marks and soil.

- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by flooring manufacturer.
 - 1. Apply protective floor polish to flooring surfaces that are free from soil, visible adhesive, and surface blemishes.
 - a. Use commercially available, metal, cross-linked acrylic product acceptable to tile manufacturer.
 - b. Coordinate selection of floor polish with Owner's maintenance service.
 - 2. Cover flooring with undyed, untreated building paper until inspection for Substantial Completion.
 - 3. Do not move heavy and sharp objects directly over flooring. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- C. Clean flooring not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean flooring using method recommended by manufacturer.

END OF SECTION 09 66 00

**SECTION 09 91 20
INTERIOR PAINTING**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Gypsum board.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated listed in "MPI Approved Products"
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. PPG Architectural Finishes, Inc.
 - 2. Sherwin-Williams Co.
 - 3. Tnemec, Inc.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:
 - 1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
 - 2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.

3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

- C. Colors: As indicated in a color schedule.

2.3 PRIMERS/SEALERS

- A. Interior Latex Primer/Sealer: MPI #50.
 1. VOC Content: E Range of E2.
 2. Environmental Performance Rating: EPR 2.
- B. Interior Alkyd Primer/Sealer: MPI #45.
 1. VOC Content: E Range of E2.

2.4 METAL PRIMERS

- A. Quick-Drying Alkyd Metal Primer: MPI #76.
 1. VOC Content: E Range of E2.
- B. Rust-Inhibitive Primer (Water Based): MPI #107.
 1. VOC Content: E Range of E2.
 2. Environmental Performance Rating: EPR 2.

2.5 LATEX PAINTS

- A. Interior Latex (Gloss): MPI #114 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
 1. VOC Content: E Range of E2.
 2. Environmental Performance Rating: EPR 2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines.
- E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Electrical Work:
 - a. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Galvanized-Metal Substrates:
 - 1. Latex System: MPI INT 6.4R.
 - a. Prime Coat: Interior latex-based wood primer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex (semigloss).
- B. Gypsum Board Substrates:
 - 1. Latex System: MPI INT 9.2A.
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex (semigloss) and (gloss).

END OF SECTION 09 91 20

SECTION 10 26 50

IMPACT-RESISTANT WALL PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Corner guards.
- B. Related Sections include the following:
 - 1. Division 8 Section "Door Hardware" for metal armor, kick plates.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, impact strength, dimensions of individual components and profiles, and finishes for each impact-resistant wall-protection unit.
- B. Shop Drawings: For each impact-resistant wall-protection unit showing locations and extent. Include sections, details, and attachments to other work.
- C. Samples for Initial Selection: For each type of impact-resistant wall-protection unit indicated.
- D. Maintenance Data: For each impact-resistant wall-protection unit to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Product Options: Drawings indicate size, profiles, and dimensional requirements of impact-resistant wall-protection units and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store impact-resistant wall-protection units in original undamaged packages and containers inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

PART 2 - PRODUCTS

2.1 CORNER GUARDS

A. Surface-Mounted Stainless Steel Corner Guards:

1. Available Manufacturers:
 - a. American Floor Products Co., Inc.
 - b. Balco, Inc.
 - c. Construction Specialties, Inc.
 - d. IPC Door and Wall Protection Systems; Division of InPro Corporation.
 - e. Korogard Wall Protection Systems; Division of RJF International Corporation.
2. Wing Size: Nominal 2-1/2 by 2-1/2 inches (65 by 65 mm).
3. Mounting: Countersunk screws through factory-drilled mounting holes.
4. Color and Texture: Clear finish, Brushed steel

2.2 FABRICATION

- A. Fabricate wall-protection units to comply with requirements indicated.**

EXECUTION

2.3 EXAMINATION

1. For impact-resistant wall-protection units attached with adhesive or foam tape, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

2.4 INSTALLATION

- A. General:** Install impact-resistant wall-protection units level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.

2.5 CLEANING

- A.** Immediately after completion of installation, clean plastic covers and accessories using a standard, ammonia-based, household cleaning agent.
- B.** Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION 10 26 50

SECTION 10 43 10

SIGNS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Signs, ADA

1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for specified items including rough-in dimensions, details showing mounting methods, relationships to surrounding construction, hardware, and materials.
- C. Manufacturer's standard warranties.

PART 2 - PRODUCTS

2.1 SIGNS

- A. General: Provide accessibility signs, where indicated, on schedule at end of this section.
- B. Sign Type: Products by the following manufacturers will be considered:
 - 1. ASI Sign Systems, Inc.
 - 2. Best Manufacturing Company.
 - 3. Charleston Industries, Inc.
 - 4. DGS Corp.
 - 5. Diskey Sign Corp.
 - 6. Environmental Graphic Systems, Inc.
 - 7. Modulex.
 - 8. Mohawk Sign Systems.
 - 9. Poblocki & Sons, Inc.
 - 10. Spanjer Brothers, Inc.
 - 11. The Supersine Company.
 - 12. Vomar Products, Inc.
- C. Fabrication: Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction. Plaque face shall be optically correct, clear matte acrylic, nominally 8" x 8", acrylic. Comply with ADA.

1. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally.
2. Specified color shall be reverse (subsurface) printed on plaque face.
3. Plaque face shall be laminated to 1/8 " thick opaque acrylic base.
4. Text, precision cut, 1/32" minimum thickness, 5/8 high, white, upper case Helvetica medium style, shall be chemically welded to face of plaque.
5. Edge Condition: Beveled.
6. Corner Condition: Corners rounded to radius indicated or if not indicated, 1/2".
7. Raised Copy: Machine-cut copy characters from matte-finished opaque acrylic sheet and chemically weld onto the acrylic sheet forming sign panel face. Produce precisely formed characters with square cut edges free from burrs and cut marks.
8. Text shall be centered at top of signs, with symbol centered.
9. Grade 2 Braille may be engraved into plaque, or raised braille plate welded to recessed window in face of the plaque. Braille color shall match background color. Center Braille at bottom of the plaque.

PART 3 - EXECUTION

3.1 INSTALLATION OF SIGNS

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
 1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using double-sided foam tape to mount signs to smooth, nonporous surfaces. Use silastic adhesive for irregular or porous surfaces.

3.2 CLEANING AND PROTECTION SIGNS

- A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

SIGNAGE SCHEDULE

<u>NO</u>	<u>TEXT</u>	<u>QUANTITY</u>	<u>SIZE</u>	<u>REMARKS</u>	<u>LOCATION</u>
1	Symbol of Gender Standards Rest Room w/ ADA Accessibility	1	8"x8"	with Braille	at restroom opening
1	Symbol of Gender restroom opening Toilet Room w/ ADA Accessibility	1	8"x8"	with Braille	at H-cap toilet rm.
1	Symbol of Gender Toilet Room	1	8"x8"	with Braille	at toilet rm.

END OF SECTION 10 43 10

SECTION 10 80 10

TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Public-use washroom accessories.
- B. Related Sections include the following:
 - 1. Division 8 Section "Mirrors" for frameless mirrors.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated on Drawings.
 - 2. Identify products using designations indicated on Drawings.
- C. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same articles in Part 2, provide products of same manufacturer unless otherwise approved by Architect.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.5 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
- B. Brass: ASTM B 19 flat products; ASTM B 16 (ASTM B 16M), rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- D. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product: The design for accessories is based on products indicated. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
 - 1. American Specialties, Inc.
 - 2. Bobrick Washroom Equipment, Inc.
 - 3. Bradley Corporation.
 - 4. Waxie
- C. Paper towel Dispenser:
 - 1. GP Enmotion – match existing unit.
- D. Toilet Tissue (Roll) Dispenser:
 - 1. Basis-of-Design Product: Uline – H-1347 Jumbo Double Roll Dispenser, match existing
- E. Liquid-Soap Dispenser:
 - 1. Basis-of-Design Product: Waxie Select, match existing
- F. Grab Bar:
 - 1. Bobrick B-5806X36, B-5806X42, plus 12" vertical section.

- G. Sanitary-Napkin Disposal Unit:
 - 1. Bobrick B-254, non-recessed.
- H. Sanitary-Napkin Dispenser:
 - 1. Bobrick B-47069C
- I. Seat-Cover Dispenser:
 - 1. Basis-of-Design Product: Waxie stainless steel– match existing.
- J. Mirror Unit:
 - 1. Basis-of-Design Product: Bobrick B-293-24 36, stainless steel, tilt mirror.
- K. Robe Hook:
 - 1. Basis-of-Design Product: Bobrick B-671.
 - 2. Description: Single prong unit.
 - 3. Material and Finish: Stainless steel, No. 7 finish (polished).
 - 4. Locate: 1 each on the inside each toilet room door @+66" A.F.F.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of four keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least **250 lbf (1112 N)**, when tested according to method in ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10 80 10

MECHANICAL SPECIFICATIONS

DIVISION 22

CIC Building Gender Inclusive Restrooms
Washington State University Tri-Cities
WSU Contract #1C01519



PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Sleeves.
 - 2. Sleeve seal systems.
 - 3. Grout.

1.02 SUBMITTALS

- A. Product Data: For each product indicated.

PART 2 PRODUCTS

2.01 SLEEVES

- A. Galvanized Steel Pipe Sleeves: ASTM A 53, Type E, Grade B, Schedule 40, zinc coated, with plain ends.
- B. Applications:
 - 1. Exterior Concrete Walls above and below grade
 - 2. Interior Concrete Walls.
 - 3. Concrete Slabs above- and on-grade

2.02 SLEEVE-SEAL SYSTEMS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Advance Products & Systems, Inc.
 - 2. CALPICO, Inc.
 - 3. Metraflex Company.
 - 4. Pipeline Seal and Insulator, Inc.
 - 5. Proco Products, Inc.
- B. Description: Modular sealing element unit, designed for field assembly, for filling annular space between piping and sleeve.
 - 1. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

2. Pressure Plates: Stainless steel.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

C. Applications:

1. Exterior Concrete Walls below Grade, in conjunction with sleeve.
2. Concrete Slabs-on-Grade, in conjunction with sleeve.

2.03 GROUT

- A. Standard: ASTM C 1107, Grade B, post hardening and volume adjusting, dry, hydraulic cement grout.
- B. Characteristics: Non-shrink; recommended for interior and exterior applications.
- C. Design Mix: 5000 psi, 28 day compressive strength.
- D. Packaging: Premixed and factory packaged.

PART 3 EXECUTION

3.01 SLEEVE INSTALLATION

- A. For sleeves that will have sleeve seal system installed, select sleeves of size large enough to provide 1 inch annular clear space between piping and concrete slabs and walls.
- B. Install sleeves in concrete floors, concrete roof slabs, and concrete walls.
 1. Cut sleeves to length for mounting flush with both surfaces.
 - a. Exception: Extend sleeves installed in floors in concealed areas or wet areas 2 inches above finished floor level.
 2. Using grout, seal the space outside of sleeves in slabs and walls without sleeve seal system.
- C. Fire Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with UL approved firestop system and materials. See drawings.

3.02 SLEEVE SEAL SYSTEM INSTALLATION

- A. Install sleeve seal systems in sleeves in exterior concrete walls and slabs-

on-grade at service piping entries into building.

- B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve seal system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pipe, duct and equipment insulation materials.
2. Jackets.
3. Accessories.
4. Application schedule.

1.02 SUBMITTALS

- A. Product Data:** For each type of product indicated. Include thermal conductivity, thickness, and jackets.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications:** Skilled workers who are regularly engaged in commercial insulation work and who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Fire-Test-Response Characteristics:** Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84.
1. Insulation Installed Indoors: Flame spread index of 25 or less, and smoke developed index of 50 or less.
 2. Insulation Installed Outdoors: Flame spread index of 75 or less, and smoke developed index of 150 or less.
- C. Products shall not contain asbestos, lead, mercury, or mercury compounds.**

1.04 COORDINATION

- A. Coordinate size and location of supports, hangers, and insulation shields specified in section on hangers and supports.**
- B. Coordinate clearance requirements with piping Installer for piping insulation application, duct Installer for duct insulation application, and equipment Installer for equipment insulation application. Establish and maintain clearance requirements for installation of insulation and field**

applied jackets and finishes and for space required for maintenance.

- C. Schedule insulation application after pressure testing systems.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

PART 2 PRODUCTS

2.01 INSULATION MATERIALS

A. Pipe Insulation:

- 1. Preformed Mineral Fiber Pipe Insulation:
 - a. Mineral or glass fibers bonded with a thermosetting resin with factory-applied ASJ-SSL, complying with ASTM C547 Type I, Grade A, 850 degrees F.
 - b. Use within return air plenums also must have the following criteria met:
 - 1) Flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E84 or UL 723.
 - 2) Plastic piping materials must meet the requirements of Section 602.2.1; in those applications, they must meet the fire performance requirements and that is listed for that application.
 - 3) The enclosing material, the entire assembly of the pipe, the insulation and any coverings and adhesives must be tested as a composite assembly and must be included in the submittals for review.
 - c. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Johns Manville; Micro-Lok.
 - 2) Knauf Insulation; 1000 Pipe Insulation.
 - 3) Owens Corning; Fiberglas Pipe Insulation.
- 2. Flexible Elastomeric Insulation:
 - a. Closed cell, sponge or expanded rubber ASTM C534 Type I tubular materials or Type II sheet materials.
 - b. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Aeroflex USA Inc.; Aerocel.
 - 2) Armacell LLC; AP Armaflex.
 - 3) RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180.

B. Duct Insulation:

1. Mineral Fiber Blanket Insulation:
 - a. Mineral or glass fibers bonded with a thermosetting resin with factory applied FSK jacket, complying with ASTM C553 Type II and ASTM C1290 Type III.
 - b. Thickness and R-value for this application see schedule below
 - c. Products: Subject to compliance with requirements, provide one of the following:
 - 1) CertainTeed Corp.; Duct Wrap.
 - 2) Johns Manville; Microlite.
 - 3) Knauf Insulation; Duct Wrap.
 - 4) Owens Corning; All-Service Duct Wrap.
2. Acoustic insulation
 - a. Flexible 2 lb. per sq. ft., reinforced foil-faced mass loaded vinyl noise barrier in combination with a nominal 1" thick quilted fiberglass decoupler.
 - b. Basis of Design Product: Subject to compliance with requirements, provide the product listed or an approved equal:
 - 1) Sound Seal Acoustical Duct Lagging Product number B-20 LAG/QFA-3.

2.02 JACKETS

A. Factory Applied Jackets:

1. Insulation system schedules indicate factory applied jackets on various applications. When factory applied jackets are indicated, comply with the following:
 - a. ASJ: White, Kraft paper, fiberglass reinforced scrim with aluminum foil backing; complying with ASTM C 1136, Type I.
 - b. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
 - c. FSK Jacket: Aluminum foil, fiberglass reinforced scrim with Kraft paper backing; complying with ASTM C 1136, Type II.

B. Field Applied Jackets:

1. Field applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.
2. PVC Jacket: High impact resistant, UV resistant PVC complying

with ASTM D 1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field applied jacket schedules.

- a. Products: Subject to compliance with requirements, available products that may be incorporated into the work include, but are not limited to, the following:
 - 1) Johns Manville; Zeston.
 - 2) P.I.C. Plastics, Inc.; FG Series.
 - 3) Proto PVC Corporation; LoSmoke.
 - 4) Speedline Corporation; SmokeSafe.
- b. Adhesive: As recommended by jacket material manufacturer.
- c. Color: White.
- d. Factory fabricated fitting covers to match jacket if available; otherwise, field fabricate.
 - 1) Shapes: 45 and 90 degree, short and long radius elbows, tees, valves, flanges, unions, reducers, end caps, soil pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.
- e. Factory fabricated tank heads and tank side panels.

2.03 ACCESSORIES

A. Insulating blankets:

- 1. Woven glass fiber fabric sewn over mineral fiber blanket insulation; comply with MIL-C-20079H, Type I, plain weave, and pre-sized a minimum of 8 oz./sq. yd.; secured by lacing with clinch hooks and stainless steel wire.

B. Adhesives:

- 1. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

C. Mastics:

- 1. Materials shall be compatible with service temperature, insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

D. Lagging Adhesives:

- 1. Comply with MIL-A-3316C, Class I, Grade A, and shall be

compatible with service temperatures, insulation materials, jackets, and substrates.

E. Sealants

1. Materials shall be compatible with service temperature, insulation materials, jackets, and substrates; fire and water resistant, flexible, elastomeric sealant.

F. Tapes:

1. ASJ Tape: White vapor retarder tape matching factory applied jacket with acrylic adhesive, complying with ASTM C 1136, 3 inches in width.
2. FSK Tape: Foil face, vapor retarder tape matching factory applied jacket with acrylic adhesive; complying with ASTM C 1136, 3 inches in width.
3. PVC Tape: White vapor retarder tape matching field applied PVC jacket with acrylic adhesive. Suitable for indoor and outdoor applications, 2 inches in width.
4. Aluminum Foil Tape: Vapor retarder tape with acrylic adhesive, 2 inches in width.

G. Securements:

1. Bands:
 - a. Stainless Steel: ASTM A 167 or ASTM A 240, Type 304 or Type 316; 0.015 inch thick, 1/2 inch wide with wing or closed seal.
 - b. Aluminum: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 inch wide with wing or closed seal.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.
1. Verify that systems and equipment to be insulated have been tested and are free of defects.
 2. Verify that surfaces to be insulated are clean and dry.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
- B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment, ducts and fittings, and piping including fittings, valves, and specialties.
 - B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment, duct system, and pipe system as specified in insulation system schedules.
 - C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
 - D. Install insulation with longitudinal seams at bottom of horizontal runs.
 - E. Install multiple layers of insulation with longitudinal and end seams staggered.
 - F. Do not weld brackets, clips, or other attachment devices to piping, fittings, duct and specialties.
 - G. Keep insulation materials dry during application and finishing.
 - H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
 - I. Install insulation with least number of joints practical.
 - J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor barrier mastic.
1. Install insulation continuously through hangers and around anchor

- attachments.
 - 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 - 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 - 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Install insulation with factory applied jackets as follows:
- 1. Draw jacket tight and smooth.
 - 2. Cover circumferential joints with 3 inch wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
 - 3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
 - 4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
 - 5. Where vapor barriers are indicated, apply vapor barrier mastic on seams and joints and at ends adjacent to duct and pipe flanges and fittings.
- M. Cut insulation in a manner to avoid compressing insulation.
- N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.
- P. Do not install insulation to the following:
- 1. Vibration control devices.
 - 2. Testing agency labels and stamps.

3. Nameplates and data plates.
4. Manholes.
5. Handholes.
6. Cleanouts.

3.04 PENETRATIONS

A. Roof Penetrations:

1. Install insulation continuously through roof penetrations.
2. Seal penetrations with flashing sealant.
3. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
4. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
5. Seal jacket to roof flashing with flashing sealant.

B. Interior Wall and Partition Penetrations:

1. Install insulation continuously through walls and partitions.

C. Fire Rated Wall and Partition Penetrations:

1. Install insulation continuously through penetrations of fire rated walls and partitions.
2. Terminate insulation at fire damper. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.
3. Comply with requirements in section on penetration firestopping and fire resistive joint sealers.

D. Insulation Installation at Floor Penetrations:

1. Install insulation continuously through floor penetrations that are not fire rated.
2. For penetrations through fire rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.
3. Seal penetrations through fire-rated assemblies. Comply with requirements in Division 07 section on penetration firestopping.

3.05 GENERAL PIPE INSULATION INSTALLATION

- A. Insulation installation on fittings, valves, strainers, flanges, and unions:
1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor retarder integrity, unless otherwise indicated.
 2. For pipe conveying fluids above 140 degrees F, install lace-on insulating blankets on equipment, flanges, valves, steam traps and unions.
 3. Insulate pipe elbows using preformed fitting insulation made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive.
 4. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 5. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing box studs, bolts, and nuts.
 6. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below ambient services, provide a design that maintains vapor barrier.
 7. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
 8. For services not specified to receive a field applied jacket except for flexible elastomeric, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.

9. Stencil or label the outside insulation jacket of each union with the word "UNION". Match size and color of pipe labels.
- B. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection.
- C. Install removable insulation covers conforming to the following:
 1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
 2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless steel or aluminum bands. Select band material compatible with insulation and jacket.
 3. Construct removable valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.
 4. Unless a PVC jacket is indicated in field applied jacket schedules, finish exposed surfaces with a metal jacket.

3.06 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

- A. Seal longitudinal seams and end joints with manufacturers recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation installation on pipe flanges:
 1. Install pipe insulation to outer diameter of pipe flange.
 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 4. Secure insulation to flanges and seal seams with manufacturers recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation installation on fitting, valves and pipe specialties:

1. Install preformed valve covers manufactured of same material as pipe insulation when available.
2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.07 MINERALFIBER INSULATION INSTALLATION

A. Insulation installation on straight pipes and tubes:

1. Secure each layer of preformed pipe insulation to pipe with bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor barrier mastic and joint sealant.
3. For insulation with factory applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation installation on flanges, valves, fittings and pipe specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. Arrange insulation to permit access to valve packing and to allow valve operation without disturbing insulation.
3. Install lace-on insulating blankets on valves and specialties for pipe conveying fluids above 140 degrees.

C. Insulation installation on ducts and plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor discharge weld pins and speed washers or cupped head, capacitor discharge weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

- a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
 - b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
 - c. Do not overcompress insulation during installation.
 - d. Impale insulation over pins and attach speed washers.
 - e. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from 1 edge and 1 end of insulation segment. Secure laps to adjacent insulation section with 1/2 inch outward clinching staples, 1 inch o.c. Install vapor barrier consisting of factory or field applied jacket, adhesive, vapor barrier mastic, and sealant at joints, seams, and protrusions.
 - a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor barrier seal.
 - b. Install vapor stops for ductwork and plenums operating below 50 degrees F at 18 foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to 2 times the insulation thickness but not less than 3 inches.
 - c. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.
5. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install on round and flat oval duct elbows with individually mitered gores cut to fit the elbow. For board insulation, groove and score insulation to fit as closely as possible to outside and inside radius of elbows.
6. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6 inch wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

3.08 FIELD APPLIED JACKET INSTALLATION

- A. Where PVC jackets are indicated, install with 1 inch overlap at longitudinal

seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturers recommended adhesive.

1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.
- B. Where metal jackets are indicated, install with 2 inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

3.09 FINISHES

- A. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.
- B. Do not field paint aluminum or stainless steel jackets.
- C. Seal all raw ends and seams.

3.10 FIELD QUALITY CONTROL

- A. All insulation applications will be considered defective work if sample inspection reveals noncompliance with requirements.

3.11 PIPING INSULATION SCHEDULE

- A. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
 1. Drainage piping located in crawl spaces.
 2. Underground piping.
 3. Chrome plated pipes and fittings unless there is a potential for personnel injury.
- B. Domestic Cold Water
 1. Preformed Mineral Fiber Pipe Insulation with the following thicknesses:
 - a. NPS 1 and Smaller: 1/2 inch thick.
 - b. NPS 1-1/4 to NPS 2: 3/4 inch thick.

- c. NPS 2-1/2 and Larger: 1 inch thick.
- C. Domestic Hot (105 degrees F and greater):
 - 1. Preformed Mineral Fiber Pipe Insulation with the following thicknesses:
 - a. NPS 2 and Smaller: 1 inch thick.
 - b. NPS 2-1/2 and Larger: 1-1/2 inches thick.

3.12 DUCT INSULATION SCHEDULE

- A. Items Not Insulated:
 - 1. Fibrous glass ducts.
 - 2. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
 - 3. Factory insulated flexible ducts.
 - 4. Flexible connectors.
 - 5. Factory insulated access panels and doors.
- B. Supply and Return, not within conditioned space; on exterior of building, on roof, in attic, in enclosed ceiling space, in walls, in garage, in crawl spaces.
 - 1. Total Installed minimum required thermal resistance: R-7.
 - 2. Mineral Fiber Blanket: 3 inches thick and 0.75lb/cu. ft. nominal density or 2 inches thick 1.5 to 3 lb/cu. ft. nominal density to achieve an insulation value of R-7.
 - 3. Mineral Fiber Board: 2 inches thick and 3 to 7 lb/cu. ft. nominal density.
 - 4. Duct Liner: 2 inches thick 1.5 to 3 lb/cu. ft. nominal density.
- C. Supply with supply air temperature less than 55 degrees F or greater than 105 degrees F.
 - 1. Total Installed minimum required thermal resistance: R-3.3
 - 2. Mineral Fiber Blanket: 1 inch thick 1.5 to 3 lb/cu. ft. nominal density.
 - 3. Mineral Fiber Board: Thickness as required to meet minimum required thermal resistance.
 - 4. Duct Liner: 1 inches thick 1.5 to 3 lb/cu. ft. nominal density.
- D. Acoustic insulation:
 - 1. Insulation thickness and density are chosen for noise reduction

- capabilities.
2. Acoustic insulation with foil facing away from terminal unit. Add 1 inch thick glass fiber blanket insulation over foil face of acoustical insulation. Secure both layers together with bands or pins and hangers.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes pipe and fittings for the following plumbing systems:
 - 1. Domestic Hot and Cold Water
 - a. Above ground, under building slab and underground within 5 feet of the building.

1.02 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Field qualitycontrol test reports.
- C. QUALITY ASSURANCE
- D. Installer Qualifications: Firm with at least five (5) years of documented successful installation experience on projects with domestic water piping work similar to that required for project. All installations of the piping systems shall be done only by, or under the direct supervision of a holder of a master plumber license or a journeyman plumber license.
- E. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- F. Comply with NSF 61 for potable water piping and components.

PART 2 PRODUCTS

2.01 COPPER TUBE AND FITTINGS

- A. Above ground:Hard Copper Tube: ASTM B 88, Type L water tube, drawn temper.
 - a. Cast-Copper Solder-Joint Fittings: ASME B16.18, pressure fittings.
 - b. Wrought-Copper Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.
 - c. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.
 - d. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
 - e. Copper-Tube Extruded-Tee Connections:Prohibited.
 - f.

- B. ABOVE GROUND PEX TUBING: Above ground PEX tubing is acceptable alternative to copper piping.
 - 1. Crimp system: Copper Crimp Rings per ASTM F1807
 - 2. Crimp style PEX Fittings brass – per F877/F1807
 - 3. Material Standards:
 - a. ASTM F876: Standard Specification for Crosslinked Polyethylene (PEX) Tubing.
 - b. ASTM F877: Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold- Water Distribution Systems.
 - c. ASTM F2023: Oxidative resistance of PEX to Hot Chlorinated Water per NSF protocol P171 (Non-Barrier PEX Tubing).
 - d. NSF/ANSI 61-G, NSF/ANSI 372, nsf-pw-g: Complies with NSF/ANSI standard 61-G for Lead-Free Drinking Water System Components
 - e. UPC listed by IAPMO (International Association of Plumbing and Mechanical Officials).

2.02 FLEXIBLE CONNECTORS

- A. Bronze-Hose Flexible Connectors: Corrugated-bronze tubing with bronze wire-braid covering and ends brazed to inner tubing.
 - 1. Working-Pressure Rating: Minimum 200 psig.
 - 2. End Connections NPS 2 and Smaller: Threaded copper pipe or plain-end copper tube.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Comply with specification section 220500 “Common Plumbing Requirements”.
- B. Support piping in accordance with specification section 220529 “Hangers and Supports.”
- C. Identify piping, valves and components in accordance with specification section 220553 “Identification”.
- D. Piping penetrations shall comply with specification section 220517 “Sleeves and Sleeve Seals for Piping.”
- E. Valves shall comply with specification section 220523 “Valves.”

- F. Insulate piping in accordance with specification section 220553 "Insulation."
- G. Install shutoff valve, hose end drain valve, strainer, pressure gage, and test tee with valve(s), and water meter inside the building at each domestic water service entrance. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.
- H. Install water piping level with 0.25 percent slope downward toward drain and plumb.
- I. Install pressure gages on suction and discharge piping from pumps. Comply with section 220519 "Meters and Gages."
- J. Install thermometers on inlet and outlet piping from each water heater. Comply with section 220519 "Meters and Gages."
- K. Install flexible connectors in suction and discharge piping connections to each pump.
- L. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball valves for piping NPS 2 and smaller.
- M. Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping.
 - 1. Hose-End Drain Valves: At low points in water mains, risers, and branches.
- N. Install calibrated balancing valves in each hot water circulation return branch and discharge side of each pump and circulator. Set calibrated balancing valves partly open to restrict but not stop flow. Calibrated balancing valves are specified in section on water piping specialties.
- O. Connect water piping to water-service piping with shutoff valve; extend and connect to the following:
 - 1. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Coordinate connection sizes with specification section "Plumbing Fixtures".
 - 2. Water Heaters: Cold water inlet and hot water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
 - 3. Equipment: Cold and hot water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and

unions or flanges for each connection.

3.02 FIELD QUALITY CONTROL

A. Piping Inspections:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authority having jurisdiction.
2. During installation, notify authority having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authority having jurisdiction:
 - a. Roughing-In Inspection: Arrange for inspection of piping before concealing or closing-in, after roughing-in, and before setting fixtures.
 - b. Final Inspection: Arrange final inspection with authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
3. Reinspection: If authority having jurisdiction finds that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by authority having jurisdiction.

B. Piping Tests:

1. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.
2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
3. Leave new, altered, extended, or replaced water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
4. Protect and/or isolate water heaters, expansion tanks, and all water fixtures from test pressure.
5. Cap and subject piping to static water pressure of 150 psig. Isolate test source and allow to stand for 2 hours. Leaks and loss in test pressure constitute defects that must be repaired.
6. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
7. Prepare reports for tests and for corrective action required.

C. Water piping will be considered defective if it does not pass tests and inspections.

- D. Prepare test and inspection reports.
- E. ADJUSTING
- F. Perform the following adjustments before operation:
- G. Close drain valves, hydrants, and hose bibbs.
- H. Open shutoff valves to fully open position.
- I. Open throttling valves to proper setting.
- J. Adjust balancing valves in hot water circulation return piping to provide adequate flow.
- K. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
- L. Remove and clean strainer screens. Close drain valves and replace drain plugs.
- M. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.03 CLEANING

- A. Clean and disinfect domestic water piping as follows:
 - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 - 2. Contact authority having jurisdiction to coordinate bacteriological testing at least 7 calendar days in advance of planned tests.
 - 3. Use purging and disinfecting procedures per latest version of AWWA C651 as described below:
 - a. Utilize continuous feed method using minimum 25ppm chlorine for not less than 24 hours contact time. Operate all valves several times. After 24 hours water samples taken from the outlet farthest from the point of injections shall contain 10ppm chlorine minimum. Flush with clean water until residual chlorine is less than 0.2ppm.
 - b. Chlorinated water shall be disposed of in accordance with applicable federal, state and local laws. Chlorinated water shall not be discharged to any storm drain or surface water.
 - c. Bacteriological Testing: After disinfection and flushing is completed the Contractor shall obtain bacteriological samples and submit the samples to a state certified laboratory for bacteriological analysis to determine compliance with Washington State Department of Health standards. If pipe system is found to be positive for bacteria, Contractor shall correct defects and perform additional disinfection and flushing until satisfactory sample result are obtained. Water may not be used for drinking purposes until satisfactory results are obtained. All bacteriological sample result shall be provided to WSU Environmental Health and

Safety.

- B. Prepare and submit reports of purging and disinfecting activities.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the following for soil, waste, and vent piping inside the building:
 - 1. Pipe, tube, and fittings.
 - 2. Special pipe fittings.
 - 3. Encasement for underground metal piping.

1.02 PERFORMANCE REQUIREMENTS

- A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:
 - 1. Soil, Waste, and Vent Piping: 10 foot head of water.
 - 2. Sanitary Sewer, Force Main Piping: 150 psig.

1.03 SUBMITTALS

- A. Product Data: For pipe, tube, fittings, and couplings.
- B. Field quality control inspection and test reports.

1.04 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

PART 2 PRODUCTS

2.01 HUBLESS CAST IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings: Service weight hubless cast-iron, ASTM A 888 or CISPI 301.
- B. Heavy-Duty, Shielded, Stainless Steel Couplings: ASTM C 1277 assembly of stainless steel shield, stainless steel bands and tightening devices, and ASTM C 564, rubber sleeve with center pipe stop.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by on the following:
 - a. Huskey
 - b. ANACO.
 - c. Clamp-All Corp.
 - d. Ideal Div.; Stant Corp.
 - e. Mission Rubber Co.
 - f. Tyler Pipe; Soil Pipe Div.

2.02 COPPER TUBE AND FITTINGS

- A. Copper DWV Tube: ASTM B 306, drainage tube, drawn temper.
 - 1. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.
- B. Hard Copper Tube: ASTM B 88, Types L and M, water tube, drawn temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought copper, solder joint fittings.
 - 2. Copper Flanges: ASME B16.24, Class 150, cast copper with solder joint end.
 - 3. Copper Unions: MSS SP-123, copper alloy, hexagonal stock body with ball and socket, metal-to-metal seating surfaces, and solderjoint or threaded ends.
- C. PVC-Drain Waste and Vent fittings: ASTM D1785 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe,
 - 1. Schedule 40 Fittings are to be manufactured from PVC material which meets or exceeds the requirements of ASTM D-1784, cell classification 12454B, Type 1, Grade 1.
 - 2. All solvent cements used, to conform to ASTM D-2564,

PART 3 EXECUTION

3.01 PIPING APPLICATIONS

- A. Soil and waste piping shall be the following:
 - 1. NPS 1-1/2 and Smaller: Copper DWV tube, copper drainage fittings, and soldered joints. PVC, solvent weld DWV tube, drainage fittings
 - 2. NPS 2 to NPS 6: Hubless cast iron soil pipe and fittings; shielded couplings. Multi-band fittings: Huskey or equivalent
- B. Sanitary sewage force main shall be the following:
 - 1. Hard copper tube, Type L; copper pressure fittings; and soldered joints.

3.02 PIPING INSTALLATION

- A. Comply with specification section 220500 "Common Plumbing Requirements".
- B. Support piping in accordance with specification section 220529 "Hangers and Supports."
- C. Piping penetrations shall comply with specification section 220517 "Sleeves and Sleeve Seals for Piping."

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- D. Sanitary sewer piping greater than 5 feet outside the building is specified in other divisions.
 - E. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.
 - F. Install cleanout at exit of sanitary sewer from building. Locate cleanout in exterior wall of facility at grade.
 - G. Install cleanout fitting with closure plug inside the building in sanitary force main piping.
 - H. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long sweep bends. Sanitary tees and short sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long turn, double Y-branch and 1/8 bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
 - I. Install buried building drainage piping true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream.
 - J. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:
 - 1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
 - 2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
 - 3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
 - K. Combination waste and vent and reduced size venting are not allowed.
 - L. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
 - M. Comply with requirements for sleeve seals specified in section on sleeves and sleeve seals.
 - N. Install escutcheons for piping penetrations of walls, ceilings, and floors.
 - O. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join piping with dissimilar joints.

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- P. Connect drainage and vent piping in sizes indicated but not smaller than required by the plumbing code.
 - Q. Join hubless castiron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hublesscoupling joints.
 - R. Soldered Joints: Use ASTM B 813, water flushable, lead free flux; ASTM B 32, lead free alloy solder; and ASTM B 828 procedure, unless otherwise indicated.
 - S. Install supports according to section on hangers and supports.

3.03 FIELD QUALITY CONTROL

- A. During installation, notify Authorities Having Jurisdiction (AHJ) at least 24 hours before inspection must be made. Perform tests specified below in presence of AHJ.
 - 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - 2. Final Inspection: Arrange for final inspection by AHJ to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If AHJ finds that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Prepare inspection reports and have them signed by AHJ.
- D. Test sanitary drainage and vent piping according to procedures, as follows:
 - 1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test.
 - 2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
 - 3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10 foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
 - 4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1inch wg. Use U-tube or manometer inserted in trap of water closet to measure this pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.
 - 5. Repair leaks and defects with new materials and retest piping, or portion

thereof, until satisfactory results are obtained.

- E. Test force main piping according to procedures, as follows:
 - 1. Leave uncovered and unconcealed new, altered, extended, or replaced force main piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
 - 2. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.
 - 3. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
- F. Prepare reports for tests and required corrective action.

3.04 CLEANING

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following:
 - 1. Faucets for lavatories and sinks.
 - 2. Flushometers.
 - 3. Toilet seats.
 - 4. Fixture supports.
 - 5. Water closets.
 - 6. Lavatories.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Operation and maintenance data.

1.03 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities" for plumbing fixtures for people with disabilities.
- C. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.
- D. NSF Standard: Comply with NSF 61, "Drinking Water System Components-Health Effects", for fixture materials that will be in contact with potable water.
- E. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.
- F. Comply with the following applicable standards and other requirements specified for plumbing fixtures:
 - 1. Enameled, Cast-Iron Fixtures: ASME A112.19.1.
 - 2. Porcelain Enameled, Formed Steel Fixtures: ASME A112.19.4.
 - 3. Vitreous China Fixtures: ASME A112.19.2.
 - 4. Water Closet, Flush Valve, Tank Trim: ASME A112.19.5.
 - 5. Water Closet, Flushometer Tank Trim: ASSE 1037.
- G. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:
 - 1. Faucets: ASME A112.18.1.

2. NSF Potable-Water Materials: NSF 61.
 3. Pipe Threads: ASME B1.20.1.
 4. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
 5. Supply Fittings: ASME A112.18.1.
 6. Brass Waste Fittings: ASME A112.18.2.
- H. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:
1. Atmospheric Vacuum Breakers: ASSE 1001.
 2. Brass and Copper Supplies: ASME A112.18.1.
 3. Plastic Tubular Fittings: ASTM F 409.
 4. Brass Waste Fittings: ASME A112.18.2.
 5. Sensor Operation Flushometers: ASSE 1037 and UL 1951.
- I. Comply with the following applicable standards and other requirements specified for miscellaneous components:
1. Flexible Water Connectors: ASME A112.18.6.
 2. Grab Bars: ASTM F 446.
 3. Off-Floor Fixture Supports: ASME A112.6.1.
 4. Pipe Threads: ASME B1.20.1.
 5. Plastic Toilet Seats: ANSI Z124.5.
 6. Supply and Drain Protective Shielding Guards: ICC A117.1.

PART 2 PRODUCTS

2.01 LAVATORY FAUCETS

- A. Lavatory Faucets:
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on drawings or an approved comparable product by one of the following:
 - a. American Standard Companies, Inc.
 - b. Chicago Faucets.
 - c. Delta Faucet Company.
 - d. Eljer.
 - e. Elkay Manufacturing Co.
 - f. Fisher Manufacturing Co.
 - g. Grohe America, Inc.
 - h. Kohler Co.
 - i. Moen, Inc.
 - j. T & S Brass and Bronze Works, Inc.
 - k. Zurn Plumbing Products.
 2. Basis of Design: American Standard Nextgen Selectronic-integrated touchless lavatory faucet Model: 775B.105
 3. Description: Electronic motion sensor operated single-control mixing valve. Coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
 - a. Body Material: Commercial, solid brass, copper or brass

- underbody, stainless steel cover.
- b. Finish: Polished chrome plate and stainless steel.
- c. Maximum Flow Rate: 0.5 gpm.
- d. Centers: Single hole.
- e. Mounting: Deck, exposed.
- f. Inlet(s): 3/8" compression
- g. Spout: Rigid, gooseneck type.
- h. Spout Outlet: Spray
- i. Drain: Grid.
- j. Tempering Device: Thermostatic Pressure balance.

2.02 FLUSHOMETERS

- A. Flushometers:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on drawings or an approved comparable product by one of the following:
 - a. American Standard
 - b. Sloan
 - c. Zurn
 - d. Kohler
 - 2. Description: Flushometer for water-closet-type fixture. Stainless steel/brass body with corrosion-resistant internal components control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.
 - a. Internal Design: Solenoid piston operation.
 - b. Style: Exposed, Electronic with motion sensing operation.
 - c. Inlet Size: NPS 1.
 - d. Trip Mechanism: Hard-wired, electric-sensor actuator, manufacturer's power supply for two toilets required. Transformer to be installed above adjacent ceiling tile.
 - e. Consumption: 1.28 gal./1.1 flush with dual flush feature.
 - f. Tailpiece Size: NPS 1-1/2 and standard length to top of bowl.

2.03 TOILET SEATS

- A. Toilet Seats:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Standard Companies, Inc.
 - b. Bemis Manufacturing Company.
 - c. Church Seats.
 - d. Eljer.
 - e. Kohler Co.
 - f. Olsonite Corp.
 - 2. Description: Toilet seat for water closet type fixture.
 - a. Material: Molded, solid plastic with antimicrobial agent.
 - b. Configuration: Closed front without cover.
 - c. Size: Elongated.
 - d. Hinge Type: SS, self-sustaining.
 - e. Class: Heavy duty commercial

- f. Color: White.

2.04 PROTECTIVE SHIELDING GUARDS

- A. Protective Shielding Pipe Covers: integral to lavatory cover.

2.05 FIXTURE SUPPORTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Smith, Jay R. Mfg. Co.
 2. Tyler Pipe; Wade Div.
 3. Watts Drainage Products Inc.;
 4. Zurn Plumbing Products.
- B. Water-Closet Supports:
1. Description: Combination carrier designed for [accessible] [standard] mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space. Basis of design JR Smith fig D0140, D0170-side and bottom discharge as required by location/configuration
- C. Lavatory Supports:
1. Description: lavatory carrier with concealed arms and tie rod lavatory type fixture. Include steel uprights with feet.
 2. Accessible-Fixture Support: Include rectangular steel uprights.
 3. Basis of design: JR Smith Fig. 0700

2.06 WATER CLOSETS

- A. Water Closets:
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on drawings or an approved comparable product by one of the following:
 - a. American Standard Companies, Inc.
 - b. Crane Plumbing, L.L.C./Fiat Products.
 - c. Eljer.
 - d. Kohler Co.
 2. Description: Wall carrier mounting, wall outlet, vitreous china fixture designed for flushometer valve operation.
 3. Style: One piece.
 - a. Bowl Type: Elongated front with siphon jet design. Include bolt caps matching fixture.
 - b. Height: 17" seat rim height.
 - c. Design Consumption: 1.28 gal./flush.
 - d. Color: White
 4. Supply: 1" chrome plated brass or copper with screwdriver stop.\

5. Basis of design: American Standard AFWallmodel 3351.101, Millennium FlowWise-Elongated Flushometer Toilet

2.07 LAVATORIES

- A. Lavatories:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on drawings or an approved comparable product by one of the following:
 - a. American Standard Companies, Inc.
 - b. Eljer.
 - c. Kohler Co.
 2. Basis of Design: American Standard Murro Universal, Wall Hung Lavatory with Everclean: Model 0955.001EC
 3. Description: Wallmounting (with separate support in wall), vitreous china fixture.
 - a. Type: Shelf back with acrylic shroud pipe cover: 0062.000.
 - b. Size: 21 by 17 inches.
 - c. Faucet Hole Punching: One hole with overflow.
 - d. Faucet Hole Location: Top.
 - e. Pedestal: Not required.
 - f. Color: White.
 - g. Faucet: Lavatory.
 - h. Stops: NPS 3/8 chrome plated copper with stops-loose key with integral water hammer arrestor.
 - i. Drain: Grid.
 - j. Drain Piping: NPS 1-1/4 by NPS 1-1/2 chrome plated, cast brass P-trap; NPS 1-1/2, 0.045 inch thick tubular brass waste to wall; and wall escutcheon.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.
- B. Install off floor supports, affixed to building substrate, for wall mounting fixtures.
 1. Use carrier supports with waste fitting and seal for back outlet fixtures.
 2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
 3. Use chair type carrier supports with rectangular steel uprights for accessible fixtures.
- C. Install back outlet, wall mounting fixtures onto waste fitting seals and attach to supports.
- D. Install floor mounting fixtures on closet flanges or other attachments to piping or building substrate.
- E. Install wall mounting fixtures with tubular waste piping attached to supports.

- F. Install fixtures level and plumb according to drawings.
- G. Install water supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
- H. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
- I. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.
- J. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
- K. Install toilet seats on water closets.
- L. Install faucet spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- M. Install water supply flow control fittings with specified flow rates in fixture supplies at stop valves.
- N. Install faucet flow control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- O. Install traps on fixture outlets.
 - 1. Exception: Omit trap on fixtures with integral traps.
 - 2. Exception: Omit trap on indirect wastes less than 5-ft in total length, unless otherwise indicated.
- P. Install disposer in outlet of each sink indicated to have disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.
- Q. Install dishwasher air-gap fitting at each sink indicated to have air-gap fitting. Install [in sink deck] [on countertop at sink]. Connect inlet hose to dishwasher and outlet hose to disposer.
- R. Install hot water dispensers in back top surface of sink or in countertop with spout over sink.
- S. Install escutcheons at piping wall and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep pattern escutcheons if required to conceal protruding fittings.
- T. Seal joints between fixtures and walls, floors, and countertops using sanitary type, one-part, mildewresistant silicone sealant. Match sealant color to fixture color.

3.02 CONNECTIONS

- A. Piping installation requirements are specified in other sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- C. Ground equipment according to electrical division specifications.
- D. Connect wiring according to electrical division specifications.

3.03 FIELD QUALITY CONTROL

- A. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.
- B. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.
- C. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.
- D. Install fresh batteries in sensor operated mechanisms.
- E. Install protective shielding guards covering exposed plumbing fixture hot and cold water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

3.04 PROTECTION

- A. Provide protective covering for installed fixtures and fittings.
- B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:

- 1. Balancing air systems.

1.02 DEFINITIONS

- A. TAB: Testing, adjusting, and balancing.
- B. AABC: Associated Air Balance Council.
- C. NEBB: National Environmental Balancing Bureau.

1.03 SUBMITTALS

- A. Qualification Data: For the TAB contractor and its project team members.
- B. Sample report forms.
- C. Instrument calibration reports.
- D. Certified Field Data and TAB reports.

1.04 QUALITY ASSURANCE

- A. Qualifications: The TAB Contractor shall be certified by AABC or NEBB and have a certified professional to supervise field work and certify reports.
- B. Certify TAB field data reports and perform the following:
 - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
 - 2. Certify that the TAB team complied with the procedures specified and referenced in this specification.
- C. Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation".

1.05 COORDINATION

- A. TAB Conference: Meet with Owner to develop a mutual understanding of the scope of work and expectations. TAB field supervisor and technicians shall participate. Provide 7 calendar days notice of requested meeting time.
 - 1. Agenda Items:
 - a. Contract documents examination.
 - b. Develop TAB plan.
 - c. Coordination and cooperation of trades and subcontractors.
 - d. Coordination of documentation and communication flow.
- B. Notice: Provide 7 calendar days advance notice for each test. Include

scheduled test dates and times.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Examine installed balancing devices such as test ports, gage cocks, thermometer wells, flow control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.
- B. Examine the approved submittals for systems and equipment.
- C. Examine equipment performance data including fan and pump curves.
- D. Examine system and equipment installations and verify that field quality control testing, cleaning, and adjusting specified in individual sections have been performed.
- E. Examine test reports specified in individual system and equipment sections.
- F. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.
- G. Examine terminal units, such as variable air volume boxes, and verify that they are accessible and their controls are connected and functioning.
- H. Examine strainers. Verify that startup screens are replaced by permanent screens with indicated perforations.
- I. Examine heat transfer coils for correct piping connections and for clean and straight fins.
- J. Examine operating safety interlocks and controls on HVAC equipment.
- K. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.
- L. Complete system readiness checks including verification of the following:
 - 1. Hydronic systems are filled, clean, and free of air.
 - 2. Control systems are operational.
 - 3. Equipment and duct access doors are securely closed.
 - 4. Balance, smoke, and fire dampers are open.
 - 5. Isolating and balancing valves are open and control valves are operational.

6. Ceilings are installed in critical areas where air pattern adjustments are required and access to balancing devices is provided.
7. Windows and doors can be closed so indicated conditions for system operations can be met.

3.02 GENERAL TAB PROCEDURES

- A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance" ASHRAE 111 and in this section.
 1. Comply with requirements in ASHRAE 62.1-2004, Section 7.2.2, "Air Balancing".
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
 1. After testing and balancing, install test ports and duct access doors that comply with requirements in Section "Duct Accessories".
 2. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Section "Insulation".
- C. Mark equipment and balancing devices, including damper control positions, valve position indicators, fan speed control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.03 AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Prepare schematic diagrams of systems' "as-built" duct layouts.
- C. Determine the best locations in main and branch ducts for accurate duct airflow measurements.
- D. Check airflow patterns from the outdoorair louvers and dampers and the return and exhaust air dampers through the supply fan discharge and mixing dampers.
- E. Locate start stop and disconnect switches, electrical interlocks, and motor starters.
- F. Check dampers for proper position to achieve desired airflow path.
- G. Check for airflow blockages.
- H. Check condensate drains for proper connections and functioning.

3.04 HYDRONIC SYSTEMS-not used

3.05 EXISTING SYSTEMS

- A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.
 - 1. Measure and record the operating speed, airflow, and static pressure of each fan.
 - 2. Measure fan and pump motor voltage and amperage. Compare the values to motor nameplate information.
 - 3. Report on the operating condition of equipment and the results of the measurements taken. Immediately report any concerns or deficiencies.
- B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:
 - 1. New filters are installed.
 - 2. Coils are clean and fins combed.
 - 3. Drain pans are clean.
 - 4. Fans are clean.
 - 5. Bearings and other parts are properly lubricated.
 - 6. Deficiencies noted in the preconstruction report are corrected.
- C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.
 - 1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.
 - 2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
 - 3. If calculations increase or decrease the air flow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
 - 4. Balance each air outlet.

3.06 WATER COOLED CONDENSING UNITS-not used

3.07 TOLERANCES

- A. Set HVAC system's air flow rates and water flow rates within the following tolerances:
 - 1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 15 percent.
 - 2. Air Outlets and Inlets: Plus or minus 10 percent.
 - 3. Heating Water Flow Rate: Plus or minus 10 percent.
 - 4. Cooling Water Flow Rate: Plus or minus 5 percent.

3.08 REPORTING

- A. Immediately report any deficiencies and problems found in systems being tested and balanced.
- B. Final Report shall be a certified written report, tabulated and divided into systems. Contents of report shall include the following:
 - 1. Certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
 - 2. Include the certified field data report along with the following:
 - 3. Title page.
 - 4. Name and address of the TAB contractor.
 - 5. Project name.
 - 6. Project location.
 - 7. Architect's name and address.
 - 8. Engineer's name and address.
 - 9. Contractor's name and address.
 - 10. Report date.
 - 11. Signature of TAB supervisor who certifies the report.
 - 12. Table of contents with the total number of pages defined for each section of the report. Number each page in the report.
 - 13. Summary of contents including the following:
 - a. Design versus actual performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the contract documents.
 - 14. Nomenclature sheets for each item of equipment.
 - 15. Data for terminal units, including manufacturer's name, type, size, and fittings.
 - 16. Notes to explain why certain final data in the body of reports vary from indicated values.
 - 17. Test conditions for fans and pump performance forms including the following:
 - a. Settings for outdoor, return, and exhaust air dampers.
 - b. Conditions of filters.
 - c. Cooling coil, wet and dry bulb conditions.
 - d. Face and bypass damper settings at coils.
 - e. Fan drive settings including settings and percentage of maximum pitch diameter.
 - f. Inlet vane settings for variable air volume systems.
 - g. Settings for supply air, static pressure controller.
 - h. Other system operating conditions that affect performance.
 - i. Pump curves.
 - j. Fan curves.
 - k. Manufacturers' test data.
 - l. Other information relative to equipment performance; do not include Shop Drawings and product data.
 - 18. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single line diagram and include the following:
 - a. Quantities of outdoor, supply, return, and exhaust airflows.

- b. Water and steam flow rates.
 - c. Duct, outlet, and inlet sizes.
 - d. Pipe and valve sizes and locations.
 - e. Terminal units.
 - f. Balancing stations.
 - g. Position of balancing devices.
19. List of instruments used for procedures, along with Calibration Reports which shall include:
- a. Instrument type and make.
 - b. Serial number.
 - c. Application.
 - d. Dates of use.
 - e. Dates of calibration.

3.09 INSPECTIONS

A. Final Inspection:

- 1. After Testing and Balancing is complete accurately documented in the final report, request that a final inspection be made by Owner's representative.
- 2. The TAB contractor's test and balance engineer shall conduct the inspection in the presence of Owner's representative.
- 3. Owner shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal eight hour business day.
- 4. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED".
- 5. If the number of "FAILED" measurements is greater than 15 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

- B.** TAB work will be considered defective if it does not pass final inspections. If TAB work fails, recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request another final inspection.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Supply, toilet exhaust duct.
 - 2. General fabrication requirements.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated, include data for materials, thicknesses, pressure class, etc.

1.03 QUALITY ASSURANCE

- A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up".
- B. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 - "HVAC System Construction and Insulation".

1.04 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and ASCE/SEI 7.
- B. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.

PART 2 PRODUCTS

2.01 SUPPLY, EXHAUST DUCT

- A. Fabricate ducts with galvanized sheet steel.
 - 1. Pressure Class: 2 inches wg.
 - 2. Minimum SMACNA seal class C.
 - 3. SMACNA Leakage Class for Rectangular: 6.
 - 4. SMACNA Leakage Class for Round and Flat Oval: 3.

2.02 GENERAL FABRICATION REQUIREMENTS

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- B. Rectangular Ducts And Fittings:
 - 1. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible", Figure 1-4, "Transverse (Girth) Joints."
 - 2. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible", Figure 1-5, "Longitudinal Seams - Rectangular Ducts."
 - 3. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible", Chapter 2, "Fittings and Other Construction".
 - 4. Elbow Configuration:
 - a. Velocity 1000 fpm or Lower:
 - 1) Radius Type RE 1 with minimum 0.5 radius-to-diameter ratio.
 - 2) Mitered Type RE 4 without vanes.
 - b. Velocity 1000 to 1500 fpm:
 - 1) Radius Type RE 1 with minimum 1.0 radius-to-diameter ratio.
 - 2) Radius Type RE 3 with minimum 0.5 radius-to-diameter ratio and two vanes.
 - 3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Vanes and Vane Runners," and Figure 2-4, "Vane Support in Elbows".
 - c. Velocity 1500 fpm or higher:
 - 1) Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
 - 2) Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
 - 3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Vanes and Vane Runners," and Figure 2-4, "Vane Support in Elbows".
 - 5. Branch Configuration:
 - a. Rectangular Main to Rectangular Branch: 45-degree entry.
 - b. Rectangular Main to Round Branch: Saddle tap.
- C. Round And Flat-Oval Ducts And Fittings:
 - 1. Comply with SMACNA's "HVAC Duct Construction Standards -

2. Metal and Flexible", Chapter 3, "Round, Oval, and Flexible Duct".
 2. Flat-Oval Ducts: Indicated dimensions are the duct width (major dimension) and diameter of the round sides connecting the flat portions of the duct (minor dimension).
 3. Elbow Configuration: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-3, "Round Duct Elbows".
 - a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows". Elbows with less than 90-degree change of direction have proportionately fewer segments.
 - 1) Velocity 1000 fpm or Lower: 0.5 radius-to-diameter ratio and three segments for 90 degree elbow.
 - 2) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90 degree elbow.
 - 3) Velocity 1500 fpm or Higher: 1.5 radius-to-diameter ratio and five segments for 90 degree elbow.
 - b. Round Elbows 12 inches and smaller in diameter; stamped or pleated.
 - c. Round Elbows 14 inches and larger in diameter; standing seam.
 4. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "90 Degree Tees and Laterals", and Figure 3-5, "Conical Tees." Saddle taps are permitted in existing duct.
 - 1) Velocity 1000 fpm or Lower: 90 degree tap.
 - 2) Velocity 1000 to 1500 fpm: Conical tap.
 - 3) Velocity 1500 fpm or Higher: 45 degree lateral.
 5. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible", Figure 3-2, "Transverse Joints - Round Duct".
 - a. Transverse joints in ducts larger than 48 inches in diameter; flanged.
 6. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Seams - Round Duct and Fittings".
 - a. Fabricate round ducts larger than 90 inches in diameter with butt-welded longitudinal seams.
 - b. Fabricate flat-oval ducts larger than 72 inches in width (major dimension) with butt-welded longitudinal seams.
- D. Sheet Metal Materials:
1. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of

- pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- 2. Galvanized Sheet Steel: Comply with ASTM A 653.
 - a. Galvanized Coating Designation: G60.
 - b. Finishes for Surfaces Exposed to View: Mill phosphatized.
- 3. Stainless-Steel Sheets: Comply with ASTM A 480, Type 304, cold rolled, annealed, sheet.
 - a. Finishes for Surfaces Exposed to View: No. 4.
 - b. Finishes for Surfaces Concealed from View: No. 2D.
- 4. Reinforcement Shapes and Plates: ASTM A 36, steel plates, shapes, and bars; black and galvanized.
 - a. Where black and galvanized steel shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket materials.

PART 3 EXECUTION

3.01 DUCT INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for airhandling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on shop drawings and coordination drawings.
- B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.
- C. Install round and flat oval ducts in maximum practical lengths.
- D. Install ducts with fewest possible joints.
- E. Install factory or shop fabricated fittings for changes in direction, size, and shape and for branch connections.
- F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.
- G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.
- I. Route ducts to avoid passing through transformer vaults and electrical

equipment rooms and enclosures.

- J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.
- K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers.
- L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials.
- M. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.
- N. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.
- O. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.
- P. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.
- Q. Repair or replace damaged sections and finished work that does not comply with these requirements.
- R. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible".
- S. Make connections to equipment with flexible connectors complying with Section "Duct Accessories".
- T. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.
- U. Paint interior of metal ducts that are visible through registers and grilles and that do not have duct liner. Apply one coat of flat, black, latex paint over a compatible galvanized-steel primer.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Flexible connectors.
 - 2. Flexible ducts.
 - 3. Duct accessory hardware.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: -not required

1.03 QUALITY ASSURANCE

- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems", and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems".
- B. Comply with AMCA 500-D testing for damper rating.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Comply with ASTM A 653.
 - 1. Galvanized Coating Designation: G60.
 - 2. Exposed Surface Finish: Mill phosphatized.

2.02 FLANGE CONNECTORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Ductmate Industries, Inc.

2. Nexus PDQ; Division of Shilco Holdings Inc.
 3. Ward Industries, Inc.; a division of Hart & Cooley, Inc.
- B. Description: Add-on or roll formed, factory fabricated, slide-on transverse flange connectors, gaskets, and components.
- C. Material: Match connecting ductwork.
- D. Gage and Shape: Match connecting ductwork.

2.03 FLEXIBLE CONNECTORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Ductmate Industries, Inc.
 2. Duro Dyne Inc.
 3. Ventfabrics, Inc.
 4. Ward Industries, Inc.; a division of Hart & Cooley, Inc.
- B. Materials: Flame retardant or noncombustible fabrics.
- C. Coatings and Adhesives: Comply with UL 181, Class 1.
- D. Metal-Edged Connectors: Factory fabricated with a fabric strip 3-1/2 inches wide attached to 2 strips of 2-3/4 inch wide, 0.028 inch thick, galvanized sheet steel or 0.032 inch thick aluminum sheets. Provide metal compatible with connected ducts.
- E. Indoor System, Flexible Connector Fabric: Glass fabric double coated with neoprene.
1. Minimum Weight: 26 oz./sq. yd.
 2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
 3. Service Temperature: Minus 40 to plus 200 degrees F.

2.04 FLEXIBLE DUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Flexmaster U.S.A., Inc.
 2. McGill AirFlow LLC.

3. Ward Industries, Inc.; a division of Hart & Cooley, Inc.
- B. Insulated, Flexible Duct: UL 181, Class 1, 2 ply vinyl film supported by helically wound, spring steel wire; fibrous glass insulation; aluminized vapor barrier film. Acoustic performance to be specifically noted in submittals.
 1. Pressure Rating: 10 inch wg positive and 1.0 inch wg negative.
 2. Maximum Air Velocity: 4000 fpm.
 3. Temperature Range: Minus 10 to plus 160 degrees F.
 4. Insulation R-value: Comply with ASHRAE/IESNA 90.1-2004.
- C. Flexible Duct Connectors:
 1. Clamps: Stainless steel band with cadmium plated hex screw to tighten band with a worm gear action in sizes 3 through 18 inches, to suit duct size.

2.05 DUCT ACCESSORY HARDWARE

- A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct-insulation thickness.
- B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous glass ducts.
- B. Install duct accessories of materials suited to duct materials; use galvanized steel accessories in galvanized steel and fibrous glass ducts, stainless steel accessories in stainless steel ducts, and aluminum accessories in aluminum ducts.
- C. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts. Where dampers are installed in ducts having duct liner, install dampers with hat channels of same depth as liner, and terminate liner with nosing at hat channel.

1. Install steel volume dampers in steel ducts.
 2. Install aluminum volume dampers in aluminum ducts.
- D. Set dampers to fully open position before testing, adjusting, and balancing.
- E. Install test holes at fan inlets and outlets and elsewhere as indicated.
- F. Install fire[and smoke] dampers according to UL listing.
- G. Connect terminal units to supply ducts with maximum 36inch lengths of flexible duct. Do not use flexible ducts to change directions.
- H. Connect diffusers or light troffer boots to ducts with maximum 10 foot and minimum 5 foot lengths of flexible duct clamped or strapped in place.
- I. Install duct test holes where required for testing and balancing purposes.
- J. Install thrust limits at centerline of thrust, symmetrical on both sides of equipment. Attach thrust limits at centerline of thrust and adjust to a maximum of 1/4 inch movement during start and stop of fans.

3.02 FIELD QUALITY CONTROL

- A. Tests and Inspections:
1. Operate dampers to verify full range of movement.
 2. Inspect locations of access doors and verify that purpose of access door can be performed.
 3. Operate fire and smoke dampers to verify full range of movement and verify that proper heat response device is installed.
 4. Inspect turning vanes for proper and secure installation.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Fixed face registers and grilles.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated, include the following:

1. Diffuser, Register, and Grille Schedule: M1.3 project notes indicate model, size and air flow.

1.03 QUALITY ASSURANCE

A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 2 PRODUCTS

2.01 REGISTERS AND GRILLES

A. Fixed Blade Grille:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus model '300' for supply and 350RL for exhaust. Or approved comparable product by one of the following:
 - a. Anemostat Products.
 - b. Hart & Cooley Inc.
 - c. Krueger.
 - d. Nailor Industries Inc.
 - e. Titus.
 - f. Tuttle & Bailey.
2. Material: Steel.
3. Finish: Baked enamel, white.
4. Face Blade Arrangement: Horizontal spaced 1/2 inch apart.
5. Frame: 1-1/4 inches wide.
6. Mounting: surface mounted in drywall
7. Overall size 10"x6" with internal balancing damper and 6" round

neck adaptor

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb.
- B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
- C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.02 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION

ELECTRICAL SPECIFICATIONS
DIVISION 26

CIC Building Gender Inclusive Restrooms
Washington State University Tri-Cities
WSU Contract #1C01519

**SECTION 26 05 11
REQUIREMENTS FOR ELECTRICAL INSTALLATIONS**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section applies to all sections of Division 26.
- B. Furnish and install electrical systems, materials, equipment, and accessories in accordance with the specifications and drawings. Capacities and ratings of motors, transformers, conductors and cable, switchboards, switchgear, panelboards, motor control centers, generators, automatic transfer switches, and other items and arrangements for the specified items are shown on the drawings.
- C. Conductor ampacities specified or shown on the drawings are based on copper conductors, with the conduit and raceways sized per NEC. Aluminum conductors are prohibited.

1.2 MINIMUM REQUIREMENTS

- A. The latest International Building Code (IBC), Underwriters Laboratories, Inc. (UL), Institute of Electrical and Electronics Engineers (IEEE), and National Fire Protection Association (NFPA) codes and standards are the minimum requirements for materials and installation.
- B. The drawings and specifications shall govern in those instances where requirements are greater than those stated in the above codes and standards.

1.3 TEST STANDARDS

- A. All materials and equipment shall be listed, labeled, or certified by a Nationally Recognized Testing Laboratory (NRTL) to meet Underwriters Laboratories, Inc. (UL), standards where test standards have been established. Materials and equipment which are not covered by UL standards will be accepted, providing that materials and equipment are listed, labeled, certified or otherwise determined to meet the safety requirements of a NRTL. Materials and equipment which no NRTL accepts, certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards, such as ANSI, NEMA, and NETA. Evidence of compliance shall include certified test reports and definitive shop drawings.
- B. Definitions:
 - 1. Listed: Materials and equipment included in a list published by an organization that is acceptable to the Authority Having Jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production or listed materials and equipment or periodic evaluation of services, and whose listing states that the materials and equipment either meets appropriate designated standards or has been tested and found suitable for a specified purpose.
 - 2. Labeled: Materials and equipment to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the Authority Having Jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled

materials and equipment, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3. Certified: Materials and equipment which:
 - a. Have been tested and found by a NRTL to meet nationally recognized standards or to be safe for use in a specified manner.
 - b. Are periodically inspected by a NRTL.
 - c. Bear a label, tag, or other record of certification.
4. Nationally Recognized Testing Laboratory: Testing laboratory which is recognized and approved by the Secretary of Labor in accordance with OSHA regulations.

1.4 QUALIFICATIONS (PRODUCTS AND SERVICES)

- A. Manufacturer's Qualifications: The manufacturer shall regularly and currently produce, as one of the manufacturer's principal products, the materials and equipment specified for this project, and shall have manufactured the materials and equipment for at least three years.
- B. Product Qualification:
 1. Manufacturer's materials and equipment shall have been in satisfactory operation, on three installations of similar size and type as this project, for at least three years.

1.5 APPLICABLE PUBLICATIONS

- A. Applicable publications listed in all Sections of Division 26 shall be the latest issue, unless otherwise noted.
- B. Products specified in all sections of Division 26 shall comply with the applicable publications listed in each section.

1.6 MANUFACTURED PRODUCTS

- A. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, and for which replacement parts shall be available. Materials and equipment furnished shall be new, and shall have superior quality and freshness.
- B. When more than one unit of the same class or type of materials and equipment is required, such units shall be the product of a single manufacturer.
- C. Equipment Assemblies and Components:
 1. Components of an assembled unit need not be products of the same manufacturer.
 2. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.
 3. Components shall be compatible with each other and with the total assembly for the intended service.

- 4. Constituent parts which are similar shall be the product of a single manufacturer.
- D. Factory wiring and terminals shall be identified on the equipment being furnished and on all wiring diagrams.
- E. When Factory Tests are specified, Factory Tests shall be performed in the factory by the equipment manufacturer, and witnessed by the contractor.

1.7 VARIATIONS FROM CONTRACT REQUIREMENTS

- A. Where the Owner or the Contractor requests variations from the contract requirements, the connecting work and related components shall include, but not be limited to additions or changes to branch circuits, circuit protective devices, conduits, wire, feeders, controls, panels and installation methods.

1.8 MATERIALS AND EQUIPMENT PROTECTION

- A. Materials and equipment shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.
 - 1. Store materials and equipment indoors in a clean dry space with uniform temperature to prevent condensation.
 - 2. During installation, equipment shall be protected against entry of foreign matter, and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.
 - 3. Damaged equipment shall be repaired or replaced.
 - 4. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.
 - 5. Damaged paint on equipment shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

1.9 WORK PERFORMANCE

- A. All electrical work shall comply with requirements of the latest NFPA 70 (NEC), NFPA 70B, NFPA 70E, NFPA 99, NFPA 110.
- B. Job site safety and worker safety is the responsibility of the Contractor.
- C. Electrical work shall be accomplished with all affected circuits or equipment de-energized.
- D. For work that affects existing electrical systems, arrange, phase, and perform work to assure minimal interference with normal functioning of the facility.
- E. New work shall be installed and connected to existing work neatly, safely, and professionally. Disturbed or damaged work shall be replaced or repaired to its prior conditions, as required by Section 01 00 00, GENERAL REQUIREMENTS.

- F. Coordinate location of equipment and conduit with other trades to minimize interference.

1.10 EQUIPMENT INSTALLATION AND REQUIREMENTS

- A. Equipment location shall be as close as practical to locations shown on the drawings.
- B. Working clearances shall not be less than specified in the NEC.
- C. Inaccessible Equipment:
 - 1. Where the Owner determines that the Contractor has installed equipment not readily accessible for operation and maintenance, the equipment shall be removed and reinstalled as directed at no additional cost to the Owner.
 - 2. "Readily accessible" is defined as being capable of being reached quickly for operation, maintenance, or inspections without the use of ladders, or without climbing or crawling under or over obstacles such as, but not limited to, motors, pumps, belt guards, transformers, piping, ductwork, conduit, and raceways.

1.11 EQUIPMENT IDENTIFICATION

- A. In addition to the requirements of the NEC, install an identification sign which clearly indicates information required for use and maintenance of items such as switchboards and switchgear, panelboards, cabinets, motor controllers, fused and non-fused safety switches, generators, automatic transfer switches, separately enclosed circuit breakers, individual breakers and controllers in switchboards, switchgear and motor control assemblies, control devices and other significant equipment.
- B. Identification signs for Normal Power System equipment shall be laminated black phenolic resin with a white core with engraved lettering. Secure nameplates with screws.

1.12 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. All submittals shall include six copies of adequate descriptive literature, catalog cuts, shop drawings, test reports, certifications, samples, and other data necessary for the Owner to ascertain that the proposed materials and equipment comply with drawing and specification requirements. Catalog cuts submitted for approval shall be legible and clearly identify specific materials and equipment being submitted.
- C. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval.
 - 1. Mark the submittals, "SUBMITTED UNDER SECTION_____".
 - 2. Submittals shall be marked to show specification reference including the section and paragraph numbers.
 - 3. Submit each section separately.

D. The submittals shall include the following:

1. Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, manuals, pictures, nameplate data, and test reports as required.
2. Parts list which shall include information for replacement parts and ordering instructions, as recommended by the equipment manufacturer.

E. Maintenance and Operation Manuals:

1. Submit as required for systems and equipment specified in the technical sections. Furnish in hardcover binders or an approved equivalent.
2. Inscribe the following identification on the cover: the words "MAINTENANCE AND OPERATION MANUAL," the name and location of the system, material, equipment, building, name of Contractor, and contract name and number. Include in the manual the names, addresses, and telephone numbers of each subcontractor installing the system or equipment and the local representatives for the material or equipment.
3. Provide a table of contents and assemble the manual to conform to the table of contents, with tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in.
4. The manuals shall include:
 - a. Internal and interconnecting wiring and control diagrams with data to explain detailed operation and control of the equipment.
 - b. A control sequence describing start-up, operation, and shutdown.
 - c. Description of the function of each principal item of equipment.
 - d. Installation instructions.
 - e. Safety precautions for operation and maintenance.
 - f. Diagrams and illustrations.
 - g. Periodic maintenance and testing procedures and frequencies, including replacement parts numbers.
 - h. Performance data.
 - i. Pictorial "exploded" parts list with part numbers. Emphasis shall be placed on the use of special tools and instruments. The list shall indicate sources of supply, recommended spare and replacement parts, and name of servicing organization.
 - j. List of factory approved or qualified permanent servicing organizations for equipment repair and periodic testing and maintenance, including addresses and factory certification qualifications.

F. Approvals will be based on complete submission of shop drawings, manuals, test reports, certifications, and samples as applicable.

1.13 SINGULAR NUMBER

- A. Where any device or part of equipment is referred to in these specifications in the singular number (e.g., "the switch"), this reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.

1.14 ACCEPTANCE CHECKS AND TESTS

- A. The Contractor shall furnish the instruments, materials, and labor for tests.
- B. Where systems are comprised of components specified in more than one section of Division 26, the Contractor shall coordinate the installation, testing, and adjustment of all components between various manufacturer's representatives and technicians so that a complete, functional, and operational system is delivered to the Owner.
- C. When test results indicate any defects, the Contractor shall repair or replace the defective materials or equipment, and repeat the tests for the equipment. Repair, replacement, and re-testing shall be accomplished at no additional cost to the Owner.

1.15 WARRANTY

- A. All work performed and all equipment and material furnished under this Division shall be free from defects and shall remain so for a period of one year from the date of acceptance of the entire installation.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

---END---

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, connection, and testing of the electrical conductors and cables for use in electrical systems rated 600 V and below, indicated as cable(s), conductor(s), wire, or wiring in this section.

1.2 RELATED WORK

- A. Section 07 84 00, FIRESTOPPING: Sealing around penetrations to maintain the integrity of fire-resistant rated construction.
- B. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Requirements that apply to all sections of Division 26.
- C. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.
- D. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduits for conductors and cables.

1.3 QUALITY ASSURANCE

- A. Quality Assurance shall be in accordance with Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES) in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit in accordance with Paragraph SUBMITTALS in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, and the following requirements:
 - 1. Shop Drawings:
 - a. Submit sufficient information to demonstrate compliance with drawings and specifications.
 - b. Submit the following data for approval:
 - 1) Electrical ratings and insulation type for each conductor and cable.

- 2) Splicing materials and pulling lubricant.
2. Certifications: Two weeks prior to final inspection, submit the following.
 - a. Certification by the manufacturer that the conductors and cables conform to the requirements of the drawings and specifications.
 - b. Certification by the Contractor that the conductors and cables have been properly installed, adjusted, and tested.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are reference in the text by designation only.
- B. American Society of Testing Material (ASTM):
 - D2301-10 Standard Specification for Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape
 - D2304-10 Test Method for Thermal Endurance of Rigid Electrical Insulating Materials
 - D3005-10 Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape
- C. National Electrical Manufacturers Association (NEMA):
 - WC 70-09 Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- D. National Fire Protection Association (NFPA):
 - 70-17 National Electrical Code (NEC)
- E. Underwriters Laboratories, Inc. (UL):
 - 44-14 Thermoset-Insulated Wires and Cables
 - 83-14 Thermoplastic-Insulated Wires and Cables
 - 467-13 Grounding and Bonding Equipment
 - 486A-486B-13 Wire Connectors
 - 486C-13 Splicing Wire Connectors
 - 486D-15 Sealed Wire Connector Systems
 - 486E-15 Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors

493-07 Thermoplastic-Insulated Underground Feeder and Branch Circuit Cables

514B-12 Conduit, Tubing, and Cable Fittings

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Conductors and cables shall be in accordance with ASTM, NEMA, NFPA, UL, as specified herein, and as shown on the drawings.
- B. All conductors shall be copper.
- C. Single Conductor and Cable:
1. No. 12 AWG: Minimum size, except where smaller sizes are specified herein or shown on the drawings.
 2. No. 8 AWG and larger: Stranded.
 3. No. 10 AWG and smaller: Solid; except shall be stranded for final connection to motors, transformers, and vibrating equipment.
 4. Insulation: THHN-THWN and XHHW-2. XHHW-2 shall be used for isolated power systems.
- D. Color Code:
1. No. 10 AWG and smaller: Solid color insulation or solid color coating.
 2. No. 8 AWG and larger: Color-coded using one of the following methods:
 - a. Solid color insulation or solid color coating.
 - b. Stripes, bands, or hash marks of color specified.
 - c. Color using 19 mm (0.75 inches) wide tape.
 3. For modifications and additions to existing wiring systems, color coding shall conform to the existing wiring system.
 4. Conductors shall be color-coded as follows:

208/120 V	Phase	480/277 V
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray *

* or white with colored (other than green) tracer.
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5. Lighting circuit "switch legs", and 3-way and 4-way switch "traveling wires," shall have color coding that is unique and distinct (e.g., pink and purple) from the color coding indicated above. The unique color codes shall be solid and in accordance with the NEC.

2.2 SPLICES

- A. Splices shall be in accordance with NEC and UL.
- B. Above Ground Splices for No. 10 AWG and Smaller:
 1. Solderless, screw-on, reusable pressure cable type, with integral insulation, approved for copper and aluminum conductors.
 2. The integral insulator shall have a skirt to completely cover the stripped conductors.
 3. The number, size, and combination of conductors used with the connector, as listed on the manufacturer's packaging, shall be strictly followed.
- C. Above Ground Splices for No. 8 AWG to No. 4/0 AWG:
 1. Compression, hex screw, or bolt clamp-type of high conductivity and corrosion-resistant material, listed for use with copper and aluminum conductors.
 2. Insulate with materials approved for the particular use, location, voltage, and temperature. Insulation level shall be not less than the insulation level of the conductors being joined.
 3. Splice and insulation shall be product of the same manufacturer.
 4. All bolts, nuts, and washers used with splices shall be zinc-plated steel.
- D. Plastic electrical insulating tape: Per ASTM D2304, flame-retardant, cold and weather resistant.

2.3 CONNECTORS AND TERMINATIONS

- A. Mechanical type of high conductivity and corrosion-resistant material, listed for use with copper and aluminum conductors.
- B. Long barrel compression type of high conductivity and corrosion-resistant material, with minimum of two compression indents per wire, listed for use with copper and aluminum conductors.
- C. All bolts, nuts, and washers used to connect connections and terminations to bus bars or other termination points shall be zinc-plated steel.

2.4 CONTROL WIRING

- A. Unless otherwise specified elsewhere in these specifications, control wiring shall be as specified herein, except that the minimum size shall be not less than No. 14 AWG.
- B. Control wiring shall be sized such that the voltage drop under in-rush conditions does not adversely affect operation of the controls.

2.5 WIRE LUBRICATING COMPOUND

- A. Lubricating compound shall be suitable for the wire insulation and conduit, and shall not harden or become adhesive.

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation shall be in accordance with the NEC, as shown on the drawings, and manufacturer's instructions.
- B. Install all conductors in raceway systems.
- C. Splice conductors only in outlet boxes, junction boxes, pullboxes, manholes, or handholes.
- D. Conductors of different systems (e.g., 120 V and 277 V) shall not be installed in the same raceway.
- E. Install cable supports for all vertical feeders in accordance with the NEC. Provide split wedge type which firmly clamps each individual cable and tightens due to cable weight.
- F. In panelboards, cabinets, wireways, switches, enclosures, and equipment assemblies, neatly form, train, and tie the conductors with non-metallic ties.
- G. For connections to motors, transformers, and vibrating equipment, stranded conductors shall be used only from the last fixed point of connection to the motors, transformers, or vibrating equipment.
- H. Use expanding foam or non-hardening duct-seal to seal conduits entering a building, after installation of conductors.
- I. Conductor and Cable Pulling:
 - 1. Provide installation equipment that will prevent the cutting or abrasion of insulation during pulling. Use lubricants approved for the cable.
 - 2. Use nonmetallic pull ropes.

3. Attach pull ropes by means of either woven basket grips or pulling eyes attached directly to the conductors.
 4. All conductors in a single conduit shall be pulled simultaneously.
 5. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- J. No more than three branch circuits shall be installed in any one conduit.
- K. When stripping stranded conductors, use a tool that does not damage the conductor or remove conductor strands.

3.2 SPLICE AND TERMINATION INSTALLATION

- A. Splices and terminations shall be mechanically and electrically secure, and tightened to manufacturer's published torque values using a torque screwdriver or wrench.

3.3 CONDUCTOR IDENTIFICATION

- A. When using colored tape to identify phase, neutral, and ground conductors larger than No. 8 AWG, apply tape in half-overlapping turns for a minimum of 75 mm (3 inches) from terminal points, and in junction boxes, pullboxes, and manholes. Apply the last two laps of tape with no tension to prevent possible unwinding. Where cable markings are covered by tape, apply tags to cable, stating size and insulation type.

3.4 CONTROL WIRING INSTALLATION

- A. Unless otherwise specified in other sections, install control wiring and connect to equipment to perform the required functions as specified or as shown on the drawings.
- B. Install a separate power supply circuit for each system, except where otherwise shown on the drawings.

3.5 CONTROL WIRING IDENTIFICATION

- A. Install a permanent wire marker on each wire at each termination.
- B. Identifying numbers and letters on the wire markers shall correspond to those on the wiring diagrams used for installing the systems.
- C. Wire markers shall retain their markings after cleaning.

3.6 ACCEPTANCE CHECKS AND TESTS

- A. Perform in accordance with the manufacturer's recommendations. In addition, include the following:

1. Visual Inspection and Tests: Inspect physical condition.
2. Electrical tests:
 - a. After installation but before connection to utilization devices, such as fixtures, motors, or appliances, test conductors phase-to-phase and phase-to-ground resistance with an insulation resistance tester. Existing conductors to be reused shall also be tested.
 - b. Applied voltage shall be 500 V DC for 300 V rated cable, and 1000 V DC for 600 V rated cable. Apply test for one minute or until reading is constant for 15 seconds, whichever is longer. Minimum insulation resistance values shall not be less than 25 megohms for 300 V rated cable and 100 megohms for 600 V rated cable.
 - c. Perform phase rotation test on all three-phase circuits.

---END---

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, connection, and testing of grounding and bonding equipment, indicated as grounding equipment in this section.
- B. "Grounding electrode system" refers to grounding electrode conductors and all electrodes required or allowed by NEC, as well as made, supplementary, and lightning protection system grounding electrodes.
- C. The terms "connect" and "bond" are used interchangeably in this section and have the same meaning.

1.2 RELATED WORK

- A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Requirements that apply to all sections of Division 26.
- B. Section 26 05 19, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES: Low-voltage conductors.
- C. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduit and boxes.

1.3 QUALITY ASSURANCE

- A. Quality Assurance shall be in accordance with Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES) in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit in accordance with Paragraph, SUBMITTALS in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, and the following requirements:
 - 1. Shop Drawings:
 - a. Submit sufficient information to demonstrate compliance with drawings and specifications.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.
- B. American Society for Testing and Materials (ASTM):
 - B1-13 Standard Specification for Hard-Drawn Copper Wire
 - B3-13 Standard Specification for Soft or Annealed Copper Wire
 - B8-11 Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
- C. National Fire Protection Association (NFPA):
 - 70-17 National Electrical Code (NEC)
 - 70E-15 National Electrical Safety Code
- D. Underwriters Laboratories, Inc. (UL):
 - 44-14 Thermoset-Insulated Wires and Cables
 - 83-14 Thermoplastic-Insulated Wires and Cables
 - 467-13 Grounding and Bonding Equipment

PART 2 - PRODUCTS

2.1 GROUNDING AND BONDING CONDUCTORS

- A. Equipment grounding conductors shall be insulated stranded copper, except that sizes No. 10 AWG and smaller shall be solid copper. Insulation color shall be continuous green for all equipment grounding conductors, except that wire sizes No. 4 AWG and larger shall be identified per NEC.
- B. Bonding conductors shall be bare stranded copper, except that sizes No. 10 AWG and smaller shall be bare solid copper. Bonding conductors shall be stranded for final connection to motors, transformers, and vibrating equipment.
- C. Conductor sizes shall not be less than shown on the drawings, or not less than required by the NEC, whichever is greater.
- D. Insulation: THHN-THWN and XHHW-2.

2.2 GROUND CONNECTIONS

- A. Connection to Grounding Bus Bars: Listed for use with aluminum and copper conductors. Use mechanical type lugs, with zinc-plated steel bolts, nuts, and washers. Bolts shall be torqued to the values recommended by the manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation shall be in accordance with the NEC, as shown on the drawings, and manufacturer's instructions.
- B. Equipment Grounding: Metallic piping, building structural steel, electrical enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, and other conductive items in close proximity with electrical circuits, shall be bonded and grounded.

3.2 RACEWAY

- A. Conduit Systems:
 - 1. Ground all metallic conduit systems. All metallic conduit systems shall contain an equipment grounding conductor.
 - 2. Non-metallic conduit systems, except non-metallic feeder conduits that carry a grounded conductor from exterior transformers to interior or building-mounted service entrance equipment, shall contain an equipment grounding conductor.
 - 3. Metallic conduit that only contains a grounding conductor, and is provided for its mechanical protection, shall be bonded to that conductor at the entrance and exit from the conduit.
 - 4. Metallic conduits which terminate without mechanical connection to an electrical equipment housing by means of locknut and bushings or adapters, shall be provided with grounding bushings. Connect bushings with an equipment grounding conductor to the equipment ground bus.
- B. Feeders and Branch Circuits: Install equipment grounding conductors with all feeders, and power and lighting branch circuits.
- C. Boxes, Cabinets, Enclosures, and Panelboards:
 - 1. Bond the equipment grounding conductor to each pullbox, junction box, outlet box, device box, cabinets, and other enclosures through which the conductor passes.
 - 2. Provide lugs in each box and enclosure for equipment grounding conductor termination.

- D. Receptacles shall not be grounded through their mounting screws. Ground receptacles with a jumper from the receptacle green ground terminal to the device box ground screw and a jumper to the branch circuit equipment grounding conductor.
- E. Ground lighting fixtures to the equipment grounding conductor of the wiring system. Fixtures connected with flexible conduit shall have a green ground wire included with the power wires from the fixture through the flexible conduit to the first outlet box.
- F. Fixed electrical appliances and equipment shall be provided with a ground lug for termination of the equipment grounding conductor.

3.3 CORROSION INHIBITORS

- A. When making grounding and bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.

---END---

**SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, and connection of conduit, fittings, and boxes, to form complete, coordinated, grounded raceway systems. Raceways are required for all wiring unless shown or specified otherwise.
- B. Definitions: The term conduit, as used in this specification, shall mean any or all of the raceway types specified.

1.2 RELATED WORK

- A. Section 07 84 00, FIRESTOPPING: Sealing around penetrations to maintain the integrity of fire rated construction.
- B. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.
- C. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.3 QUALITY ASSURANCE

- A. Quality Assurance shall be in accordance with Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES) in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit in accordance with Paragraph, SUBMITTALS in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, and the following requirements:
 - 1. Shop Drawings:
 - a. Submit the following data for approval:
 - 1) Raceway types and sizes.
 - 2) Conduit bodies, connectors, and fittings.

- 3) Junction and pull boxes, types and sizes.
2. Certifications: Two weeks prior to final inspection, submit the following:
 - a. Certification by the manufacturer that raceways, conduits, conduit bodies, connectors, fittings, junction and pull boxes, and all related equipment conform to the requirements of the drawings and specifications.
 - b. Certification by the Contractor that raceways, conduits, conduit bodies, connectors, fittings, junction and pull boxes, and all related equipment have been properly installed.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.
- B. American Iron and Steel Institute (AISI):
 - S100-12 North American Specification for the Design of Cold-Formed Steel Structural Members
- C. National Electrical Manufacturers Association (NEMA):
 - C80.1-15 Electrical Rigid Steel Conduit
 - C80.3-15 Steel Electrical Metal Tubing
 - C80.6-05 Electrical Intermediate Metal Conduit
 - FB1-14 Fittings, Cast Metal Boxes and Conduit Bodies for Conduit, Electrical Metallic Tubing and Cable
 - FB2.10-13 Selection and Installation Guidelines for Fittings for use with Non-Flexible Conduit or Tubing (Rigid Metal Conduit, Intermediate Metallic Conduit, and Electrical Metallic Tubing)
 - FB2.20-14 Selection and Installation Guidelines for Fittings for use with Flexible Electrical Conduit and Cable
 - TC-2-13 Electrical Polyvinyl Chloride (PVC) Tubing and Conduit
 - TC-3-13 PVC Fittings for Use with Rigid PVC Conduit and Tubing
- D. National Fire Protection Association (NFPA):
 - 70-17 National Electrical Code (NEC)
- E. Underwriters Laboratories, Inc. (UL):

1-05	Flexible Metal Conduit
5-16	Surface Metal Raceway and Fittings
6-07	Electrical Rigid Metal Conduit - Steel
50-15	Enclosures for Electrical Equipment
360-13	Liquid-Tight Flexible Steel Conduit
467-13	Grounding and Bonding Equipment
514A-13	Metallic Outlet Boxes
514B-12	Conduit, Tubing, and Cable Fittings
514C-14	Nonmetallic Outlet Boxes, Flush-Device Boxes and Covers
651-11	Schedule 40 and 80 Rigid PVC Conduit and Fittings
651A-11	Type EB and A Rigid PVC Conduit and HDPE Conduit
797-07	Electrical Metallic Tubing
1242-14	Electrical Intermediate Metal Conduit - Steel

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Conduit Size: In accordance with the NEC, but not less than $\frac{3}{4}$ " unless otherwise shown. Where permitted by the NEC, $\frac{1}{2}$ " flexible conduit may be used for tap connections to recessed lighting fixtures.
- B. Conduit:
 - 1. Size: In accordance with the NEC, but not less than $\frac{3}{4}$ ".
 - 2. Electrical Metallic Tubing (EMT): Shall conform to UL 797 and NEMA C80.3. Maximum size not to exceed 105 mm (4 inches) and shall be permitted only with cable rated 600 V or less.
 - 3. Flexible Metal Conduit: Shall conform to UL 1.
 - 4. Liquid-tight Flexible Metal Conduit: Shall conform to UL 360.
 - 5. Surface Metal Raceway: Shall conform to UL 5.
- C. Conduit Fittings:

1. Electrical Metallic Tubing Fittings:

- a. Fittings and conduit bodies shall meet the requirements of UL 514B, NEMA C80.3, and NEMA FB1.
- b. Only steel or malleable iron materials are acceptable.
- c. Compression Couplings and Connectors: Concrete-tight and rain-tight, with connectors having insulated throats.
- d. Indent-type connectors or couplings are prohibited.
- e. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.

2. Flexible Metal Conduit Fittings:

- a. Conform to UL 514B. Only steel or malleable iron materials are acceptable.
- b. Clamp-type, with insulated throat.

3. Liquid-tight Flexible Metal Conduit Fittings:

- a. Fittings shall meet the requirements of UL 514B and NEMA FB1.
- b. Only steel or malleable iron materials are acceptable.
- c. Fittings must incorporate a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats.

D. Conduit Supports:

- 1. Parts and Hardware: Zinc-coat or provide equivalent corrosion protection.
- 2. Individual Conduit Hangers: Designed for the purpose, having a pre-assembled closure bolt and nut, and provisions for receiving a hanger rod.
- 3. Multiple Conduit (Trapeze) Hangers: Not less than 38 mm x 38 mm (1.5 x 1.5 inches), 12-gauge steel, cold-formed, lipped channels; with not less than 9 mm (0.375-inch) diameter steel hanger rods.
- 4. Solid Masonry and Concrete Anchors: Self-drilling expansion shields, or machine bolt expansion.

E. Outlet, Junction, and Pull Boxes:

- 1. Comply with UL-50 and UL-514A.
- 2. Rustproof cast metal where required by the NEC or shown on drawings.
- 3. Sheet Metal Boxes: Galvanized steel, except where shown on drawings.

PART 3 - EXECUTION

3.1 PENETRATIONS

A. Cutting or Holes:

1. Cut holes in advance where they should be placed in the structural elements, such as ribs or beams.
2. Cut holes through concrete and masonry in new and existing structures with a diamond core drill or concrete saw. Pneumatic hammers, impact electric, hand, or manual hammer-type drills are not allowed.

B. Firestop: Where conduits, wireways, and other electrical raceways pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases as specified in Section 07 84 00, FIRESTOPPING.

3.2 INSTALLATION, GENERAL

A. In accordance with NEC, NEMA, UL, as shown on drawings, and as specified herein.

B. Install conduit as follows:

1. In complete mechanically and electrically continuous runs before pulling in cables or wires.
2. Unless otherwise indicated on the drawings or specified herein, installation of all conduits shall be concealed within finished walls, floors, and ceilings.
3. Flattened, dented, or deformed conduit is not permitted. Remove and replace the damaged conduits with new conduits.
4. Assure conduit installation does not encroach into the ceiling height head room, walkways, or doorways.
5. Cut conduits square, ream, remove burrs, and draw up tight.
6. Independently support conduit at 2.4 M (8 feet) on centers with specified materials and as shown on drawings.
7. Do not use suspended ceilings, suspended ceiling supporting members, lighting fixtures, other conduits, cable tray, boxes, piping, or ducts to support conduits and conduit runs.
8. Support within 300 mm (12 inches) of changes of direction, and within 300 mm (12 inches) of each enclosure to which connected.

9. Close ends of empty conduits with plugs or caps at the rough-in stage until wires are pulled in, to prevent entry of debris.
10. Conduit installations under fume and vent hoods are prohibited.
11. Secure conduits to cabinets, junction boxes, pull-boxes, and outlet boxes with bonding type locknuts.
12. Conduit bodies shall only be used for changes in direction, and shall not contain splices.

C. Conduit Bends:

1. Make bends with standard conduit bending machines.
2. Conduit hickey may be used for slight offsets and for straightening stubbed out conduits.
3. Bending of conduits with a pipe tee or vise is prohibited.

D. Layout and Homeruns:

1. Install conduit with wiring, including homeruns, as shown on drawings.
2. Deviations: Make only where necessary to avoid interferences.

3.3 CONCEALED WORK INSTALLATION

A. Above Furred or Suspended Ceilings and in Walls:

1. Conduit for Conductors 600 V and Below: EMT. Mixing different types of conduits in the same system is prohibited.
2. Align and run conduit parallel or perpendicular to the building lines.
3. Connect recessed lighting fixtures to conduit runs with maximum 1.8 M (6 feet) of flexible metal conduit extending from a junction box to the fixture.
4. Tightening set screws with pliers is prohibited.
5. For conduits running through metal studs, limit field cut holes to no more than 70% of web depth. Spacing between holes shall be at least 457 mm (18 inches). Cuts or notches in flanges or return lips shall not be permitted.

3.4 EXPOSED WORK INSTALLATION

- A.** Unless otherwise indicated on drawings, exposed conduit is only permitted in mechanical and electrical rooms.

3.5 MOTORS AND VIBRATING EQUIPMENT

- A. Use flexible metal conduit for connections to motors and other electrical equipment subject to movement, vibration, misalignment, cramped quarters, or noise transmission.
- B. Use liquid-tight flexible metal conduit for installation in exterior locations, moisture or humidity laden atmosphere, corrosive atmosphere, water or spray wash-down operations, inside airstream of HVAC units, and locations subject to seepage or dripping of oil, grease, or water.
- C. Provide a green equipment grounding conductor with flexible and liquid-tight flexible metal conduit.

3.6 CONDUIT SUPPORTS

- A. Safe working load shall not exceed one-quarter of proof test load of fastening devices.
- B. Use pipe straps or individual conduit hangers for supporting individual conduits.
- C. Support multiple conduit runs with trapeze hangers. Use trapeze hangers that are designed to support a load equal to or greater than the sum of the weights of the conduits, wires, hanger itself, and an additional 90 kg (200 lbs). Attach each conduit with U-bolts or other approved fasteners.
- D. Support conduit independently of junction boxes, pull-boxes, fixtures, suspended ceiling T-bars, angle supports, and similar items.
- E. Bolts supported only by plaster or gypsum wallboard are not acceptable.
- F. Metal Structures: Use machine screw fasteners or other devices specifically designed and approved for the application.
- G. Attachment by wood plugs, rawl plug, plastic, lead or soft metal anchors, or wood blocking and bolts supported only by plaster is prohibited.
- H. Chain, wire, or perforated strap shall not be used to support or fasten conduit.
- I. Spring steel type supports or fasteners are prohibited for all uses except horizontal and vertical supports/fasteners within walls.
- J. Vertical Supports: Vertical conduit runs shall have riser clamps and supports in accordance with the NEC and as shown. Provide supports for cable and wire with fittings that include internal wedges and retaining collars.

3.7 BOX INSTALLATION

- A. Boxes for Concealed Conduits:
 - 1. Flush-mounted.

2. Provide raised covers for boxes to suit the wall or ceiling, construction, and finish.
- B. In addition to boxes shown, install additional boxes where needed to prevent damage to cables and wires during pulling-in operations or where more than the equivalent of 4-90 degree bends are necessary.
- C. Locate pullboxes so that covers are accessible and easily removed. Coordinate locations with piping and ductwork where installed above ceilings.
- D. Remove only knockouts as required. Plug unused openings. Use threaded plugs for cast metal boxes and snap-in metal covers for sheet metal boxes.
- E. Outlet boxes mounted back-to-back in the same wall are prohibited. A minimum 600 mm (24 inch) center-to-center lateral spacing shall be maintained between boxes.
- F. Flush-mounted wall or ceiling boxes shall be installed with raised covers so that the front face of raised cover is flush with the wall. Surface-mounted wall or ceiling boxes shall be installed with surface-style flat or raised covers.
- G. Minimum size of outlet boxes for ground fault circuit interrupter (GFCI) receptacles is 100 mm (4 inches) square x 55 mm (2.125 inches) deep, with device covers for the wall material and thickness involved.
- H. Stencil or install phenolic nameplates on covers of the boxes identified on riser diagrams; for example "SIG-FA JB No. 1."
- I. On all branch circuit junction box covers, identify the circuits with black marker.

--- E N D ---

**SECTION 26 27 26
WIRING DEVICES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the furnishing, installation, connection, and testing of wiring devices.

1.2 RELATED WORK

- A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements that are common to more than one section of Division 26.
- B. Section 26 05 19, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES: Cables and wiring.
- C. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path to ground for possible ground fault currents.
- D. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduit and boxes.
- E. Section 26 51 00, INTERIOR LIGHTING: Fluorescent ballasts and LED drivers for use with manual dimming controls.

1.3 QUALITY ASSURANCE

- A. Quality Assurance shall be in accordance with Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES) in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit in accordance with Paragraph, SUBMITTALS in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, and the following requirements:
 - 1. Shop Drawings:
 - a. Submit sufficient information to demonstrate compliance with drawings and specifications.
 - b. Include electrical ratings, dimensions, mounting details, construction materials, grade, and termination information.

2. Manuals:
 - a. Submit, simultaneously with the shop drawings, companion copies of complete maintenance and operating manuals, including technical data sheets and information for ordering replacement parts.
 - b. If changes have been made to the maintenance and operating manuals originally submitted, submit updated maintenance and operating manuals two weeks prior to the final inspection.
3. Certifications: Two weeks prior to final inspection, submit the following.
 - a. Certification by the manufacturer that the wiring devices conform to the requirements of the drawings and specifications.
 - b. Certification by the Contractor that the wiring devices have been properly installed and adjusted.

1.5 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.

B. National Electrical Manufacturers Association (NEMA):

WD 1-99(R2015) General Color Requirements for Wiring Devices

WD 6-16 Wiring Devices – Dimensional Specifications

C. National Fire Protection Association (NFPA):

70-17 National Electrical Code (NEC)

D. Underwriter's Laboratories, Inc. (UL):

5-16 Surface Metal Raceways and Fittings

20-10 General-Use Snap Switches

231-16 Power Outlets

467-13 Grounding and Bonding Equipment

498-17 Attachment Plugs and Receptacles

943-16 Ground-Fault Circuit-Interruptioners

1449-14 Surge Protective Devices

1472-15 Solid State Dimming Controls

PART 2 - PRODUCTS

2.1 RECEPTACLES

- A. General: All receptacles shall comply with NEMA, NFPA, UL, and as shown on the drawings.
 - 1. Mounting straps shall be nickel plated brass, brass, nickel plated steel or galvanize steel with break-off plaster ears, and shall include a self-grounding feature. Terminal screws shall be brass, brass plated or a copper alloy metal.
 - 2. Receptacles shall have provisions for back wiring with separate metal clamp type terminals (four minimum) and side wiring from four captively held binding screws.
- B. Duplex Receptacles: single phase, 20 ampere, 120 volts, 2-pole, 3-wire, NEMA 5-20R, with break-off feature for two-circuit operation.
 - 1. Bodies shall be ivory in color.
 - 2. Switched duplex receptacles shall be wired so that only the top receptacle is switched. The lower receptacle shall be unswitched.
 - 3. Ground Fault Current Interrupter (GFCI) Duplex Receptacles: Shall be an integral unit, suitable for mounting in a standard outlet box, with end-of-life indication and provisions to isolate the face due to improper wiring. GFCI receptacles shall be self-test receptacles in accordance with UL 943.
 - a. Ground fault interrupter shall consist of a differential current transformer, self-test, solid state sensing circuitry and a circuit interrupter switch. Device shall have nominal sensitivity to ground leakage current of 4-6 milliamperes and shall function to interrupt the current supply for any value of ground leakage current above five milliamperes (+ or – 1 milliampere) on the load side of the device. Device shall have a minimum nominal tripping time of 0.025 second.
 - b. Self-test function shall be automatically initiated within 5 seconds after power is activated to the receptacles. Self-test function shall be periodically and automatically performed every 3 hours or less.
 - c. End-of-life indicator light shall be a persistent flashing or blinking light to indicate that the GFCI receptacle is no longer in service.
 - 4. Tamper-Resistant Duplex Receptacles:
 - a. Bodies shall be gray in color.
 - 1) Shall permit current to flow only while a standard plug is in the proper position in the receptacle.
 - 2) Screws exposed while the wall plates are in place shall be the tamperproof type.

- C. Receptacles - 20, 30, and 50 ampere, 250 Volts: Shall be complete with appropriate cord grip plug.

2.2 TOGGLE SWITCHES

- A. Toggle switches shall be totally enclosed tumbler type with nylon bodies. Handles shall be ivory in color unless otherwise specified or shown on the drawings.
 - 1. Shall be single unit toggle, butt contact, quiet AC type, heavy-duty general-purpose use with an integral self grounding mounting strap with break-off plaster ears and provisions for back wiring with separate metal wiring clamps and side wiring with captively held binding screws.
 - 2. Switches shall be rated 20 amperes at 120-277 Volts AC.

2.3 MANUAL DIMMING CONTROL

- A. Electronic full-wave manual slide dimmer with on/off switch and audible frequency and EMI/RFI suppression filters.
- B. Manual dimming controls shall be fully compatible with LED dimming driver and be approved by the driver manufacturer, shall operate over full specified dimming range, and shall not degrade the performance or rated life of the electronic dimming ballast and lamp.
- C. Provide single-pole, three-way or four-way, as shown on the drawings.
- D. Manual dimming control and faceplates shall be ivory in color unless otherwise specified.

2.4 WALL PLATES

- A. Wall plates for switches and receptacles shall be type 302 stainless steel. Oversize plates are not acceptable.
- B. For receptacles or switches mounted adjacent to each other, wall plates shall be common for each group of receptacles or switches.
- C. In areas requiring tamperproof wiring devices, wall plates shall be type 302 stainless steel, and shall have tamperproof screws and beveled edges.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with the NEC and as shown as on the drawings.
- B. Install wiring devices after wall construction and painting is complete.

- C. The ground terminal of each wiring device shall be bonded to the outlet box with an approved green bonding jumper, and also connected to the branch circuit equipment grounding conductor.
- D. Outlet boxes for toggle switches and manual dimming controls shall be mounted on the strike side of doors.
- E. Provide barriers in multi-gang outlet boxes to comply with the NEC.
- F. Coordinate the electrical work with the work of other trades to ensure that wiring device flush outlets are positioned with box openings aligned with the face of the surrounding finish material. Pay special attention to installations in cabinet work, and in connection with laboratory equipment.
- G. Exact field locations of floors, walls, partitions, doors, windows, and equipment may vary from locations shown on the drawings. Prior to locating sleeves, boxes and chases for roughing-in of conduit and equipment, the Contractor shall coordinate exact field location of the above items with other trades.
- H. Install wall switches 1.2 M (48 inches) above floor, with the toggle OFF position down.
- I. Install wall dimmers 1.2 M (48 inches) above floor.
- J. Install receptacles 450 mm (18 inches) above floor, and 152 mm (6 inches) above counter backsplash or workbenches. Install specific-use receptacles at heights shown on the drawings.
- K. Install horizontally mounted receptacles with the ground pin to the right.
- L. When required or recommended by the manufacturer, use a torque screwdriver. Tighten unused terminal screws.
- M. Label device plates with a permanent adhesive label listing panel and circuit feeding the wiring device.

3.2 ACCEPTANCE CHECKS AND TESTS

- A. Perform manufacturer's required field checks in accordance with the manufacturer's recommendations. In addition, include the following:
 - 1. Visual Inspection and Tests:
 - a. Inspect physical and electrical conditions.
 - b. Vacuum-clean surface metal raceway interior. Clean metal raceway exterior.
 - c. Test wiring devices for damaged conductors, high circuit resistance, poor connections, inadequate fault current path, defective devices, or similar problems using a portable receptacle tester. Correct circuit conditions, remove malfunctioning units and replace with new, and retest as specified above.

- d. Test GFCI receptacles.

---END---

SECTION 26 51 00

INTERIOR LIGHTING

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section specifies the furnishing, installation, and connection of the interior lighting systems. The terms "lighting fixture," "fixture," and "luminaire" are used interchangeably.

1.2 RELATED WORK

- A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Requirements that apply to all sections of Division 26.
- B. Section 26 05 19, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES: Low-voltage conductors.
- C. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path to ground for possible ground fault currents.
- D. Section 26 27 26, WIRING DEVICES: Wiring devices used for control of the lighting systems.

1.3 QUALITY ASSURANCE

- A. Quality Assurance shall be in accordance with Paragraph, QUALIFICATIONS (PRODUCTS AND SERVICES) in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS

- A. Submit in accordance with Paragraph, SUBMITTALS in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, and the following requirements:
 - 1. Shop Drawings:
 - a. Submit the following information for each type of lighting fixture designated on the LIGHTING FIXTURE SCHEDULE, arranged in order of lighting fixture designation.
 - b. Material and construction details, include information on housing and optics system.
 - c. Physical dimensions and description.

- d. Wiring schematic and connection diagram.
 - e. Installation details.
 - f. Energy efficiency data.
 - g. Photometric data based on laboratory tests complying with IES Lighting Measurements testing and calculation guides.
 - h. Lamp data including lumen output (initial and mean), color rendition index (CRI), rated life (hours), and color temperature (degrees Kelvin).
 - i. Ballast data including ballast type, starting method, ambient temperature, ballast factor, sound rating, system watts, and total harmonic distortion (THD).
 - j. For LED lighting fixtures, submit US DOE LED Lighting Facts label, and IES L70 rated life.
2. Manuals:
- a. Submit, simultaneously with the shop drawings, complete maintenance and operating manuals, including technical data sheets, wiring diagrams, and information for ordering replacement parts.
 - b. If changes have been made to the maintenance and operating manuals originally submitted, submit updated maintenance and operating manuals two weeks prior to the final inspection.
3. Certifications: Two weeks prior to final inspection, submit the following.
- a. Certification by the Contractor that the interior lighting systems have been properly installed and tested.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by designation only.
- B. American Society for Testing and Materials (ASTM):
 - C635/C635M REV A-13 Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
- C. Federal Communications Commission (FCC):
 - CFR Title 47, Part 15 Radio Frequency Devices
- D. Illuminating Engineering Society of North America (IESNA):
 - LM-79-08 Electrical and Photometric Measurements of Solid-State Lighting Products

- LM-80-15 Measuring Lumen Maintenance of LED Light Sources
- LM-82-12 Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature
- E. Institute of Electrical and Electronic Engineers (IEEE):
 - C62.41-91(R1995) Surge Voltages in Low Voltage AC Power Circuits
- F. International Code Council (ICC):
 - IBC-15 International Building Code
- G. National Electrical Manufacturer's Association (NEMA):
 - C78.376-14 Chromaticity of Fluorescent Lamps
 - C82.1-04(R2015) Lamp Ballasts – Line Frequency Fluorescent Lamp Ballasts
 - C82.2-02(R2016) Method of Measurement of Fluorescent Lamp Ballasts
 - C82.4-17 Lamp Ballasts - Ballasts for High-Intensity Discharge and Low-Pressure Sodium (LPS) Lamps (Multiple-Supply Type)
 - C82.11-17 Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts
 - LL 9-11 Dimming of T8 Fluorescent Lighting Systems
 - SSL 1-16 Electronic Drivers for LED Devices, Arrays, or Systems
- H. National Fire Protection Association (NFPA):
 - 70-17 National Electrical Code (NEC)
 - 101-18 Life Safety Code
- I. Underwriters Laboratories, Inc. (UL):
 - 496-17 Lampholders
 - 542-05 Fluorescent Lamp Starters
 - 844-12 Luminaires for Use in Hazardous (Classified) Locations
 - 924-16 Emergency Lighting and Power Equipment
 - 935-01 Fluorescent-Lamp Ballasts
 - 1029-94 High-Intensity-Discharge Lamp Ballasts
 - 1029A-06 Ignitors and Related Auxiliaries for HID Lamp Ballasts

1598-08	Luminaires
1574-04	Track Lighting Systems
2108-15	Low-Voltage Lighting Systems
8750-15	Light Emitting Diode (LED) Light Sources for Use in Lighting Products

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES

- A. Shall be in accordance with NFPA, UL, as shown on drawings, and as specified.
- B. Sheet Metal:
 - 1. Shall be formed to prevent warping and sagging. Housing, trim and lens frame shall be true, straight (unless intentionally curved), and parallel to each other as designed.
 - 2. Wireways and fittings shall be free of burrs and sharp edges, and shall accommodate internal and branch circuit wiring without damage to the wiring.
 - 3. When installed, any exposed fixture housing surface, trim frame, door frame, and lens frame shall be free of light leaks.
 - 4. Hinged door frames shall operate smoothly without binding. Latches shall function easily by finger action without the use of tools.
- C. Ballasts and lamps shall be serviceable while the fixture is in its normally installed position. Ballasts shall not be mounted to removable reflectors or wireway covers unless so specified.
- D. Recessed fixtures mounted in an insulated ceiling shall be listed for use in insulated ceilings.
- E. Mechanical Safety: Lighting fixture closures (lens doors, trim frame, hinged housings, etc.) shall be retained in a secure manner by captive screws, chains, aircraft cable, captive hinges, or fasteners such that they cannot be accidentally dislodged during normal operation or routine maintenance.
- F. Metal Finishes:
 - 1. The manufacturer shall apply standard finish (unless otherwise specified) over a corrosion-resistant primer, after cleaning to free the metal surfaces of rust, grease, dirt and other deposits. Edges of pre-finished sheet metal exposed during forming, stamping or shearing processes shall be finished in a similar corrosion resistant manner to match the adjacent surface(s). Fixture finish shall be free of stains or evidence of rusting, blistering, or flaking, and shall be applied after fabrication.

2. Interior light reflecting finishes shall be white with not less than 85 percent reflectances, except where otherwise shown on the drawing.
3. Exterior finishes shall be as shown on the drawings.
- G. Lighting fixtures shall have a specific means for grounding metallic wireways and housings to an equipment grounding conductor.

2.2 LED LIGHT FIXTURES

A. General:

1. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified.
2. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant.
3. LED drivers shall include the following features unless otherwise indicated:
 - a. Minimum efficiency: 85% at full load.
 - b. Minimum Operating Ambient Temperature: -20° C. (-4° F.)
 - c. Input Voltage: 120 - 277V (±10%) at 60 Hz.
 - d. Integral short circuit, open circuit, and overload protection.
 - e. Power Factor: ≥ 0.95.
 - f. Total Harmonic Distortion: ≤ 20%.
 - g. Comply with FCC 47 CFR Part 15.
4. LED modules shall include the following features unless otherwise indicated:
 - a. Comply with IES LM-79 and LM-80 requirements.
 - b. Minimum CRI 80 and color temperature 3000° K unless otherwise specified in LIGHTING FIXTURE SCHEDULE.
 - c. Minimum Rated Life: 50,000 hours per IES L70.
 - d. Light output lumens as indicated in the LIGHTING FIXTURE SCHEDULE.

B. LED Troffers:

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

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with the NEC, manufacturer's instructions, and as shown on the drawings or specified.
- B. Align, mount, and level the lighting fixtures uniformly.
- C. Wall-mounted fixtures shall be attached to the studs in the walls, or to a 20 gauge metal backing plate that is attached to the studs in the walls. Lighting fixtures shall not be attached directly to gypsum board.
- D. Lighting Fixture Supports:
 - 1. Shall provide support for all of the fixtures. Supports may be anchored to channels of the ceiling construction, to the structural slab or to structural members within a partition, or above a suspended ceiling.
 - 2. Shall maintain the fixture positions after cleaning and relamping.
 - 3. Shall support the lighting fixtures without causing the ceiling or partition to deflect.
 - 4. Hardware for recessed lighting fixtures:
 - a. All fixture mounting devices connecting fixtures to the ceiling system or building structure shall have a capacity for a horizontal force of 100 percent of the fixture weight and a vertical force of 400 percent of the fixture weight.
 - b. Mounting devices shall clamp the fixture to the ceiling system structure (main grid runners or fixture framing cross runners) at four points in such a manner as to resist spreading of these supporting members. Each support point device shall utilize a screw or approved hardware to "lock" the fixture housing to the ceiling system, restraining the fixture from movement in any direction relative to the ceiling. The screw (size No. 10 minimum) or approved hardware shall pass through the ceiling member (T-bar, channel or spline), or it may extend over the inside of the flange of the channel (or spline) that faces away from the fixture, in a manner that prevents any fixture movement.
 - c. In addition to the above, the following is required for fixtures exceeding 9 kg (20 pounds) in weight.
 - 1) Where fixtures mounted in ASTM Standard C635 "Intermediate Duty" and "Heavy Duty" ceilings and weigh between 9 kg and 25 kg (20 pounds and 56 pounds), provide two 12 gauge safety hangers hung slack between diagonal corners of the fixture and the building structure.
 - 2) Where fixtures weigh over 25 kg (56 pounds), they shall be independently supported from the building structure by approved hangers. Two-way angular bracing of hangers shall be provided to prevent lateral motion.

- d. Where ceiling cross runners are installed for support of lighting fixtures, they must have a carrying capacity equal to that of the main ceiling runners and be rigidly secured to the main runners.
- 5. Surface mounted lighting fixtures:
 - a. Fixtures shall be bolted against the ceiling independent of the outlet box at four points spaced near the corners of each unit. The bolts (or stud-clips) shall be minimum 6 mm (1/4 inch) bolt, secured to main ceiling runners and/or secured to cross runners. Non-turning studs may be attached to the main ceiling runners and cross runners with special non-friction clip devices designed for the purpose, provided they bolt through the runner, or are also secured to the building structure by 12 gauge safety hangers. Studs or bolts securing fixtures weighing in excess of 25 kg (56 pounds) shall be supported directly from the building structure.
 - b. Where ceiling cross runners are installed for support of lighting fixtures, they must have a carrying capacity equal to that of the main ceiling runners and be rigidly secured to the main runners.
 - c. Fixtures less than 6.8 kg (15 pounds) in weight and occupying less than 3715 sq cm (two square feet) of ceiling area may, when designed for the purpose, be supported directly from the outlet box when all the following conditions are met.
 - 1) Screws attaching the fixture to the outlet box pass through round holes (not key-hole slots) in the fixture body.
 - 2) The outlet box is attached to a main ceiling runner (or cross runner) with approved hardware.
 - 3) The outlet box is supported vertically from the building structure.
 - d. Fixtures mounted in open construction shall be secured directly to the building structure with approved bolting and clamping devices.
- 6. Outlet boxes for support of lighting fixtures (where permitted) shall be secured directly to the building structure with approved devices or supported vertically in a hung ceiling from the building structure with a nine gauge wire hanger, and be secured by an approved device to a main ceiling runner or cross runner to prevent any horizontal movement relative to the ceiling.
- E. Furnish and install the new lamps as specified for all lighting fixtures installed under this project.
- F. The electrical and ceiling trades shall coordinate to ascertain that approved lighting fixtures are furnished in the proper sizes and installed with the proper devices (hangers, clips, trim frames, flanges, etc.), to match the ceiling system being installed.
- G. Bond lighting fixtures to the grounding system as specified in Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.

- H. At completion of project, replace all defective components of the lighting fixtures at no cost to the Owner.
- I. Dispose of lamps in accordance with all federal, state, and local codes.

3.2 ACCEPTANCE CHECKS AND TESTS

A. Perform the following:

1. Visual Inspection:

- a. Verify proper operation by operating the lighting controls.
- b. Visually inspect for damage to fixtures, lenses, reflectors, diffusers, and louvers. Clean fixtures, lenses, reflectors, diffusers, and louvers that have accumulated dust, dirt, or fingerprints during construction.

2. Electrical tests:

- a. Exercise dimming components of the lighting fixtures over full range of dimming capability by operating the control devices(s). Observe for visually detectable flicker over full dimming range, and replace defective components at no cost to the Owner.
- b. Burn-in all lamps that require specific aging period to operate properly, prior to occupancy by Owner. Burn-in period to be 40 hours minimum, unless specifically recommended otherwise by the manufacturer. Replace any lamps and ballasts which fail during burn-in.

3.3 FOLLOW-UP VERIFICATION

- A. Upon completion of acceptance checks and tests, the Contractor shall show by demonstration in service that the lighting systems are in good operating condition and properly performing the intended function.**

---END---

**SECTION 28 31 00
FIRE DETECTION AND ALARM**

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This section of the specifications includes the furnishing, installation, and connection of the fire alarm equipment to form a complete coordinated system ready for operation. It shall include, but not be limited to, alarm notification appliances.
- B. Fire alarm systems shall comply with requirements of the most recent NFPA 72. The design, system layout, document submittal preparation, and supervision of installation and testing shall be provided by a technician that is certified NICET level III or a registered fire protection engineer. The NICET certified technician shall be on site for the supervision and testing of the system. Factory engineers from the equipment manufacturer, thoroughly familiar and knowledgeable with all equipment utilized, shall provide additional technical support at the site as required.

1.2 SCOPE

- A. Basic Performance:
 - 1. New notification appliances in the new ADA restroom are to be ADA compliant and tied into the existing fire alarm system. Program fire alarm system as needed for a fully functioning fire alarm system. Notification appliances are to be installed in accordance with NFPA 72.

1.3 RELATED WORK

- A. Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
Requirements for procedures for submittals.
- B. Section 07 84 00 - FIRESTOPPING. Requirements for fire proofing wall penetrations.

1.4 SUBMITTALS

- A. General: Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, and Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.
- B. Drawings:
 - 1. Floor plans: Provide locations of new ADA notification appliances (with device number at each addressable device corresponding to control unit programming), individual circuits and raceway routing, system zoning; number, size, and type of raceways and conductors in each raceway; conduit fill calculations with cross section area percent fill for each type and size of conductor and raceway. Only those devices connected and incorporated into the final system shall be on these floor plans.
 - 2. Riser diagrams: Provide as needed to identify new ADA notification appliances.
- C. Manuals:
 - 1. Submit for new notification appliances.

1.5 WARRANTY

All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of one year from the date of acceptance of the entire installation by the Contracting Officer.

1.6 APPLICABLE PUBLICATIONS

- A. The publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. The publications are referenced in text by the basic designation only and the latest editions of these publications shall be applicable.
- B. National Fire Protection Association (NFPA):
 - NFPA 13Standard for the Installation of Sprinkler Systems, 2010 edition
 - NFPA 14 Standard for the Installation of Standpipes and Hose Systems, 2010 edition
 - NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection, 2010 edition
 - NFPA 70 National Electrical Code (NEC), 2010 edition
 - NFPA 72 National Fire Alarm Code, 2010 edition
 - NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems, 2009 edition
 - NFPA 101 Life Safety Code, 2009 edition
- C. Underwriters Laboratories, Inc. (UL): Fire Protection Equipment Directory
- D. Factory Mutual Research Corp (FM): Approval Guide, 2007-2011
- E. American National Standards Institute (ANSI):
 - S3.41 Audible Emergency Evacuation Signal, 1990 edition, reaffirmed 2008
- F. International Code Council, International Building Code (IBC), 2018 edition

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS, GENERAL

- A. New notification appliances are to be by Simplex.

2.2 CONDUIT, BOXES, AND WIRE

- A. All new conduits shall be 3/4 inch (19 mm) minimum.
- B. Wire:
 - 1. As specified by the fire alarm designer.
- C. Terminal Boxes, Junction Boxes, and Cabinets:
 - 1. Shall be galvanized steel in accordance with UL requirements.
 - 2. All boxes shall be sized and installed in accordance with NFPA 70.
 - 3. Terminal boxes and cabinets shall have a volume 50 percent greater than required by the NFPA 70. Minimum sized wire shall be considered as 14 AWG for calculation purposes.

2.3 ALARM NOTIFICATION APPLIANCES

A. Strobes:

1. Xenon flash tube type minimum 15 candela in toilet rooms and 75 candela in all other areas with a flash rate of 1 HZ. Strobes shall be synchronized where required by the National Fire Alarm Code (NFPA 72).
2. Backplate shall be red with 1/2 inch (13 mm) permanent red letters. Lettering to read "Fire", be oriented on the wall or ceiling properly, and be visible from all viewing directions.
3. Each strobe circuit shall have a minimum of 20 percent spare capacity.
4. Strobes may be combined with the audible notification appliances specified herein.

B. Fire Alarm Horns:

1. Shall be electric, utilizing solid state electronic technology operating on a nominal 24 VDC.
2. Shall be a minimum nominal rating of 80 dBA at 10 feet (3,000 mm).
3. Mount on removable adapter plates on conduit boxes.
4. Horns located outdoors shall be of weatherproof type with metal housing and protective grille.
5. Each horn circuit shall have a minimum of 20 percent spare capacity.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Installation shall be in accordance with NFPA 70, 72, 90A, and 101 as shown on the drawings, and as recommended by the major equipment manufacturer. Fire alarm wiring shall be installed in conduit.
- B. All conduits, junction boxes, conduit supports and hangers shall be concealed in finished areas and may be exposed in unfinished areas.
- C. All fire detection and alarm system devices, control units and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.
- D. Strobes shall be flush wall mounted with the bottom of the unit located 80 inches (2,000 mm) above the floor or 6 inches (150 mm) below ceiling, whichever is lower. Locate and mount to maintain a minimum 36 inches (900 mm) clearance from side obstructions.

3.2 TYPICAL OPERATION

- A. Activation of new notification appliances is to occur in a similar fashion as existing notification appliances on the same circuit.

3.3 TESTS

- A. Provide the service of a NICET level III, competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system.
- B. When the systems have been completed and prior to the scheduling of the final inspection, furnish testing equipment and perform the following tests. When any defects are detected, make repairs or install replacement components, and repeat the tests until such time that the complete

fire alarm systems meets all contract requirements. After the system has passed the initial test, the contractor may request a final inspection.

1. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.
2. Test the insulation on all installed cable and wiring by standard methods as recommended by the equipment manufacturer.
3. Open each notification circuit to see if trouble signal actuates.
4. Ground each notification circuit and verify response of trouble signals.

3.4 FINAL INSPECTION AND ACCEPTANCE

- A. Coordinate with the City of Richland for final inspection and acceptance.

- - END - -