UW FLEET SERVICES BUILDING ROOF REPLACEMENT

Project No. 207562
September 8, 2021

UNIVERSITY OF WASHINGTON
UW Facilities | Project Delivery Group

ARCHITECT
Stemper Architecture Collaborative
4000 Delridge Way SW, Suite 200
Contact: Scott Stemper, Marc Tegen
(206) 624-2777

STRUCTURAL ENGINEER
Peterson Strehle Martinson, Inc.
2200 Sixth Avenue, Suite 601
Contact: M. David Stubbs, PE, SE
(206) 818-3927
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ADVERTISEMENT FOR BIDS

University of Washington
FLEET SERVICES ROOF REPLACEMENT, PROJECT NO. 207562
Date of Bid Opening: October 12, 2021
A/E’s estimate: $420,000-to-$470,000

NOTICE TO CONTRACTORS:

Bid Submittal: Sealed bids will be received by the University of Washington Facilities, Project Delivery Group, electronically at PDGbids@uw.edu.

Bid Submittal: The University of Washington is taking precautions to limit exposure and impacts related to COVID-19. To comply with the Governor’s “Safe Start” plan, the requirement to submit a sealed bid is waived. Bids will be received by the University of Washington, Project Delivery Group, by email at PDGbids@uw.edu.

The Bid Form will be received up to 3:00 p.m. on October 12, 2021 Bids will then be publicly opened and read aloud via Zoom Version 5.0 (required) (https://washington.zoom.us/j/93420455640). Bids received after the date and hour above stated will not receive consideration. Attendance in person is not allowed.

Project Description: The project includes the following work: At the University of Washington Fleet Services Building located at 4659 25th Avenue NE, Seattle WA 98105:

Selective demolition of existing west gutters, roof hatch, and other roof top mounted accessories, including temporary lifting and reinstallation of the existing roof top curb mounted HVAC to facilitate installation of new standing seam metal roof panels over an insulated structural retrofit roof sub-framing system secure the existing roof structure. Work includes replacement of roof perimeter flashings, saddles, and flashing boots for miscellaneous roof accessories, replacement of select gutters and installation of stainless steel gutter sleeves. Work to include installation of a standing seam mounted safety rail system. Interior work to include insulation of ceiling below infilled skylight openings and replacement of existing high bay light fixtures with new higher lumen LED versions.

All construction operations must comply with the most current Covid 19 related rules and guidance from the Governor’s Office. All activities must also comply with all related and applicable requirements issued by the Washington State Department of Labor and Industries and Public Health Agencies having jurisdiction.

Questions: Questions about this project should be directed to:

A/E Name: STEMPER ARCHITECTURE COLLABORATIVE
Contact Person: MARC TEGEN
Phone Number: (206) 624-2777

Mandatory Pre-Bid Site Meeting: The Project site is available for inspection by prospective bidders at a mandatory pre-bid site meeting and walk-through. All prospective bidders must attend one of the following meetings:

1. September 28, 2021 at 10:00am or September 30, 2021 at 1:00pm. Meetings will take place at the entrance to the Fleet Services Building located at 4659 25th Avenue NE, Seattle, WA 98105. These will be the only opportunities for bidders to visit the Project site. Bids received from bidders who did not attend one of the mandatory pre-bid site meetings will not be considered.
Bid Documents: Bidders may obtain or access plans, specifications, and addenda for this project at [https://facilities.uw.edu/projects/business-opportunities/solicitations](https://facilities.uw.edu/projects/business-opportunities/solicitations). Contractors who would like to be included on the Planholder’s list shall either attend a pre-bid meeting or request to be added by emailing PDGbids@uw.edu.

Bid Guarantee: A surety company bid bond on a form acceptable to Owner, a cashier’s check or a certified check payable to the order of University of Washington, or cash, shall accompany each bid in an amount not less than five percent (5%) of the Base Bid. No bidder may withdraw its bid after the hour set for the opening thereof, unless the award of the contract is delayed for a period exceeding 60 days.

BUSINESS EQUITY: The University of Washington is committed to providing optimal opportunity for participation in contracting by Business Equity Enterprises (BEE). The University of Washington defines a Business Equity Enterprise (BEE) as “any entity licensed to do business in the State of Washington, including a corporation, partnership, sole proprietorship, or other legal entity that meets any of the following:”


Lesbian/Gay/Bisexual/Transgender Business Enterprise (LGBTBE): More than 50% owned and controlled by at least one person who is a member of the LGBT community.

Minority Business Enterprise (MBE): More than 50% owned and controlled by at least one person who is a member of one or more of the following minority groups:
- Asian Pacific American
- Black American
- Hispanic American
- Native American
- Subcontinent Asian American

Minority Women’s Business Enterprise (MWBE): More than 50% owned and controlled by at least one woman who is a member of one or more of the above minority groups.

Small Business Enterprise (SBE): A business entity that:
- Can attest that it is owned and operated independently from all other businesses and
- Conforms to the U.S. Small Business Administration Size Standards of the North American Industry Classification System (NAICS) Codes in which it is to be engaged at the UW; or
- Is certified with the OMWBE.

Veteran’s Business Enterprise (VBE): Certified with the Washington State Department of Veteran’s Affairs (DVA)

Women’s Business Enterprise (WBE): More than 50% owned and controlled by one or more women.

The University of Washington has determined that an overall aspirational goal of 20% Business Equity Enterprise (BEE) utilization, inclusive of 15% minority and women-owned business utilization, is practicable and attainable on this construction project; that goal is negotiable based upon the specialized nature of the work and the relative availability of BEE to perform the specific work scopes identified in this project. The University of Washington welcomes the participation of all BEE, irrespective of gross revenues, including those that are self-designated and those that are state (OMWBE) certified. Participation may be on a direct basis in response to this invitation to bid, or as a subcontractor or supplier.

Safety Plans: Prior to the issuance of the Notice to Proceed, the Contractor will be required to submit to the Owner a copy of its company safety program. See Modifications to the General Conditions, Part 5 for details.

The Owner reserves the right to reject any or all bids and to waive as an informality any irregularities in the bids received.
Date(s) of Publication: September 21, 2021 and September 23, 2021

END OF SECTION
1. CONTRACTOR’S REGISTRATION

All bidders must be registered by the Washington State Department of Labor and Industries in accordance with R.C.W. 18.27.020.

2. SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK

A. Bidder acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the Work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost.

B. The Project site is available for inspection for prospective bidders at a pre-bid site meeting and walk-through, as indicated in the Advertisement for Bids, and existing conditions should be examined. This will be the only opportunity for bidders to visit the project site.

C. 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 site, including all exploratory work done by Owner, as well as from the drawings and specifications made a part of these Contract Documents.

D. Bidder acknowledges that adjoining areas will be conducting normal operations during the work. Bidder should anticipate pedestrian and traffic congestion, limited parking, and the requirement that the work be coordinated with ongoing operations.

E. Bidder acknowledges that its bid is based upon a schedule and assumptions which incorporate these conditions.

F. 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 the Owner. If appropriate, Owner will send written instructions to all bidders by addenda. Questions received less than 10 days before the time of bid opening may not be answered. All addenda issued shall be incorporated into these Contract Documents.

3. PREPARATION OF BIDS

Bidder shall comply with the following instructions in preparing its bid.

A. The name, address, and Contractor’s license number of bidder shall be typed or printed on the bid in the space provided. The name must match the name on the bid guarantee.

Bids must be (1) submitted on the forms furnished by Owner or on copies of those forms, and (2) manually signed in ink.

B. Bidders shall submit bids in the format provided in the Bid Form. Only the amounts and information asked for in the Bid Form furnished will be considered as the bid. All blank spaces must be filled in.

C. Bidder shall bid upon all alternates indicated in the Bid Form. When bidding on alternates for which there is no charge, bidder shall write the words "No Charge" in the space provided on the Bid Form. 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. Alternate bids will not be considered unless requested in the Bid Form.
D. The cost of trench safety systems for trench excavation that exceeds a depth of four feet must be identified as a lump sum amount on the Bid Form as well as included in the Base Bid amount. The costs of trench safety systems shall not be considered as incidental to any other contract item, and any attempt to include the trench safety systems as an incidental cost is prohibited. Identification of this amount is an acknowledgment that the bidder has considered proper safety provisions in the estimate but does not relieve the bidder of responsibility for full compliance with all laws and statutes regardless of their actual cost. If this project will involve trench excavation in excess of a depth of four feet, bidder must include a lump sum dollar amount. "N/A" and ‘zero” are not responsive.

E. Bidders shall acknowledge all addenda by identifying the addendum number(s) in the space provided on the Bid Form. Notwithstanding any automatic notification methods utilized by Bidder, Bidder is responsible for checking Owner’s bid posting website for any addenda issued up to and until the bid opening date and time specified in Section 00 11 00.

F. Bidder shall include in the bid all allowances provided in the Bid Form. Owner will pay the difference if the actual cost exceeds the allowance.

4. TAXES

The bid shall include all taxes imposed by law except Washington State Sales Tax. 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, equipment, and material primarily for use by the Contractor rather than for resale as a component part of the finished structure, shall be included in the bid price. A proportionate amount of State sales tax will be added to each progress payment, collected from Owner, and paid to the State by Contractor.

5. BID GUARANTEE

Bidder shall furnish a bid guarantee in the form of a firm commitment, such as bid bond, postal money order, cash or cashier's check payable to Owner, in the amount of at least 5% of the base bid. Owner reserves the right to hold the bid guarantees of all bidders until the successful bidder has entered into the contract and furnished the required bonds and insurance certificates, or for a period of 60 days, whichever is the shorter time.

6. FILING FEES

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

7. SPECIFIED PRODUCTS

Bids must be based upon use of items named in the specifications, or approved equals or substitutions. In certain cases, specific items have been named because of operational or maintenance considerations; approval of equals or substitutions should not be assumed.

Requests for approval of equals or substitutions must be made in writing and received by the A/E at least 10 days prior to the date of bid opening. Said request must include complete descriptions, technical data, and performance records. Any approval of the proposed equal or substitution will be made by addendum issued to all bidders. See Section 01 25 00, Substitution Procedures, for instructions.
8. SUBMISSION AND WITHDRAWAL OF BIDS

A. Bids and bid modifications shall be submitted in sealed envelopes or packages (1) addressed to the office specified in the advertisement for bids and (2) showing the project title, bid opening date and time, and the name and address of bidder.

B. Bids may be modified if in writing and received before bid opening time.

C. Receipt of bids and bid modifications by telegraph, facsimile, telephone, or orally will not be considered.

D. A bidder may withdraw its bid by submitting a written request before the bid opening time. Owner will return the bid unopened after Contract award.

9. LATE SUBMISSIONS

A. Any bid, bid modification or request to withdraw a bid which is received after bid opening time will not be considered.

B. The only acceptable evidence to establish the time of receipt at the office designated in the advertisement for bid is the time/date stamped or printed by Owner on the bid wrapper or other documentary evidence of receipt maintained by Owner.

10. BID EVALUATION

Bids which are incomplete, or which are conditioned in any way, or which contain erasures, alterations, or items not called for in the Bid Form, or which are not in conformity with the law or with these Instructions, shall be rejected as nonresponsive if the irregularity is material and may be rejected as nonresponsive if the irregularity is not material.

LOW RESPONSIBLE BIDDER

A. It is the intent of Owner to award a 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 the Owner to submit documentation demonstrating compliance with the criteria. The 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.

Template Last Revised July 5, 2020
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

5. If applicable, provide evidence of the required contractor training from Washington State Department of Labor & Industry. Chapter 39.04.350 and 39.06.020 RCW.

6. Within the three-year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the Washington Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of Chapter 49.46, 49.48, or 49.52 RCW.

B. In addition to the bidder responsibility criteria above, the bidder must also meet the following relevant supplemental bidder responsibility criteria applicable to the project:

1. Performance Evaluations: The Bidder shall not have received one or more overall evaluations of “Deficient” or “Inadequate” as part of the Owner’s Contractor Performance Evaluation Program.

2. Debarment by Owner: The Bidder shall not be currently debarred by the Owner from contracting with the Owner for having received overall evaluations of their performance of “Deficient” or “Inadequate” on three or more projects of the Owner physically completed during the preceding five (5) year period.

C. As evidence that the bidder meets the bidder responsibility criteria in paragraph B above, the apparent low bidder must submit documentation as may be required below to the Owner within 48 hours of the bid submittal deadline. The Owner reserves the right to request such documentation from other bidders also.

1. Performance Evaluations: The Owner shall use its own records of the Bidder’s Performance Evaluation Reports on previous projects to evaluate the Bidder’s compliance with this criterion. The bidder is not required to submit any documentation for this item, unless the bidder has information different from the Owner’s records.

2. Debarment by Owner: The Owner shall use its own records of debarment to evaluate the Bidder’s compliance with this criterion. The bidder is not required to submit any documentation for this item, unless the bidder has information different from the Owner’s records.

D. If the Owner determines the bidder does not meet the bidder responsibility criteria in paragraph B above and is therefore not a responsible bidder, the Owner shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees with this determination, it may appeal the determination within 24 hours of receipt of the Owner’s determination by presenting additional information to the Owner. The Owner will consider the additional information before issuing its final determination. If the final determination affirms that the bidder is not responsible, the Owner will not execute a contract with any other bidder until two business days after the bidder determined to be not responsible has received the final determination.

11. CONTRACT AWARD AND EXECUTION

The formal acceptance by the Owner of the lowest responsive bid of a responsible bidder will be in the form of a notice of award of public works contract issued by the Owner to the bidder. Within 7 days of the notice of award date, bidder shall submit an executed Contract (see Appendix A); certificate of insurance and endorsements as required in the Contract Documents; and Payment and Performance Bonds using AIA Document A312, most current edition, or other form acceptable to Owner, in Contract Award Amount plus Washington State Sales Tax. If the successful bidder, after award of the Contract,
fails to execute all Contract Documents or provide insurance documentation and bonds as required within the time specified, Owner may revoke award of the Contract and the bid guarantee may be retained by Owner.

12. FEDERAL EXCLUSION REQUIREMENTS

By submitting a bid for this project, Contractor hereby represents and warrants that it is not and at no time has been, excluded, suspended, or barred from participation in, or otherwise sanctioned by any federally funded health care program, including Medicare and Medicaid. Contractor hereby agrees to immediately notify the Owner of any threatened, proposed, or actual exclusion, suspension, or debarment from any federally funded health care program, including Medicare and Medicaid.

Individuals or entities that are excluded by the Office of the Inspector General from working on federally-funded programs will not be permitted to work on this project. If a contractor, including any subcontractors or suppliers, is found to be barred by the OIG, that contractor shall immediately be excluded from the jobsite and the Owner will not be responsible for any damage or delay resulting from such exclusion. Contractor should check the exclusion program of the OIG to verify that neither it nor its subcontractors or suppliers appear on the database. The database may be accessed through the OIG website at www.oig.hhs.gov. Upon receipt of a notice of award of contract from the Owner, Contractor shall submit a list of subcontractors and suppliers for review by Owner.

13. UNIVERSITY OF WASHINGTON’S CORPORATE COMPLIANCE PLAN

The University of Washington’s Medical Center’s Corporate Compliance Plan is designed to ensure that the Hospital complies with federal, state, and local laws and regulations. It focuses on the promotion of good corporate citizenship, including a commitment to uphold the highest standard of ethical and legal business practices, and the prevention of misconduct. Contractor agrees to conduct all business transactions that occur pursuant to this contract in accordance with all applicable laws, regulations, and Hospital compliance policies, and ensure that Contractors, its officers, employees and agents do the same. Any major compliance violations would be considered a material breach of this contract.

END OF SECTION
BID FORM

TO:    Board of Regents
       University of Washington
       Seattle, Washington 98195

The undersigned Bidder submits the following bid:

BASE BID:

Pursuant to and in compliance with the Contract Documents, including the Advertisement for Bids and Instructions for Bidders, the Bidder hereby certifies that it has carefully examined the Contract Documents entitled:

UW FLEET SERVICES BUILDING ROOF REPLACEMENT

Prepared by STEMPER ARCHITECTURE COLLABORATIVE

and the conditions affecting the Work, and being familiar with the site; and having made the necessary examinations, proposes to furnish all labor, materials, equipment, and services necessary to complete the Work in strict accordance with the Contract Documents for the above-named project for the following sum, which is hereby designated as the Base Bid:

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<th>Base Bid</th>
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SALES TAX:

None of the sums stated in the foregoing include Washington State Sales Tax, except as designated in Article 4 of the Instructions for Bidders.

TIME OF COMPLETION AND LIQUIDATED DAMAGES:

The undersigned Bidder agrees, if awarded the Contract, to complete the Work of the Contract within the number of calendar days specified in Supplemental Conditions, Section 00 73 00, and also agrees to the amounts specified for Liquidated Damages. It is further agreed that the time for completion of the Work described herein is a reasonable time considering the average climatic range and usual industrial conditions prevailing in the locality.

TRENCH EXCAVATION SAFETY PROVISIONS:

If the Contract Documents contain any work which requires trenching exceeding a depth of four feet, all costs for adequate trench safety systems shall be identified as a separate bid item in compliance with Chapter 39.04 RCW and WAC 296-155-650. The purpose of this provision is to ensure that the Bidder
agrees to comply with all the relevant trench safety requirements of Chapter 49.17 RCW. This bid amount shall be considered as part of the Base Bid set forth above. Bidder must include a lump sum dollar amount in blank below (even if the value is $0.00) to be responsive.

Trench Excavation Safety Provisions Only: N/A

**CONTRACT AND BONDS:**

If the Owner awards a contract based on this bid within sixty (60) days of the bid submittal deadline, the Bidder agrees to execute a contract for the above work, for compensation computed from the above stated sums, on the University of Washington Public Works Contract form, and to furnish Payment and Performance Bonds and acceptable evidence of insurance as required by the Contract Documents.

**BID GUARANTEE:**

Pursuant to paragraph 5 of the Instruction to Bidders, Section 00 21 00, Bidder hereby certifies that it has furnished a bid guarantee for no less than 5% of the base bid, and that such guarantee accompanies this Bid Form.

The successful bidder shall submit an executed Contract, Payment and Performance Bonds, and acceptable evidence of insurance within seven (7) days after receipt of award notice and Public Works Contract form from the Owner. If the successful bidder, upon award of a contract by the Owner, fails to execute the Public Works Contract or submit the Payment and Performance Bonds and acceptable evidence of insurance as required within the time specified, Owner may revoke the award. Should the successful bidder fail to enter into a contract with Owner, the bid guarantee may be retained by Owner as liquidated damages, not as a penalty.

If a contract is not awarded within sixty (60) days after the bid submittal deadline, or if the bidder delivers a signed Public Works Contract, Payment and Performance Bonds, and acceptable evidence of insurance, then the certified or cashier’s check or cash submitted as the bid guarantee shall be returned to the bidder, or the Bid Bond shall become void.
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<th>Bidder’s Business Name:</th>
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<tr>
<td>Type of Business:</td>
</tr>
<tr>
<td>☐ Sole Proprietorship  ☐ Partnership  ☐ Corporation (State of Incorporation:___)  ☐ Other</td>
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<tr>
<td>Physical Business Address (Must not be a P.O. Box):</td>
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<tr>
<td>City:</td>
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<td>Business Telephone Number:</td>
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<tr>
<td>State of Washington numbers for the following:</td>
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<tr>
<td>Contractor Registration No.:</td>
</tr>
<tr>
<td>Receipt is hereby acknowledged of Addenda No(s).: _____   _____   _____   _____   _____   _____</td>
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<td>Bidder is in compliance with the responsible bidder criteria requirement of RCW 39.04.350(1)(g).</td>
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**OFFICIAL AUTHORIZED TO SIGN FOR BIDDER:**

"I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct":

| Signature: | Date: |
| Print Name and Title | Location or Place Executed: (City, State) |

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PART 1 – GENERAL PROVISIONS

1.01 DEFINITIONS

A. “Application for Payment” means a written request submitted by Contractor to A/E for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner or A/E 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. “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.

D. “Claim” means Contractor’s exclusive remedy for resolving disputes with Owner regarding the terms of a Change Order or a request for equitable adjustment, as more fully set forth in Part 8.

E. “Contract Award Amount” is the sum of the Base Bid and any accepted Alternates.

F. “Contract Documents” means the Advertisement for Bids, Instructions for Bidders, completed Bid Form, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Public Works Contract, other Special Forms, Drawings and Specifications, and all addenda and modifications thereof.

G. “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.

H. “Contract Time” is the number of calendar days allotted in the Contract Documents for achieving Substantial Completion of the Work.

I. “Contractor” means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.

J. “Day(s): Unless otherwise specified, day(s) shall mean calendar day(s).”

K. “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.

L. “Final Acceptance” means the written acceptance issued to Contractor by Owner after Contractor has completed the requirements of the Contract Documents, as more fully set forth in Section 6.09 B.

M. “Final Completion” means that the Work is fully and finally complete in accordance with the Contract Documents, as more fully set forth in Section 6.09 A.

N. “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.

O. “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.
P. “Notice to Proceed” means a notice from Owner to Contractor that defines the date on which the Contract Time begins to run.

Q. “Owner” means the state agency, institution, or its authorized representative with the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.

R. “Person” means a corporation, partnership, business association of any kind, trust, company, or individual.

S. “Prior Occupancy” means Owner’s use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08 A.

T. “Progress Schedule” means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.02.

U. “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.

V. “Project Record” means the separate set of Drawings and Specifications as further set forth in paragraph 4.02A.

W. “Schedule of Values” means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail as requested by Owner.

X. “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.

Y. “Subcontract” means a contract entered into by Subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind for or in connection with the Work.

Z. “Subcontractor” means any person, other than Contractor, who agrees to furnish or furnishes any supplies, materials, equipment, or services of any kind in connection with the Work.

AA. “Substantial Completion” means that stage in the progress of the Work when the construction is sufficiently complete, as more fully set forth in Section 6.07.

AB. “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.

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:

1. Signed Public Works Contract, including any Change Orders.

2. Supplemental Conditions.

3. Modifications to the General Conditions.

4. General Conditions.
5. **Specifications.** Provisions in Division 1 shall take precedence over provisions of any other Division.

6. **Drawings.** In case of conflict within the Drawings, large scale drawings shall take precedence over small scale drawings.

7. **Signed and Completed Bid Form.**

8. **Instructions to Bidders.**

9. **Advertisement for Bids.**

1.03 **EXECUTION AND INTENT**

**Contractor Representations:** Contractor makes the following representations to Owner:

1. **Contract Sum 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. Review of the Contractor’s insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained by this part 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 its bid the cost of all insurance and bond costs required to complete the base bid work and accepted alternates. Insurance carriers providing insurance in accordance with the Contract Documents 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 Final Acceptance. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by Section 5.16.
1. General Liability Insurance: Commercial General Liability (CGL) on an Occurrence Form. Coverage shall include, but not be limited to:
   a. Completed operations/products liability;
   b. Explosion, collapse, and underground; and
   c. Employer’s liability coverage.
2. Automobile Liability Insurance: Automobile liability
   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 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 as an additional named insured for Work performed in accordance with the Contract Documents, and all insurance certificates shall evidence the Owner as an additional insured.

2.02 COVERAGE LIMITS

Insurance amounts: The coverage limits shall be as follows:

A. Limits of Liability shall not be less than $1,000,000 Combined Single Limit for Bodily Injury and Property Damage (other than Automobile Liability) Each Occurrence; Personal Injury and Advertising Liability Each Occurrence.
B. $2,000,000 Combined Single Limit Annual General Aggregate.
C. $2,000,000 Annual Aggregate for Products and Completed Operations Liability.
D. $1,000,000 Combined Single Limit for Automobile Bodily Injury and Property Damage Liability, Each Accident or Loss.

2.03 INSURANCE COVERAGE CERTIFICATES

A. Certificate required: Prior to commencement of the Work, Contractor shall furnish to Owner a completed certificate of insurance coverage.
B. List Project info: All insurance certificates shall name Owner’s Project number and Project title.
C. Cancellation provisions: All insurance certificates shall specifically require 45 Days prior notice to Owner of cancellation or any material change, except 30 Days for surplus line insurance.

2.04 PAYMENT AND PERFORMANCE BONDS

Conditions for bonds: Payment and performance bonds for 100% of the Contract Award Amount, plus state sales tax, shall be furnished for the Work, using the Payment Bond and Performance Bond form published by and available from the American Institute of Architects (AIA) – form A312. Prior to execution of a Change Order that, cumulatively with previous Change Orders, increases the Contract Award Amount by 15% or more, the Contractor shall provide either new payment and performance bonds for the
revised Contract Sum, or riders to the existing payment and performance bonds increasing the amount of the bonds. The Contractor shall likewise provide additional bonds or riders when subsequent Change Orders increase the Contract Sum by 15% or more. No payment or performance bond is required if the Contract Sum is $35,000 or less and Contractor agrees that Owner may, in lieu of the bond, retain 50% of the Contract Sum for the period allowed by RCW 39.08.010.

2.05 ALTERNATIVE SURETY

When alternative surety required: Contractor shall promptly furnish payment and performance bonds from an alternative surety as required to protect Owner and persons supplying labor or materials required by the Contract Documents 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. Contractor to buy Property Insurance: Contractor shall purchase and maintain property 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, “Installation Floater” is an acceptable substitute for the Builder’s Risk Insurance. The insurance shall cover the interest of Owner, Contractor, and any Subcontractors, as their interests may appear.

B. Losses covered: Contractor property insurance shall be placed on an “all risk” basis and insure against the perils of fire and extended coverage and physical loss or damage including theft, vandalism, malicious mischief, collapse, false work, temporary buildings, debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for A/E’s services and expenses required as a result of an insured loss.

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 5.20, 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 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 a reasonable period thereafter.

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. The Progress Schedule 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 shop drawings and other submittals, 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, 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 which meets the requirements of this section.

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 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 promptly notify Owner in writing of any actual or anticipated event which 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 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 satisfactory corrective action has been taken.

B. **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, other than the payment of money, shall not constitute a default hereunder if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party (“Force Majeure”). 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;
3. Fire or other casualty for which Contractor is not responsible;
4. Quarantine or epidemic;
5. 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.

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 according to Section 7.03. 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 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 according to Sections 7.02 and 7.03.

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 according to Section 7.03, 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.

### 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. 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 further obligations or liabilities pursuant to the Contract Documents.

B. **Actual Damages**

**Calculation of Actual Damages:** Actual damages will be assessed for failure to achieve 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 Final Completion should have been achieved, based on the date Substantial Completion is actually achieved, to the date Final Completion is actually achieved. 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, or written modifications, or Shop Drawings where required, 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 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, and Change Order Proposals (COP). This separate set of Drawings and Specifications shall be the “Project Record.”

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 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 **SHOP DRAWINGS**

A. **Definition of Shop Drawings:** “Shop Drawings” 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. Shop Drawings 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 Shop Drawings provided in accordance with the Contract Documents.

B. **Approval of Shop Drawings by Contractor and A/E:** Contractor shall coordinate all Shop Drawings, and 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, Shop Drawings shall be stamped by an appropriate professional licensed by the state of Washington. Shop Drawings submitted to A/E without evidence of Contractor's approval shall be returned for resubmission. Contractor shall review, approve, and submit Shop Drawings 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 Shop Drawings. Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings 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 Shop Drawing submittals with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Shop Drawings. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

C. **Contractor not relieved of responsibility when Shop Drawings approved:** Approval, or other appropriate action with regard to Shop Drawings, by Owner or A/E shall not relieve Contractor of responsibility for any errors or omissions in such Shop Drawings, 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 Shop Drawings and Contract Documents:** If Shop Drawings show variations from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Shop Drawings, at the time it submits the Shop Drawings containing such variations. If A/E 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 recorded upon the Project Record.

E. **Contractor to submit 5 copies of Shop Drawings:** Unless otherwise provided in Division 1, Contractor shall submit to A/E for approval 5 copies of all Shop Drawings. Unless otherwise indicated, 3 sets of all Shop Drawings shall be retained by A/E and 2 sets shall be returned to Contractor.

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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 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. **Shop Drawing 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 Shop Drawings, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Shop Drawings, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Shop Drawings, 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 Shop Drawings hereunder, or to secure for Owner, at Contractor’s own cost, licenses in conformity with this section.

D. **Shop Drawings to be used only for this Project:** The Shop Drawings and other 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 Shop Drawings and other submittals appropriate to and for use in the execution of their Work under 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

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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: Performance of the Work shall be directly supervised by a competent superintendent who has authority to act for Contractor. The superintendent must be satisfactory to the Owner and shall not be changed without the prior written consent of Owner. Owner may require 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 Shop Drawings, 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 pay for and obtain all 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.

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

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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.

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, of any tier, 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. Pursuant to that statute, no laborer, worker, or mechanic employed by Contractor, any Subcontractor, or any other person performing or contracting to do the whole or any part of the Work, shall be permitted or required to work more than eight hours in any one calendar day, provided, that in cases of extraordinary emergency, such as danger to life or property, the hours of work may be extended, but in such cases the rate of pay for time employed in excess of eight hours of each calendar day shall be not less than one and one-half times the rate allowed for this same amount of time during eight hours of service.
B. **4-10 Agreements:** Notwithstanding the preceding paragraph, RCW 49.28 permits a contractor or subcontractor in any public works contract subject to those provisions, to enter into an agreement with its employees in which the employees work up to ten hours in a calendar day. No such agreement may provide that the employees work ten-hour days for more than four calendar days a week. Any such agreement is subject to approval by the employees. The overtime provisions of RCW 49.28 shall not apply to the hours, up to forty hours per week, worked pursuant to any such agreement.

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 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.

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 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.

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 shall be construed as imposing any duty upon Owner or A/E with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

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.

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:** Contractor shall protect from damage all existing structures, equipment, improvements, utilities, and vegetation: at or near the Project site; and 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 promptly, Owner may have the necessary work performed and charge the cost to Contractor.

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.

**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 benchmarks 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, 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 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 endanger any work 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.

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 rejected by Owner.

### 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.

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 requirements in the Contract Documents, it must, if required in writing by Owner, be uncovered for Owner’s observation and be replaced at the Contractor’s expense and without change in the 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 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 paragraph shall survive Final Acceptance.

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.

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. Contractor 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 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.

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 the Owner has a reasonable objection, and shall obtain Owner’s written consent before making any substitutions or additions.
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 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 all warranties that would be given in normal commercial practice;

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

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.

*July 1, 2010*
5.22 INDEMNIFICATION

A. Contractor to indemnify Owner: Contractor shall defend, indemnify, and hold Owner and A/E harmless from and against all 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, caused by or resulting from:

1. Sole negligence of Contractor: The sole negligence of Contractor or any of its Subcontractors;

2. Concurrent negligence: The concurrent negligence of Contractor, or any Subcontractor, but only to the extent of the negligence of Contractor or such Subcontractor; and

3. Patent infringement: The use of any design, process, or equipment which constitutes an infringement of any United States patent presently issued, or violates any other proprietary interest, including copyright, trademark, and trade secret.

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 state sales tax for performance of the Work, in accordance with the Contract Documents.

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 include appropriate amounts for demobilization, record drawings, O&M manuals, and any other requirements for Project closeout, and shall be used by Owner as the basis for 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 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 certificate of 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.
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.

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;

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;

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.

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.

### 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 Work:** Work by Owner to correct defective Work or complete the Work in accordance with Section 5.16;

4. **Contractor’s failure to perform:** Contractor’s failure to perform in accordance with the Contract Documents; or

5. **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 AND BOND CLAIM RIGHTS

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.

### 6.07 SUBSTANTIAL COMPLETION

**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. All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if all systems and parts are not functional, if utilities are not connected and operating normally, if all required occupancy permits have not been issued, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. 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.
6.08 PRIOR OCCUPANCY

A. Prior Occupancy defined; Restrictions: Owner may, upon written notice thereof 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. 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 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 constitute Final Acceptance which is a subsequent, separate, and distinct action.

B. Final Acceptance defined: Final Acceptance shall be achieved when the Contractor has completed the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Prior to Final Acceptance, Contractor shall, in addition to all other requirements in the Contract Documents, submit to Owner a written notice of any outstanding disputes or claims between Contractor and any of its Subcontractors, including the amounts and other details thereof. 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.

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 Work, Contract Sum, and Contract Time by Change Order: Owner may, at any time and without notice to Contractor’s surety, order additions, deletions, revisions, or other changes in the Work. These changes in the Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in Section 7.02 or 7.03, respectively, and such adjustment(s) shall be incorporated into a Change Order.

B. Owner may request COP from Contractor: If Owner desires to order a change in the Work, it may request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a Change Order Proposal within 14 Days of the request from Owner, or within such other period as mutually agreed. Contractor’s Change Order Proposal shall be full compensation for
implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.

C. **COP negotiations:** Upon receipt of the Change Order Proposal, or a request for equitable adjustment in the Contract Sum or Contract Time, or both, as provided in Sections 7.02 and 7.03, Owner may accept or reject the proposal, request further documentation, or negotiate acceptable terms with Contractor. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner’s approval. All Work done pursuant to any Owner-directed change in the Work shall be executed in accordance with the Contract Documents.

D. **Change Order as full payment and final settlement:** If Owner and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment.

E. **Failure to agree upon terms of Change Order; Final offer and Claims:** If Owner and Contractor are unable to reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, Contractor may at any time in writing, request a final offer from Owner. Owner shall provide Contractor with its written response within 30 Days of Contractor’s request. Owner may also provide Contractor with a final offer at any time. If Contractor rejects Owner’s final offer, or the parties are otherwise unable to reach agreement, Contractor’s only remedy shall be to file a Claim as provided in Part 8.

F. **Field Authorizations:** The Owner may direct the Contractor to proceed with a change in the work through a written Field Authorization (also referred to as a Field Order) when the time required to price and execute a Change Order would impact the Project.

The Field Authorization shall describe and include the following:

1. The scope of work
2. An agreed upon maximum not-to-exceed amount
3. Any estimated change to the Contract Time
4. The method of final cost determination in accordance with the requirements of Part 7 of the General Conditions
5. The supporting cost data to be submitted in accordance with the requirements of Part 7 of the General Conditions

Upon satisfactory submittal by the Contractor and approval by the Owner of supporting cost data, a Change Order will be executed. The Owner will not make payment to the Contractor for Field Authorization work until that work has been incorporated into an executed Change Order.
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. Contractor shall include any request for a change in the Contract Sum in its Change Order Proposal.

2. **Owner fault or negligence as basis for change in Contract Sum:** If the cost of Contractor’s performance is changed due to the fault or negligence of Owner, or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Sum in accordance with the following procedure. 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; the change is concurrently caused by Contractor and Owner; or the change is caused by an act of Force Majeure as defined in Section 3.05.

(a) **Notice and record keeping for equitable adjustment:** A request for an equitable adjustment in the Contract Sum shall be based on written notice delivered to Owner within 7 Days of the occurrence of the event giving rise to the request. For purposes of this part, “occurrence” means when Contractor knew, or in its diligent prosecution of the Work should have known, of the event giving rise to the request. If Contractor believes it is entitled to an adjustment in the Contract Sum, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such records and, if requested shall promptly furnish copies of such records to Owner.

(b) **Content of notice for equitable adjustment; Failure to comply:** Contractor shall not be entitled to any adjustment in the Contract Sum for any occurrence of events or costs that occurred more than 7 Days before Contractor’s written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Sum; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Sum requested. Failure to properly give such written notice shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

(c) **Contractor to provide supplemental information:** Within 30 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph a. above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis 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 and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with Section 7.03C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.
(d) **Contractor to proceed with Work as directed:** Pending final resolution of any request made in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

(e) **Contractor to combine requests for same event together:** Any requests by Contractor for an equitable adjustment in the Contract Sum and in the Contract Time that arise out of the same event(s) shall be submitted together.

3. **Methods for calculating Change Order amount:** The value of any Work covered by a Change Order, or of any request for an equitable adjustment in the Contract Sum, shall be determined by one of the following methods:

   a. **Fixed Price:** On the basis of a fixed price as determined in paragraph 7.02B.

   b. **Unit Prices:** By application of unit prices to the quantities of the items involved as determined in paragraph 7.02C.

   c. **Time and Materials:** On the basis of time and material as determined in paragraph 7.02D.

4. **Fixed price method is default; Owner may direct otherwise:** When Owner has requested Contractor to submit a Change Order Proposal, Owner may direct Contractor as to which method in subparagraph 3 above to use when submitting its proposal. Otherwise, Contractor shall determine the value of the Work, or of a request for an equitable adjustment, on the basis of the fixed price method.

B. **Change Order Pricing – Fixed Price**

**Procedures:** When the fixed price method is used to determine the value of any Work covered by a Change Order, or of a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:

1. **Breakdown and itemization of details on COP:** Contractor’s Change Order Proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below, and shall be submitted on breakdown sheets in a form approved by Owner.

2. **Use of industry standards in calculating costs:** All costs shall be calculated based upon appropriate industry standard methods of calculating labor, material quantities, and equipment costs.

3. **Costs contingent on Owner’s actions:** If any of Contractor’s pricing assumptions are contingent upon anticipated actions of Owner, Contractor shall clearly state them in the proposal or request for an equitable adjustment.

4. **Markups on additive and deductive Work:** The cost of any additive or deductive changes in the Work shall be calculated as set forth below, except that overhead and profit shall not be included on deductive changes in the Work. Where a change in the Work involves additive and deductive work by the same Contractor or Subcontractor, small tools, overhead, profit, bond and insurance markups will apply to the net difference.

5. **Breakdown not required if change less than $1,000:** If the total cost of the change in the Work or request for equitable adjustment does not exceed $1,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work or request for equitable adjustment is sufficiently definitive for Owner to determine fair value.
6. **Breakdown required if change between $1,000 and $2,500:** If the total cost of the change in the Work or request for equitable adjustment is between $1,000 and $2,500, Contractor may submit a breakdown in the following level of detail if the description of the change in the Work or if the request for equitable adjustment is sufficiently definitive to permit the Owner to determine fair value:

   a. lump sum labor;
   b. lump sum material;
   c. lump sum equipment usage;
   d. overhead and profit as set forth below; and
   e. insurance and bond costs as set forth below.

7. **Components of increased cost:** Any request for adjustment of Contract Sum based upon the fixed price method shall include only the following items:

   a. **Craft labor costs:** These are the labor costs determined by multiplying the estimated or actual additional number of craft hours needed to perform the change in the Work by the hourly labor costs. Craft hours should cover direct labor, as well as indirect labor due to trade inefficiencies. The hourly costs shall be based on the following:

      (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” or a higher amount if approved by the Owner. Direct supervision shall be a reasonable percentage not to exceed 15% of the cost of direct labor. No supervision markup shall be allowed for a working supervisor’s hours.

      (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) **Travel allowance:** Travel allowance and/or subsistence, if applicable, not exceeding those allowances established by regional labor union agreements, which are itemized and identified separately.

      (5) **Safety:** Cost incurred due to the Washington Industrial Safety and Health Act, which shall be a reasonable percentage not to exceed 2% of the sum of the amounts calculated in (1), (2), and (3) above.

   b. **Material costs:** This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, second from supplier quotations or if these are not available, from standard industry pricing guides. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges, shall be itemized.
c. **Equipment costs:** This is an itemization of the type of equipment and 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. Costs will be allowed for construction equipment only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual invoice costs or if owned, from the current edition of one of the following sources:


2. The National Electrical Contractors Association for equipment used on electrical work.

3. The Mechanical Contractors Association of America for equipment used on mechanical work.

The EquipmentWatch Rental Rate Blue Book shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement, current edition on the Contract execution date.

d. **Allowance for small tools, expendables & consumable supplies:** Small tools consist of tools which cost $250 or less and are normally furnished by the performing contractor. The maximum rate for small tools shall not exceed the following:

1. **3% for Contractor:** For Contractor, 3% of direct labor costs.

2. **5% for Subcontractors:** For Subcontractors, 5% of direct labor costs.

Expendables and consumables supplies directly associated with the change in Work must be itemized.

e. **Subcontractor costs:** This is defined as payments Contractor makes to Subcontractors for changed Work performed by Subcontractors of any tier. The Subcontractors’ cost of Work shall be calculated and itemized in the same manner as prescribed herein for Contractor.

f. **Allowance for overhead:** This is defined as costs of any kind attributable to direct and indirect delay, acceleration, or impact, added to the total cost to Owner of any change in the Contract Sum. If the Contractor is compensated under Section 7.03D, the amount of such compensation shall be reduced by the amount Contractor is otherwise entitled to under this subsection (f). This allowance shall compensate Contractor for all noncraft labor, temporary construction facilities, field engineering, schedule updating, as-built drawings, home office cost, B&O taxes, office engineering, estimating costs, additional overhead because of extended time, and any other cost incidental to the change in the Work. It shall be strictly limited in all cases to a reasonable amount, mutually acceptable, or if none can be agreed upon to an amount not to exceed the rates below:

1. **Projects less than $3 million:** For projects where the Contract Award Amount is under $3 million, the following shall apply:
(a) **Contractor markup on Contractor Work:** For Contractor, for any Work actually performed by Contractor's own forces, 16% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(b) **Subcontractor markup for Subcontractor Work:** For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 16% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(c) **Contractor markup for Subcontractor Work:** For Contractor, for any work performed by its Subcontractor(s) 6% of the first $50,000 of the amount due each Subcontractor, and 4% of the remaining amount if any.

(d) **Subcontractor markup for lower tier Subcontractor Work:** For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% of the first $50,000 of the amount due the sub-Subcontractor, and 2% of the remaining amount if any.

(e) **Basis of cost applicable for markup:** The cost to which overhead is to be applied shall be developed in accordance with Section 7.02B 7a. – e.

(2). **Projects more than $3 million:** For projects where the Contract Award Amount is equal to or exceeds $3 million, the following shall apply:

(a) **Contractor markup on Contractor Work:** For Contractor, for any Work actually performed by Contractor’s own forces, 12% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(b) **Subcontractor markup for Subcontractor Work:** For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 12% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(c) **Contractor markup for Subcontractor Work:** For Contractor, for any Work performed by its Subcontractor(s), 4% of the first $50,000 of the amount due each Subcontractor, and 2% of the remaining amount if any.

(d) **Subcontractor markup for lower tier Subcontractor Work:** For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% of the first $50,000 of the amount due the sub-Subcontractor, and 2% of the remaining amount if any.

(e) **Basis of cost applicable for markup:** The cost to which overhead is to be applied shall be developed in accordance with Section 7.02B 7a. – e.

(g. **Allowance for profit:** Allowance for profit is an amount to be added to the cost of any change in contract sum, but not to the cost of change in Contract Time for which contractor has been compensated pursuant to the conditions set forth in Section 7.03. It shall be limited to a reasonable amount, mutually acceptable, or if none can be agreed upon, to an amount not to exceed the rates below:

(1) **Contractor / Subcontractor markup for self-performed Work:** For Contractor or Subcontractor of any tier for work performed by their forces, 6% of the cost developed in accordance with Section 7.02B 7a. – e.
(2) Contractor / Subcontractor markup for Work performed at lower tier: For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, 4% of the subcontract cost developed in accordance with Section 7.02B 7a. – h.

h. Insurance and bond premiums: Cost of change in insurance or bond premium: This is defined as:
   (1) Contractor’s liability insurance: The cost of any changes in Contractor’s liability insurance arising directly from execution of the Change Order; and
   (2) Payment and Performance Bond: The cost of the additional premium for Contractor’s bond arising directly from the changed Work.

The cost of any change in insurance or bond premium shall be added after overhead and allowance for profit are calculated in accordance with subparagraph f. and g above.

C. Change Order Pricing – Unit Prices

1. Content of Owner authorization: Whenever Owner authorizes Contractor to perform Work on a unit-price basis, Owner’s authorization shall clearly state:
   a. Scope: Scope of work to be performed;
   b. Reimbursement basis: Type of reimbursement including pre-agreed rates for material quantities; and
   c. Reimbursement limit: Cost limit of reimbursement.

2. Contractor responsibilities: Contractor shall:
   a. Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, Contractor shall identify workers assigned to the Change Order Work and areas in which they are working;
   b. Leave access as appropriate for quantity measurement; and
   c. Not exceed any cost limit(s) without Owner’s prior written approval.

3. Cost breakdown consistent with Fixed Price requirements: Contractor shall submit costs in accordance with paragraph 7.02B and satisfy the following requirements:
   a. Unit prices must include overhead, profit, bond and insurance premiums: Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs; and
   b. Owner verification of quantities: Quantities must be supported by field measurement statements signed by Owner.

D. Change Order Pricing – Time-and-Material Prices

1. Content of Owner authorization: Whenever Owner authorizes Contractor to perform Work on a time-and-material basis, Owner’s authorization shall clearly state:
   a. Scope: Scope of Work to be performed;
b. **Reimbursement basis**: Type of reimbursement including pre-agreed rates, if any, for material quantities or labor; and

c. **Reimbursement limit**: Cost limit of reimbursement.

2. **Contractor responsibilities**: Contractor shall:
   
a. **Identify workers assigned**: Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, identify workers assigned to the Change Order Work and areas in which they are working;

   b. **Provide daily timesheets**: Identify on daily time sheets all labor performed in accordance with this authorization. Submit copies of daily time sheets within 2 working days for Owner’s review.

   c. **Allow Owner to measure quantities**: Leave access as appropriate for quantity measurement;

   d. **Perform Work efficiently**: Perform all Work in accordance with this section as efficiently as possible; and

   e. **Not exceed Owner’s cost limit**: Not exceed any cost limit(s) without Owner’s prior written approval.

3. **Cost breakdown consistent with Fixed Price requirements**: Contractor shall submit costs in accordance with paragraph 7.02B and additional verification supported by:

   a. **Timesheets**: Labor detailed on daily time sheets; and

   b. **Invoices**: Invoices for material.

7.03 **CHANGE IN THE CONTRACT TIME**

A. **COP requests for Contract Time**: The Contract Time shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Time in its Change Order Proposal.

B. **Time extension permitted if not Contractor’s fault**: If the time of Contractor’s performance is changed due to an act of Force Majeure, or due to the fault or negligence of Owner or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Time in accordance with the following procedure. 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.

1. **Notice and record keeping for Contract Time request**: A request for an equitable adjustment in the Contract Time shall be based on written notice delivered within 7 Days of the occurrence of the event giving rise to the request. If Contractor believes it is entitled to adjustment of Contract Time, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such record and if requested, shall promptly furnish copies of such record to Owner.

2. **Timing and content of Contractor’s Notice**: Contractor shall not be entitled to an adjustment in the Contract Time for any events that occurred more than 7 Days before Contractor’s written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the

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Contract Time; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Time requested. Failure to properly give such written notice shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

3. **Contractor to provide supplemental information**: Within 30 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph 7.03B.2 with additional supporting data. Such additional data shall include, at a minimum: the amount of delay claimed, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the delay claimed, but that the delay claimed was actually a result of the act, event, or condition complained of, and that the Contract Documents provide entitlement to an equitable adjustment in Contract Time for such act, event, or condition; and supporting documentation sufficiently detailed to permit an informed analysis of the request by Owner. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

4. **Contractor to proceed with Work as directed**: Pending final resolution of any request in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

C. **Contractor to demonstrate impact on critical path of schedule**: Any change in the Contract Time covered by a Change Order, or based on a request for an equitable adjustment in the Contract Time, shall be limited to the change in the critical path of Contractor’s schedule attributable to the change of Work or event(s) giving rise to the request for equitable adjustment. Any Change Order Proposal or request for an adjustment in the Contract Time shall demonstrate the impact on the critical path of the schedule. 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.

D. **Cost of change in Contract Time**: Contractor may request compensation for the cost of a change in Contract Time in accordance with this paragraph, 7.03D, subject to the following conditions:

1. **Must be solely fault of Owner or A/E**: The change in Contract Time shall solely be caused by the fault or negligence of Owner or A/E;

2. **Procedures**: Contractor shall follow the procedure set forth in paragraph 7.03B;

3. **Demonstrate impact on critical path**: Contractor shall establish the extent of the change in Contract Time in accordance with paragraph 7.03C; and

4. **Limitations on daily costs**: The daily cost of any change in Contract Time shall be limited to the items below, less the amount of any change in the Contract Sum the Contractor may otherwise be entitled to pursuant to Section 7.02B 7f for any change in the Work that contributed to this change in Contract Time:

   a. **Non-productive supervision or labor**: cost of nonproductive field supervision or labor extended because of delay;

   b. **Weekly meetings and indirect activities**: cost of weekly meetings or similar indirect activities extended because of the delay;
c.  **Temporary facilities or equipment rental:** cost of temporary facilities or equipment rental extended because of the delay;

d.  **Insurance premiums:** cost of insurance extended because of the delay;

e.  **Overhead:** general and administrative overhead in an amount to be agreed upon, but not to exceed 3% of the Contract Award Amount divided by the originally specified Contract Time for each Day of the delay.

**PART 8 – CLAIMS AND DISPUTE RESOLUTION**

**8.01 CLAIMS PROCEDURE**

A.  **Claim is Contractor’s remedy:** If the parties fail to reach agreement on the terms of any Change Order for Owner-directed Work as provided in Section 7.01, or on the resolution of any request for an equitable adjustment in the Contract Sum as provided in Section 7.02 or the Contract Time as provided in Section 7.03, Contractor’s only remedy shall be to file a Claim with Owner as provided in this section.

B.  **Claim filing deadline for Contractor:** Contractor shall file its Claim within 120 Days from Owner’s final offer made in accordance with paragraph 7.01E, or by the date of Final Acceptance, whichever occurs first.

C.  **Claim must cover all costs and be documented:** The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented. At a minimum, the Claim shall contain the following information:

1.  **Factual statement of Claim:** A detailed factual statement of the Claim for additional compensation and time, if any, providing all necessary dates, locations, and items of Work affected by the Claim;

2.  **Dates:** The date on which facts arose which gave rise to the Claim;

3.  **Owner and A/E employee’s knowledgeable about Claim:** The name of each employee of Owner or A/E knowledgeable about the Claim;

4.  **Support from Contract Documents:** The specific provisions of the Contract Documents which 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:** Copies of any identified documents, other than the Contract Documents, that support the Claim;

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;

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 set forth in, and in the detail as 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 liable.

D. **Owner’s response to Claim filed:** After Contractor has submitted a fully documented Claim that complies with all applicable provisions of Parts 7 and 8, Owner shall respond, in writing, to Contractor as follows:

   1. **Response time for Claim less than $50,000:** If the Claim amount is less than $50,000, with a decision within 60 Days from the date the Claim is received; or

   2. **Response time for Claim of $50,000 or more:** If the Claim amount is $50,000 or more, with a decision within 60 Days from the date the Claim is received, or with notice to Contractor of the date by which it will render its decision. Owner will then respond with a written decision in such additional time.

E. **Owner’s review of Claim and finality of decision:** To assist in the review of Contractor’s Claim, Owner may visit the Project site, or request additional information, in order to fully evaluate the issues raised by the Claim. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner’s written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim, unless Contractor follows the procedure set forth in Section 8.02.

F. **Waiver of Contractor rights for failure to comply with this Section:** Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless made in accordance with the requirements of this Section.

### 8.02 ARBITRATION

A. **Timing of Contractor’s demand for arbitration:** If Contractor disagrees with Owner’s decision rendered in accordance with paragraph 8.01D, Contractor shall provide Owner with a written demand for arbitration. No demand for arbitration of any such Claim shall be made later than 30 Days after the date of Owner’s decision on such Claim; failure to demand arbitration within said 30 Day period shall result in Owner’s decision being final and binding upon Contractor and its Subcontractors.

B. **Filing of Notice for arbitration:** Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), with a copy provided to Owner. The parties shall negotiate or mediate under the Voluntary Construction Mediation Rules of the AAA, or mutually acceptable service, before seeking arbitration in accordance with the Construction Industry Arbitration Rules of AAA as follows:

   1. **Claims less than $30,000:** Disputes involving $30,000 or less shall be conducted in accordance with the Northwest Region Expedited Commercial Arbitration Rules; or

   2. **Claims greater than $30,000:** Disputes over $30,000 shall be conducted in accordance with the Construction Industry Arbitration Rules of the AAA, unless the parties agree to use the expedited rules.

C. **Arbitration is forum for resolving Claims:** All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may
occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.

D. **Owner may combine Claims into same arbitration:** Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in the same arbitration or mediation.

E. **Settlement outside of arbitration to be documented in Change Order:** If the parties resolve the Claim prior to arbitration judgment, the terms of the resolution shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of the Claim, including all claims for time and for direct, indirect, or consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity.

### 8.03 CLAIMS AUDITS

A. **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 maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.

B. **Contractor to make documents available:** In support of Owner audit of any Claim, Contractor shall, upon request, promptly make available to Owner the following documents:

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.);
11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
12. Subcontractors’ and agents’ payment certificates;
13. Cancelled checks (payroll and vendors);
14. Job cost report, including 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 reflecting the operations on the Work. In addition, the 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 nonprivileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in Contract Sum or Contract Time sought by each Claim;
23. Work sheets or software used to prepare the Claim establishing the cost components for items of the Claim including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors, all documents which establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals; and
24. Work sheets, software, and all other documents used by Contractor to prepare its bid.

C. Contractor to provide facilities for audit and shall cooperate: The audit may be performed by employees of Owner or a representative 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.

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;

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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:** 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 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.

**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 laws of the state of Washington. Venue shall be in the county in which Owner’s principal place of business 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 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 Work 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 such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

**10.03 MEANING OF WORDS**

Meaning of words used in Specifications: Unless otherwise stated in the Contract Documents, words which 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 be specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in these 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 articles as are shown on the drawings, or required to complete the installation.

10.04 RIGHTS AND REMEDIES

No waiver of rights: No action or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall action or failure to act constitute approval or an acquiescence in a breach therein, except as may be specifically agreed in writing.

10.05 CONTRACTOR REGISTRATION

Contractor must be registered or licensed: Pursuant to RCW 39.06, Contractor shall be registered or licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

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.

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.
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These University of Washington Modifications to the General Conditions form a part of, and are incorporated in the Contract Documents and modify, delete, add, and replace provisions of the General Conditions. Provisions not altered remain in effect. All terms defined elsewhere in the Contract Documents shall have the same meaning here.

PART 1 – GENERAL PROVISIONS

1.01 DEFINITIONS

Add the following definitions:

Certified Business Enterprise (CBE): Any business enterprise certified with the Washington State Office of Minority and Women’s Business Enterprises (OMWBE), Northwest Mountain Minority Supplier Diversity Council (NWMMSDC), or Women’s Business Enterprise Council (WBEC).

Lesbian/Gay/Bisexual/Transgender Business Enterprise (LGBTBE): More than 50% owned and controlled by at least one person who is a member of the LGBT community.

Minority Business Enterprise (MBE): More than 50% owned and controlled by at least one person who is a member of one or more of the following minority groups:

- Asian Pacific American
- Black American
- Hispanic American
- Native American
- Subcontinent Asian American

Minority Women’s Business Enterprise (MWBE): More than 50% owned and controlled by at least one woman who is a member of one or more of the above minority groups.

Small Business Enterprise (SBE): A business entity that:

- Can attest that it is owned and operated independently from all other businesses and
- Conforms to the U.S. Small Business Administration Size Standards of the North American Industry Classification System (NAICS) Codes in which it is to be engaged at the UW; or
- Is certified with the OMWBE.

Veteran’s Business Enterprise (VBE): Certified with the Washington State Department of Veteran’s Affairs (DVA)

Women’s Business Enterprise (WBE): More than 50% owned and controlled by one or more women.

PART 2 – INSURANCE AND BONDS

2.01 Contractor’s Liability Insurance
• Add the following language to the end of the first paragraph of section 2.01:

“The certificate holder shall be:
UW Facilities, Project Delivery Group
University of Washington
Box 352205
Seattle, WA 98195”

A policy for Commercial General Liability Insurance which includes coverage for bodily injury, property damage, premises operations, independent contracts, and broad-form contractual liability, and Stop Gap, unless as Employer Liability under Part B of Worker’s Compensation Insurance Policy.

Products Completed Operations Additional Insured. The Contractor’s CGL insurance must include the Owner as an additional insured status on ISO CG 20 10 11 85 or CG 20 37 endorsement, or by an equivalent policy or endorsement provisions. The Product Completed Operations additional insured status for the Owner must remain in effect for not less than 3 years following Final Completion.

• Delete subparagraph 2.01A2 and replace it with the following language:

“Automobile Liability Insurance:
Commercial Automobile Liability with a combined single limited of not less than $1,000,000 for each accident. Coverage shall include Bodily Injury and Property Damage Liability for all owned, non-owned, leased, and hired automobiles and contain a Waiver of Subrogation in favor of the Owner. If pollutants are to be transported, MCS 90 and CA 99 48 endorsements are required on the Automobile Liability policy unless the transportation pollution risk covered under a Pollution Liability insurance policy carried by the Contractor.

• Delete paragraph 2.01D and replace it with the following language:

“Owner as Additional Insured: All insurance coverages shall name the Board of Regents of the University of Washington as an additional insured with respect to liability arising out of work performed by Contractor, and an additional insured endorsement to the policy must be provided to the Owner. All insurance coverages shall be endorsed to be primary and non-contributory with any insurance maintained by the University of Washington, provide a waiver of any rights of subrogation against the University of Washington, and contain a severability of interest provision in favor of the University of Washington, and all insurance certificates shall evidence full compliance with the enumerated requirements. If the contract amount, including alternates, is less than $5 million, the primary and non-contributory endorsement is not mandatory.”

The Contractor must provide a Pollution Liability policy for pollutants that are or may be remediated on or off site covering claims, including investigation, defense, or settlement costs and expenses that involve bodily injury and property damage (including natural resources damages and loss of use of tangible property that has not been physically injured) covering:

Pollution conditions caused or made worse by the Contractor, including clean-up costs for a newly caused condition or a historical condition that is made worse the vicarious liability of subcontractors of any tier.

The Pollution Liability insurance must provide a minimum limit of liability of $1,000,000 each claim with a minimum aggregate limit of 200% of the each claim limit. There is no requirement for a dedicated project aggregate limit provided that the Contractor (1) submits to the Owner before the Notice to Proceed Date with its insurance certification a written statement from its authorized insurance representative that the full minimum aggregate limit is available and has
not been impaired by any claims reserved on another project, and (2) thereafter, until the completion of the Work, provides notice in writing to the City within 10 Days of Contractor's constructive knowledge of any pending or actual impairment of the aggregate limit. If in-Transit Pollution Liability is required but is not provided under the Automobile Liability, the Contractor must provide evidence of transportation coverage under the Contractor’s Pollution Liability policy.

2.04 Payment and Performance Bonds

- Delete the last sentence of section 2.04 and replace it with the following language: “No payment or performance bond is required if the Contract Sum is $150,000 or less and Contractor agrees that Owner may, in lieu of the bond, retain 10% of the Contract Sum for the period allowed by RCW 39.08.010.”

PART 5 - PERFORMANCE

5.01 Contractor Control and Supervision

Add a new paragraph 5.01G as follows:

“Work During Off Hours: When work is to be performed during other than normal working hours or on University of Washington holidays, Contractor shall give Owner prior notice so that Owner’s Police Department may be properly notified. Any construction activity between the hours of 10:00 p.m. to 6:00 a.m. is subject to approval of Owner.”

Add a new paragraph 5.01H as follows:

“Contractor to comply with University of Washington’s campus conduct code: Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the University’s conduct on campus code, WAC 478-124-020, which, among other things, prohibits the possession or use of firearms or other dangerous weapons or instrumentalities on the University campus, except for authorized University purposes. At the discretion of the University, Contractor shall remove from the University campus, at its sole cost and expense, any of its, or its Subcontractors’ employees, if they are in violation of this code.”

5.02 Permits, Fees and Notice

Add a new paragraph 5.02D as follows:

“For Work within the City of Seattle, Owner shall pay the City of Seattle directly for the cost of the Master Use and Building Permit. Prior to Final Acceptance, the building permit and City-approved drawings, signed inspection card(s), and any appropriate occupancy permits shall be submitted to Owner.”

5.07 Safety Precautions

- Add a new paragraph 5.07I as follows:

“In order to receive a Notice to Proceed, the Contractor must submit the following to Owner:

1. A copy of its company Safety Program. The Safety Program shall contain, at a minimum, the following:
   a. Organization, including names of individuals who will perform safety duties, titles, work assignments, authority and reporting relationships.
b. Training Program. Who, how and when training is provided; method of employee training concerning safety rules and procedures; training in use of protective equipment.

c. Protective Equipment. List of personal protective equipment to be provided to employees.

d. Accident Prevention and Loss Control Plan. Work site inspection and hazard correction procedures; disciplinary procedures for safety infractions; accident response, investigation and reporting procedures.

e. Regular Safety Meetings. On-site weekly or other frequency as appropriate, safety meetings mandatory for all employees."

• Add a new paragraph 5.07J as follows:

"Prior to commencing any Work on-site, Contractor shall submit an appropriate site specific safety plan for Owner's acceptance. The plan must be tailored to the needs of the particular project and to the types of hazards involved, and be in compliance with WISHA requirements. Contractor shall not begin any on-site Work until the site specific safety plan has been accepted by Owner."

• Add a new paragraph 5.07K

"With its monthly Application for Payment, the Contractor shall submit the Monthly Safety report on the form in Appendix A.

5.10 Unforeseen Physical Conditions

Add a new paragraph 5.10C as follows:

"If Contractor encounters mold in the course of its work it shall notify Owner to evaluate what action might be necessary. Contractor shall ensure that all building materials used during the work are dry prior to incorporation into the Work. If Contractor encounters water intrusion from any source it shall take immediate steps to ensure that any effected material is dry according to generally accepted industry standards."

5.13 Material and Equipment

Add the following new sentence after the last sentence of paragraph 5.13A:

"Contractor shall ensure that all equipment, materials and articles incorporated into the Work shall be asbestos free."

5.20 Subcontractors and Suppliers

Add the following new subparagraph 5.20A6 as follows:

"For contracts entered into between September 1, 2010 and December 31, 2013, not have violated the reporting requirements of RCW 39.04.370 more than one time, as determined by the Department of Labor and Industries."

5.23 Contractor Performance Evaluation

Add a new section 5.23 as follows:
“CONTRACTOR PERFORMANCE EVALUATION

Owner shall evaluate Contractor for the performance categories as set forth in the “Contractor Performance Evaluation Report” in Appendix A. Section 00 73 20, Contractor Performance Evaluation Program, describes the evaluation process.”

PART 6 – PAYMENTS AND COMPLETION

6.07 Substantial Completion

Delete the second sentence of paragraph 6.07 and replace it with the following language:

“All Work other than incidental corrective and incidental punch list work shall be completed.”

PART 7 – CHANGES

7.02 Change in the Contract Sum

- Add the following new sentence after the second sentence of subparagraph 7.02B7a:

“When estimating labor hours for electrical work, such hours shall be no greater than the Labor Units for specific items included in the "Normal" project conditions column of the NECA Manual of Labor Units, most recent edition. When estimating labor hours for mechanical work, such hours shall be no greater than 75% of the Labor Units for specific items included in the MCAA Web-Based Estimating Manual (WebLEM), subject to the assumptions and notes in the WebLEM, except that the Labor Units for "Hangers, Sleeves, & Inserts" shall be no greater than 50% of the WebLEM Labor Units. Special exceptions for electrical and mechanical work may be made for work having to be performed under extraordinary conditions. Such exceptions shall be identified and explained in any applicable pricing proposals and shall be subject to approval by Owner.”

- Delete the last sentence of subparagraph 7.02B7a(1) and replace it with the following:

“No supervision markup shall be allowed in a Change Order that contains direct labor costs for a working supervisor’s hours (including any category of foreman).”

- Replace subparagraph 7.02B7b in its entirety with the following:

“Material costs: This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, including, but not limited to, Contractors’ supplier(s’) actual cost(s) available from the standard industry pricing guide “Trade Service”, second from supplier quotations, or, if these are not available, and third from other standard industry pricing guides.

Material costs shall include all available discounts. Freight costs, express charges, or special delivery charges, shall be itemized.”

- Add the following new language after the second sentence of subparagraph 7.02B7c:
“The Contractor’s cost for utility vehicles and other items such as pickup trucks, vans, flatbed trucks, storage trailers, containers, etc., that are already in use or planned for use on the Project will not be compensated in Change Order work except for the time that, in the opinion of the Owner, such items: (1) are directly and necessarily used for the performance of the change work; and (2) the cost of using such items has not been included within the Contractor’s total project overhead costs.”

- Add the following new language after the last sentence of subparagraph 7.02B7c(2):
  “Equipment pricing shall be no greater than 75% of NECA monthly rates.”

- Delete the first sentence of subparagraph 7.02B7d and replace it with the following language:
  “Small tools consist of tools which cost $1,000 or less and are normally furnished by the performing contractor.”

PART 8 - CLAIMS AND DISPUTE RESOLUTION

8.02 Replace section 8.02 in its entirety with the following:

“LITIGATION

A. If Contractor disagrees with Owner's decision rendered in accordance with paragraph 8.01D, Contractor shall serve and file a lawsuit in an appropriate court within 120 days of Owner's decision. This requirement cannot be waived except by an explicit waiver signed by Owner. The failure to file a lawsuit within said 120-day period shall result in Owner's decision rendered in accordance with paragraph 8.01D being final and binding on Contractor and all of its Subcontractors.

B. At any time, either before or after a lawsuit has been commenced by Contractor in accordance with paragraph 8.02A, Owner may require Contractor to participate in further mediation or arbitration, or both, in any forum or format as determined by Owner.

C. Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in a single forum, or Owner may consolidate such Claims or join any of the above-named parties in the same forum.”

PART 10 - MISCELLANEOUS PROVISIONS

10.11 Add a new section 10.11 as follows:

“Business Equity Requirements

A. General Requirements

Contractor shall conduct business in an equitable and inclusive manner. The University of Washington welcomes the participation of all Business Equity Enterprises (BEE), irrespective of gross revenues, including those that are self-designated and those that are state (OMWBE) certified. Participation may be on a direct basis in response to this invitation to bid, or as a subcontractor or supplier. The University of Washington has set an overall aspirational goal of 20% BEE utilization, inclusive of 15% minority and women-owned business utilization across our public works program."

Last Revised: November 27, 2019
Contractor shall comply with the following requirements:
In accordance with Chapter 39.19 RCW, it is the policy of the State of Washington to provide the maximum practicable opportunity for increased participation by minority and women-owned and controlled businesses (MWBE) in public works.

The Washington State Office of Minority and Women’s Business Enterprises (OMWBE) certifies firms that are owned and controlled by minorities or women, and can provide information regarding the certification process. Information about the certification status of a particular firm is available at the following OMWBE website address: http://www.omwbe.wa.gov/biznetwas/, or by contacting OMWBE at (360) 753-9693, 406 South Water, P.O. Box 41160, Olympia, Washington 98504-4611.

B. Inclusion Efforts

1. The identified lowest responsive bidder shall submit, as provided by the Owner, a BEE Contribution Form, along with their Schedule of Values for review. The BEE Contribution Form shall include a project specific BEE inclusion goal and capture the efforts and business practices the Contractor used to ensure that BEEs have the maximum practicable opportunity to participate and be included in the project. The BEE Contribution Form shall be complete and the information in each section shall demonstrate the Contractor’s approach to providing these opportunities and the inclusion of BEE. The BEE Contribution Form is subject to review and approval by the Owner. The Owner may request clarification and/or corrections, however, non-responsive or incomplete Forms may be grounds for rejecting the Bidder as not responsible.

2. Contractors shall:
   a. Advertise opportunities for subcontractors or suppliers in a manner reasonably designed to provide BEEs capable of performing the work with timely notice of such opportunities, and all advertisements shall include a provision encouraging participation by BEE firms. Advertising may be done through general advertisements (e.g., newspapers, journals, etc.) or by soliciting bids/proposals directly from BEEs.
   b. Provide BEEs that express interest with adequate and timely information about plans, specifications, schedules, and requirements of the Contract.

3. Contractors are further encouraged to:
   a. Break down work into tasks or quantities that are appropriately sized for the intended subcontractor and/or BEE, in order to permit maximum participation by BEEs and other small businesses.
   b. Establish delivery schedules, where the requirements of this contract permit, that encourage participation by BEEs and other small businesses.
   c. Reduce bonding requirements where practicable.
   d. Utilize the services of available minority community organizations, minority contractor groups, local minority assistance offices and organizations that provide assistance in the recruitment and placement of BEEs and other small businesses.

C. Reporting Requirements
1. With the application for Progress Payment, Contractor shall submit a list of all BEE subcontractors/suppliers paid during the payment period along with any certification or Self-Declaration information. The Owner has provided a BEE Declaration Form, which is to be completed by every subcontractor, supplier, and materialman or similar on the project.

2. Prior to Final Acceptance, Contractor shall submit a report of total dollar amounts paid to BEEs.

D. Non-Discrimination

Contractors shall not create barriers to open and fair opportunities to all businesses including BEEs to participate in University contracts and to obtain or compete for contracts and subcontracts as sources of supplies, equipment, construction and services. In considering offers from and doing business with subcontractors and suppliers, the Contractor shall not discriminate on the basis of race, color, creed, religion, sex, age, nationality, marital status, or the presence of any mental or physical disability in an otherwise qualified disabled person.

E. Sanctions

Failure to comply with any of the mandatory requirements of this part of the contract may subject the Contractor to sanctions or damages as provided for by RCW 39.19.090, or by other applicable laws.

END OF SECTION
These Supplemental Conditions form a part of, and are incorporated in, the Contract Documents and modify, delete, add, and replace provisions of the General Conditions. Provisions not altered remain in effect. All terms defined elsewhere in the Contract Documents shall have the same meaning in these Supplemental Conditions.

00 73 01 TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Work shall be commenced on the effective date specified in the Notice to Proceed and shall be substantially complete within a period not to exceed Ninety (90) calendar days. For failure to achieve Substantial Completion of the Work within the time provided, Contractor shall pay Owner $530.00 for each calendar day from the date when Substantial Completion should have been achieved to the date Substantial Completion is actually achieved. The provisions of the General Conditions section 3.07, for liquidated damages, remain in effect.

00 73 02 COVERAGE LIMITS (NOT USED)

00 73 03 BUILDER'S RISK

Delete Section 2.06 A and B and replace with the following new Section 2.06 A:

Owner will purchase and maintain Builder’s Risk property insurance in the amount of the Contract Sum including all Change Orders for the entire Work on a replacement cost basis until Substantial Completion. Contractor shall be responsible for all losses up to the policy deductible amount of $100,000 per occurrence. A specimen policy is available for inspection. Contractor is not required to obtain Builder’s Risk property insurance. All other provisions of the General Conditions Section 2.06, Builder’s Risk, remain in effect except that Architects and Engineers (A/E’s) and A/E’s Subconsultants are deleted from paragraph C.

If the Contractor believes it has a loss that is covered by Builder’s Risk/Property Insurance, and it is likely to exceed the policy deductible, the Contractor shall notify the Owner within 48 hours.

Owner will purchase and maintain Builder’s Risk property insurance in the amount of the Contract Sum including all Change Orders for the entire Work on a replacement cost basis until Substantial Completion. Contractor shall be responsible for all losses up to the policy deductible amount of $10,000 per occurrence. A specimen policy is available for inspection. Contractor is not required to obtain Builder’s Risk property insurance. All other provisions of the General Conditions Section 2.06, Builder’s Risk, remain in effect except that Architects and Engineers (A/E’s) and A/E’s Subconsultants are deleted from paragraph C.

If the Contractor believes it has a loss that is covered by Builder’s Risk/Property Insurance, and it is likely to exceed the policy deductible, the Contractor shall notify the Owner within 48 hours.

Owner will purchase and maintain Builder’s Risk property insurance in the amount of the Contract Sum including all Change Orders for the entire Work on a replacement cost basis until Substantial Completion. Contractor shall be responsible for all losses up to
the policy deductible amount of $250,000 per occurrence. A specimen policy is available for inspection. Contractor is not required to obtain Builder’s Risk property insurance. All other provisions of the General Conditions Section 2.06, Builder’s Risk, remain in effect except that Architects and Engineers (A/E’s) and A/E’s Subconsultants are deleted from paragraph C.

If the Contractor believes it has a loss that is covered by Builder’s Risk/Property Insurance, and it is likely to exceed the policy deductible, the Contractor shall notify the Owner within 48 hours.

Owner will purchase and maintain Builder’s Risk property insurance in the amount of the Contract Sum including all Change Orders for the entire Work on a replacement cost basis until Substantial Completion. Contractor shall be responsible for all losses up to the policy deductible amount of $5,000 per occurrence for projects valued at $500,000 or less; and $10,000 per occurrence for projects valued at more than $500,000. A specimen policy is available for inspection. Contractor is not required to obtain Builder’s Risk property insurance. All other provisions of the General Conditions Section 2.06, Builder’s Risk, remain in effect except that Architects and Engineers (A/E’s) and A/E’s Subconsultants are deleted from paragraph C.

If the Contractor believes it has a loss that is covered by Builder’s Risk/Property Insurance, and it is likely to exceed the policy deductible, the Contractor shall notify the Owner within 48 hours.

In Section 2.06, delete the following from paragraph C: “A/E, A/E’s subconsultants” and renumber paragraph C as paragraph B.

00 73 04 PARTNERING (NOT USED)

00 73 05 CLAIMS AND DISPUTE RESOLUTION (NOT USED)

00 73 06 PERMITS REQUIRED

Electric Permit

00 73 07 ENVIRONMENTAL MITIGATION (NOT USED)

00 73 08 FINAL PAYMENT (NOT USED)

00 73 09 APPRENTICESHIP UTILIZATION REQUIREMENTS (NOT USED)

END OF SECTION
University of Washington

CONTRACTOR PERFORMANCE EVALUATION PROGRAM

I. POLICY

The University of Washington through its Capital Planning and Development service group (Owner), is charged with the responsibility of ensuring that all public works improvement projects are awarded to the responsible bidder submitting the lowest responsive bid, and are performed in compliance with the Contract Documents and applicable federal, state, and local laws and regulations. The Owner is responsible to the citizens of the State to oversee the expenditure of public funds, and to secure the best possible results for that expenditure. To assist the Owner in evaluating a Contractor's responsibility, as well as its performance on contracts of the Owner, the Contractor Performance Evaluation Program has been developed. The implementation of a mandatory, standardized system of evaluating Contractors' performance is expected to yield consistency, objectivity, fairness, and accountability.

II. PURPOSE

The purpose of the Contractor Performance Evaluation Program is to better assure that Contractors considered for contract award on public works projects either possess, or will likely possess at the time contract performance is set to begin, all qualifications necessary to successfully complete the project on time. Among other things, the Program is intended to:

- Assist the Owner in exercising its discretion to determine a Contractor's qualifications and abilities to successfully perform a particular contract.

- Provide the Owner with a rational basis for determining that a Contractor is or is not responsible.

- Provide Contractors with a means of enhancing their qualifications and reputation by receiving recognition for high standards of performance.

- Encourage better working relationships between the Owner and Contractors.

- Provide official, verifiable references for Contractors who may be under consideration for award of, or approval on, contracts to be awarded by other public owners.

- Provide a history and an assessment of a Contractor's performance on prior contracts of the Owner for use in suspension or debarment proceedings.

The Contractor Performance Evaluation Program is not intended to determine whether a Contractor has breached a contract with the Owner, or to determine the acceptability of any particular noncompliance with Contract requirements.

III. PERFORMANCE CATEGORY EVALUATION GUIDE

The Performance Category Evaluation Guide establishes criteria to be used in evaluating the Contractor's performance in connection with each Performance Category, and describes five Performance Levels, which range in ascending order of merit from "Inadequate" to "Superior".
The "Standard" Performance Level is considered a baseline; it characterizes the level of acceptable performance normally associated with a reasonably prudent, diligent, and skilled Contractor working on projects of the same general type and size. Both the "Superior" and "Good" Levels characterize performance levels that exceed the baseline; they respectively connote consistent and substantial positive contributions to the overall project. Both the "Deficient" and "Inadequate" Levels characterize levels of performance that fall below the baseline, and respectively connote substantial and serious detriment to the overall project. The "No Evaluation" Level is to be used only where the Contractor had no direct or indirect responsibility for performance.

The five Performance Levels are more specifically described as follows, and the criteria set forth for each shall be applied in evaluating the Contractor's performance in connection with each of the Performance Categories listed in Section III of the Contractor Performance Evaluation Report:

A. Superior To merit an evaluation of "Superior" in any Performance Category, the Contractor must have consistently demonstrated:

(1) Command or virtual mastery of the Contract Documents related to that Performance Category;

(2) Performance of the work or activity being evaluated under that Performance Category that always exceeded or surpassed the material requirements of the Contract;

(3) A highly cooperative attitude in dealing with Owner's employees, consultants, and the public in connection with that Performance Category, which attitude made a substantial, positive contribution to the Project; and

(4) Initiative in carrying out his or her duties in connection with that Performance Category in a responsive, thorough, and timely manner without prompting by the Owner's Representative.

If the Contractor fails to satisfy any one of the Performance Level criteria set out above, then his or her performance will be re-evaluated under the "Good" Level by applying the criteria for that Level.

B. Good To merit an evaluation of "Good" in any Performance Category, the Contractor must have demonstrated:

(1) Thorough knowledge of Contract Documents related to that Performance Category;

(2) Performance of the work or activity being evaluated under that Performance Category that always met, and often exceeded, the material requirements of the Contract;

(3) A cooperative attitude in dealing with Owner's employees, consultants, and the public in connection with that Performance Category, which attitude made a positive contribution to the project; and
(4) Initiative in carrying out his or her duties in connection with that Performance Category in a responsive, thorough, and timely manner with only minimal prompting by the Owner’s Representative.

If the Contractor fails to satisfy any one of the Performance Level criteria set out above, then his or her performance will be re-evaluated under the "Standard" Level by applying the criteria for that Level.

C. Standard To merit an evaluation of "Standard" in any Performance Category, the Contractor must have demonstrated:

(1) Acceptable knowledge of the Contract Documents related to that Performance Category;

(2) Performance of the work or activity being evaluated under that Performance Category that met all material Contract requirements;

(3) A generally cooperative attitude toward Owner’s employees, consultants, and the public in connection with that Performance Category; and

(4) Initiative in carrying out his or her duties in connection with that Performance Category in a responsive, thorough, and timely manner with only moderate prompting by the Owner’s Representative.

If the Contractor fails to satisfy any one of the Performance Level criteria set out above, then his or her performance will be re-evaluated under the "Deficient" and "Inadequate" Levels by applying the criteria for those Levels.

D. Deficient To merit an evaluation of "Deficient" in any Performance Category, the Contractor must have demonstrated:

(1) Marginal knowledge of the Contract Documents related to that Performance Category;

(2) Performance of the work or activity being evaluated under that Performance Category that did not always meet the material Contract requirements, and such failures were not excusable as the sole fault and responsibility of one or more other parties;

(3) An occasionally uncooperative attitude toward Owner’s employees, consultants, or the public in connection with that Performance Category; or

(4) Performance of his or her duties in connection with that Performance Category in a moderately unresponsive, inattentive, or dilatory manner, or after frequent or repeated prompting by the Owner’s Representative.

E. Inadequate To merit an evaluation of "Inadequate" in any Performance Category, the Contractor must have either: (a) failed to satisfy the criteria listed for the Performance Levels of "Superior", "Good", "Standard", and "Deficient" set out above and did not qualify for treatment under Section III.F below; or (b) must have demonstrated:
(1) Inadequate knowledge of the Contract Documents related to that Performance Category;

(2) Performance of the work or activity being evaluated under that Performance Category which seldom met the material Contract requirements, and such failures were not excusable as the sole fault and responsibility of one or more other parties;

(3) A seriously uncooperative attitude toward Owner’s employees, consultants, or the public in connection with that Performance Category; or

(4) Performance of his or her duties in connection with that Performance Category in a seriously unresponsive, inattentive, or dilatory manner, or only after frequent prompting by Owner’s Representative.

F. No Evaluation. This rating should only be used in those circumstances where the Contractor had no contractual responsibility, either directly or through its subcontractors, suppliers, or materialmen, for performance related to that Performance Category.

IV. OVERALL EVALUATION GUIDE

The Contractor's Overall Evaluation can be determined by placing the Overall Percentage Score calculated on the Contractor Performance Evaluation Report within the numerical ranges of the following narrative ratings in the Overall Evaluation Guide:

A. SUPERIOR (Overall Percentage Score of 90% or above)

The Contractor exceeded the Contract requirements and expectations in most or all of the areas evaluated. The Contractor was extremely or completely knowledgeable regarding Contract requirements and applicable laws and regulations. A consistently high level of cooperation, project management, and job site control appreciably contributed to an unusually good result. The Contractor is commended for excellent performance.

B. GOOD (Overall Percentage Score of 70% to 89%)

The Contractor met Contract requirements evaluated, and exceeded them in some areas. The Contractor was generally cooperative, and performed his/her work with a minimum of prompting. The results of the performance were very good.

C. STANDARD (Overall Percentage Score of 50% to 69%)

The Contractor generally satisfied the minimum requirements of the Contract as evaluated. The Contractor occasionally had to be prompted or reminded of Contract requirements, but overall management of the Project was good, producing a good result.

D. DEFICIENT (Overall Percentage Score of 30% to 49%)

Even though the Project may have been accepted, the Contractor's performance as evaluated was marginal overall. While the Contractor
performed some tasks satisfactorily, most elements evaluated reflected a less than satisfactory response to Contract requirements.

E. **INADEQUATE** (Overall Percentage Score of 29% or below)

The Contractor's performance as evaluated did not meet minimum Contract requirements, or so otherwise detracted from the Project as to seriously call it into jeopardy. While the Project may have been accepted by the Owner, the effort expended by the Owner's Representative in prompting the Contractor to perform was excessive. The Contractor's poor or uncooperative performance created serious unnecessary or avoidable difficulties in achieving contract completion.

A Contractor's Overall Evaluation, being based upon an averaged rate on a discrete number of Performance Categories, should not be read or interpreted as a measure of whether the Contractor did or did not breach the contract in question.

V. **PERFORMANCE EVALUATION REPORTS**

Each Contractor Performance Evaluation Report shall be prepared by, or at the direction of, the Owner's Representative who will include numerical ratings substantiated, when necessary, by one or more narratives which describe the Contractor's performance.

Every Contractor Performance Evaluation Report containing Performance Level evaluations of "Deficient" or "Inadequate", and all Overall Evaluations on projects the total cost of which is $500,000 or more, shall contain one or more narratives which provide details substantiating the evaluations. Narratives may be provided for other Performance Categories as the evaluator deems necessary.

Narratives provided with a Contractor Performance Evaluation Report shall be based upon documentation prepared during the life of the project, e.g., project diaries, inspectors' reports, and other pertinent documents. Such documentation shall constitute a major portion of the administrative record to be used for any review, appeal, or litigation that may arise from the evaluation process.

Every Contractor Performance Evaluation Report shall be signed by the Owner's Representative and the supervisor of the Owner's Representative before a copy of the Report shall be transmitted to the Contractor. The Report shall not be considered final until such time as the review/appeal periods described in Section VI herein have been completed.

Generally, only one Contractor Performance Evaluation Report shall be issued, following completion of the contract Work. However, in addition to a final Report, one or more interim Reports may be issued at the discretion of the Owner when:

- A contract is of long duration, particularly those in excess of one year.
- An individual charged with primary responsibility for administration of the Contract will cease his or her involvement with the Project prior to completion of the Work.
- Contractor's performance at 50% completion is deficient or inadequate.
Interim Contractor Performance Evaluation Reports shall be considered to be preliminary and shall be designated as such, and shall be processed administratively in the same manner as a Final Report. A Contractor may request review of an Interim Report by the applicable project Director in Capital Planning and Development; and appeal to the Owner's Associate Vice President for Capital Planning and Development or his/her designee pursuant to the provisions of Section VI below. All Interim Reports shall be attached to, and considered when preparing, the Final Report.

If a Contractor Performance Evaluation Report is an Interim Report, the Report should indicate on its face that it is Interim, and shall contain the following language:

This Performance Evaluation Report is not the final report on this Contractor on this Project. The Contractor may dispute the Report or any part thereof, and need not seek review or appeal until completion and acceptance of the Project.

VI. NOTICE, REVIEW, AND APPEAL

A. Notice. Contractors shall be mailed a copy of their Contractor Performance Evaluation Report within a reasonable time after completion of the Report. A Contractor who is given an Overall Evaluation of "Deficient" or "Inadequate" in connection with a project shall be provided with a copy of the Contractor Performance Evaluation Report via certified mail (return receipt requested).

B. Review. A Contractor who disputes, or is otherwise dissatisfied with, his or her Contractor Performance Evaluation Report may request review of the Report by the applicable project Director in Capital Planning and Development. The request must be submitted in writing within thirty (30) calendar days of receipt by the Contractor of the Final Contractor Performance Evaluation Report. The request must also state, with specificity, all bases for the requested review.

The applicable project Director shall, upon receipt of a proper and timely request, review the Contractor Performance Evaluation Report and any documentation submitted by the Contractor with his or her request. The applicable project Director shall, on the basis of his or her review, issue findings which may affirm, correct, or modify all or any part of the Report. A copy of the findings shall be mailed to the Contractor via certified mail, return receipt requested.

C. Appeal. Within ten (10) calendar days of receipt by the Contractor of the applicable project Director's findings on review, the Contractor may appeal therefrom to the Owner's Associate Vice President for Capital Planning and Development or his/her designee. Any such appeal shall be in writing, and shall state with specificity the bases or grounds for the appeal.

The Associate Vice President for Capital Planning and Development or his/her designee shall review and consider the objectivity, accuracy, completeness, and fairness of the Contractor Performance Evaluation Report, together with the applicable project Director's findings, engineers' diaries, job records and other documentation, including such documentation as the Contractor may provide with the appeal.

Upon hearing and review of the applicable Director's findings, the Associate Vice President for Capital Planning and Development or his/her designee shall issue a determination and findings which may affirm or modify the Contractor's Contractor Performance Evaluation Report.
Associate Vice President for Capital Planning and Development or his/her designee shall notify the Contractor of its determination and findings by certified mail (return receipt requested).

VII. NOT RESPONSIBLE DETERMINATION FOR WORK ON SPECIFIC PROJECT

The Owner’s Associate Vice President for Capital Planning and Development may determine, from Contractor Performance Evaluation Reports and other public documents relating to the project in question, that a Contractor who has received one or more Overall Evaluations of “Deficient” or “Inadequate” is not a responsible bidder and not able to successfully perform a specific project of the Owner for which the Contractor submitted a bid, and is therefore ineligible for award of that contract.

When, on that basis, the Owner’s Associate Vice President for Capital Planning and Development believes that the low bidder is not a responsible bidder and not able to successfully perform a project, the Owner shall notify the low bidder in writing of its determination that the bidder is not a responsible bidder. The bidder may appeal the determination within the time period specified in the Instructions to Bidders by presenting additional information to the Owner. The Owner shall consider the additional information before issuing its final determination. In evaluating the additional information, the Owner may or may not meet with the bidder to hear additional information. If the final determination affirms that the bidder is not responsible, the Owner will not execute a contract with any other bidder until two business days after the bidder determined to be not responsible has received the final determination.

VIII. DEBARMENT OF CONTRACTOR

The Owner’s Associate Vice President for Capital Planning and Development or his/her designee, after conducting a hearing with the Contractor and evaluating the evidence, may debar a Contractor from contracting with the Owner for a period of up to two years if a Contractor has received overall evaluations of their performance of “Deficient” or “Inadequate” on three or more projects of the Owner physically completed during the preceding five (5) year period.

IX. RELEASE OF INFORMATION

Contractor Performance Evaluation Reports are public documents subject to disclosure to other governments and to the public. Because the Reports and the Overall Evaluations they contain may be used as a basis for contract award and may reflect upon the Contractor’s reputation, care must be taken to assure that only accurate, complete, and current information is released.

A. Final Reports. Contractor Performance Evaluation Reports may be released when:

(1) The Report becomes final as set forth in Section V herein; or

(2) The Owner has relied upon the Report for the purpose of taking further action with respect to the Contractor; or

(3) A court has ordered release of the Report.

B. Interim Reports. Interim Contractor Performance Evaluation Reports may only be released when:

(1) The Contractor has consented in writing to the release; or
(2) The Contractor has requested and received final administrative review of an Interim Report; or

(3) The Owner has used or relied upon the Interim Report to take action with respect to the Contractor; or

(4) A court has ordered release of the Report.

C. Termination for Cause and Pending Litigation. In the event that the Contract is terminated by Owner for cause, this fact shall be noted on the Contractor's Contractor Performance Evaluation Report. In the event that a Contractor commences suit against the Owner, that Contractor's Performance Evaluation Report shall not be released without approval from the Washington State Attorney General's Office.

D. Intergovernmental Cooperation. All requests for Contractor references from agencies of foreign, federal, state, or local governments shall be referred to the Owner's applicable project Director or his/her designee. If such a request is honored, the requesting agency shall be provided with copies of all Contractor Performance Evaluation Reports on the Contractor, together with any written objections or refutations filed with the Owner by the Contractor in connection therewith.

X. INSTRUCTIONS FOR COMPLETING EVALUATION FORMS

The Owner’s Representative shall complete Sections I (Contractor Data) and II (Project Data), and then evaluate the Contractor’s performance in each of the Performance Categories listed in Section III (Performance Data) of the Contractor Performance Evaluation Report, and shall assign points for each category based on the Performance Level applicable for the Contractor’s performance.

The descriptions provided on the Contractor Performance Evaluation Report form for each Performance Category will not necessarily match precisely with the Contractor's actual performance of the task(s) on a given portion of the project.

The Owner’s Representative should consider the general character of the Contractor's performance for each Performance Category evaluated and select the Performance Level that most closely matches the actual performance.

If the Contractor was not responsible for any performance in connection with a given Performance Category, then the Contractor's evaluation in that Category should be "No Evaluation," and no points should be assigned.

When rating a Contractor, the Owner’s Representative should consider all the work performed by the Contractor as well as work performed by all subcontractors, since the Contractor is contractually responsible to the Owner for all of the work under the Contract, whether or not the Contractor actually performs the work. Interim Reports, if issued, shall be attached to the Final Report.

Comments are always encouraged, and may be written on the Contractor Performance Evaluation Report or on an attachment to the Report.

However, for each Performance Category evaluated as "Deficient" or "Inadequate", the Owner’s Representative must prepare a written narrative substantiating the facts and circumstances giving rise to the evaluation.
After evaluating the Contractor on Performance Categories listed in Section III of the Contractor Performance Evaluation Report, the Owner’s Representative shall total all of the points assigned and divide that into the total points possible (excluding those Performance Categories evaluated as "No Evaluation"). The evaluator will enter the resulting Overall Percentage Score on the Report, and will enter the appropriate Overall Evaluation on the basis of the following ranges:

- **Superior** Overall percentage score of 90% or above
- **Good** Overall percentage score of 70% to 89%
- **Standard** Overall percentage score of 50% to 69%
- **Deficient** Overall percentage score of 30% to 49%
- **Inadequate** Overall percentage score of 29% or below

The Owner’s Representative shall sign the Report and forward it to his or her supervisor for concurrence signature and submission to the Owner’s Contracts Department. The Contracts Department staff shall then forward signed copies of the completed Report to the Contractor.

END OF SECTION 00 73 20
PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

A. The Work of the Contract Documents can be summarized as follows:
   1. Architectural:
      Furnish and install new standing seam metal roof panels over existing metal roof.
      Selective demolition of existing west gutters, roof hatch, and other roof top mounted
      accessories, including temporary lifting and reinstallation of the existing roof top curb
      mounted HVAC to facilitate installation of new standing seam metal roof panels over an
      insulated structural retrofit roof sub-framing system secure the existing roof structure.
      Work includes replacement of roof perimeter flashings, saddles, and flashing boots for
      miscellaneous roof accessories, replacement of select gutters and installation of stainless
      steel gutter sleeves.

   2. Fall Protection:
      Work includes installation of a standing seam mounted safety rail system.

   3. Interiors/Electrical:
      Work Includes insulation of ceiling below infilled skylight openings and replacement of
      existing interior lighting with higher lumen Industrial High Bay LED lights.

1.2 GENERAL INFORMATION

A. Title of Contract Documents:
   1. University of Washington
      UW Fleet Services Roof Replacement
      Project Number: 207562

B. Owner and A/E Defined:
   1. Owner:
      University of Washington
      Project Delivery Group
      Seattle, Washington 98195-2205
      Project Manager: Steven R. Harrison
      E-mail: srh24@uw.edu
      Phone: (425) 691-9309
      Owner’s Representative: The Owner shall designate, in writing, the Owner’s
      Representative for this Project during construction.

   2. A/E:
      Stemper Architecture Collaborative
      4000 Delridge Way, SW, Suite 200
      Seattle, WA 98106
      Representative: Scott Stemper, Marc Tegen
      E-mail: scott@stemperac.com, marc@stemperac.com
      Phone: (206) 624-2777
      The Owner, the A/E, and various consultants hereinafter or otherwise listed shall be
      given access to the Work insofar as their interests are concerned.
C. A/E's Sub-Consultants: The sub-consultants under contract with the A/E in preparation of the Contract Documents are:
   1. Structural Engineer:
      Peterson, Strehle, Martinson
      2200 Sixth Avenue, Suite 601
      Seattle, WA 98121
      Representative: M. David Stubbs
      E-mail: mdstubbs@psm-engineers.com
      Phone: (206) 818-3927

1.3 SPECIAL CONDITIONS

A. Description of special conditions of the Work:
   1. The Contractor’s exterior work limits and staging areas are indicated on the Project: Drawings. Interior work limits will be defined in the Contract Documents.
   2. Contractor shall limit its use of premises for Work and for storage to allow for:
      a. Uninterrupted owner occupancy.
      b. Coordinated use of the premises under direction of Owner
      c. Full responsibility for protection and safekeeping of products under this Contract stored at site.
      d. Moving stored products, under Contractor’s control, which interfere with operations of Owner or separate Contractor.
      e. Obtaining and paying for use of additional storage
   3. Construction Operations:
      a. Do not unreasonably encumber the Site with materials or equipment.
      b. Do not load structure with weight that will endanger structure.

1.4 EXISTING UTILITIES

A. Utilities of record are shown on the Drawings insofar as possible to do so. These, however, are shown for convenience only and the Owner and Architect assume no responsibility for improper locations or failure to show utility location on the Drawings. The Contractor is responsible for determining the location of all existing utilities (whether shown or not) prior to commencing work. At Contractor's expense, immediately repair and restore operation of any utilities damaged during construction; conform to utility company's repair requirements.

1.5 CONTRACTOR IDENTIFICATION

A. All Contractor and Subcontractor personnel shall, at all times on the project site, wear Contractor provided identification that is easily identified from no less than ten (10) feet away. Such identification shall be acceptable to the Owner (Example identification: colored hard hats, colored tee-shirts, identification badges of acceptable size.)

1.6 SCHEDULING

A. In accordance with the General Conditions, Contractor shall coordinate and conduct its Work in such a manner as to cause minimum interference to the Fleet Service operation. The Work shall be considered subordinate to regular Fleet Services functions which may continue throughout the Work schedule.

B. CONTRACTOR SHALL BE REQUIRED TO PERFORM WORK DURING SWING OR EVENING SHIFT(S) MONDAY THROUGH FRIDAY AND WEEKENDS, AS
NECESSARY TO COMPLETE THE WORK BY THE SUBSTANTIAL COMPLETION DATE, AT NO ADDITIONAL COST TO THE OWNER.

C. Contractor may work any shift during regular business hours clearly shown in an approved Work Schedule. The Work Schedule shall clearly define any hours outside the normal working hours of Monday through Friday from 7:00 a.m. to 4:00 p.m. Contractor may request additional work hours not shown on the approved Work Schedule by notifying the Owner two (2) working days in advance of the requested hours.

D. If it is determined the work will not be completed by the Substantial Completion Date, contractor shall be required to take actions as required in Section 00 72 00, 3.05 F.

E. Except for an emergency, Contractor shall provide forty-eight (48) hours' advance notice of his intent to work overtime, nights, weekends or holidays, or anytime outside the usual working hours. In no case will the Contractor do any such work without first notifying the Owner to permit arrangements for proper inspection.

F. The Contractor shall reimburse the additional cost to the Owner for staff coverage and/or inspection work on weekends or recognized holidays.

1.8 USE OF SITE

A. Contractor shall confine all operations in the performance of the Work (including, but not limited to offices, storage, assembly, vehicle and equipment parking, ingress, egress, and movement of Materials, equipment and workers) to such areas and during such time periods as are permitted by law, ordinances, or permits, specified in the Contract or designated by Owner. Unless otherwise directed by Owner, Contractor shall deliver to (or provide for delivery to) the site of the Work, and unload and store all materials, equipment and other items to be installed, used, consumed or incorporated in the Work or otherwise used in connection with this contract. Contractor shall coordinate with Owner in determining set-up areas. Contractor shall be responsible for moving of furniture and other items which may be necessary to proceed with work. If items need to be moved elsewhere from the room they are located, Contractor shall coordinate with Owner. Contractor shall use all necessary means to protect existing paved and landscaped surfaces from damage when using vehicles to transport material in and around the project site.

B. Owner will occupy premises during entire construction period for conduct of normal operations. Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner's usage on the basis of the completion dates on the indicated schedule and based on the Owner's occupancy of areas designated below:

1. Fleet Service staff will generally operate with normal working hours Monday through Friday 6:30 a.m. to 2:30 p.m.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION

A. Regulated materials requiring special handling or abatement or protection during construction include hazardous materials and dangerous wastes. The Owner has investigated the Project Site and determined that the following regulated materials could be encountered during construction and may be impacted by the Work:

1. Asbestos-containing materials (ACM) – Potentially Present
2. Heavy metals (including Lead-containing paint and materials)
3. Polychlorinated Biphenyls (PCBs) in light ballasts
4. Mercury-containing fluorescent light tubes
5. Silica Containing Materials.

B. Related Sections: This Section and the following related Construction Documents were prepared by the Owner’s environmental consultant:

1. Section 02 80 00 “Facility Remediation”
2. Section 02 83 00 “Lead Paint”
3. Appendix C – Hazardous/Regulated Materials Survey Report (Good Faith Survey)

C. Owner’s Environmental Consultant: The Owner’s environmental consultant and the AHERA-certified designer for this Project is:
   Firm Name: PBS Engineering & Environmental
   Project Designer: Willem Mager
   Certification number: PDR – 21-0536B
   Expiration date: 04/02/2022

D. Survey: The Owner has included in Appendix C of the Specifications a Regulated Materials “Good Faith” Survey report of the Project site area to be impacted by the Work. The Contractor shall ensure that a copy of this report is provided to all bidders and Subcontractors. A copy of this Survey must be retained and available for review on the Project site at all times throughout the duration of the Project.

1.2 GENERAL REQUIREMENTS

A. Laws, Regulations, Codes and Ordinances: The Contractor shall comply with all applicable laws, regulations, codes, and ordinances concerning the impact, removal, handling, storage, disposal, monitoring and employee protection against exposure or environmental protection against pollution, related to regulated materials requiring special handling or abatement or protection during construction.

B. Supervisory Authority: The Contractor is solely and completely responsible related to the Contractor’s supervisory authority over Subcontractors and personnel performing work of this Section.

C. Asbestos Awareness Training: The Contractor shall provide asbestos awareness training for its onsite employees and the onsite employees of the Contractor’s Subcontractors (of any tier), in accordance with WAC 296-62-07722(6).
D. Access Restrictions: Access to various construction work areas by the general public, Subcontractors, and other individuals is restricted during certain hazardous materials work sequences, as specified in the Contract Documents. The Contractor shall coordinate the Work to facilitate access by Subcontractors while enforcing work area restrictions, and shall minimize disruption to building occupants and services.

E. Hazwoper Training: The Contractor shall provide the appropriate level of HAZWOPER training for its onsite employees and the onsite employees of the Subcontractors (of any Tier) when working on a federal or state-listed contaminated site in accordance with WAC 296-843-100.

F. Working Hours: No hazardous materials work shall occur when building users have access to work areas. All hazardous materials work shall be scheduled to occur in accordance with schedule requirements outlined elsewhere in the Contract Documents, and when work areas have been vacated by building users.

G. Emergency Contacts: Designated qualified representatives of the Contractor and specific hazardous materials Subcontractors are to be available on a 24-hour emergency basis for the duration of the Work. Contact information shall be provided to the Owner’s Representative for inclusion in the Project emergency contact list.

H. Submittals: Contractor shall review the scope of work requirements outlined in the Contract Documents and shall submit, and require all Subcontractors performing the work of handling or disposing of any regulated materials to submit, pertinent information required by the Contract Documents.

I. Regulated, Hazardous, and Dangerous Waste Disposal:
1. The Owner’s Environmental Consultant will conduct all testing required to designate the waste streams. The Contractor shall not remove any suspect wastes from the site until the test data has been reviewed by the UW EHS, Environmental Programs and they have made a determination on the waste designation.

2. Transportation and disposal of all hazardous materials and dangerous wastes will be managed by, and the costs will be borne by, the Owner through the Owner’s Environmental Programs Office. The Contractor shall be responsible for packaging and staging hazardous materials and dangerous wastes onsite, and for scheduling pickup through the Owner’s Representative.

3. Transportation and disposal of PCB-containing ballasts (2 parts per million or greater) and TSCA-Regulated PCB Waste (50 parts per million or greater) will be managed by, and the costs will be borne by, the Owner through the Owner’s UW EH&S Environmental Programs. The Contractor shall be responsible for packaging (in Owner-provided containers) and staging TSCA-Regulated wastes onsite, and for scheduling drop-off of containers and pick up through the Owner’s Representative.

4. All other regulated waste materials (including asbestos-containing materials) must be disposed of by the Contractor at an Owner audited and approved disposal facility. Approved facilities can be viewed online at http://www.ehs.washington.edu/epowaste/disposalfaclist.pdf.

   a. Lead-containing materials and materials with lead-containing coatings, which are not designated as hazardous or dangerous waste, must be handled and disposed of as a regulated waste and cannot be recycled.

      1) Exception for metal items which contain lead: Metal items which contain lead (e.g., lead flashings, vent caps, lead painted metal) may be recycled at a scrap facility which is permitted to accept and process such materials.
2) Building materials coated with lead-containing paints (including concrete) shall not be recycled.

3) Brick and mortar waste streams that do not designate as a dangerous or hazardous waste may be recycled at a facility which is permitted to accept and process such materials.

J. Regulated Materials - Waste Manifests: Prior to Final Completion, the Contractor shall submit to the Owner copies of all transportation and disposal manifests, including signed landfill receipts and chain-of-custody, for all regulated wastes disposed of by the Contractor during the course of the Project.

1.3 SPECIAL CONDITIONS

A. The following are special conditions which will impact the Work performed under this and related Project Specifications:
   1. All construction operations must comply with the most current COVID-19 related rules and guidance from the Governor’s Office including the “Stay Home, Stay Healthy” addendum, dated April 24, 2020, and additional guidance issued April 29, 2020 (and all new notifications and amendments).
      All activities must also comply with all related and applicable requirements issued by the Washington State Department of Labor and Industries and Public Health Agencies having jurisdiction (and associated amendments and updates).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor’s selection for products for use in the Work, and administrative procedures for handling requests for substitutions made before and after receipt of bid.

B. Owner’s forms referenced in this Section include (see Appendix A):
   1. Substitution Request Form

1.2 DEFINITIONS

A. Definitions used in this Section are not intended to negate the meaning of other terms used in the Contract Documents.

1. “Products” are items purchased for incorporation in the Work, regardless of whether they were specifically purchased for the Project or taken from previously purchased stock.

2. “Named Products” are products identified by use of the manufacturer’s name for a product, including such items as a make or model designation, as recorded in the most recent published product literature as of the date of the Contract Documents.

3. “Materials” are products that must be cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

4. “Equipment” is a product with operational parts, whether motorized or manually operated, and in particular, a product that requires service connections such as wiring or piping.

1.3 QUALITY ASSURANCE

A. Source Limitations: Provide products of same kind, to fullest extent possible, from a single source.

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

C. Nameplates: Except for labels required by Authorities Having Jurisdiction (AHJ), do not attach or imprint manufacturer’s or producer’s nameplates, trademarks or operating data on surfaces exposed to view in occupied spaces or on the building exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or where required by AHJ for observation after installation, on an accessible surface that is not conspicuous.

1.4 PRODUCT SELECTION

A. General Product Requirements: Unless otherwise indicated, provide products that comply with the Contract Documents and that are undamaged and unused at the time of installation.

1. Provide products complete with all accessories, trim, finish, safety guards and other devices and with details needed for a complete installation for the intended use and effect.

2. Where available, provide standard products of a type and manufacturer used successfully in similar situations on other projects.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations. Procedures governing product selection include the following:
1. Performance Specifications: Performance specifications may be one of the following:
   a. One or more named reference(s) with no accompanying conditioning language such as "or approved equal" or "no substitutions"; or
   b. No named reference is specified, and requirements are specified by means of any of the following:
      1) Descriptive requirements
      2) Design requirements
      3) Performance requirements
      4) Regulatory requirements and/or industry standards

2. References to equipment, material, articles or patented processes by trade name, manufacturer, make or catalog number, are presumed to set a standard of quality so as to encourage competition. The term "equal" is presumed and need not be repeated in the Specifications. Where Specifications set a standard of quality, provide product options complying with or exceeding the provisions of the Contract Documents, and which are recommended by a manufacturer for the applications indicated. No Substitution Request is required. However, Owner may request, and Contractor shall provide, documentation of the manufacturer’s recommendations for a particular product application.

3. Closed Proprietary Specifications: Products by one or more manufacturers are specified, and the specification section includes the term “no substitution(s),” “no other(s),” or “no exceptions.” No other product options will be accepted. Provide products and work as specified.

4. Open Proprietary Specifications: Products by one or more manufacturers are specified, and the specification section includes the term “or approved equal,” or “other acceptable.” Submit the Substitution Request Form for other products to Owner under the provisions of this Section.

5. Visual Matching: Where matching an established sample is required, the Owner’s decision will be final on whether a proposed product matches satisfactorily.
   a. Where there is no product available within the specified product category which matches satisfactorily and also complies with other specified requirements, the contractor shall comply with the provisions of the Contract Documents concerning substitutions for the selection of a matching product in another product category.

6. Visual Selection: Where specified product requirements include the phrase “...as selected from the manufacturer’s standard colors, patterns, textures...” or similar phrases, select a product and manufacturer that complies with other specified requirements. Owner will select the color, patterns and texture from the product line selected.

1.5 PRODUCT SUBSTITUTION

A. General:
   1. No substitution request will be considered unless submitted in accordance with the requirements of this Section.
   2. If a bidder or Contractor desires approval of some material or product other than that specified by the Contract Documents, it must submit a written request for approval of the proposed substitute item to the Owner in accordance with the following requirements:
      a. All requests must be made on the Owner’s Substitution Request Form
      b. After receipt of bid, substitution requests shall be prepared, transmitted, and processed in accordance with Section 01 33 00 “Submittal Procedures.”
   3. Final decision as to whether an item is an equal or acceptable substitution rests solely with the Owner.

B. Substitution Requests: Every substitution request must state whether the item offered is equal or superior to the specified product. The substitute material or product must be accompanied by its reference in the Contract Documents and complete catalog, technical and other information. If applicable, include samples showing comparison of physical and other pertinent
characteristics as required to establish equivalence of acceptability for the proposed application. Where specific test results are required by the Contract Documents, the comparison data for the proposed item shall be based upon the same test methods as those specified, or they shall be correlated to clearly demonstrate comparability. The same warranty of the Work described for the specified product is required for the substitution.

C. During Bid Period:
1. Submit Substitution Request Form prior to the date identified in Section 00 21 00 “Instructions to Bidders.”
2. Bidders will be notified by addendum of products accepted in addition to those specified. NO OTHER FORM OF APPROVAL, INCLUDING VERBAL OR IMPLIED, IS ACCEPTABLE AS AN INDICATOR OF ACCEPTED SUBSTITUTION REQUESTS.

D. After Receipt of Bid: Contractor shall indicate one or more reasons why a product substitution is required with a Substitution Request Form. Owner will notify Contractor in writing of decision to accept or reject the Substitution Request. Substitution Requests will not be considered except for the following reasons, which must be substantiated by the Contractor:
1. Unavailability: Specified item has been discontinued or is unavailable in time to meet Construction Schedule through no fault of the Contractor or Subcontractor.
2. Unsuitability: Subsequent information discloses the specified item as unsuitable, inappropriate, or unable to perform properly or fit the designated space.
3. Regulatory Requirements: A substitution is required to comply with code interpretations by AHJ or insurance regulations.
4. Warranty: A manufacturer or fabricator declares the specified item to be unsuitable for the use intended or refuses to certify or warrant the performance of the specified item for the Project.
5. Owner’s Benefit: In the judgment of Contractor, acceptance of the proposed substitution is clearly in Owner’s best interest because of cost, quality, or other consideration.

E. Coordination: In making a Substitution Request, the Contractor certifies that it will coordinate all Subcontractor work required by the substitution and waives all claims for additional costs and/or time which subsequently become apparent as a consequence of the substitution.

F. Re-design: At the Owner’s sole discretion, the Contractor shall bear all Owner costs related to the substitution, including costs of A/E’s services for investigation, evaluation and re-design, if necessary.

G. Owner will not consider:
1. Substitutions, if they are indicated or implied on Shop Drawings or other Project data submittals;
2. Substitutions which, if accepted, will require substantial revisions of Contract Documents; or
3. Substitution Request Forms which do not provide adequate or clearly defined information for complete and timely appraisal.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

   A. This Section includes the administrative and procedural requirements for executing a change in the Work as herein specified and further described in Part 7 of the General Conditions.

   B. Owner’s forms references in this Section include (see Appendix A):
      1. Change Order Proposal;
      2. Change Order Transmittal;
      3. COP General Contractor Breakdown Summary;
      4. COP Subcontractor Breakdown Summary;
      5. COP Cost Breakdown;
      6. COP Wage Rates; and
      7. COP Equipment Rates.

1.2 PRELIMINARY REQUIREMENTS:

   A. Prior to submitting the Contractor’s first Change Order Request (COR), or responding to the first Change Order Proposal (COP), the Contractor shall submit a breakdown of journeyman and apprentice, where applicable, wage rates using the Owner’s COP Wage Rates form. The breakdown shall show:
      1. Basic wage rate (based on L&I Intent to Pay Prevailing Wages or union agreement);
      2. Fringe Package (based on L&I Intent to Pay Prevailing Wages or union agreement);
      3. FUI (Federal Unemployment Insurance);
      4. FICA (Federal Insurance Compensation Act);
      5. Medicare;
      6. SUI (State Unemployment Compensation Act);
      7. WC (Workers Compensation).

   B. Contractor shall submit verification of the above rates, if requested by Owner’s Representative.

   C. Prior to submitting Contractor’s first COR or responding to Owner’s first COP that involves equipment owned by the Contractor, the Contractor shall submit a list of all equipment anticipated to be used on the Project. Contractor shall provide the hourly rate based on the Equipment Watch Rental Rate Blue Book and as modified by the current AGC/WSDOT Agreement or other sources as referenced in the General Conditions. The Contractor shall use the Owner’s COP Equipment Rates form to compute the equipment rate.

1.3 CHANGE ORDER PROCEDURES

   A. Owner Change Order Proposal (COP): Changes may be initiated by Owner through a Publics Work Change Order Proposal form submitted to the Contractor. Such a request is for information and pricing only and is not an instruction to execute changes or to stop work in progress, unless issued as a Field Order.
      1. The COP will include:
         a. A detailed description of changes, products, and location of modification in Project and a statement as to whether overtime work is authorized; and
         b. Supplementary or revised Drawings or Specifications.
      2. An updated Construction Progress Schedule may be requested if the COP impacts the existing Construction Progress Schedule.
B. Contractor Change Order Request (COR): The Contractor shall initiate changes by submitting written correspondence, in letter format, signed and dated to the Owner's Representative requesting a Change Order Proposal. The letter shall include:
   1. Description of proposed changes;
   2. Reason for making changes;
   3. A specific period of time during which requested price will be considered valid;
   4. Actions required by Owner;
   5. Effect on Contract Sum and Contract Time;
   6. Documentation consistent with the requirements of Part 7.02 and/or 7.03 of the General Conditions supporting any change in Contract Sum or Contract Time, as appropriate;
   7. Statement of why proposed change is not covered in Contract Documents; and
   8. Date the Work is to be completed.

C. Field Order: In situations where time is of the essence or an emergency condition exists, the Owner's Representative may directly order a change to the Work by a written Field Order signed by Owner’s Representative. Field Orders will only be issued on an agreed upon not-to-exceed cost basis, either lump sum or time and materials.

D. Change Order Pricing:
   1. The cost of the change shall be marked-up in accordance with General Conditions and Modifications to the General Conditions. NO ADDITIONAL MARK-UPS SHALL BE ALLOWED.
   2. Contractor shall provide all backup pricing documentation for a change on the following forms (THESE FORMS SHALL ALSO BE THE ONLY ACCEPTABLE DOCUMENTATION FOR ALL SUBCONTRACTORS):
      a. COP General Contractor Breakdown Summary
      b. COP Subcontractor Breakdown Summary
      c. COP Cost Breakdown
   3. Owner’s Representative may require Contractor to provide certified payroll.
   4. Provide all other supporting documentation as required to substantiate the requested costs such as invoices for rental equipment and freight cost. Total cost and time shall be brought forward to the COP form and signed and dated by Contractor.

E. Change Order Authorization:
   1. A/E recommendation of COP acceptance to Owner is indicated by A/E’s signature.
   2. Upon signature and execution by Owner, the Change Order Proposal becomes a Change Order altering the Contract Sum and/or Contract Time, as indicated.
   3. Contractor may only request payment for changes in the Work against an approved Change Order.
   4. If Owner disapproves the Change Order Proposal, the reason for disapproval will be stated. A request for a revised proposal or cancellation of the proposal will be shown and returned to the Contractor.

F. Correlation with Contractor's Submittals:
   1. Application of Payment forms shall record each Change Order as a separate item of work (see Section 01 29 76, “Progress Payment Procedures”).
   2. Revise Construction Progress Schedule to reflect changes in Contract Time.
   3. Upon completion of Change Order work, record pertinent modifications in the Project Record documents.

G. Distribution:
   1. Upon authorization of a Change Order, Owner will transmit one (1) signed copy to Contractor.
PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the administrative and procedural requirements for Contractor progress payment and release of retainage as herein specified and further described in Part 6 of the General Conditions.

B. Owner’s forms referenced in this Section include (see Appendix A):
1. Application and Certificate for Payment on Contract (Application for Payment)
2. Construction Invoice Voucher
3. Retainage Invoice Voucher
4. Monthly Subcontractors List and Certifications
5. Certificate of Payment of Labor and Materials

1.2 PREREQUISITES FOR FIRST APPLICATION FOR PAYMENT

A. Progress Schedule: Submit and receive approval of the "preliminary" Progress Schedule.

B. Prevailing Wage Forms: Submit Statement of Intent to Pay Prevailing Wages form, approved by the Department of Labor and Industries, prior to commencing the Work (see Part 5.04B of the General Conditions). The Owner will not make payment on an Application for Payment until the Contractor has filed with the Owner an approved copy of the form for the Contractor and every Subcontractor of every tier that performed work during the payment period and are included in an Application for Payment. The form shall list every classification of laborer, worker, or mechanic employed by the Contractor and its Subcontractors. THERE ARE NO EXCEPTIONS TO THIS REQUIREMENT.
1. The website address link to the prevailing wage forms is included in Appendix A.
2. The website address link to the “Washington State Prevailing Wage Rates for Public Works Contracts” is included in Appendix B.

C. Schedule of Values: Before submitting the first Application for Payment, submit and receive approval of the Schedule of Values allocating the detail of the Contract Award Amount, in a breakdown acceptable to the Owner, which shall be documented on the Application for Payment. The approved Schedule of Values will be used by the Owner as the basis for progress payments. PAYMENT FOR WORK WILL ONLY BE MADE FOR, AND IN ACCORDANCE WITH, THOSE ITEMS INCLUDED IN THE APPROVED SCHEDULE OF VALUES.
1. Format: On 8-1/2" x 11" paper
2. Content: Include as a minimum the following:
   a. Individual Items of Work.
   b. Major cost items, which are not directly a cost of actual work-in-place, shall be shown as separate items in the Schedule of Values, and shall include the following items:
      1) General Conditions, mobilization, and distinct temporary facilities shall not exceed 3% of the Contract Award Amount.
      2) Section 01 77 00 “Closeout Procedures” shall not be less than 4% of the Contract Award Amount.
      3) Preparation and submittal to Owner of Construction Baseline Schedule and Submittal Schedule shall not be less than 1/4% of the Contract Award Amount.
4) Preparation of monthly Progress Schedule updates shall not be less than 1/4% of the Contract Award Amount, with the value of each update apportioned equally.

c. For items on which progress payments will be requested for materials or equipment purchased/fabricated/delivered, but not yet installed, show “initial value” for payment request and “value added” for subsequent stage(s) of completion on that unit of work.

d. For each line item of installed value exceeding 10% of Contract Award Amount, show breakdown by major products or operations under each item.

e. Breakdown major work efforts by floor or phases or systems as appropriate for ease of review and confirmation of Work completed.

f. Breakdown mechanical and electrical systems or phases with material and labor as separate items.

3. Round figures to nearest dollar amount.

4. Make sum of total scheduled costs equal to the Contract Award Amount. Do not include State of Washington sales tax.

5. Coordinate items of the Schedule of Values so that there is a corresponding item in the Progress Schedule.

6. Revise as requested by Owner.

D. Subcontractors List: Submit a list of all Subcontractors and major material suppliers consistent with Part 5.20B of the General Conditions.

E. Retainage: Submit instructions for the disposition of retainage funds.

1. In accordance with Part 6.04B of the General Conditions and Chapter 60.28 RCW, the Owner shall reserve a Contract retainage in an amount not-to-exceed 5% of the moneys earned by the Contractor as a trust fund for the protection and payment of:
   a. The claims of any person arising under the Contract Documents;
   b. The State of Washington with respect to taxes imposed pursuant to Titles 50, 51, and 82 RCW which may be due from the Contractor, and;
   c. The Owner for claims it may have against the Contractor.

2. Contractor’s written instructions should be addressed to the University of Washington, UW Facilities, Project Delivery Group, Accounting Department, Box 352205, Seattle, Washington 98195 - 2205.

3. At the option of the Contractor, the moneys reserved by the Owner shall be:
   a. Retained in a fund by the Owner; or
   b. Bonded by the Contractor (if approved by Owner) for all of the Contract retainage in a form acceptable to the Owner; or
   c. Deposited by the Owner in an Owner’s interest bearing account in a bank, mutual savings bank, or savings and loan association; or
   d. Placed in escrow with a bank or trust company by the Owner.

1) Escrow Agent: If the retained funds are to be placed in escrow, Contractor will select the escrow agent, subject to approval by the Owner. The selected agent must be a bank or trust company in the State of Washington.

2) Escrow Agreement: Pursuant to electing the escrow option, an escrow agreement shall be executed by Contractor, Owner, and bank. A completed and signed escrow agreement in a form acceptable to the Owner must be on file with the Owner for payment before the Contractor’s first Application for Payment is processed.

3) Escrow Payments: As each progress estimate is presented for payment, Contractor shall make a voucher request for the retained funds that are to be placed in escrow. Such requests should be prepared on the Owner’s Retainage Invoice Voucher form and submitted with the related Application for Payment.
Upon receiving a retainage invoice, the Owner will issue a check payable to the Contractor and the bank jointly. Such checks will be mailed to the bank and the Contractor will receive copies of check transmittal letters.

4) Escrow Investments: The bank shall invest the retained funds in bonds and other securities selected by the Contractor from the following list approved by the Owner:
   a) Bills, certificates, notes or bonds of the United States;
   b) Other obligations of the United States or its agencies;
   c) Obligations of any corporation wholly owned by the government of the United States;
   d) Indebtedness of the Federal National Mortgage Association;
   e) Time deposits in commercial banks, mutual savings banks, and savings and loan associations in the State of Washington;
   f) Deposits in savings accounts in commercial banks, mutual savings banks, and savings and loan associations in the State of Washington.

5) The investments selected must mature on or prior to the date set for Substantial Completion, including extensions thereof or no later than forty five (45) days following the Final Acceptance of the Work. Interest on such investments shall be paid to the Contractor by the escrow agent as it accrues.

6) Escrow Costs and Fees: All escrow costs and fees shall be paid by the Contractor, in accordance with the escrow agreement.

1.3 DRAFT APPLICATION FOR PAYMENT

A. Submit a draft Application for Payment for Owner’s review and comment. The cutoff date shall be five (5) days prior to actual application or as otherwise agreed. Include projected costs to the end of the month in the pay request. Provide the following documents (draft documents may be marked by hand):
      a. Mechanical and electrical Subcontractor’s draft monthly payment requests shall be submitted, for review and comment, prior to the A/E’s and Owner’s review of the Contractor’s draft monthly Application for Payment.
      b. List Change Orders approved prior to the submission date individually (last on the form). Use Owner's Change Order designation and description (similar to an original component item of work). DO NOT BILL FOR CHANGE ORDER PROPOSALS UNTIL AN APPROVED CHANGE ORDER HAS BEEN RECEIVED FROM THE OWNER INCORPORATING THE PROPOSAL.
   3. Stored Materials: The Contractor is solely responsible for the stored materials. Requests for payment on materials stored shall be for materials properly stored on the Project site. In addition to the requirements of the General Conditions, payment for materials stored off-site shall be at the sole option of the Owner and comply with conditions stipulated by the Owner. These conditions may include, but are not limited to:
      a. Provide supplier invoice
      b. Provide insurance or a bond to cover the total loss of material and time impact to Project
   5. Monthly Safety Report

B. The A/E and/or Owner and the Contractor shall review the Project Record for completeness and accuracy.
1.4 APPLICATION FOR PAYMENT

A. The Contractor shall submit an electronic copy of the Application for Payment to the Owner after responding to the Owner’s comments to the draft application.

B. The Contractor is cautioned to carefully check all extensions, totals, and required information for accuracy before submittal.

C. Applications are to be signed by a responsible officer of the Contractor.

D. The Application for Payment shall include the following Owner forms and documents:
   1. Application and Certificate for Payment on Contract
   2. Construction Invoice Voucher (for the total amount due)
   3. Retainage Invoice Voucher (for the retainage amount)
   4. Monthly Subcontractors List and Certifications
   5. Invoices for materials stored off-site

E. Contractor, subcontractor, or employer shall file a copy of its certified payroll records directly with the Department of Labor and Industries online system at least once per month.

F. When the Owner’s Representative and A/E find the Application for Payment properly completed and correct, they will sign and transmit all copies of the Application for Payment to the Owner’s accounting office for processing.

G. If the A/E or Owner’s Representative find the Application for Payment improperly or incorrectly executed, an annotated copy will be returned for a new submittal.

H. Only minor corrections are allowed on the original, with approval of Owner.

1.5 PRIOR TO FINAL APPLICATION FOR PAYMENT

A. The final Application for Payment request will be accepted for processing only after providing satisfactory completion of the following:
   1. Application and Certificate for Payment on Contract
   2. Construction Invoice Voucher (for the total amount due)
   3. Retainage Invoice Voucher (for the retainage amount)
   4. Monthly Subcontractors List and Certifications
   5. Invoices for materials stored off-site
   6. Final Completion procedures per Section 01 77 00 "Closeout Procedures"
   7. Final Schedule of Values "Contract Sum"
   8. Monthly Safety Report

1.6 RELEASE OF RETAINAGE

A. Pursuant to the completion of Work performed in accordance with the Public Works Contract and Final Acceptance by the Owner, the following requirements must be satisfied prior to the release of retained Contract funds.
   1. "Notice of Completion of Public Works Contract (REV 31 0020)”: This Department of Revenue form will be completed by the Owner, establishing the date of Final Acceptance. A copy of the notice will be e-mailed to the Department of Revenue, the Employment Security Department, the Department of Labor and Industries, and a copy will be transmitted to the Contractor.
2. "Certificate of Payment of State Excise Taxes by Public Works Contractor (REV 31 0028)”: Following receipt of the Owner’s Notice of Completion of Public Works Contract form and after determining that all taxes, interest and penalties due from Contractor have been paid, the Department of Revenue will issue this certificate to Owner, thereby notifying the Owner that it has no objection to the release of retainage to the Contractor.

3. “Certificate of Payment of Contributions, Penalties and Interest on Public Work Contract (EMS 8449 760)”: Upon receiving a copy of the Owner’s Notice of Completion of Public Works Contract form from the Department of Revenue and determining that the Contractor is in compliance with the provisions of the Employment Security Act, the Employment Security Department will issue this certificate to Owner, thereby notifying the Owner that it has no objection to the release of retainage to the Contractor.

4. Upon receiving a copy of the Owner’s Notice of Completion of Public Works Contract form and determining that the Contractor is in compliance with the provisions of Chapter 51 RCW for payment of industrial insurance premiums, the Department of Labor and Industries will issue a certificate for the Owner, thereby notifying the Owner that it has no objection to the release of retainage to the Contractor.

5. "Affidavit of Wages Paid on Public Works Contract” (F700-007-000): An Affidavit of Wages Paid, for the Contractor, each Subcontractor, and each sub-tier Subcontractor, approved by the Industrial Statistician of the Department of Labor and Industries, must be submitted by the Contractor to the Owner. Contractors and Subcontractors may file the Affidavit of Wages Paid either on-line at the website link provided in Appendix A or by completing the forms manually.

6. “Certificate of Payment of Labor and Materials”: This Owner’s form shall be completed by the Contractor and returned to the Owner. If the only exception to full payment to all Subcontractors is retainage owed to Subcontractors, the appropriate box on the form should be checked.

7. Invoice Voucher: If the retained funds are on deposit in Owner accounts, the Contractor shall prepare a Retainage Invoice Voucher for the total amount retained and submit to the Owner for payment. If these funds have been placed in escrow at the direction of Contractor, no further invoice is required.

B. Retainage will be paid by the Owner to the Contractor sixty (60) days following the published date of Final Acceptance, contingent upon the Contractor’s compliance with provisions of public works statutes and as stated above. If there are either unpaid taxes or unsatisfied claims of lien against the retained percentage, disbursement of retainage funds will be made in accordance with State of Washington law.

C. Address all transmittal of retainage documents to the Owner’s Representative at: University of Washington, UW Facilities, Project Delivery Group, Box 352205, Seattle, Washington, 98195 - 2205.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for project management and coordination during construction, in addition to the requirements specified elsewhere in the Contract Documents.

B. Owner’s forms referenced in this Section include (see Appendix A):
   1. Request for Information (RFI)
   2. Non-Conformance Report (NCR)

C. The Owner intends to utilize an internet-based construction management system (CMS) for communications and documents controls with the Contractor and A/E on this Project (see Section 01 35 00 “Electronic Controls”).

1.2 GENERAL COMMUNICATION

A. The Owner shall designate, in writing, the Owner’s Representative for this Project.

B. All verbal communications between Owner, A/E, and Contractor shall be for clarification and collaboration purposes and are not binding unless issued in writing through the Owner’s Representative.

C. Contractor communications by and with A/E’s consultants shall be through the A/E, and A/E’s communications by and with the Contractor’s Subcontractors shall be through the Contractor.

D. In case of an emergency:
   1. Contact the Owner’s Representative; and
   2. Follow emergency procedures in accordance with Section 01 35 23 “Owner Safety Requirements.”

1.3 CORRESPONDENCE

A. Address all correspondence to Owner’s Representative.

B. All correspondence to and from Contractor will be routed through the Owner’s Representative.

1.4 CONTRACTOR REQUEST FOR INFORMATION

A. When field conditions or Contract Documents require clarification or verification by the A/E or A/E’s consultants, a written RFI is to be submitted per the following:
   1. Identify the nature and location of each requested clarification and/or verification using the RFI form. Provide as a minimum the following information:
      a. Project name and number
      b. Date
      c. Date response required by
      d. RFI number
      e. Subject
      f. Initiator of the question
      g. Indication of costs, if known
      h. Location on site
      i. Contract Drawing reference
j. Contract Specification section and paragraph reference
k. Descriptive text

2. Number each RFI sequentially beginning with #001. Submit only one question per RFI. Also, RFI’s shall be categorized as ARCH, MECH, ELEC, etc.

1.5 CLARIFICATIONS

A. Clarifications may be discussed with A/E, or A/E’s consultants, with concurrence of Owner. Following the discussion, the Contractor shall document on an RFI form any agreed upon modification which does not require a Change Order. The A/E may provide supplemental information to clarify the Contract Documents. RFIs and A/E supplemental information (ASI) which modify or change the Work will be authorized only by Change Order.

1.6 NON-CONFORMANCE REPORT

A. Non-Conforming Work: Work found defective, or in any way not in accordance with the requirements of the Contract Documents, is defined as non-conforming Work.

B. Procedure: If, after an oral discussion or written notification, the Contractor fails to correct Work that is found defective or not in accordance with the Contract Documents, the Owner will issue a Non-Conformance Report (NCR). Upon receipt of an NCR, the Contractor shall take immediate action to resolve the Work to the Owner’s satisfaction, or remove and replace with conforming Work at Contractor’s expense and with no increase in Contract Time. Corrective actions for non-conforming Work shall be discussed at construction progress meetings and be completed no later than prior to Final Completion.

1. Where non-conforming Work requires re-design by the A/E, such re-design costs shall be borne by the Contractor.

1.7 COORDINATION

A. General Coordination:

1. The Contractor shall be in charge of this Contract and the Project, as well as directing and scheduling of all Work. Final responsibility for performance, interface, and completion of the Project shall be the Contractor’s.
   a. Anticipate interrelationship of all Subcontractors and their relationship with the total Work.
   b. Resolve differences or disputes between Subcontractors and materials suppliers concerning coordination, interference, or extent of the Work. Contractor’s decisions, if consistent with Contract Document requirements, shall be final.

2. Cooperation with other contractors during the term of this Project may be required within the building or other adjacent locations to the construction limits of this Project. The Contractor is to cooperate with the Owner in coordination of all work to prevent impact to this or other Owner sponsored construction projects.

3. Cooperation with building occupants may be required when scheduling construction activities that create excessive noise or structure-borne vibration. The Contractor is to cooperate with the Owner in coordination of all work to minimize these impacts to the Owner’s operations (see Section 01 50 00 “Temporary Facilities and Controls”).

B. Special Coordination:

1. The Contractor is responsible for receiving, unloading, storage and handling of Owner Furnished Contractor Installed (OFCI) items from the time of receipt through Substantial Completion.
   a. The Contractor is responsible for protecting OFCI and Owner Existing Contractor Installed (OECI) items from damage, such as: damage from exposure to the
elements; or from damage to a warranty due to Contractor's improper installation and testing. The costs to repair or replace items damaged while in the Contractor's possession shall be borne by the Contractor.

1) The Contractor shall consult with the Owner to determine the warranty requirements of OFCI and OECI items.

2. "Sequencing, and scheduling of Contractors interior shall be coordinated directly with the Architect, University Project Manager, and the buildings occupants prior to commencement of the work. Items to be coordinated that may conflict with Owner’s operations include, but are not limited to the following:
   a. Interior access procedures & restrictions.
   b. Areas in which the work will occur and sequencing/scheduling of interior work.
   c. Temporary protections of interior furnishings and equipment.

C. Mechanical and Electrical Coordination:
   1. Resolve all tight or restricted conditions involving work of various sections in advance of installation.
   2. Coordinate the Work of all sections to ensure that all fixtures, devices, switches, outlets, ducts, pipes, and similar items can be installed as shown.

D. Job Site Field Measurements and Templates:
   1. Obtain field measurements required for accurate fabrication and installation of work included in the Contract Documents. Exact measurements are the Contractor’s responsibility.
   2. Furnish or obtain templates, patterns, and setting instructions as required for installation of all work. Verify in field.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for meetings during construction in addition to requirements specified elsewhere in the Contract Documents.

B. Contractor and Subcontractor representatives attending meetings must be qualified and authorized to act on behalf of their firms.

C. The Owner will utilize an internet-based construction management system (CMS) for communications and documents controls with the Contractor and A/E on this Project (see Section 01 35 00 “Electronic Communications”).
   1. Meeting minutes, Contractor construction activity data and work plans, A/E field reports and other such communications shall be distributed electronically by e-mail.

D. Related Sections:
   1. Section 01 32 16 “Construction Progress Schedule”

1.2 PRECONSTRUCTION MEETING

A. The Owner will schedule a preconstruction meeting to be held prior to the Contractor mobilizing and beginning any Work. This meeting will review Contract administration requirements and mobilization procedures.

B. Meeting location: To be determined

C. Participants shall include:
   1. Contractor’s Project Manager, Superintendent, CQC Representative, Safety and Health Officer, and for projects with LEED requirements, LEED Coordinator;
   2. Owner’s Representative, Project Manager, and for projects with LEED requirements, the Owner’s Sustainability Manager;
   3. A/E and the A/E’s sub-consultants, as appropriate;
   4. Owner’s consultants, as appropriate; and
   5. Others, including the Contractor’s major Subcontractors as appropriate.

D. Owner’s Representative will: Administer the meeting

E. A/E will: Record and distribute copies of the minutes within seven (7) days of the meeting to all meeting participants.

F. Agenda:
   1. The Work including, but not limited to:
      a. Schedule and phasing requirements
      b. Contractor’s use of premises
      c. Special conditions and coordination
   2. Communications including, but not limited to:
      a. Chain and persons authorized to direct changes
      b. Requests for Information (RFI), field decisions, and clarifications
      c. Non-Conformance Reports
      d. Hazard communication
      e. Project meetings
   3. Contractor’s “Site Specific Safety Plan”
4. Administrative and procedural requirements including, but not limited to:
a. Contract modification
b. Progress payment
c. Submittals - including Contractor's Progress Schedule
d. Electronic communications
5. Project LEED requirements and documentation, if any
6. Testing and inspection
7. Contractor quality control
8. Temporary facilities and controls including, but not limited to:
a. Deliveries and storage
b. Temporary utilities and enclosures
c. Security procedures
d. Noise and vibration control
e. Cutting, patching, and field engineering
f. Utility shutdowns
g. Contractor parking
h. Housekeeping and waste management
i. Infection control - for medical facilities projects
9. Closeout procedures - including Project Record requirements
10. Other information as appropriate

G. Contractor shall conduct a like meeting, covering the same body of information, with each Subcontractor's project manager and foreman supervising the Work prior to the performance of any work on-site by that Subcontractor.

1. Provide Owner copies of meeting minutes prepared by the Contractor with each Subcontractor, when requested by Owner.

1.3 CONSTRUCTION PROGRESS MEETINGS

A. Progress meetings shall occur as needed, but no more than weekly, until Substantial Completion has been achieved.

B. Meeting location: To be determined

C. Participants shall include:
   1. Contractor's Project Manager, Superintendent, CQC Representative, and Safety and Health Officer as appropriate;
   2. Owner's Representative and Project Manager;
   3. A/E and the A/E's sub-consultants, as appropriate; and
   4. Others, including the Owner's consultants, as appropriate.

D. Owner's Representative will: Administer the meeting

E. Contractor shall: Provide schedules, logs and other construction activity data to support the issues discussed at the meeting.

F. A/E will: Record and distribute copies of the minutes prior to the next progress meeting to all meeting participants and provide copies at each meeting.

G. Agenda:
   1. Review and approve the minutes of the previous meeting noting exceptions, if any
   2. Review the progress of the Work since the previous meeting
   3. Review the Short Interval Schedule and work plans for progress during the period
a. Identify pending meetings
b. Discuss safety activities and job hazards analysis
4. Discuss field observations, problems, and conflicts
   a. Identify problems impeding the construction Progress Schedule
5. Review Quality Control
   a. Non-Conformance Reports - discuss corrective Work actions
   b. Infection control – for medical center projects
6. Review the Submittal Schedule and RFIs - present methods to expedite as required
7. Review off-site fabrication and delivery schedules
8. Review proposed changes in the Work and substitution requests for:
   a. Timely processing
   b. Effect on the Progress Schedule and Substantial Completion
   c. Effect on any other contracts of the Project
9. Review any other business

1.4 PRE-INSTALLATION MEETINGS

A. Pre-installation meetings shall be held prior to the Contractor or Subcontractors beginning work on each definable feature of the Work identified in the Contract Documents to require a pre-installation meeting and/or as required by the Owner’s Representative. Notify Owner’s Representative at least ten (10) working days in advance of each pre-installation meeting.
   1. At the Owner’s discretion, the Owner may conduct this meeting as part of the Construction Progress Meeting.

B. Meeting examples include, but not by way of limitation:
   1. Site clearing and excavation
   2. Demolition and regulated materials remediation
   3. Site utilities
   4. Landscaping and site restoration
   5. Concrete
   6. Masonry
   7. Structural steel
   8. Exterior cladding systems
   9. Water and damp proofing and roofing
   10. Doors, including frames and hardware
   11. Millwork
   12. Finishes
   13. Equipment, including elevators
   14. Mechanical and Electrical systems, such as high voltage, fire alarm, and communications
   15. Specialty items

C. Meeting location: To be determined

D. Participants shall include:
   1. Contractor’s Superintendent, CQC Representative, and Safety and Health Officer as appropriate;
   2. Subcontractor’s project manager or foreman supervising the Work, as appropriate;
   3. Owner’s Representative;
   4. A/E and the A/E sub-consultants, as appropriate;
   5. Owner’s consultants as appropriate; and
   6. Others as appropriate.

E. Agenda:
   1. Review of the pre-installation CQC Work Plan and Contract requirements
2. Materials - available and ready for use
3. Submittals
4. Persons responsible for performing the work
5. Tests - required tests, criteria for performance, who samples and how often
6. Safety procedures and requirements
7. Substrate - criteria for substrate
8. Other items as appropriate

F. Contractor shall: Administer the meeting, and record and distribute copies of the minutes within seven (7) days of each meeting to all meeting participants.

1.5 CHANGE ORDER MEETINGS

A. Change order meetings shall be held to review and resolve any Change Order Proposals, change order requests, or other change order issues pertaining to Contract Modification. Meetings shall be held monthly until all Change Order Proposals are resolved.
   1. At the Owner’s discretion, the Owner may conduct this meeting as part of the Construction Progress Meeting.

B. Meeting Location: To be determined

C. Participants shall include:
   1. Contractor's Project Manager, or cost engineer as appropriate;
   2. Owner's Representative;
   3. A/E and the A/E’s sub-consultants, as appropriate;
   4. Others, including the Owner's consultants as appropriate.

D. Owner’s Representative will: Administer the meeting

E. Agenda: Review Change Order Proposals for scope and estimated costs, and negotiate Change Order Proposal prices.

1.6 DRAFT APPLICATION FOR PAYMENT REVIEW MEETINGS

A. Draft Application for Payment review meetings shall occur monthly.
   1. At the Owner’s discretion, the Owner may conduct this meeting as part of the Construction Progress Meeting.

B. Meeting location: To be determined

C. Participants shall include:
   1. Contractor’s Project Manager;
   2. Owner’s Representative;
   3. A/E and A/E’s sub-consultants, as appropriate; and
   4. Owner’s consultants as appropriate.

D. Owner’s Representative will: Administer the meeting

E. Contractor shall: Present the draft monthly Application for Payment together with the required back up information for review and comment by the Owner and A/E.

F. Agenda - Discussion will pertain to items such as:
   1. Percentage of work complete
   2. Off-site storage
1.7 SPECIAL MEETINGS

A. Special meetings may be called at the discretion of the Owner or Contractor for the purpose of coordinating specific information or resolving special issues related to the Project.

B. Contractor shall record and distribute minutes within three (3) days of the meeting to all meeting participants.

1.8 COMMISSIONING MEETINGS DURING CONSTRUCTION

A. Commissioning meetings shall occur weekly during the start-up and commissioning phase of the Work.
   1. At the Owner’s discretion, the Owner may conduct this meeting as part of the Construction Progress Meeting.

B. Meeting location: To be determined

C. Participants shall include:
   1. Contractor’s Test Engineer, and Superintendent as appropriate;
   2. Subcontractor representative(s) as appropriate;
   3. Owner’s Representative;
   4. Owner’s Commissioning Authority; and
   5. A/E and the A/E’s sub-consultants, as appropriate.

D. Commissioning Authority will: Administer the meeting

E. Contractor shall: Record and distribute copies of the minutes prior to the next meeting to all participants and provide copies at each meeting.

F. Agenda - Discussion will pertain to items such as:
   1. Coordination of Work of applicable trades, such as balancing, electrical, controls, communications wiring connectivity;
   2. Scheduling of systems shutdown and switch over;
   3. Start-up and functional performance tests acceptance criteria; and

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements, in addition to those defined in the General Conditions, for Baseline Progress Schedule preparation, monthly Progress Schedule updates, change in Contract Time analysis, submittal schedules, and short interval schedules.

B. Related Sections:
   1. 01 26 00, “Contract Modification Procedures”
   2. 01 29 76, “Progress Payment Procedures”
   3. 01 50 00, “Temporary Facilities and Controls”
   4. 01 77 00, “Closeout Procedures”

C. Owner’s forms included by reference for this Section include (see Appendix A):
   1. Short Interval Schedule

D. Total Float is defined as the amount of time between the earliest start date and the latest start date, or between the earliest finish date and the latest finish date of an activity on the Progress Schedule. Float is not for the exclusive use of either the Contractor or the Owner unless otherwise identified in the Contract Documents.
   1. Extensions of time for Contract performance will be granted only to the extent that equitable time adjustments to the affected activity or activities exceed the total float time along the affected paths of the current Progress Schedule at the time a Field Order, or Change Order, was issued for the change.

E. All Progress Schedule submittals, including monthly Progress Schedule updates, will be reviewed jointly by the Owner’s Representative and the Contractor. Such review of the Contractor’s schedules shall not constitute an approval or acceptance of the Contractor’s construction means, methods, or sequencing, or its ability to complete the Work in a timely manner.

F. As used in this Section, “Progress Schedule” refers collectively to “Baseline Progress Schedule” and “monthly Progress Schedule updates.”

1.2 PROGRESS SCHEDULE

A. Within fourteen (14) calendar days after Notice-to-Proceed, the Contractor shall prepare and submit to the Owner, for review and comment, three (3) copies of a preliminary Progress Schedule utilizing a Critical Path Method (CPM) logic based on the Contract Documents. The Owner will review the preliminary schedule for conformance with the Contract Documents and provide comments within fourteen (14) calendar days of receipt from the Contractor. The Contractor shall respond to all comments and provide the Owner a Baseline Progress Schedule within fourteen (14) calendar days of receipt of the Owner’s comments.

B. Once the Baseline Progress Schedule is submitted to the Owner, the Progress Schedule shall be formally established as the baseline file within the Contractor’s scheduling software. This baseline file shall not be modified without the Owner’s written approval.
   1. The amount specified in Section 01 29 76 shall be withheld from the Contractor’s monthly Application for Payment if the Baseline Progress Schedule and Submittal Schedule, referenced in 1.5 of this Section, are past due and such amount may, at the Owner’s sole
judgment and discretion, be reduced from the Contract Sum by unilateral Change Order (see Section 01 29 76, "Progress Payment Procedures").

C. The Baseline Progress Schedule shall be the basis that the Contractor shall use to: plan, organize, and execute the Work; record and report actual performance and progress through updates, and; show how the Contractor plans to complete all remaining Work. The Baseline Progress Schedule and monthly Progress Schedule updates shall be the basis for consideration and analysis of requests for time extensions as specified below. The schedule shall be in the form of an activity based precedence diagram.

D. The Baseline Progress Schedule and monthly Progress Schedule updates shall be constructed to show the order in which the Contractor proposes to carry out the Work, and to indicate the restrictions of access to and availability of the work area, and availability and use of manpower, materials, equipment, and all activities of trade contractors, equipment vendors, and suppliers. The Progress Schedule shall incorporate contractually specified limitations and restrictions, and contractually specified milestones. Construction activities shall match or be correlated with the pay items in the approved Schedule of Values. The Progress Schedule shall be prepared in sufficient detail with the assignment and coding of all activities by the Contractor and Subcontractors in consideration of, but not limited to, the following Work activities:
1. Access and availability to the Project Site, including road closures;
2. Identification of interfaces and dependencies with preceding, concurrent, and succeeding contractors, if applicable;
3. The type of work to be performed and labor trades involved;
4. All procurement, manufacturing, fabrication (both on-site and off-site), and delivery activities for all major materials and equipment;
5. Shutdowns of existing Owner’s equipment and utility services;
6. Required delivery dates of OFCI equipment and materials;
7. Testing, air balancing, and commissioning activities, including submission and approval of test results;
8. Approvals by regulatory agencies or other third parties, including obtaining an Occupancy Permit;
9. Coordination for Owner’s occupancy including Owner’s cleaning, OFOI equipment and furnishings installations;
10. Planning for phased occupancy by the Owner, with intermediate completion dates;
11. Contractor’s preliminary cleaning and final cleaning operations;
12. Contractor’s Final Punch List Report, Owner’s Final Inspection (Punch List), Contractor’s corrections, and Owner’s re-inspection;
13. Substantial Completion and Final Completion activities and milestones, and Final Acceptance.

E. The activities defined in the Progress Schedule shall represent the planned durations in anticipation of normal man-power and equipment utilization in durations of whole working days. No activity durations shall exceed twenty two (22) working days. If approved by the Owner, longer durations may be allowed for non-construction activities such as procurement, delivery, or submittal activities. All durations shall be determined based upon resource planning under contractually defined on-site work conditions. In calculating activity durations, normal inclement weather shall be considered. The Contractor shall schedule the Work to minimize the effect of adverse weather. The Contractor shall also protect the work site from the effects of adverse weather or take other necessary measures such that the Work can be completed within the time established in the Contract Documents and include these provisions in the schedule as appropriate.

F. Schedule activity identification codes shall not be alphanumeric unless approved by Owner.
1. Activity Description: Provide adequate information to readily identify each activity up to 48 characters in the general descriptive format: action, item, location (such as Install Steel Studs 3rd Floor).

2. The Critical Path shall be clearly indicated on all diagrams submitted. An activity is critical when it is part of the longest duration pathway(s) through the CPM network or when total float is less than or equal to zero.

3. Clearly identify activities that are planned to use overtime, double shifts, work on weekdays or holidays.

4. Include a listing of activities with open ends and out-of-sequence progress.

G. Certification: When requested by Owner, submit certification that each Subcontractor and major equipment supplier has participated in, reviewed, and concurs with the Progress Schedule as it relates to their Work.

1.3 MONTHLY PROGRESS SCHEDULE UPDATES

A. The Contractor is required to prepare and submit monthly Progress Schedule updates and to participate in monthly schedule update meetings with the Owner as described below.

   1. 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 Owner. If a monthly Progress Schedule update is not submitted to and reviewed with the Owner prior to the Contractor submitting its monthly Application for Payment, the monthly Schedule of Values amount for Progress Schedule updates may, at the Owner’s sole judgment and discretion, be reduced from the Contract Sum by unilateral Change Order (see Section 01 29 76, “Progress Payment Procedures”).

B. The Contractor shall prepare a monthly Progress Schedule update to reflect work progress achieved since the previous update. Historical performance data and/or records shall not be changed without the approval of the Owner.

C. The Contractor shall use and maintain a fixed end date when generating the required reports and diagrams for the Owner as specified by this Section. The fixed end date shall be the Substantial Completion date. The fixed end date will be adjusted in subsequent updates only to reflect approved time extensions incorporated by Change Order.

D. The Project shall be rescheduled each reporting period with:

   1. An updated data date.
   2. Actual start/finish dates.
   3. Percent complete.
   4. Remaining durations (for each activity) in the “status” or “current” file.

E. Show changes occurring since the previous schedule submission, such as:

   1. Any major changes in scope.
   2. Activities modified since previous submission including, but not limited to, logic changes.
   3. Revised projections for progress and completion, as applicable.
   4. Any other identifiable changes.

F. The Contractor shall account for all rain days, for major events, and similar excusable non-compensable delays, during which little or no work is progressed and that are acknowledged by the Owner, in the period within which the events occur.

G. The Construction Progress Meeting shall be held prior to Owner’s review and comment of the Contractors draft Application for Payment, unless otherwise approved by Owner.

   1. The Contractor shall provide copies of two tabular reports:
1. A total float report clearly indicating the current critical path through Substantial Completion.

b. A report of activities sorted by early start dates commencing with the previous monthly progress update and including all updated activities during the previous month. Actual progress of the previous month will be recorded and incorporated into the update.

2. The Contractor shall provide copies of a narrative report to include:

a. A description of the Work that has progressed.

b. An explanation of the Work that had been scheduled to be performed in the previous period but was not performed, and why it was not performed.

c. Anticipated delay and impact on the schedule.

d. Corrective action recommended and its effect.

e. A discussion of the Work scheduled for the upcoming period noting any issues or events that could impact this Work.

f. If the Contractor intends to make a logic or original activity duration change(s), the report shall include such changes.

3. The Contractor and Owner shall review these reports and discuss any differences or issues raised.

1.4 CHANGE IN CONTRACT TIME ANALYSIS

A. It is the Owner’s desire and intent to resolve all issues affecting the Substantial Completion date in a timely, efficient, and effective manner. To achieve this goal, the Owner and Contractor shall participate in an analysis of all delays and advances of the schedule.

B. Assessment of impacts due to changes or other events must be performed on the most recent update of the Progress Schedule. Further impacts due to changes or other events shall be assessed utilizing the Progress Schedule update that represents the data date closest to, and just prior to, the date of the impacting event.

C. The logic and planning elements of the Progress Schedule are the Contractor’s responsibility.

1. No Contract Time shall be modified unless directed by an approved Change Order.

D. Submission of a valid monthly Progress Schedule update and the completion of a delay analysis impacting the critical path are conditions precedent to the review and approval of any request for an extension in the Contract Time. Failure to complete monthly Progress Schedule updates and to participate in the analysis will defer consideration of any time extensions by the Owner until the Work is completed and all as-built progress can be analyzed by the Owner. Further, the Owner will assess liquidated damages, if any, regardless of the status of any requests for time extensions pending, until any such requests are resolved.

1.5 SUBMITTAL SCHEDULE

A. General: Within ten (10) calendar days following Owner’s receipt of the Baseline Progress Schedule, the Contractor shall prepare and submit to the Owner a complete schedule of work-related submittals based on the Progress Schedule, as required by the Contract Documents ("Submittal Schedule"). Correlate Submittal Schedule with the listing of principal Subcontractors.

B. Form: Prepare Submittal Schedule in chronological sequence of submittals. Show category of submittal, name of Subcontractor, generic description of work covered, related Specification Section numbers, activity or event code on the Progress Schedule baseline file, scheduled date for first submission, and blank columns for actual date of submittal, re-submittal, and final
release or acceptance by the A/E. The Submittal Schedule shall be prepared in sufficient
detail and in consideration of, but not limited to, the following:

1. Preparation and submission of shop drawings, layout drawings, product data, material
   samples, and mock-ups.

C. Update the Submittal Schedule monthly and submit to Owner.

1.6 SHORT INTERVAL SCHEDULE

A. Short Interval Schedule: Prepare and update weekly a four (4) week Short Interval Schedule.
   Show previous week of actual progress (planned vs. actual performance). Forecast three (3)
   weeks of start and completion dates for each activity, task, or event in comparison to the
   Contractor’s Construction Progress Schedule.
   1. Activities in the Short Interval Schedule shall relate directly to activities in the Progress
      Schedule.

B. Format for the Short Interval Schedule should be similar to the Owner’s form. The Contractor
   may submit an alternative format that must first be approved by the Owner. The format shall
   include comment annotation as necessary.

C. Copies of the Short Interval Schedule shall be provided at the Construction Progress Meetings
   and will be used as the basis for discussion of progress and planned work at the meetings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies general administrative and procedural requirements for submittals required by the Contract Documents.

1.2 SUBMITTAL PROCEDURES

A. The Owner intends to utilize an internet-based construction management system (CMS) for submittals (see Section 01 35 00 “Electronic Communications”).
   1. The electronic submittal process is not intended to be used for color samples, color charts, or material samples.

B. Coordination: Contractor shall review submittals for completeness, accuracy, and compliance with the Contract Documents, and shall coordinate the transmittal of submittals to ensure there is no delay in the construction Progress Schedule. Submittal sequencing should coincide with the Contractor’s Submittal Schedule.
   1. Allow fourteen (14) calendar days turnaround for each submittal, from time of receipt by the Owner. For complex submittals or submittals requiring coordination with subsequent submittals, plan additional turnaround time.
   a. Provide a "Priority List" when submitting several submittals within a short time.
   2. A/E reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
   3. Submittals received from sources other than Contractor will be returned without action.

C. Submittal Preparation: Contractor shall place a label on each submittal for processing. Include the following information on the label:
   1. Date
   2. Owner’s Project name
   3. Name of Contractor and submittal number
   4. Name of the entity that prepared the submittal
   5. Specification reference number
   6. For Shop Drawing submittals, Contractor’s certification that the submittal has been coordinated and reviewed for compliance with the requirements of the Contract Documents, and is approved for A/E’s action

D. Submittal Transmittal: Contractor shall include a transmittal with each submittal package.
   1. Address no more than one topic, or related topics, on a single transmittal (i.e., mechanical items shall not be submitted with electrical items; miscellaneous specialties shall not be grouped; shoring shall be submitted separate from foundations).
   2. Record relevant information including, but not limited to: the requested review return date (in order to maintain the construction Progress Schedule) and for Shop Drawings, variations from the requirements of the Contract Documents.
   3. Provide the minimum number of each required submittal as noted in the Contract Documents and/or as follows:
      a. Shop Drawings: one (1) PDF
      b. Product data: one (1) PDF
      c. Samples: five (5) samples
      d. Mock-ups: As required by the Contract Documents
      e. Reference the Contract Documents for additional submittal requirements
   4. Material and Color Samples: Submit samples of actual materials and colors.
a. Where variation in color, pattern, texture or other characteristics are inherent in the material, submit no less than four (4) variations of each sample to show approximate limits of the variations.

E. Portable Document Format (PDF) Requirements:
1. All documents are to be created as PDF files from the original source files, unless approved otherwise in writing by Owner.
2. The CAD printer shall be Autodesk DWG to PDF.pc3 print configuration.
   a. Layer information shall not be included.
3. All documents are to be created with a resolution of not less than 300 dpi.
4. All fonts are to be embedded in the PDF.
5. When compression is used, the algorithm must be LZW, CITT Group 4, or PackBits.
6. The PDF document size must be the same as the original document size if the document were printed (e.g., a 24”x36” print should have a PDF sheet size of 24x36).
7. Each document must be submitted as a single file.
   a. A single O&M product reference is one file.
   b. A single drawing is one file.
   c. A document larger than 11”x17” is defined as single document and is one file.

F. A/E’s Action: Except for submittals provided for the Owner’s information, the A/E will: review each submittal, mark each submittal with a uniform self-explanatory action stamp indicating action taken, and return promptly. Typically action stamps indicate:
1. Accepted without exception;
2. Subject to noted corrections;
3. Returned for re-submittal after correction; and
4. Rejected as non-compliant with the Contract Documents.

G. Compliance with Contract Documents requirements is the Contractor’s responsibility.
1. A/E’s approval of submittals does not relieve the Contractor from responsibility for a proper installation, compliance with applicable codes, or coordination of the Work.
2. All submittals required by the Contract Documents will be reviewed by the Owner for CAD drafting compliance, PDF compliance, and to determine completeness of the documents provided.

1.3 SHOP DRAWINGS

A. General: Shop Drawing submittals are defined in the General Conditions and include, but are not limited to, product data, samples and mock-ups, and layout drawings.
   1. Do not reproduce Contract Documents as Shop Drawings.
   2. For CAD Shop Drawing submittals, see 01 77 00 “Closeout Procedures.”

B. Product Data: 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. Submittal of standard product data is acceptable only when specific reference to the requirements of the Contract Documents is included. Submit specially prepared manufacturer’s product data when standard product data is insufficient.
   2. Mark each product data submittal and show the following information:
      a. Compliance with specified product requirements, including LEED requirements
      b. Compliance with any specified industry standards and testing agency standards, with testing agency labels and seals
      c. Manufacturer’s printed recommendations
      d. Applicable choices and options
      e. Notation of coordination requirements
f. Notation of dimensions established by field measurement, as appropriate

C. Samples and Mock-ups: Samples include, but are not limited to, actual colors, materials and products to be provided. Mock-ups include field installations and partial assemblies of components.
   1. Prepare samples to facilitate review. Provide the following information:
      a. Generic description of the sample
      b. Source of the sample
      c. Confirmation of availability and delivery time
   2. Where samples are for selection of appearance characteristics from a range of standard choices, submit a full set of choices for the material or products.
   3. Maintain sets of approved samples and mock-ups at the Project site for quality comparisons throughout the course of construction.

D. Layout Drawings: Drawings include, but are not limited to, fabrication and installation drawings, layouts, schematics, diagrams, schedules, patterns, and templates.
   1. Submit drawings drawn to accurate scale. Indicate, at a minimum, the following information:
      a. Dimensions
      b. Identification of products and materials included
      c. Compliance with product installation requirements and/or industry standards
      d. Notation of coordination requirements
      e. Notation of dimensions established by field measurement

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for electronic communications and document control between the Owner, A/E and Contractor in supporting the Work of the Contract Documents.

B. The Owner will provide the Contractor and its Subcontractors access to the Owner’s internet-based integrated construction management system (CMS) which shall be used for communications and document control.
   1. Not all Project documents are tracked in the CMS. For most documents not in the system, the Owner provides electronic forms created with other industry standard software.
   2. Owner’s forms are included in Appendix A of these Specifications.

1.2 ADMINISTRATIVE REQUIREMENTS

A. System Access: The Owner will provide the required access codes necessary for the Contractor’s access to the Owner’s CMS website. The Owner will host the software and administer authority levels and classifications to users to control security access. Access levels will be provided to match only the level necessary to maintain and process electronic documents specified in this Section.
   1. Owner shall not be responsible for temporary or intermittent outages.

B. System Users: The Contractor shall provide a list of all parties from the Contractor’s and Subcontractors’ staffs and others that will be given access to the system. The Owner will provide the Contractor with access for a maximum of four (4) users, unless otherwise requested by the Contractor and approved by the Owner. The Contractor may, at its sole discretion, elect to enter all required data into the system including input from Subcontractors or may require the Subcontractors to enter their own data, but in either case the Contractor will be responsible for the accuracy of the data entered.

C. System Training: The Owner will provide initial training in the use of the CMS website at no cost to the Contractor commensurate with requirements for document control specified in this Section.
   1. The Owner will provide a training seminar for up to four (4) representatives from the Contractor’s organization at no cost to the Contractor. A training location and dates for the training will be provided after the award of the Contract. Training is anticipated to begin within two weeks of Contract execution.
   2. Additional training requested by the Contractor shall be subject to approval by the Owner.

D. Documents Requiring Signatures: All documents requiring signatures for approval shall be processed with the CMS to expedite preliminary concurrence of information only. Receipt of a “hard copy” signature on forms is required prior to implementing action or work as the conditions may require.

E. Equipment and Software Requirements: A computer with high speed internet access will be required in the Contractor’s home office and field office and in the offices of each of its Subcontractors using the CMS. Each computer must utilize Internet Explorer 8 or above and must be equipped to handle current versions of Microsoft Excel and Word documents, as well as pdf and tif files.
F. Information Input: The responsibility of the Owner, A/E, and Contractor to enter information and data into the Owner’s internet-based CMS shall correlate with the responsibilities of the same parties as specified in all other sections within these Contract Documents. Responsibilities include, but are not limited to:

1. The Owner will input Project and cost information from the Contract Award and maintain emergency contact lists, reports, logs, and enter all change documents.
2. The A/E will enter the Contract Documents and design clarifications with attached drawings and details, after Owner’s approval, and field reports.
3. The Contractor will enter all meeting minutes, submittals, utility shutdown requests, Requests for Information and other reports and documents required by the Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies minimum requirements for safety on the construction site including:
   1. Contractor responsibility (regarding safety)
   2. Contractor safety program and plan submittals
   3. Contractor safety requirements
   4. Contractor safety reporting
   5. Construction “fire safety” requirements
   6. Chemical hazard communication
   7. Chemicals of interest reporting
   8. SARS-CoV-2/COVID-19 exposure control, mitigation, and response plan
   9. Note: Refer to the UW Project Delivery Group (PDG) website for information on current regulatory/agency guidelines and University requirements (https://facilities.uw.edu/unit/project-delivery).

B. Owner’s forms referenced in this Section include (see Appendix A):
   1. Chemicals of Interest – Contractor Declaration and Reporting Form
   2. Monthly Safety Report

C. For additional provisions related to safety precautions, refer to the General Conditions.

1.2 CONTRACTOR RESPONSIBILITY

A. The Contractor is solely and completely responsible for compliance with all applicable laws, codes and regulations regarding safety (whether noted in this Section or not) and for creating and maintaining a safe working environment, including safety of all persons and property on the jobsite (whether the requirements of this Section address a particular situation or not).

B. The Contractor shall maintain the jobsite and perform the Work in a manner which meets or exceeds statutory and regulatory requirements for the provision of a safe place to work and which minimizes safety risks to personnel of the Contractor, Subcontractors, Owner, general public or other parties. This obligation shall apply continuously and not be limited to normal working hours.

   1. The Contractor shall ensure that all Contractor and Subcontractor personnel are provided sufficient training, and shall take such actions as are necessary to maintain a safe environment on the construction site. Such training and actions shall include, but not be limited to, ensuring that such employees are familiar with governing construction safety requirements and the requirements for compliance with applicable regulations.

   2. The Contractor shall monitor the jobsite to ensure that employees do not create unsafe conditions for others, and to comply with the provisions of the Site Specific Safety Plan.

   3. The Contractor shall establish and communicate clear expectations to its employees and Subcontractors of any tier (and their employees) of their obligation to notify the Contractor and any at risk party of any potential health or safety hazard affecting themselves or others.

   4. The Contractor shall conduct on-site safety meetings weekly, or other frequency as appropriate, that shall be mandatory for all employees.

C. The Contractor shall designate a full-time on-site competent individual to be the “Safety and Health Officer” who is qualified and authorized to supervise and enforce compliance with the Contractor’s Site Specific Safety Plan during the performance of the Work. The Contractor is
responsible to ensure that all necessary monitoring equipment, protective clothing, and other supplies and equipment are available to implement the Plan.

1. The Contractor shall require each Subcontractor to provide a fulltime on-site safety manager (competent individual) for the duration of work at the Project site. If the man-load is below fifty (50) field workers, the Subcontractor may designate its Superintendent as the safety manager. If the man-load is fifty (50) or above field workers on-site, the Subcontractor shall provide and designate a dedicated competent individual as safety manager whose sole responsibility is Project safety including, but not limited to: review pre-task plans, critical lift plans, rigging and installation means and methods, fall protection, trenching excavations, electrical safety, Occupational Safety and Health Administration (OSHA) and Washington Industrial Safety and Health Act of 1973 (WISHA) regulations compliance, and second tier Subcontractor safety monitoring and compliance.

D. Safety Violations: In the event of WISHA violations by the Contractor or any of its suppliers or Subcontractors of any tier for unsafe practices involving imminent danger to personnel of the Owner, Contractor, Subcontractors, or others, the Contractor shall immediately correct the hazardous situation which caused the violation prior to any work continuing in the affected area. If such violations exist and corrective actions have not been taken by the Contractor, the Owner may order the Contractor to stop work (to be followed up in writing the same day), until satisfactory corrective action has been taken per Article 3.04 of the General Conditions.

1.3 CONTRACTOR SAFETY PROGRAM AND PLAN SUBMITTALS

A. Company Safety Program: The Contractor shall submit a copy of its Company Safety Program to the Owner. The Company Safety Program shall contain, at a minimum, the following elements:
   1. Organizational Structure: Include names of individuals who will perform safety duties, titles, work assignments, authority and reporting relationships.
   2. Training Program: Who, how, and when training is provided; method of employee training concerning safety rules and procedures; and training in use of protective equipment.
   3. Protective Equipment: List of personal protective equipment to be provided to employees.
   4. Accident Prevention and Loss Control Plan: Work site inspection and hazard correction procedures; disciplinary procedures for safety infractions; and accident response (investigation and reporting procedures).

B. Site Specific Safety Plan: The Contractor and each of the Contractor’s Subcontractors shall review the Contract Documents, and the Contractor shall develop and submit a copy of a “Site Specific Safety Plan” to the Owner. The Site Specific Safety Plan shall be tailored to the unique issues of the Project and the specific types of hazards likely to be encountered throughout all phases of the Work, be in compliance with WISHA and all other regulatory requirements, and contain, at a minimum, the following elements:
   1. Application of Company Safety Program: The Site Specific Safety Plan shall address how the elements listed in this Section 1.3A will be specifically applied and modified in addressing the unique issues related to the Project.
   2. Specific Hazards: The Site Specific Safety Plan shall address, as applicable, the following, and other specific hazards for the Project:
      a. Odor notification
      b. Excavation and rescue plans
      c. Pedestrian safety (including on Husky Game and/or other special event days)
      d. Overhead hazards and flying objects
      e. Hot works
      f. Hazardous materials and chemical exposure
g. Methane abatement  

h. Safety issues related to Owner's “Prior Occupancy”  

i. Working over water  

j. Rigging - aerial lifts and forklifts  

k. Electrical safety  

l. Scaffolding and personnel lifts  

m. Noise and dust  

n. Lockout/Tagout and control of hazardous energy  

o. Work in confined spaces  

p. Housekeeping and safe access  

q. Silica  

r. Fall prevention  

s. Steel erection activities  

t. Crane safety  

1.4 CONTRACTOR SAFETY REQUIREMENTS  

A. Safety Training: Contractor shall provide construction site orientation for all employees (including Subcontractor employees) to become familiar with the Site Specific Safety Plan prior to commencing work. Contractor shall, on a weekly basis, perform safety training on hazards specific to the phase of work for all employees. These meetings shall be mandatory for all construction employees.  

1. Subjects should include site specific safety issues and procedures and discussion of corrections resulting from any violation in safety procedures. A log of subjects covered and a copy of the attendance records of each meeting shall be submitted to the Owner's Representative on the day the meeting occurs.  

B. Respiratory Equipment: Any personnel performing work requiring the use of respiratory protective equipment shall be fully trained in the use of such equipment. Contractor must have a respiratory protection program and ensure that all workers wearing respirators have medical clearance and fit testing, as appropriate, for the type of respirators used.  

C. Personal Protective Equipment: Contractor shall ensure all construction personnel are equipped with and utilize personal protective equipment in accordance with Labor and Industries standards. As a minimum requirement, all personnel working on the construction site shall be required to use approved hardhats, safety glasses, appropriate gloves, and substantially constructed work boots. In addition, high-visibility safety apparel shall be worn in accordance with the American National Standards Institute and the International Safety Equipment Association (ANSI/ISEA) standard 107-2004.  

D. First Aid: The Contractor shall maintain at the Contractor’s field office, or other well known place at the Project site, all materials (e.g., a first aid kit) necessary for giving first aid to the injured, and shall establish, publish, and make known to all employees procedures for ensuring immediate removal to a hospital or a doctor's care, persons (including personnel) who may have been injured on the construction site. Construction personnel shall not work on the construction site before the Contractor has established, and made known, procedures for removal of injured persons to a hospital or a doctor's care. If the Contractor and/or any Subcontractors work crew consist of five or more employees, the Contractor shall ensure that at least one of such employees has a valid and effective first aid card.  

E. Safety Walkthrough: In addition to WISHA requirements, the Contractor shall conduct a safety walkthrough of the Project with the Owner's Representative a minimum of once a month
during the course of construction. If a safety manager is required for any Subcontractor, the safety manager shall also attend the safety walkthrough. The Contractor shall:
1. Document and maintain a written record of the hazards and unsafe practices noted during the walk-through and provide copies to the Owner as requested;
2. Ensure that corrective action is promptly taken to eliminate the items recorded; and
3. Maintain copies of all inspections performed by other competent individuals on the construction site during the course of construction.

F. Job Hazards Analysis: The Contractor shall plan daily work, considering procedures with the potential for personnel injury and implement appropriate practices to avoid injuries with focus on engineering controls, personal protective equipment needs, and mitigation for exposure to cuts and lacerations. At each construction progress meeting, the Contractor shall present its plan for addressing hazards likely to be encountered in the next week.

1. The Contractor shall develop and implement a program requiring task planning at the foreman level, including at the Subcontractor’s foreman level.

1.5 CONTRACTOR SAFETY REPORTING

A. Reporting Injuries and Incidents: Contractor shall immediately notify the Owner’s Representative of any injury or incident to persons, including personnel, on the construction site. Contractor shall conduct an immediate investigation with an emphasis on preventative actions and lessons learned. The Contractor and its Subcontractor shall document the investigation and submit a hard copy of the report on OSHA Form 301 “Injury and Illness Report,” or equivalent, to the Owner within 24 hours of the incident. The Contractor shall report on a monthly basis the total number of hours worked on-site by the Contractor’s employees and Subcontractors, and the total number of recordable incidents and lost time accidents. Contractor shall submit copies of the Project First Aid Log to the Owner’s Representative on a monthly basis.

B. Reporting Potentially Serious Hazards: Contractor shall immediately notify the Owner’s Representative of any potentially serious hazard to persons, including personnel, on the construction site. Contractor and its Subcontractor shall conduct an immediate investigation and submit a report to the Owner’s Representative within 24 hours of becoming aware of the potentially serious hazard. The report shall describe the potentially serious hazard, the results of the Contractor’s investigation, and any steps the Contractor has taken to prevent an injury or incident from occurring based on the potentially serious hazard.

C. Emergency Procedures:

D. With its monthly Application for Payment, the Contractor shall submit the Monthly Safety Report on the form in Appendix A.

1.6 CONSTRUCTION FIRE SAFETY REQUIREMENTS

A. Fire Safety During Construction and Demolition: The Contractor shall conform to Chapter 1, “Fire Safety During Construction and Demolition,” of the International Fire Code, as locally amended, and any additional provisions as outlined herein for precautions against fire, flammable and combustible liquids, flammable gases, explosive materials, fire protection, fire reporting, firefighting access, means of egress, standpipes, fire sprinklers, and roofing operations.

1. The Contractor shall provide adequate separation between Owner-occupied buildings and construction trailers and sheds.
B. Hot Work Procedures:

1. Contractor shall establish a system for documentation and control of "hot work" activities which include the use of portable gas, grinding, or arc welding equipment and conduct operations in a manner that is fire-safe for the work area and adjacent areas. Hot work permits are to be posted at the jobsite in an accessible and conspicuous location. Maintain the premise clear of rubbish, debris, or other materials constituting a potential fire hazard. The local fire code is incorporated herein by reference; adhere to all applicable provisions as determined by the local fire department. Contractor and Subcontractors shall obtain from the local Fire Department engineering inspection section a permit for all hot work activities prior to performing this Work.

   a. Whenever practical, the Contractor shall perform cutting and welding operations off-site.

2. Maintain copies of all hot work related permits for Owner’s review upon request, including, but not limited to:
   a. Cutting and welding;
   b. Roofing / hot-tar kettle; and
   c. Storage of flammable materials (e.g., propane, butane) and/or compressed gases.

3. Prior to conducting hot work activities, the Contractor shall ensure all of the following fire safety precautions have been taken:
   a. Cutting and/or welding equipment must be thoroughly inspected and found to be in good repair, free of damage or defects.
   b. A multi-purpose dry chemical, portable fire extinguisher must be located so that it is immediately available to the area of work and is fully charged and ready for use.
   c. At least one fire alarm pull station or means of contacting the fire department (i.e., site telephone) must be immediately available and accessible to person(s) conducting the cutting/welding operation.
   d. Floor areas under and at least 35 feet around the cutting/welding operation must be swept clean of combustible and flammable materials.
   e. All construction equipment fueling activities and fuel storage must be located at least 35 feet away from cutting/welding operations.
   f. Fire resistant shields (e.g., fire retardant plywood, flameproof tarpaulin, metal, etc.), must cover combustible floors.
   g. Combustible materials and finished surfaces, equipment, electrical cables, and personnel must be provided with protection to prevent damage or injury from molten metal, falling sparks, and welding arcs.
   h. Spark / slag catchers (e.g., fire retardant plywood, flameproof tarpaulin, metal, etc.) must be suspended below any elevated cutting/welding operation.
   i. All floor and wall openings must be covered to prevent sparks/slag from traveling to other unprotected area.
   j. Containers in or on which cutting/welding will take place must be purged of flammable vapors.

C. Fire Systems Shutdowns, Impairments, and Fire Watch

1. When it is necessary to shut down existing fire alarm systems or suppression systems for switch-over purposes, or any other reason that leaves the building unprotected, the Contractor shall provide a continuous Owner-approved “fire watch” in accordance AHJs and the following (unless the Contractor provides an Owner-approved temporary equivalent system or the Contractor is specifically excepted by the Owner):
   a. Person(s) assigned to a fire watch must be trained in the use of the portable fire extinguisher.
   b. Fire watch personnel must have an immediate means of providing notification to the fire department (e.g., cellular phone, land-line phone, two-way radio to a continuously staffed position) and the University Police.
c. Continuous rounds to cover all areas of the building where the fire protection system is out-of-service are required every 15 minutes.
   1) Exception for Building Code type “B occupancy” buildings: During the hours a B occupancy building is occupied, building occupants performing their duties, including construction personnel, may act as a fire watch in lieu of a designated fire watch, when approved in writing by Owner.
      a) A fire watch is required at all times in unoccupied areas.
      b) Other building code occupancy types may be allowed this exception when approved in writing by the Owner.

d. A log of rounds shall be maintained to include the name of the person performing the fire watch, the hours worked (including start and stop times), and comprehensive notes.

2. Fourteen (14) calendar days written notification shall be provided to the Owner’s Representative requesting approval for fire protection system shutdown or functional impairment; receipt of written approval from the Owner’s Representative is required before any system shutdown or functional impairment.
   a. In occupied buildings, include a plan indicating a method to notify all occupants.
   b. Notify the local fire department. In Seattle, the number to report out-of-service systems and equipment is 206-233-7219.

3. The Contractor shall work in cooperation with the Owner to identify fire alarm initiating devices in and adjacent to the Project site that may activate from construction activities (i.e., work that creates dust, smoke, steam, heat, etc.) and develop a plan to temporarily cover, remove, or disable through programming these devices to eliminate the potential for false alarms.
   a. The Owner may authorize in writing some devices to be disabled for the duration of the Work or for a particular activity without requiring a continuous “fire watch” for one shift or several days depending on circumstance.
   b. ONLY OWNER PERSONNEL SHALL DEACTIVATE OR DISABLE EXISTING FIRE DETECTION AND SUPPRESSION SYSTEMS, unless the Contractor is specifically authorized in writing by the Owner to do so.

D. Fire Alarm/Suppression Systems False Activation or Discharge: Most existing Owner buildings have active fire detection and suppression systems. If proper procedures as outlined in the Contract Documents and this Section 1.6C are not followed to ensure the unnecessary activation or deactivation of these systems, the Owner may at its sole discretion impose an emergency response charge of $350 per occurrence to the Contractor and require a fire watch at the Contractor’s cost. The Contract Sum will be amended for such amount by Change Order.

E. Fire Extinguishers Required for Construction: Provide multipurpose dry chemical portable fire extinguishers for the Work in accordance with the International Fire Code Chapter 14, as locally amended, and as required by WISHA and other applicable regulations. Existing building fire extinguishers or new fire extinguishers specified by the Contract Documents for the Project do not alleviate Contractor’s responsibility to provide temporary fire extinguishers for the Work.

F. Standpipes Required for Construction: In new multi-story construction (four or more stories in height) a Class I standpipe shall be provided in accordance with Chapter 14 of the International Fire Code, as locally amended, for use during construction. Fire Department connections at bottom of standpipe shall be clearly marked and accessible at all times for fire department personnel and equipment. This requirement shall be reviewed and approved by the Owner’s Representative.
G. Existing Fire Separations: Existing fire separations, including floor-to-floor separations, shall not be impaired by construction activities.

H. Occupant Egress in Existing Buildings: The Contractor shall not block active exits, exit hallways, exit corridors and the exit access to a public way.
   1. Exits are to remain free of construction materials, equipment, and rubbish at all times, unless approved by Owner.

I. Emergency Access: Outdoor storage and staging operations and construction fencing shall not impede egress, restrict or narrow firefighting access (including roads or lanes), or present a fire exposure to existing buildings.
   1. Access to emergency services including, but not limited to, fire hydrants, fire department connections, fire command centers, fire alarm panels, valves and similar equipment and systems for emergency vehicles and emergency response personnel must be kept free and unobstructed at all times, unless specifically approved by the Owner.
   2. Temporary obstruction of emergency access may be allowed for special cases (e.g., crane installations and hoisting) on a short-term basis. A written plan must be submitted to the Owner for approval at least two weeks prior to the scheduled date of obstruction.

1.7 CHEMICAL HAZARD COMMUNICATION

A. General: The Owner and the Contractor are responsible under the Washington Administrative Code 296-800-170 through 296-800-18020 (Employer Chemical Hazard Communication) to provide a safe and healthy environment for their employees.

B. Responsibilities:
   1. The Owner maintains a centralized collection of all Material Safety Data Sheets (MSDS) for Owner materials. These MSDS are available to the Contractor if an unknown chemical is discovered in the work area; a worker is concerned about exposure; and the Contractor suspects the material originates with the Owner.
      a. The Contractor shall coordinate with the Owner’s Representative to receive this information.
   2. The Contractor shall establish a Chemical Hazard Communication Program (WAC 296-155-180) which includes multiemployer workplaces (WAC 296-800-17007), and provide hazard communication information and training to its employees and the employees of the Contractor's Subcontractors (of any tier).
      a. The information shall include: signage demarcating regulated areas and entrances; signage indicating the location of the Contractor’s binder containing all MSDS used for Construction; and prominently posted lists identifying all hazardous chemicals present in the workplace.
      b. In addition to MSDS training which is regulated by the Employer Chemical Hazard Communication standard, training shall include those MSDS that are available for any Owner's chemical product present at the jobsite.
   3. The Contractor shall provide the Owner chemical hazard information (MSDS) for all chemical products the Contractor and the Contractor’s Subcontractor's (of any tier) bring onto the jobsite for Owner’s information prior to application including, but not limited to, all paints, glues, mastics, epoxies and cleaning products.
      a. At the jobsite, the Contractor shall establish and maintain a binder(s) of all hazardous chemicals MSDS used for Construction and indicate where utilized.
         1) The MSDS shall be bound in a slant-D, 3-ring, view binder with clear vinyl overlay inserts on the front cover and spine. The binder shall have heavy duty nylon reinforced hinges.
2) The binder shall have a cover slip sheet and a spine sheet typed with "MSDS used for Construction," University Project name, University Project number, University Facility number, A/E name, and Contractor name.

3) The MSDS shall be organized by specification division and section with tabbed dividers between the sections or, when presented in a logical format by Contractor and approved by Owner, between categories.

1.8 CHEMICALS OF INTEREST REPORTING

A. Prior to work being performed by the Contractor and/or the Contractor’s Subcontractors (of any tier), the Contractor shall submit to Owner a completed “Contractor Declaration and Reporting Form for Department of Homeland Security – Chemicals of Interest” for chemicals listed in 6 CFR (Code of Federal Regulations) Appendix A to Part 27 that will be used on the jobsite. Individual declarations shall be provided by the Contractor and the Contractor’s Subcontractors (see Appendix A of the Specifications for a copy of the form).

1.9 SARS-COV-2/COVID 19

A. All construction operations must comply with the most current COVID-19 related rules and guidance from the Governor’s Office. All activities must also comply with all related and applicable requirements issued by the Washington State Department of Labor and Industries and Public Health Agencies having jurisdiction.

1.9

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. The Section further describes basic Contract definitions, specification format and content explanations, and industry standards in the Contract Documents.

1.2 DEFINITIONS

A. Accepted: The term "accepted" is used in conjunction with the A/E's duties and responsibilities as stated in the conditions of the Contract.

B. Concealed: Spaces out-of-sight such as above ceilings, below floors, between double walls, furred-in areas, pipe and duct shafts, and similar spaces.

C. Directed: Terms such as directed, requested, authorized, selected, approved, required, and permitted mean directed by the A/E, requested by the A/E, and similar phrases.

D. Exposed: Open to view. For example, pipe installed in a walkway tunnel or pipe installed in a room and not covered by other construction.

E. Furnish: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar subsequent requirements.

F. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference.

G. Install: Operations at Project site to place in position for service or use including unloading, unpacking, assembly, erection, placing, anchoring, applying, working-to-dimension, finishing, curing, protection, cleaning, and similar requirements.

H. Installer: An installer is the contractor or another entity engaged by the Contractor, either as an employee, Subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers shall be experienced in the operations they are engaged to perform.

I. Project site: Is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work as part of the Project. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built. Certain construction activities may extend beyond the Project site.

J. Provide: Furnish and install, complete and ready for intended use.

K. Regulations: The term “regulations” includes laws, codes, ordinances, statutes, and lawful orders issued by authorities having jurisdiction (AHJ), as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

L. Trades: Using terms such as carpentry does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as
carpenter. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into divisions and sections based on the Construction Specification Institute's (CSI) MasterFormat.
   1. Title: The Specifications are divided into division and section for the convenience of writing and using. The titles of these are not intended to imply a particular meaning or to fully describe the work of each division, subdivision, or section and are not an integral part of the text which specifies the requirements.
   2. Three Part Section: Each section of Specifications has been subdivided into three parts for uniformity and convenience (Part 1 – GENERAL, Part 2 - PRODUCTS, and Part 3 - EXECUTION). These do not imply a particular meaning and are not an integral part of the text which specifies requirements. Where text for one of the parts is lacking due to project requirements, the part title is included followed by the words "Not Used."

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B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. The conventions are explained as follows:
   1. Abbreviated language: Abbreviated words and meanings used in the Contract Documents shall be interpreted as appropriate. Words implied, but not stated, shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicate.
   2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarify to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
      a. The words ‘shall be’ are implied wherever a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: All construction shall be in accordance with industry standards. Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the industry standards in effect as of the Bid date of the Contract Documents.
C. Conflicting Requirements: Where compliance with two (2) or more standards are specified and where the standards may establish, different or conflicting requirements for minimum quantities or quality levels, the Contractor shall promptly report to the A/E, in writing, requesting a decision before proceeding with the Work.

1. Minimum quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum, within reasonable limits, to comply with these requirements. Indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound within the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Acronyms or abbreviations, as referenced in Contract Documents are defined to mean the recognized name of the trade association. Names and addresses are subject to change and are believed, but not assured, to be accurate and up-to-date as of the date of the Contract Documents. Refer to the latest edition of the “Encyclopedia of Associations” published by Thomson Gale for a listing of associations and general standards abbreviations.

F. Federal Government Agencies: Names and titles of federal government standard - or Specification -producing agencies are often abbreviated. Acronyms or abbreviations referenced in the Contract Documents may indicate names of standard - or Specification-producing agencies of the federal government. Names are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. General Requirements: Comply with the quality control provisions specified in the Contract Documents and perform quality control testing and inspection, and the surveillance of the Work for quality, unless specifically designated to be performed by Owner.

B. Owner’s forms referenced in this Section include (see Appendix A):
   1. Contractor Quality Control Daily Report

C. Contractor Quality Control (CQC) shall consist of plans, procedures, and organization necessary to provide materials, equipment, workmanship, fabrication, construction, and operations that comply with the requirements of the Contract Documents. CQC shall cover construction operations keyed to the Progress Schedule including, but not limited to, fabrication on-site and off-site, and field and factory tested construction mock-ups.

D. Owner's special inspection and Testing Agency services are specified in Section 01 45 23 "Testing and Inspecting Services" which may be required to ensure the Work is in accordance with the Contract Documents, except where those tests are specifically indicated to be performed by the Contractor in the Contract Documents. These services do not relieve the Contractor of responsibility for compliance with Contract Documents requirements.

1.2 CQC MEETINGS

A. General Work Plan Meeting: Contractor shall meet with Owner’s Representative and A/E to discuss CQC procedures for the Project. Items for discussion shall include, but not be limited to:
   1. Identification of the Contractor’s CQC Representative;
   2. Interrelationship of Contractor, AE and Owner's Representative;
   3. CQC administrative procedures and pre-installation work plans;
   4. Submittals and persons responsible for Shop Drawing review;
   5. Forms for recording the CQC program;
   6. Testing, inspections and approvals records;
   7. On-site and off-site fabrication and installation procedures; and
   8. Field constructed mock-ups.

B. Pre-installation CQC Work Plan Meetings: Develop a “CQC Work Plan” for each definable feature of the Work. Complete the work plan and submit to Owner with each notification requesting a pre-installation meeting. The work plan shall serve as the basis for discussion and review of the Contract Documents requirements. The work plan will assist to assure that materials and equipment delivered and assembled for construction conform to Contract requirements, and that control testing and CQC procedures are documented.
   1. When requested by the Owner, the Contractor shall revise a CQC Work Plan and provide the Owner a final CQC work plan with changes addressing comments or clarifications from the A/E and/or Owner’s special inspection services or Commissioning Authority.

1.3 CONTRACTOR QUALITY CONTROL REQUIREMENTS

A. Contractor’s Quality Control Organization: Staff the CQC organization, as required, to perform the activities outlined in this Section and elsewhere in the Contract Documents.
   1. Identify a dedicated full-time “CQC Representative” who shall be on the Project site at all times during progress of the Work, and as appropriate for all work subsequent to
Substantial Completion. The CQC Representative shall have complete authority to take those actions necessary to ensure compliance with the Contract Documents.

2. Identify persons responsible for review and approval of Shop Drawings and other submittals required by the Contract Documents.

B. Qualifications of CQC Representative: The Contractor shall propose and Owner shall approve, in writing, the Contractor’s CQC Representative. The CQC Representative must have construction management experience including prior experience with projects of similar construction, size, and complexity.

1. During progress of the Work, the Owner will monitor and evaluate the performance of the CQC Representative based on the conformance of the Work with the Contract Documents and an assessment of the accuracy, timeliness and completeness of the daily QC Report. If the CQC Representative fails to perform to the sole satisfaction of the Owner, the Contractor shall propose a replacement CQC Representative for the Owner’s approval.

C. Daily Quality Control Reports: CQC Representative shall maintain daily Quality Control (QC) Reports. The QC Reports shall be factual records containing numerical data of the Work and quality control activities and observations, including examination of work areas to verify the substrate upon which new work is to be placed. Submit QC Reports on Owner’s form, or another Owner approved form, by the next workday following the day of the report.

1. CQC Representative shall verify and sign all reports. Verification shall contain the statement that all supplies and materials incorporated in the Work are in compliance with the Contract Documents.

D. Control of On-Site and Off-Site Construction: Contractor’s Quality Control procedures shall include the following phases of control and management for each definable feature of the Work:

1. Pre-installation Meeting: A pre-installation meeting shall be held prior to beginning work on each definable feature of the Work specified in the Contract Documents (see Section 01 31 19 “Project Meetings”).

2. In-Progress Inspection Phase: In-progress quality control testing and inspection, and surveillance of the Work for quality shall be performed continuously to verify that quality standards are maintained throughout the Work. Adjustment to quality control procedures and CQC work plans may be required, based upon the results of the inspections and testing.

a. The Contractor shall:

   1) Discuss quality control procedures at construction progress meetings;
   2) Report the results of the inspections and any changes to quality control procedures in the daily QC Report; and
   3) Revise CQC work plans for Owner’s records, if changes are required.

3. Above-Ceiling Final Inspections: The Contractor shall provide to the Owner a minimum two (2) week notice prior to ceiling installations for the A/E to conduct above-ceiling final inspections.

a. The Contractor shall perform corrective work and provide reasonable time for the A/E to validate the work complete prior to covering from sight.

4. Contractor’s Final Punch List Report: The CQC Representative shall thoroughly inspect all aspects of the construction (including the Subcontractor’s Work) and produce a final punch list report of work requiring correction and/or incomplete work that shall be issued to the Subcontractors with instructions to complete prior to requesting the Owner’s final inspections. The Contractor’s written request for Owner’s final inspection shall certify that all features of the Work are installed and have been reviewed by the Contractor to determine compliance with the Contract Documents.
a. The Contractor’s final punch list report shall be prepared by the Contractor utilizing the Owner’s internet-based construction management system (CMS), in a format acceptable to the Owner.
   1) The report shall include a comprehensive Project room number list and additional entry listings for site work, building enclosure, roofs, and other items not designated with a room number to document the entire Project.
   2) The Owner’s final inspections items will be added to the Contractors final punch list report by the A/E.
   3) The Owner will manage the consolidated listing of all open inspection items until all items are signed-off by the Owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. General Requirements: Comply with the testing and inspection, and correction of Non-Conforming Work provisions specified in this Section and elsewhere in the Contract Documents.

B. Owner’s Responsibilities:
   1. The Owner will select and employ an independent “Testing Agency” to conduct the tests and inspections in accordance with applicable standard methods of the American Society for Testing and Materials (ASTM) or other standards as a requirement of the building permit.
   2. The Owner may provide other special inspection services to inspect and verify that the Work installed is in accordance with the Contract Documents and construction industry standards.

C. Contractor’s Responsibilities:
   1. All other tests and inspections which are required to obtain regulatory approval by Authorities Having Jurisdiction (AHJ) shall be provided by and paid for by the Contractor.
   2. The Contractor shall provide other testing services where specified in the Contract Documents.

1.2 DESCRIPTION

A. Definition: For the purpose of this Section, all references made to Testing Agency, or waterproofing and roofing inspections, or geotechnical consulting firm shall be referred to as those tests or inspections which will be conducted by an inspector provided by the Owner.

B. Testing and Inspection: Materials to be tested and inspected are specified by the Contract Documents. In addition, testing and inspection of other materials maybe required by the building permit or as directed by the Owner or AHJ. Quantities and extent of tests and inspections shall be as specified and/or required by the Owner’s inspector or AHJ.

1.3 QUALITY ASSURANCE

A. Qualifications: The inspector for all work of this Section, except for geotechnical and waterproofing and roofing special inspectors, shall be a registered inspector employed by an approved inspection and/or Testing Agency as listed by the Washington Association of Building Officials (WABO) Special Inspection Registration Program. All inspection personnel used on this Project are subject to being disapproved from the Project at the sole discretion of the Owner’s Representative. Minimum levels of qualifications as stated in the WABO Special Inspection Registration Program for various portions of the required Testing Agency inspections and testing must be complied with.
   1. The special Inspector for waterproofing and roofing must have the required technical knowledge and experience for the product being installed.
   2. The Owner may select a Testing Agency, other than the agency employed by the Contractor, to perform tests required by the building permit.
   3. Geotechnical inspection will be performed by a licensed geotechnical consulting firm.
1.4 DUTIES OF OWNER’S TESTING AGENCY

A. General: The Testing Agency shall conduct testing and inspection services, interpret them, evaluate the results for compliance with the building permit and the Contract Documents, and report the findings to the Owner’s Representative, A/E, Contractor, and AHJ. Testing and inspection services shall be in accordance with applicable standard methods of ASTM or other standards specified by AHJ, the Contract Documents, and construction industry standards. The Testing Agency shall reasonably support overtime, second shift, and out-of-area activity if requested by the Contractor and approved at the Owner’s sole discretion.

B. Non-Conforming Work: The Owner’s inspectors will document and immediately notify the Contractor and the Owner’s Representative of any Work found defective or not in accordance with the requirements of the Contract Documents.

C. The Owner’s inspectors are not authorized to:
   1. Release, revoke, alter, or enlarge on the requirements of Contract Documents;
   2. Approve or accept any portion of the Work, except as allowed by the special inspection duties delegated by AHJ for building permit inspections and testing;
   3. Perform any duties of the Contractor; or
   4. Stop the Work.

1.5 COSTS

A. The Owner’s Testing Agency and special Inspector costs for initial testing and inspection as specified in the Contract Documents will be paid for by the Owner. Initial tests and inspections are defined as those required to complete the first tests and inspections specified.

B. Additional tests and inspections not specified but requested by the Owner or A/E shall be paid for by the Owner.
   1. However, if the results of such tests and inspections are found to be not in accordance with the Contract Documents, the Contractor will be back-charged for all costs of this testing and inspection as well as re-testing, re-inspection and Owner's consultants’ services.

C. Costs for additional tests or inspections required because of a Contractor change in products or materials, or source, after a submittal has been reviewed and accepted, shall be borne by the Contractor.

D. Costs of any testing which is required solely for the convenience of the Contractor in its scheduling and performance of the Work shall be borne by the Contractor.

E. Costs for verification testing and inspection of Work done without timely notice, with improper supervision, or contrary to construction practice, shall be borne by the Contractor.

F. Costs for testing of materials for which fabrication and mill reports are required, but not furnished, shall be borne by the Contractor.

G. Costs of any testing which is the responsibility of the Contractor as specified in the Contract Documents shall be borne by the Contractor.

1.6 TESTS AND INSPECTION REPORTS

A. Copies of Test and Inspection Reports: Electronic copies of Owner’s Testing Agency (or other special inspection services) reports and Contractor’s test and inspection reports shall be
exchanged between Owner and Contractor at weekly intervals and shall be provided to AHJ as required. All reports will be signed by a registered engineer. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested and records of special sampling operations that are required shall also be reported.

1. Submit copies of inspection reports, certifications, notices, correspondence, and similar documents and records established in conjunction with building industry standards bearing upon the Work.

1.7 CONTRACTOR’S RESPONSIBILITIES

A. General: Inspection of the Work by the Owner’s special inspectors and/or Testing Agency shall not relieve the Contractor from responsibility for compliance with Contract Documents requirements. Owner’s special inspectors and/or Testing Agency and Owner's Representative shall have authority to reject Work whenever the provisions of the Contract Documents are not being complied with, and the Contractor shall instruct his employees accordingly.

B. Coordination: The Contractor’s shall initiate, coordinate, and conform to the required tests and inspections of AHJ.

C. Access for the Purpose of Inspection: The Contractor shall ensure the Owner’s special inspectors and/or Testing Agency have free access to all parts of the Work and to the shops where the Work is in preparation; are provided proper facilities for safe access for such inspection; and are reasonably furnished equipment, tools, samples, certifications, test reports, design mixes, storage, and assistance as requested by the Owner’s Inspector.

D. Storage Facilities: The Contractor shall furnish adequate facilities for the sole use of the Owner’s Testing Agency to provide safe storage and curing space for test specimens that must remain on-site prior to transport to the laboratory.

E. Data: The Contractor shall furnish accepted submittals and approved Change Orders, certificates, and similar data as may be required by Owner’s inspectors to perform their work to assure compliance with the Contract Documents.

F. Notice: Furnish notice to Owner's Representative and coordinate with Owner's inspectors. Provide a minimum of five (5) working days notice in advance of all required tests and a minimum of forty eight (48) hours in advance of all required inspections, unless otherwise specified.

G. Cancellations: Contractor shall give sufficient advance notice to Owner’s Representative and Inspectors to allow rescheduling of their work load in the event of cancellation or time extension of any scheduled test or inspection.

1. Any charges from an Inspector due to insufficient advance notice of cancellations or time extensions shall be borne by the Contractor, at the Owner's sole discretion.

1.8 TEST FAILURES

A. General: The Owner's Representative may require a re-test of a sampled material when a sample or procedure has failed to pass the required tests. In such cases, two samples shall be tested and the material shall be rejected if either sample fails.

1. In the event any test or inspection indicates failure of a material or procedure to meet the requirements of the Contract Documents, all costs for re-testing or re-inspection shall be borne by the Contractor.
1.9 REPORTING TEST FAILURES

A. General: Immediately upon determination of a test failure, the Owner’s inspector shall telephone the test results to the Owner’s Representative and Contractor. By the end of the following day, the Owner’s inspector shall send written test results to those named on the distribution list.

B. Contractor shall similarly report test failures to Owner’s Representative resulting from work of testing agencies provided by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. Minimum temporary facilities and controls requirements are specified in this Section. Nothing in this Section is intended to limit the types and amounts of necessary temporary facilities required to perform the Work, and no omission from this Section will be recognized as an indication that a necessary temporary facility is not required for successful completion of the Project, and compliance with the requirements of the Contract Documents and all applicable codes.

B. Included in this Section are the following headings:
   1. Product Delivery, Storage and Handling
   2. Project Site - Work Area
   3. Protection of Existing Utilities
   4. Shutdowns of Existing Equipment and Utility Services
   5. Temporary Support Facilities
   6. Temporary Enclosures and Miscellaneous Construction
   7. Noise and Vibration Control
   8. Construction Parking and Staging
   9. Construction Traffic

C. Owner's forms referenced in this Section include (see Appendix A):
   1. UW or HMC Utility Shutdown Request form, as appropriate.

D. Behavior:
   1. The Owner will not tolerate inappropriate behavior by any worker on a jobsite toward a student, staff, patient, visitor, neighbor or employee.
   2. The Contractor shall not allow obscene, offensive or otherwise inappropriate material to be displayed at the Project site, or at remote construction staging and parking areas, including job offices and trailers. If such material is displayed, it shall be immediately removed by the Contractor and/or when requested by the Owner's Representative.
   3. Gratuities to Owner's employees by a Contractor are not allowed per Washington Administrative Code, Chapter 42.52 RCW.

E. Conservation: The Contractor shall install and operate temporary facilities and perform construction activities in a manner which reasonably will be conservative and avoids waste of energy and materials, including water.

F. Pest Control: The Contractor shall rid the Project site of rodents, birds, insects, and other pests which may have entered buildings under construction as a result of the work.

G. Pollution Control: The Contractor shall perform the Work so as to prevent water, soil, and air pollution.
   1. The Contractor shall not discharge volatile, harmful, or dangerous materials into the Owner's sanitary sewer and storm water drainage systems.
      a. Non-storm water discharge into the Owner's storm water system is prohibited, including the following types of discharge, unless the stated conditions are met:
         1) Discharges of potable water for, but not limited to, water line flushing, hyper-chlorinated water line flushing, fire hydrant system flushing, and hydrostatic test water must be de-chlorinated to a concentration of 0.1 parts per million or less, pH-adjusted if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the storm water system.
b. Street sweeping must be performed prior to washing the street at construction sites.

c. All discharges to the sanitary sewer require Owner’s prior approval.

2. The Contractor shall not cause or allow visible emissions of fugitive dust from the construction site, unless reasonable precautions are employed to minimize the emissions. Reasonable precautions include, but are not limited to, the following:

a. During high winds, the use of control equipment and/or enclosures, the reduction of construction vehicle speeds, and the curtailment of all dust creating construction procedures shall be implemented.

b. When demolition, excavation, and construction activities generate dust, the construction site shall be sprinkled with water or chemical stabilizers to minimize dispersion.

c. Truck under-carriages shall be brushed to minimize the transporting of dirt off construction sites.

d. Truckloads shall be covered, wetted, or allowed adequate freeboard to prevent the escape of dust-bearing materials.

H. Silica Dust Control: The Contractor shall use best engineering and work practice controls to reduce exposure to silica dust at or below the Washington State Permissible Exposure Limit defined in the latest regulations from the Washington State Department of Labor and Industries (L&I), Puget Sound Clean Air Agency (PSCAA) and any other applicable federal, state, and local government regulations.

1. The Contractor shall assume that silica is present in all concrete, mortar, terrazzo flooring, plaster, sheetrock, fireproofing and other related building products.

2. The Contractor shall implement controls to contain and clean-up silica dust generated by cutting and demolition work and shall provide worker and equipment decontamination provisions. At no time is silica dust from the construction permitted beyond the “work area.”

   a. The Contractor shall conduct air sampling for respirable crystalline silica in accordance with the National Institute for Occupational Safety and Health (NIOSH) method 7500.


1.2 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle specified products in accordance with the manufacturer’s recommendations and use means and methods that will prevent damage, including, but not limited to, moisture damage of materials, deterioration, and loss or theft.

   1. Store materials and products off the ground and protect from weather.

B. Furnish products in the manufacturer’s original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

C. Include a waste reduction provision in purchasing agreements requiring that materials and equipment be delivered in packaging made of recyclable material, that the amount of packaging be minimized, and that packaging be taken back for reuse or recycling.

   1. The Contractor shall require the same provisions in its Subcontractor’s purchasing agreements.

D. Inspect products upon delivery to ensure compliance with Contract Documents, and to ensure that products are dry and mold free, undamaged, and properly protected.
E. Store products at the Project site in a manner that will facilitate inspection and measurement of quantity or counting of units.

F. Store heavy products away from the Project structure in a manner that will not endanger the supporting construction.

G. Protect building products subject to damage, under cover in a clean and weather-tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer’s instructions.

H. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
   1. Ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

1.3 PROJECT SITE - WORK AREA

A. Confine operations, equipment, and storage to the designated work area.
   1. Maintain the Project site, including adjacent areas and properties, in a clean and orderly manner free from accumulations of combustible materials and construction waste, including rubbish and debris resulting from construction operations. Clean indoor work areas daily of construction waste, dirt, and dust. Do not store construction materials and equipment in Owner-occupied areas unless approved by the Owner. Immediately clean up any spilled material and/or fugitive construction spoils or debris from adjacent properties and vehicle travel ways. Keep streets, fire lanes, and walks clean and free from obstructions.
   2. Mechanical rooms shall not be used for construction storage, unless approved by Owner.
   3. All masonry cutting is to be done outdoors. Cut stations for all other work shall be located outdoors or within well ventilated dustproof enclosures or other approved containment.

B. Security:
   1. General:
      a. Protect work and stored products from theft and vandalism and protect premises from entry by unauthorized persons. At the end of workday, close temporary enclosures and lock exterior doors and/or gate. Secure all openings at any time the Project site is left unoccupied.
      b. Owner’s Keys: Owner’s Representative will issue keys, as required, for the Contractor to perform the Work. Prior to Substantial Completion, the Contractor will return all issued keys. Contractor’s responsibility shall include, but not be limited to, the following:
         1) Arrange for the issuance of access keys on a daily basis, or as mutually agreed with Owner.
            a) Owner’s costs associated with re-keying a system, including an entire tunnel system, due to lost keys shall be the responsibility of the Contractor.
         2) Lock all access doors when not attended and at the end of each shift.
         3) Provide security barriers, acceptable to Owner, at all utility openings which are created by the removal of gratings and/or the opening of utility tunnels or shafts.
         4) Coordinate Work to minimize need for access to restricted areas.
      c. Many buildings and spaces on Campus are high security areas, such as building mechanical and electrical equipment rooms, certain lab spaces, and computer facilities. Contractor shall use due care to maintain an equivalent level of security of Owner’s property, where appropriate, and as it normally exists (i.e., secure areas
when not actively working). Normally locked or closed doors shall not be propped open.

d. Contractor is advised to lock its gang boxes and secure them to the construction. Owner will not reimburse Contractor for any lost or stolen tools, material or equipment.

2. Tunnel System: Owner maintains rigid controls for persons entering the Owner’s tunnel systems. All tunnel doors and certain utility access gratings are equipped with special security locks. The remaining utility access gratings are secured by tack welding.

3. Criminal Background Checks: All construction personnel working in medical centers shall be subject to criminal background checks in accordance with Washington Administrative Code, RCW 43.43.830, et seq.

a. On the first day of work, each worker shall fill out a Washington State Patrol Request for Criminal History Information form and a Request for Criminal History Record form and submit them to the Contractor’s superintendent who shall submit the collected forms to the Owner’s Representative.

b. The Owner will request the background check from the Washington State Patrol.

c. A worker may be conditionally employed on the Project pending results of the criminal background inquiry.

d. Any worker who does not pass the criminal background check will not be permitted to work on the Project and the Contractor shall immediately remove, or cause the worker to be removed, from the Project.

C. Construction Waste: Remove construction collected materials from the Project site at a frequency acceptable to the Owner and dispose of in a lawful manner. Do not burn waste material, stockpile waste material, or bury waste material on Owner’s property. Do not use Owner’s waste containers for construction waste of any kind, unless approved by Owner. Dispose of all refuse and waste material, including excess earth from excavation, off of Owner’s property.

1. See Section 01 74 00 “Construction Waste Management” and, when specified, Section 01 11 01 “Summary of Work – Regulated Materials” for additional requirements.

D. Odor Control:

1. General: Adjacent Owner areas and/or neighboring buildings may be occupied during construction. The use of solvents and materials producing noxious fumes or any product or equipment that adversely impacts air quality shall be subject to the approval of Owner. Isolate odor-causing work away from building air intakes, private properties and pedestrian traffic areas. Where solvents are used within enclosed structures, vent to outside areas.

2. Emissions Control Plan: The Contractor shall submit a written procedure for control of emissions prior to any use.

a. The plan shall at a minimum consist of the following items:

   1) Products to be used/Material Safety Data Sheets
   2) Location of Work
   3) Application
   4) Ventilation plan
   5) Hours of operation
   6) Materials handling/storage

b. Considerations shall include, but are not limited to:

   1) Concrete curing
   2) Roofing and waterproofing
   3) Welding
   4) Exterior painting
   5) Adhesive and/or stripping or paint removal
   6) Asbestos abatement
7) Soil remediation

3. Equipment and trucks producing fumes shall not be parked or located in the vicinity of building air intakes, entrances, and operable windows, unless approved by the Owner.
   a. Trucks that are idling for more than a few minutes shall shut off their engines. If trucks are queued and idling, there must be at least 20 feet between each truck or the exhaust shall be piped to have a 20-foot separation between each exhaust.
   b. All diesel-powered construction equipment shall utilize ultra-low sulfur diesel fuel.
   c. All diesel-powered construction equipment and trucks must be: 2007 model year or later (for vehicles); or Tier II heavy duty (for stationary engines); or equipped with 3-CARB verified oxidation catalyst-based particulate emissions control devices, operating at 600 degrees F or above.

E. Smoking: The University of Washington has restricted smoking policies. The Contractor shall not permit its employees or the employees of its Subcontractors of any tier to smoke on the Owner’s property, except in the areas indicated below:

   1. If the Project site includes a fenced construction area, the Contractor shall establish an outside area, within the fenced area, where its employees and the employees of its Subcontractors may smoke, provided that the area is in compliance with the requirements of Chapter 70.160 RCW. The Contractor shall communicate the location of the permitted smoking area to its employees and Subcontractors, and shall require Subcontractors (of any tier) to communicate the location of the smoking area to its employees.

F. Construction Photographs: Photograph the Project site prior to the start of construction to document original site conditions and provide digital copies of the photographs to Owner. The photographs will be used for determination of the extent of restoration required.

1.4 PROTECTION OF EXISTING UTILITIES

A. The existing concealed utilities shown on the Drawings are not necessarily exact with respect to location or completeness. Therefore, the Contractor shall take the following steps:
   1. Notify Owner in writing, with a minimum two (2) week notice for each occasion, of the intent to work near existing known underground utility services or structures or when a new excavation operation is about to begin. Submit procedure for approval to assure safe and continuous operation of the services.
   2. Proceed with sufficient caution to preclude damaging any known utilities (i.e., hand digging or probing). In the event unidentified utilities are encountered, notify Owner’s Representative immediately.
   3. In the event utilities are damaged during construction, temporary services and/or repairs must be made immediately to maintain continuity of services.
      a. Utilities installed by the Contractor, and damaged by the Contractor, shall be repaired at the Contractor's sole expense.

1.5 SHUTDOWNS OF EXISTING EQUIPMENT AND UTILITY SERVICES

A. It is generally critical that all building systems remain operational within occupied buildings, except for brief shutdowns that might be required to integrate or connect new Work. Similarly, continuity of equipment and utility services to adjacent buildings and Owner’s site infrastructure shall also be reasonably maintained at all times.

B. Equipment or utility shutdowns required to facilitate the Work shall be accomplished in accordance with the following requirements:
1. Submit a schedule of equipment and utility shutdowns (see Section 01 32 16 "Construction Progress Schedule").

2. Submit a Utility Shutdown Request form to schedule all equipment and utility shutdowns not less than fourteen (14) days prior to the proposed date. Include, as a minimum, the following information:
   a. Equipment or utility services affected
   b. Reason shutdown is required
   c. Work to be accomplished during the shutdown
   d. Proposed date and time
   e. Duration of the shutdown
   f. Proposed method of providing back-up service during shut down

3. The actual time and date of all shutdowns will be subject to approval of Owner. Shutdowns normally will be scheduled for nights, weekends, school vacations or other low intensity use periods.

4. The duration of all shutdowns shall be held to a reasonable minimum as determined by Owner.

5. Materials and equipment required for the Work to be accomplished during shutdown shall be complete and available on the job for review by Owner three days prior to the shutdown, if requested. If Contractor is not adequately prepared, the shutdown will be canceled and rescheduled.

6. ONLY OWNER’S PERSONNEL WILL SHUT DOWN AND RESTART OWNER’S EQUIPMENT AND UTILITIES. Owner will inspect the installation prior to restarting and will not restart if an unsafe condition exists. In the event Contractor’s Work is not completed during the time scheduled for the shutdown, Owner may elect to restart the equipment or utility service. In that event, additional shutdown requirements shall be rescheduled in accordance with the preceding requirements. Restarting shall not be construed as acceptance of the Work as complete.

7. Include in the bid all costs associated with equipment and utility shutdowns. Owner will make no extra payment for overtime work, schedule changes or failure to complete utility connections within authorized shutdown periods.

C. For building electrical shutdowns involving de-energization of equipment on the campus high-voltage distribution system, including main breakers for a given building, the following enhancements to the requirements listed above apply. The Owner’s Representative will determine which shutdowns proposed by the Contractor require such enhancement.

1. A minimum of 6 weeks before the proposed shutdown, the Contractor shall submit a Proposed Shutdown Plan to the Owner’s Representative. This Shutdown Plan shall include the following information:
   a. A description of Contractor tasks and safety measures (such as lock-out/tag-out), necessary to install or otherwise create the project improvements. Include specific names of devices to be switched and a complete list of equipment to be de-energized.
   b. Inspections by the engineer of record, the high voltage shop, and/or the authority having jurisdiction, as applicable. Indicate what inspections are requested and where in the sequence of work they occur.
   c. Proposed dates(s) and time(s) with duration(s) of the shutdown. Alternate dates may be proposed but the earliest of the proposed dates shall be no sooner than 6 weeks from the date of submittal of the Shutdown Plan.
   d. A draft “UTILITY SHUTDOWN REQUEST” on the standard form in Appendix A.

2. At the Owner’s request, participate in a meeting with the Owner’s Representative and the University’s High Voltage Shop to explain and discuss the Proposed Shutdown Plan. This meeting shall occur at the time of plan submittal or within 2 business days of plan submittal. Insofar as the Shutdown Plan would necessitate tasks to be performed by the High Voltage Shop, the University’s high voltage electricians will use the information as
an aid in formulating their approach to the actual switching, and in determining the level of effort and feasibility of the schedule and shutdown in general.

3. At the Owner’s request, check/verify that plans by the University’s zone electricians and others to mitigate building impacts are coordinated with, and safely support, the proposed construction activities.

4. If the Proposed Shutdown Plan is approved or approved with conditions, proceed as follows in paragraph 5. If rejected, work with the Owner’s Representative to reschedule the shutdown.

5. A minimum of 2 weeks before the proposed shutdown, review status with the Owner’s Representative and submit the final UTILITY SHUTDOWN REQUEST. If deemed necessary by the Owner’s Representative, also submit a final Shutdown Plan. These documents shall include, at a minimum, the following information:
   a. The final proposed date, time and duration of the shutdown.
   b. Responses to any conditions imposed on the shutdown by the University’s review and approval process.
   c. Any Contractor-proposed changes to the original (draft) plan.

1.6 TEMPORARY SUPPORT FACILITIES

A. Temporary support facilities include: construction power and lighting and heating and water, toilet and hand washing facilities, mobile communications, cranes and hoists, field offices, and field office communications; and similar miscellaneous facilities (i.e., storage sheds, first aid facilities, clean-up facilities, fire protection, waste disposal) as may be reasonably required for proficient performance of the Work and accommodation of personnel at the Project site, including Owner’s and A/E’s personnel. Locate temporary support facilities for convenience of users, and for minimum interference with construction activities. Placement of all temporary support facilities shall be subject to review and approval by the Owner’s Representative.
   1. Do not block Owner’s access to adjoining buildings and occupied spaces through the use of temporary support facilities.
   2. Keep temporary support facilities clean and neat in appearance and do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload temporary facilities or permit them to interfere with progress.
   3. Erection and dismantling of cranes shall occur only on weekends, unless otherwise approved in writing by the Owner.

B. Remove all temporary support facilities including, but not limited to, power and water infrastructure, hoist foundations, and communications cabling and pathway, unless indicated otherwise in the Contract Documents. Restore the Project site to original or new conditions, patching and filling as required to match adjacent surfaces.

C. All connections to Owner utilities must be made in accordance with 1.5 of this Section, “Shutdowns of Existing Equipment and Utility Services.”
   1. Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of the permanent service.

D. Electrical Power and Service: Contractor shall pay for, provide, and install all necessary Owner-approved temporary equipment required for use of the Owner’s electrical power for minor renovations and/or alterations construction work within the Project site of an Owner-occupied facility. Temporary equipment shall be installed and maintained in accordance with all applicable safety regulations and the Owner’s requirements.
1. Electrical power for the operation of small tools and equipment required for work outside of the Project site will be provided by the Owner as reasonably available from approved existing sources.

E. Lighting: Provide and maintain LED (light-emitting diode) type construction lighting to provide adequate general illumination of the work area and trade task lighting. Shield construction lighting from adjacent residential areas.

F. Heating and Ventilation: Provide temporary heat as required to protect materials and equipment from dampness, cold, and mold growth. Method of heating is subject to approval of Owner’s Representative. Fuel fired “salamander type” heaters are not permitted, unless approved by Owner.
   1. Owner’s HVAC system shall not be utilized for construction in the UW Medical Center. Supply and return–air grills shall be completely sealed-off within the Project site.
   2. New building HVAC systems shall not be operated or used for construction until such time the Contractor has submitted the Contractor’s final punch list report, unless otherwise approved by Owner.
   3. Renovations of Owner’s facilities may utilize existing ducted ventilation supply diffusers but shall not utilize exhaust systems, including return-air grills or fans. Un-ducted plenums over a construction work area must have all ceiling tiles in place, unless otherwise indicated in the Contract Documents or approved by the Owner.
   a. If Owner’s HVAC system is utilized for construction, the Contractor shall:
      1) Protect the HVAC system from construction dust contamination and provide cleaning of the components exposed to contamination prior to Owner’s occupancy.
      2) Install filter media having a minimum efficiency reporting value of 8 (MERV 8) according to the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 52.2-1999 at each supply and return-air grill used during construction.
      3) Replace Owner’s filtration on any return air fan system with a minimum 85% filtration media (as determined by ASHRAE 52.1-1992) prior to Substantial Completion.

G. Water: For construction purposes, will be furnished by Owner.
   1. Contractor shall pay all costs of temporary piping, including pressure reducing station, double backflow preventer, removal of piping and restoration of Owner’s utilities at the completion of the Work. Piping of temporary water service shall not exceed the capacity of the Owner’s system and shall be limited to 1-1/2” pipe size.
   2. Contractor shall provide drinking water from a proven safe source for all those connected with the Work.
      a. The Owner’s “potable” water drinking facilities may be used, if available and approved by Owner.

H. Toilet and Hand Washing Facilities: Contractor shall provide self-contained properly ventilated single-occupant toilet units of the chemical or aerated circulation type that are fully enclosed with a glass fiber reinforced polyester shell, or similar nonabsorbent material, and portable hand washing facilities.
   1. The Owner’s toilet facilities may be used if available and provided they remain in a clean condition, as approved by Owner.
   2. The Contractor shall provide alcohol hand sanitizers or hand gel dispensers for workers in medical centers, if restrooms and/or similar hand washing facilities are not available within the Project site.
I. Elevators: Use of Owner’s elevators is subject to approval of the Owner, unless indicated for construction use in the Contract Documents.
   1. Use requires temporary protection and, if indicated in the Contract Documents, restricted hours of use apply.

J. Mobile Communications: The Contractor shall provide cellular phones with e-mail capability for its key on-site personnel.

1.7 TEMPORARY ENCLOSURES AND MISCELLANEOUS CONSTRUCTION

A. Temporary enclosures include, but not by way of limitation, fire-rated barriers, dustproof enclosures, and site fences to protect the Work and to provide for public protection as required by law and ordinance.
   1. Provide one-hour fire-rated barriers of gypsum sheetrock and metal studs with taped joints where shown on the Drawings or when removing and/or compromising existing fire safety partitions indicated on the Drawings, such as corridor walls and/or occupancy separations, to completely isolate the construction area from other occupied building areas. Remove and repair finishes to match existing at completion of Work.
      a. Fire Safety during construction, alteration, or demolition must be provided as indicated by the current edition of the International Fire Code with local amendments and applicable rules. Combustible materials are not permitted to be used as barriers.
   2. Provide dustproof enclosures within occupied buildings to enclose the entire work area and completely isolate it from surrounding areas, unless otherwise approved by Owner. At a minimum, construct dustproof enclosures on metal studs from one layer of: 5/8 inch gypsum sheetrock; 1/4 inch fire retardant low VOC (volatile organic compounds) shiny surface materials (such as melamine); 6-mil fire retardant plastic sheathing; or 4-mil fire retardant polypropylene. Tape all joints smoke tight and continuously seal all connection points to existing construction utilizing painters tape for existing surfaces to be retained, melamine tape for melamine enclosures, and duct tape for existing surfaces not to be retained. Enclosures must extend above ceilings to the structure above except when the entire work area ceiling is completely sealed from the above ceiling space, in which case, the seal may occur at the ceiling. If the Contractor employs a combination of temporary enclosures and existing construction to enclose the work area, the Contractor shall seal any penetrations found in the existing construction, including supply and exhaust HVAC duct grills that shall be blocked off and sealed shut.
      a. All existing finishes damaged by construction are to be repaired to their original condition and ceiling tiles damaged by the Contractor are to be replaced with equivalent undamaged tiles at completion of the Work.
      b. An Owner-approved portable mini-enclosure shall be utilized outside the containment area for ceiling work: that will be completed within one shift; with limited dust disturbance/creation; with little anticipated noise; and with no “hot work.”
         1) Portable mini-enclosures shall be constructed of 6-mil fire-retardant plastic sheathing with zipper openings. Completely seal all joints and connection points with smooth vinyl tape. All ceiling tiles removed by Contractor must be placed back into position before the mini-enclosure is removed.
   3. Fire barrier and/or dustproof enclosure doors are to be installed in rigid frames and be self-closing and fitted with a gasket or other material to restrict closing noise and inhibit airflow, except for plastic sheathing enclosures which shall have zipper wall doors for personnel access. The door and its frame shall be painted in medical centers.
      a. All interior Project site entrances and exits shall have dust containment walk-off mats (sticky mats) present at all times. Provide 24” x 36” minimum size with layers to be peeled off when fully loaded. Secure mats to floor and install snug to enclosure entrances.
1) Mats must be clean, intact and maintained on a constant basis. Avoid locating adhesive walk-off mats in public walking areas and patient transport areas in medical centers.

4. All elevator openings within the work area of occupied buildings, except working construction elevators, shall be sealed airtight from the work area.

5. Site Fences: Provide temporary six (6) foot high chain link fence panels with top rail fastened to tubular metal posts set in heavy concrete bases to prevent ready relocation, unless otherwise indicated, to enclose exterior areas of the Project site and off-site lay-down and Contractor parking areas provided by the Owner. Panels are to be anchored together to prevent entry between panels. Provide gates or equal to facilitate access to fire hydrants, pumper connections and standpipes. No barbwire is permitted.

B. Provide miscellaneous construction to protect the Work. Furnish, install, and maintain for the duration of construction all required tarpaulins, barricades, security barriers, canopies, warning signs, steps, bridges, platforms and other temporary construction necessary for the safe and proper completion of the Work. Maintain the temporary construction in compliance with all pertinent safety and other regulations. Temporary barricades that obstruct exit paths from occupied areas shall not be installed unless approved by Owner.

1. Egress Signage: Provide and install temporary exit signs, as needed, to insure a clear direction or emergency exit travel in occupied areas adjacent to the construction project. Review the temporary exiting routes and signage design and location with Owner’s Representative.

2. Other Signage: Provide informational signs, warning signs, and any other sign required by AHJ for the Project.

1.8 NOISE AND VIBRATION CONTROL

A. Construction shall not exceed the maximum permissible sound levels defined by the local AHJ and shall meet the special conditions of the Project.

B. Exterior Construction Noise: Maintain the sound pressure level of exterior construction noise from exceeding decibels with a frequency rating function A (60 dBA) inside adjacent facilities with windows closed between the hours of 8:00 a.m. and 5:00 p.m. weekdays.

1. If required, the Contractor shall meet this criterion by erecting barriers between work equipment and adjacent facilities.

C. Limited Hours of Use With-in Buildings: Noise-producing equipment exceeding 60 DB(A) and/or vibration-producing equipment is subject to approval of Owner and in general will be allowed only before 7 a.m. and after 6 p.m. except within medical centers where use will be allowed from 8 a.m. - 7 p.m., unless otherwise approved by the Owner.

1. When possible, combine noisy and vibration-producing operations into one time period.

2. Specific scheduling is required for Work within the UWMC, HMC and the UW Health Sciences Center. Contractor shall provide its work schedule to Owner for approval no later than three (3) weeks prior to commencing any noisy and/or vibration-producing work.

D. Noise and Vibration Control Plan: Contractor shall submit a written procedure to minimize construction vibration and noise prior to performing physical impacts to, or demolitions of, existing structural components.

E. Machinery & Equipment: Equipment shall be as quiet as feasible for the work being performed. Electric-driven or hydraulically drawn is preferred to gas, diesel, or pneumatic powered machinery. If noise levels on any gear cannot meet the criteria of this Section, either that gear will not be allowed on the job or use times will have to be scheduled subject to
approval of the Owner. Conformance to this requirement shall be included in the Contract price and no compensation will be allowed for special equipment or overtime that may be required.
1. Construction personnel shall limit the extent of unnecessary equipment idling.

F. Outdoor Vehicle and Internal Combustion Engine Noise: In addition to the requirements applicable to exterior construction noise in this Section, the sound pressure level of each piece of equipment shall not be greater than 85 dBA when measured at the property line of adjacent real property of another person, and when measured at a distance of 50 feet from the emission source under noisiest operating conditions.
1. Rubber-tired equipment shall be used whenever possible instead of equipment with metal tracks.
2. When required, mufflers for stationary engines shall be “hospital-area” quality of silencing.
   a. Contractor is to routinely verify equipment mufflers and/or noise barriers are intact and operational.

G. Air Compressors: Equip air compressors with silencing packages—electric-driven preferred.

H. Arc Welders: No arc welders are to be connected to Owner's utilities, unless approved by the Owner. Provide separate gas generators for arc welders.

I. Jack Hammers and Rotary Hammer Drills: May be used where no other alternative is available, if permitted by the Owner. The use of core-drilling and saw cutting equipment, or electric driven drills is preferred. Time of use is subject to approval by Owner.

1.9 CONSTRUCTION PARKING AND STAGING:

A. Parking permits are required for all vehicles parking on campus. Parking without a valid parking permit will result in citation and possible impound of vehicle.
1. Parking on or near University of Washington and Harborview Medical Center campuses is congested. To minimize disruptions to campus operations and the impact on the adjacent neighborhoods, Contractor shall limit the number of vehicle trips to the Project site and encourage carpooling. In addition, the Contractor shall advise construction workers not to park on city streets and in neighboring residential areas.
   a. Parking on the University of Washington campus, outside a fenced Project site, is not available or permitted for Contractor and Subcontractor vehicles on the dates of graduation, convocation, and on Husky football game days.
   b. This information shall be posted at the Project site along with bus pass/ticket information.
2. The Contractor is responsible for advising all parties on the Project of their designated parking area and ensuring that all workers park there. If parking needs change for any reason, Contractor shall advise the Owner’s Representative so, to the extent possible, necessary accommodations can be made.
3. A designated parking area, outside the Project site, is for workers’ personal vehicles only and not for the storage of construction equipment or materials.

1.10 CONSTRUCTION TRAFFIC

A. The Contractor and the Contractor’s Subcontractors and suppliers shall minimize negative traffic impacts on city streets for construction. Scheduled truck traffic shall avoid the peak hours of 7:00 – 9:00 AM and 3:00 – 6:00 PM, Monday through Friday.
B. Deliveries on the Seattle campus: If a Contractor, Subcontractor, or supplier needs to make a delivery, the driver must stop at a Campus gatehouse upon entry during the posted hours of operation for UW Parking Services and obtain a commercial delivery permit.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies the administrative and procedural requirements for field engineering, in addition to requirements specified elsewhere in the Contract Documents, requiring the Contractor to employ a registered “Structural Engineer”.

B. Related Sections:
   1. Section 01 73 29 “Cutting and Patching”

1.2 QUALITY ASSURANCE

A. Contractor shall employ a registered Structural Engineer (Contractor’s Structural Engineer) experienced in construction techniques and sequences, and temporary structural support systems, who is licensed in the State of Washington.

B. Submit the name, address, and telephone numbers of the Contractor’s Structural Engineer for Owner’s records, prior to their performance of Work.

1.3 CONTRACTOR’S STRUCTURAL ENGINEER

A. The Contractor’s Structural Engineer shall advise the Contractor as to the safety and adequacy of all temporary structural provisions necessary for cranes and hoisting, erection and/or alteration of the building structure and shall assume the responsibilities and duties as it relates to means and methods for these items (e.g., erection sequence, temporary bracing, cutting).
   1. Temporary bracing shall be coordinated with other trades to permit continuous operation of construction.
   2. Should it be necessary to modify the structural design to accommodate construction means and methods, the Structural Engineer shall advise the Contractor who shall immediately notify the A/E and await his/her direction.
   3. Proposed changes or modifications to the structural design shall be submitted to the A/E for approval prior to the Contractor incorporating changes or modifications into the Work.

1.4 OWNER’S PROPERTY SURVEY (NOT USED)

1.5 PROJECT SURVEY REQUIREMENTS (NOT USED)

1.6 PROJECT RECORD SURVEY (NOT USED)

1.7 PROJECT LAYOUT REQUIREMENTS (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the administrative and procedural requirements for cutting and patching and general alterations of the Project including, but not limited to, preparations, products, transitions and adjustments, and repairs and disposal.

B. Related Sections:
   1. 01 11 01 “Summary of Work – Regulated Materials”
   2. 01 35 23 “Owner’s Safety Requirements”
   3. 01 71 23 “Field Engineering”

1.2 CONTRACTOR RESPONSIBILITY

A. The Contractor shall bear all cost of correcting damaged or destroyed work, indicated to remain on the Contract Documents, which is caused from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care by the Contractor and/or the Subcontractors’ work.

1.3 SUBMITTALS

A. Notice:
   1. Submit written request two (2) weeks in advance of cutting or alteration which affects:
      a. Structural integrity of any element of the Project;
      b. Integrity of weather-exposed or moisture-resistant elements;
      c. Efficiency, maintenance, or safety of any operational element;
      d. Visual qualities of sight exposed elements; and
      e. Work of Owner or separate contractor.
   2. Include in request:
      a. Project name
      b. Location and description of affected work
      c. Description of proposed work
      d. Reason for cutting or alteration
      e. Alternatives to cutting and patching
      f. Effect on work of Owner or separate contractor
      g. Written permission to affect separate contractor
      h. Date and time work will be executed, including duration of work
      i. Utility Shutdown Request form, as appropriate
   3. Owner will respond in writing to the submitted request.

B. Visual Matching: When indicated to “match existing,” submit products and/or finishes to match existing adjacent finishes for Owner’s review and approval or, for patching new work, use the specified materials and finishes in the Contract Documents.

PART 2 - PRODUCTS

2.1 PATCHING AND EXTENDING WORK

A. The Contractor shall provide products specified in the Contract Documents and/or match existing products with an alternate product of the most suitable grade for the intended purpose.
B. The Contractor shall determine the type and quality of existing products and finishes by inspection and/or testing, where necessary.
   1. Remove samples of existing installed work for testing only when approved by Owner.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to commencing work:
   1. The Contractor shall inspect existing conditions to ascertain elements subject to damage or movement and to determine the need for temporary bracing during cutting and patching work; and
   2. Verify that materials to be worked-on or removed have been evaluated in the Owner’s Regulated Materials “Good Faith” Survey report.

B. Beginning of cutting or patching means acceptance of existing conditions.

C. After cutting and/or removing existing work:
   1. The Contractor shall inspect conditions affecting performance of new work and notify Owner of any unforeseen physical conditions; and
   2. Verify that demolition is complete and areas are ready for installation of new work.

3.2 PREPARATION

A. Move, or remove, items as necessary for access to cutting and patching work.

B. For Owner occupied facilities, prepare a noise and vibration control plan in accordance with Section 01 50 00 “Temporary Facilities and Controls.”

C. Schedule shut-downs and obtain permits required for performance of the Work.

D. Provide temporary supports to ensure structural integrity of the Work.

E. Provide temporary enclosures, shielding devices and/or other methods to protect the following from damage:
   1. Existing conditions that are to remain
   2. Owner occupied areas
   3. Owner’s building systems, including HVAC systems

F. Establish “hot-works” fire safety precautions required for performance of the Work.

3.3 PERFORMANCE

A. Execute cutting and patching work in a manner to:
   1. Avoid damage to other work;
   2. Provide proper surfaces for installation of new work; and
   3. Provide a neat transition from existing finishes to new work.
      a. Fit new work to existing pipes, sleeves, ducts, conduit and other penetrations through surface

B. For all new work made to existing work under warranty, employ original installer or fabricator to perform cutting and patching unless otherwise approved by the Owner.
C. Prepare surfaces to provide for the specified installation of new work and finishes.
   1. Remove and replace or repair unsuitable substrate materials (e.g., rotted wood, water damaged materials, corroded metals and deteriorated concrete) for new applications.

D. Restore existing building systems that are impacted by cutting and patching work to original operating conditions.

E. For penetrations cut in existing fire-rated separations, completely seal new work with fire-stopping materials to full thickness of the penetrated element.
   1. Replace existing fire-stopping materials when disturbed by new work.

F. Remove debris and abandoned items from the work area, including from concealed spaces.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This section includes administrative and procedural requirements for construction waste management activities.

B. Related Sections:
   1. 01 50 00 “Temporary Facilities and Controls”

1.2 GOALS AND PROCEDURES

A. The Owner has established waste management goals for this Project with the minimum requirement of diverting 50% of non-hazardous and non-regulated construction and demolition waste, including recycled or donated materials, by weight in tons, from landfill disposal and/or incinerator.
   1. For materials which contain lead or have lead-containing coatings, see Section 01 11 01 “Summary of Work – Regulated Materials.”

B. Waste classified as hazardous materials or dangerous waste will be disposed of by the Owner (see Section 01 11 01 “Summary of Work – Regulated Materials,” if applicable).
   1. If the Contractor suspects that an unidentified hazardous or dangerous material may exist in the Project area, the Contractor shall inform the Owner of this possibility. Owner will investigate and test the material to determine the extent and nature of the material and to decide on appropriate procedures.

1.3 CONTRACTOR RESPONSIBILITY

A. To the maximum extent possible, the Contractor shall separate recyclable materials from construction, demolition, and land clearing waste to be disposed of as garbage.

B. The Contractor shall designate an on-site construction “waste management coordinator” responsible for instructing the Contractor’s workers and Subcontractors in the requirements of the construction waste management plan and for overseeing and documenting results.
   1. When on-site dumpsters and recycling bins are required by the Contract Documents, the waste management coordinator shall conduct regular visual inspections of dumpsters and recycling bins to ensure materials are being separated properly and to remove contaminants.

1.4 DEFINITIONS

A. Construction, Demolition, and Land Clearing (CDL) Waste: Includes all non-hazardous solid wastes including material that is recycled, reused, salvaged, and/or disposed of as garbage.

B. Salvage: Recovery of materials for reuse.

C. Reuse: Making use of a material without altering its form for reuse on-site or reuse on other projects off-site (e.g., grinding of concrete for use as sub-base material and chipping of land clearing debris for use as mulch).

D. Recycling: The process of sorting, cleaning, treating, and reconstituting materials for use in the manufacture of a new product.
E. Source-Separated CDL Recycling: The process of providing on-site separation of recyclable materials into separate containers as they are generated. The separated materials are hauled directly to a recycling facility or a transfer station.

F. Co-mingled CDL Recycling: The collection of mixed recyclable materials in one on-site container. The container is taken to a material recovery facility where materials are separated for recycling.

G. Material Recovery Facility (MRF): A facility used to sort and recover CDL waste materials for recycling.

H. Transfer Station: A facility where waste is moved from collection vehicles to larger trucks for longer distance transport to a landfill, source-separated recycling facilities, or MRF.

I. Approved Recycling Facility: A facility that can legally accept CDL waste materials for the purpose of recycling into a new product where the method of recording and calculating the recycling rate is regulated by local or state government.

1.5 PERFORMANCE REQUIREMENTS

A. General: Divert CDL waste from landfills by one, or by a combination, of the following activities:
   1. Salvage
   2. Reuse
   3. Source-separated CDL recycling
   4. Co-mingled CDL recycling

B. CDL waste materials to be salvaged, reused, or recycled include, but are not limited to, the following:
   1. Acoustical ceiling tiles
   2. Asphalt
   3. Asphalt shingles
   4. Brick
   5. Cardboard
   6. Carpet and pad
   7. Concrete
   8. Drywall
   9. Insulation
   10. Metals
   11. Paint
   12. Porcelain
   13. Wood
   14. Plastic film such as sheeting, shrink wrap, and packaging
   15. Window glass
   16. Field office waste such as paper, aluminum cans, glass, plastic, and office cardboard

1.6 CONSTRUCTION WASTE MANAGEMENT (CWM) PLAN

A. Prior to performing any on-site work, the Contractor shall develop and submit a CWM plan for Owner’s review and comment. The CWM plan shall include a reuse and salvage plan, identification of waste types by quantity and weight in tons, methods of disposal, and handling and transportation procedures. Include separate sections in plan for construction demolition, land clearing debris and construction waste.
B. The reuse and salvage plan shall include:
   1. A list of items being reused in place or elsewhere on the Project;
   2. A list of items for reuse off-site through salvage, resale or donation; and
   3. A plan for protecting, dismantling, handling, storing and transporting the reused items.

C. The Contractor shall organize the CWM plan to include the following information:
   1. Types and estimated quantities, by weight in tons, of CDL waste expected to be generated during demolition and construction.
   2. Proposed methods for CDL waste salvage or reuse during demolition including, but not limited to, one or more of the following:
      a. Contracting with a deconstruction specialist to salvage materials
      b. Selective salvage as part of the demolition Subcontractor’s work
      c. Reuse of materials on-site, or sale or donation to a third party for reuse
   3. Proposed methods for recycling and disposal during construction including, but not limited to, one or more of the following:
      a. Contracting with a recycling hauler, who accepts commingled construction and demolition debris, for hauling to an approved MRF
      b. Separating recyclables on-site into containers, for a recycling hauler to haul to a recycler or transfer station
   4. Name of recycling facility or MRF receiving the CDL wastes.
   5. On-site Handling Plan: Proposed locations for collecting CDL waste and/or separating recyclable waste into containers including, but not limited to, types and sizes of containers, and frequency of removal.
   6. CWM Communication Procedures: Describe how the CWM plan will be communicated to the Contractor’s workers and the Contractor’s Subcontractor’s workers (of any tier).

1.7 CONSTRUCTION WASTE MANAGEMENT (CWM) REPORT

A. CWM Report: The Contractor shall submit a cumulative CWM report on an Owner-approved form as a requirement of Final Completion with the following attachments:
   1. A record of the type and quantity, by weight in tons, of each material salvaged, reused, recycled or disposed of
      a. Dirt and land debris must be documented separately
   2. Total quantity of waste recycled as a percentage of total waste
   3. Disposal Receipts: Copy of receipts issued by a disposal facility for CDL waste that is disposed in a landfill
   4. Recycling Receipts: Copy of receipts issued by an approved recycling facility
      a. For co-mingled materials, include weight tickets from the recycling hauler or MRF and verification of the recycling rate for co-mingled loads at the facility.
   5. Salvaged Materials Documentation: Types and quantities, by weight, for materials salvaged for reuse on-site, or sold or donated to a third party

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT MEETING

A. The Contractor shall schedule and administer a construction waste management meeting prior to construction activities and shall record and distribute copies of meeting minutes to all attendees (The Contractor may conduct this meeting as part of the first pre-installation meeting).
   1. Attendees:
      a. Owner’s Representative
b. A/E

c. Contractor’s superintendent and waste management coordinator

d. Major Subcontractors

e. Business and Industry Resource Venture representation, as appropriate

2. Agenda Items: Review methods and procedures related to waste management including, but not limited to the following:

   a. Review and discuss CWM plan, including identification of and responsibilities of the Contractor’s waste management coordinator

   b. Review requirements for documenting quantities of each type of waste and its disposition.

   c. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.

   d. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.

   e. Review waste management requirements for each trade.

3.2 SOURCE-SEPARATED CDL RECYCLING

   A. Provide containers for separating CDL waste that is to be recycled, clearly labeled with a list of acceptable and unacceptable materials.

   B. For managing on-site stockpiled recyclable materials until removed, stockpile without intermixing with other materials, place and shape to drain surface water, and cover to prevent windblown dust.

      1. Stockpile materials away from demolition areas. Do not store within drip line of existing trees.

3.3 CO-MINGLED CDL RECYCLING

   A. Do not put CDL waste that will be disposed of in a landfill into a co-mingled CDL waste recycling container.

3.4 LANDFILL AND/OR INCINERATOR WASTE

   A. Provide containers for CDL waste that is to be disposed of in a landfill or by incineration, clearly labeled as such.

3.5 REMOVAL OF CONSTRUCTION WASTE MATERIALS

   A. Transport CDL waste materials off Owner’s property and legally dispose of them.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies minimum administrative and procedural requirements for mechanical and electrical systems functional performance testing required by the Contract Documents.

B. Related Sections:
   1. 01 91 00 “General Commissioning Requirements”

1.2 SERVICES

A. Test Engineer - provided by Contractor.

B. Commissioning Authority - provided by Owner.

C. Electrical Testing Contractor (ETC) - provided by Electrical Subcontractor (working through the Contractor’s Test Engineer).

1.3 REQUIREMENTS FOR TEST ENGINEER

A. The Contractor shall provide the services of a “Test Engineer” experienced in commissioning including the troubleshooting of equipment and systems. The Test Engineer shall be qualified to develop and write, coordinate and schedule, and manage and document mechanical systems functional performance tests (FPT). The Test Engineer shall also coordinate the work of the ETC and assemble the required electrical commissioning documentation.

1. Qualified personnel experienced in the technical aspects of each system to be commissioned shall be provided, if necessary, to augment the expertise of the Test Engineer.

1.4 TEST ENGINEER DUTIES

A. The Test Engineer shall prepare and submit all FPT and commissioning documentation required by the Contract Documents for the actual equipment and systems installed, including but not limited to, start-up plans, installation verification audit reports, start-up and FPT deficiency report forms, test equipment identification lists, FPT procedures, FPT data forms, and one-line system and riser diagrams.

1. Maintain separate mechanical and electrical (M&E) systems “Commissioning Binders,” indexed and tabbed according to the equipment or systems requiring commissioning, to compile the start-up and FPT documentation. Blank start-up forms, approved by the Commissioning Authority, shall populate the initial binders and be replaced with completed forms that shall be submitted in final M&E systems Commissioning Binders, as a requirement of Final Completion. The binders shall be on-site during the work (see Section 01 91 00 for the Commissioning Binders documentation requirements).

2. Prior to testing, the Test Engineer shall have applicable Subcontractor’s and manufacturer’s representatives review the test and commissioning documentation to identify personnel safety issues, equipment protection issues, and to validate relevance to the actual equipment provided.

B. Prepare and submit a “Commissioning Plan” for Owner’s review and comment before developing the FPT procedures and prior to any equipment or systems testing and/or start-up required by the Contract Documents.
C. Develop a commissioning schedule for all FPT and commissioning activities required by the Contract Documents and integrate into the construction Progress Schedule. Identify:
   1. Commissioning Plan preparation, submittal, and review;
   2. Each required functional performance test;
   3. Sequence of testing, including commissioning activity start-up prerequisites, point-to-point testing, and balancing activities; and
   4. Submission and approval of test results.

D. Develop and write FPT procedures for all equipment tests, and systems and cross-systems tests required by the Contract Documents. Test procedures shall be in accordance with equipment manufacturer's recommendations, where applicable. Test procedures shall fully describe the equipment or system configuration and steps required for each test. The procedures shall be appropriately documented so that another party can repeat the identical test.
   1. Maintain a set of drawings for recording the sign-off of each component of the plumbing and piping system pressure testing, heating, ventilation, and air conditioning (HVAC) system duct work pressure testing, and the completed flushing/cleaning and treatment activities.

E. Coordinate the participation of each Subcontractor, including the ETC, specific to their start-up and testing responsibilities. Inform each Subcontractor as to what their test and expected results will be prior to commissioning.

F. Observe the progress of the work to assure that all installations requiring commissioning are being made in accordance with the Contract Documents. Prepare and submit installation verification audit reports prior to the start-up of equipment or systems for which a formal start-up is specified in the Contract Documents.

G. Coordinate all cross-systems testing such as HVAC, environmental controls, fire alarm, emergency power, life safety, elevators, and chiller controls.

H. Manage and observe the start-up testing and all final tests of equipment and systems required by the commissioning plan and document test results.

I. Report any deficiency in equipment or systems and either enforce compliance with the Contract Documents or provide Owner with technical expertise to recommend modifications to the equipment or systems to correct the deficiency. Oversee and direct the correction of deficiencies found during commissioning.

J. Coordinate the required Commissioning Authority, A/E or other Owner-witness participant for all test/approval procedures, after verifying that pretests have been satisfactorily conducted and final tests are ready to be performed.
   1. Notify the Owner’s Representative in writing of the date, time, location, and anticipated duration of start-up and test activities, with a minimum of five (5) working days advance notice.
   2. Obtain the signature of the designated witness on all data forms. If the witness is unavailable at the scheduled time and location of the activity, so note, and proceed per schedule without the witness.

K. Compare operation and maintenance information provided by the various Subcontractors and vendors with the Project Record documents and report any discrepancies to the Owner's Representative.
L. Oversee and provide Owner with operating instruction and training for the mechanical and electrical equipment and systems specified in the Contract Documents, with coordination by the M&E Subcontractors.

M. Provide as-built information to update the commissioning basis-of-design criteria.

1.5 TEST FAILURES

A. In the event that a functional test fails, the Contractor shall determine the cause of failure, rectify the failure as soon as possible, and then retest. If more than two (2) functional tests of the same system are required, all costs for additional testing shall be borne by the Contractor, at the Owner's sole discretion.

1.6 CANCELLATIONS

A. The Test Engineer shall give at least 48 hours advance notice to the Owner’s Representative of cancellation of any scheduled test.

1. Any costs incurred by Owner due to insufficient advance notice of cancellations shall be borne by the Contractor, at the Owner's sole discretion.

1.7 WARRANTY TESTS

A. In the event a product fails during the warranty period, the Contractor shall determine the cause of failure, rectify the failure as soon as possible, and then retest. All warranty testing shall be borne by the Contractor.

1.8 TEST ENGINEER QUALIFICATIONS

A. The Contractor shall propose a Test Engineer, who is competent in the Project’s M&E systems design and intent, for the Owner to evaluate and approve or reject in writing, based upon the following criteria which shall be documented in the Test Engineer resume.

1. The Test Engineer shall have extensive experience in start-up and troubleshooting of HVAC, hot water heating, chilled water, steam, plumbing, electrical, emergency power, fire alarm, lighting controls, life safety systems and other systems of similar complexity to those contained in the Contract Documents that are required to be commissioned.

2. The Test Engineer shall:
   a. Be familiar with the Project’s control operating system(s);
   b. Be capable of troubleshooting control code and recommending necessary modifications;
   c. Be knowledgeable in testing and balancing of both air and hydronic systems;
   d. Have an excellent working knowledge of complex fire alarm, environmental and electric power control systems;
   e. Have excellent communication and writing skills, be highly organized, and be able to work well with the Project’s Subcontractors; and
   f. Have a Bachelor’s degree in mechanical engineering, PE certifications, and related field experience.

1) However, in lieu of a Bachelor’s degree and PE certifications, other technical training with extensive practical field experience may be considered.

B. Test Engineer Resume - The Contractor shall submit the Test Engineer’s resume, including the following documentation:

1. Present or most recent employment:
   a. Company name and address
   b. Present title and job description
c. Dates of employment

2. Other relevant work experience:
   a. Company name and address
   b. Job title and description
   c. Dates of employment

3. For a minimum of three (3) similar projects, description of commissioning experience and roles performed in commissioning activities that demonstrate working knowledge of complex systems.

4. Samples of a commissioning plan, a start-up plan, and a FPT with data forms written by the Test Engineer.

5. References from a minimum of three (3) project owners and/or commissioning authorities.

6. Description of education, certifications, and other technical training or field experience.

1.9 COMMISSIONING AUTHORITY

A. The Owner will provide a "Commissioning Authority," or appoint an Owner-designated witness, to act as the commissioning authority.
   1. The Commissioning Authority will provide no labor or equipment in the commissioning process.

B. The duties of the Commissioning Authority are to:
   1. Provide commissioning basis-of-design criteria, for Contractor's information;
   2. Ascertain that the Project commissioning processes and information provided is in accordance with the requirements of the Contract Documents;
   3. Review the Contractor's Commissioning Plan, start-up plans, installation verification audit reports, start-up and FPT deficiency report forms, and FPT data forms;
   4. Review the Contractor's equipment, systems and cross-systems FPT procedures;
   5. Witness, verify, and approve satisfactory completion of equipment, systems and cross-systems FPT, based upon the Contract Documents requirements;
   6. Review for accuracy, comment on, and approve specified close-out documentation;
   7. Recommend Substantial Completion when commissioning and training has been successfully completed; and
   8. Provide final commissioning reports to the Owner.

C. The Commissioning Authority will communicate as follows:
   1. The Commissioning Authority will formally communicate with the Contractor via approved project channels. It is expected, however, that informal communication and coordination will be conducted directly with the Test Engineer. As the Owner's commissioning representative, it is expected that the Commissioning Authority will communicate directly with A/E, as may be appropriate.
   2. The Commissioning Authority will keep the Owner's Representative advised regarding commissioning activities and progress, equipment and systems performance, and any problems and solutions thereto.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for Contract closeout including, but not limited to:
   1. Project Record
   2. Operation and Maintenance Manuals
   3. Warranties and Bonds Manual
   4. Operating Instructions and Training
   5. Cleaning
   6. Owner’s Final Inspection
   7. Substantial Completion
   8. Final Completion, and
   9. Final Acceptance

B. For additional specific construction Work, closeout requirements are described in Divisions 02 thru 49 of the Specifications.

1.2 PROJECT RECORD

A. General: Project Record documents include the Contractor’s as-built Drawings, as-built Specifications, and as-built Shop Drawings required by the Contract Documents. Project Record documents must be protected from deterioration and stored in a secure fire-resistant location.

B. As-built Drawings: Maintain black line prints of the bid set Contract Drawings and approved Shop Drawings. Mark the drawings to show new information that was not shown on the bid set Drawings, and on the approved Shop Drawings, including the actual installation where the installation varies substantively from the work as originally shown. Mark drawings to show conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
   1. Organize as-built Drawings in manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on the cover of each set.
   2. Mark with reproducible pencil and distinguish between variations in separate categories of the Work. Text size is to be 1/8” minimum. Good basic drafting practice must be applied.
   3. Show bid addenda items, Change Orders, and Request for Information (RFI) responses by their number, and date the revisions with a “cloud” around the revision.
   4. Keep accurate measurements of below-grade site work, including permanent shoring, in accordance with Section 01 71 23 “Field Engineering.”
   5. Show mechanical dampers, valves, reheat boxes, cleanouts, and other equipment and items that require maintenance.
   6. Show location of construction-concealed mechanical, electrical and plumbing (MEP) riser installations including, but not limited to, piping, ductwork, and conduits referenced to visible and accessible features.
   7. Show field changes of dimensions and details.
   8. X-out conditions not constructed and appropriately annotate "not constructed" to convey the actual as constructed condition.

C. As-built Specifications: Maintain one (1) copy of the bid set Contract Specifications showing all addenda, substitutions, Change Orders, and RFIs. Give particular attention to the selection of
options, changes in product data, and information on elements engineered by the Contractor and note related as-built Drawing information, as appropriate. Clear, legible documentation must be applied.

D. As-built Shop Drawings: The Contractor shall comply with the following CAD (Computer-Aided Drafting), BIM (Building Information Modeling) and PDF (Portable Document Format) standards and requirements when preparing as-built record Shop Drawings required by the Contract Documents.

1. SUBMITTAL CONTENT
   A. Transmission
      1. Drawing package to be submitted using Owners’ construction management system (CMS).

   B. Included Drawings
      1. Submittal must include one Master Sheet Index on a single sheet that lists all drawing files submitted for all disciplines, including the sheet containing the Master Sheet Index. Only if the Master Sheet Index cannot fit on a single sheet may it be split over multiple sheets.
         a. For each file listed on the Master Sheet Index there must be one matching .DWG and one .PDF.
         b. Each drawing file provided in the submittal must be listed on the Master Sheet Index.

      2. If the Master Sheet Index is an OLE object, the index must also be submitted as an Excel .XLS or Text (.txt, .csv, etc.) file.

2. SHEET TITLEBLOCKS
   Sheets must contain a title block on the right or bottom side of the sheet. Title blocks must include labels and the following information:
      a. Date
      b. UW Project Name
      c. UW Project Number
      d. UW Facility Number (FACNUM)
         1. Every title block must include all FACNUMs affected by the project.
      e. Sheet Name
      f. Sheet Number
      g. Consultant Company Name
      h. Jurisdiction Seal where required by jurisdiction.
         1. Example: Within the City of Seattle

3. BIM STANDARDS
   A. Format
      1. BIM models must be submitted in Revit .RVT format.

   B. Packaging for Submission
      1. Models must be detached from central
      2. All worksets must be relinquished
      3. On final export dialog box, UNCHECK the box saying “Export views of sheets and links as external references.”
      4. Use eTransmit to package model and related files.
C. File Names
   1. Revit model file names must start with the UW CPD Project Number

4. CAD STANDARDS
   A. Format
   1. CAD files must be submitted in AutoCAD .dwg format.
   B. File Organization
   1. Each CAD drawing file must represent a single printed sheet.
   C. File Names
   1. Drawing and PDF file names must be titled <Sheet Number> <Sheet Name>.
      a. Examples: A-101 1ST FLOOR PLAN.dwg; A-101 1ST FLOOR PLAN.pdf
   D. Image and .PDF References
   1. Unreferenced and Unloaded images must be detached from the drawing.
      a. No Unreferenced or Unloaded images or PDF underlays should appear in the Xref Manager
   E. External References (XREFs)
   1. External drawing references are not allowed.
      2. External references used during the project must be bound using the ‘Bind’ option (instead of the ‘Insert’ option) before submitting.

5. PDF STANDARDS
   A. Single Sheet .PDF
   1. Each .PDF file must represent a single sheet and must not contain multiple pages.
   B. File Names
   1. .PDF file names must match the corresponding .DWG file names except for the file extension.
   C. File Creation
   1. .PDF files are to be created by printing from the native CAD/BIM format by printing to PDF. Scanning is not permissible.
   D. Layer Content
   1. .PDF files must not contain layers.
   E. Image Resolution (if applicable).
   1. All documents must be created with a resolution of no less than 300 dpi.
   F. Fonts
   1. All fonts must be embedded in the .PDF.
   G. Compression
   1. When compression is used, the algorithm must be LZW, CITT Group 4, or PackBits.
   H. Page Size
   1. The .PDF page size must be the same as the original page size if the page were printed.
      a. Example: ANSI D sized sheet must have a .PDF sheet size of 22 x 34.

1. CAD Compliance Submittal Review Requirements: CAD Shop Drawings shall be electronically submitted for Owner’s CAD compliance review and approval prior to submitting as-built record Shop Drawings. The Contractor may request a compliance review at any time during the work prior to Substantial Completion.
2. Project Record submittal: Provide all record as-built Shop Drawings required by the Contract Documents in CAD, BIM and PDF format (per the requirements of Section 01 33 00 “Submittal Procedures”).
   a. CAD files shall be submitted in latest release of AutoCAD .dwg format.
      1) Custom menus or arx applications are not allowed if they create a requirement for the drawing to be used. No menus, custom user interface files or arx applications are to be submitted.
      2) Each CAD drawing shall represent a single printed sheet where the file name conspicuously identifies the sheet number (e.g. sheet A2.1 CAD file name might be A2-1.dwg).
      3) For all disciplines in a submittal, the CAD drawings shall be in a single folder. All supporting files (font files, line types, plot configurations, plot style tables, etc.) are to be in a subfolder.

1.3 OPERATIONS AND MAINTENANCE (O&M) MANUALS

A. Separate manuals shall be provided by the Mechanical and Electrical (M&E) Subcontractors titled MECHANICAL or ELECTRICAL and an additional manual provided by the General Contractor titled ARCHITECTURAL for all other information. The preliminary manuals shall be labeled “Preliminary” and comply with all requirements.

B. The O&M Manuals shall contain all the information needed to operate, maintain and repair all systems, equipment, and product finishes provided in the Project. They shall be presented and arranged logically for efficient use by Owner’s operation personnel. As a minimum, the information provided shall include, but not be limited to, the following: (see Architectural, Mechanical and Electrical Divisions for additional requirements)
   1. Product description including, but not limited to, manufacturer, product name or equipment make and model number (and other nameplate data), size and dimensions, color, Material Safety Data Sheets (and related product information), and other pertinent information
   2. Supplier’s name, address, e-mail address, phone, and reference order numbers
   3. Product finishes maintenance and cleaning instructions
   4. Performance and calibration data for specific product provided (extraneous catalog data must be eliminated)
   5. Descriptions and diagrams of system assembly and configuration (including components and interrelations)
   6. Manufacturer’s recommended equipment operating and maintenance instructions, including routine lubrication and servicing data, start-up and shutdown procedures, and any seasonal or emergency procedures
   7. Manufacturer’s checklists and methods for troubleshooting
   8. Complete parts list with parts numbers indicating common replacement parts and anticipated useful life
   9. Copies of: digitally signed warranties; any certificates from respective manufacturers, suppliers, and Subcontractors; permits and/or licenses, and; equipment maintenance and service contracts.

C. The O&M Manuals shall contain the following information for specified items, when the item is specified elsewhere in the Contract Documents:
   1. As-built door hardware schedule and submittal documentation
   2. Elevator systems documentation
      a. Wiring/equipment locations diagrams
   3. Refrigeration controls schematics/sequence of operation documentation
   4. Motors data and variable frequency drives (VFDs) documentation
      a. Final settings programmed into the VFDs
5. Fan and pump curves documentation
6. HVAC filters schedule
7. Environmental controls systems (ECS) documentation including hardware and software manuals
8. Electrical—Short Circuit Coordination and Arc Flash Study Report
9. Pull calculations documentation for MV wire, cable, and terminations
10. Electrical transformer factory test reports documentation

D. Drawings included in the manual shall not exceed 11” x 17.”

E. Hard copy manuals shall be bound in a slant-D, 3-ring, view binder with a clear overlay insert on the front cover and spine.
   1. Provide a cover slip sheet and a spine sheet typed with ARCHITECTURAL, MECHANICAL, and (or) ELECTRICAL OPERATIONS AND MAINTENANCE MANUAL, University Project name, University Project number, University Facility number, A/E name, and Contractor name. Label manuals consecutively (ex., Mechanical 1 of 3).
   2. Each manual shall have a typed index and tabbed dividers between specification divisions and sections or, when presented in a logical format by Contractor and approved by Owner, between systems/equipment categories.
   3. Contents of the manual shall be printed on 8-1/2” x 11” acid free, recycled copy paper.

F. ARCHITECTURAL, MECHANICAL, and ELECTRICAL manuals may be combined into one manual, with approval of Owner.

1.4 WARRANTIES AND BONDS MANUAL

A. Assemble executed warranties and bonds, and any certificates from the respective manufacturers, suppliers, and Subcontractors. Provide preliminary review copies of all warranties and bonds and a final manual with the original documents, titled “Warranties and Bonds Manual.” Manuals shall be assembled in the same format as the O&M Manuals and include a table of contents in complete and orderly sequence.

1.5 OPERATING INSTRUCTIONS AND TRAINING

A. The Contractor shall provide on-site instruction and training for Owner’s personnel in all aspects of the philosophy, operation and maintenance of equipment and systems. Instruction and training shall be provided by a qualified trainer from the Contractor or Subcontractor who supplied and installed the equipment and systems and/or a manufacturer's training representative who is familiar with all aspects of the design, operation, maintenance, and troubleshooting of the specified equipment and systems. Training shall be conducted in a classroom setting with appropriate schematics, handouts, and audio/visual aids. All training shall also be digitally recorded in video, cataloged, and provided to Owner in a DVD/container labeled with session identification and date. Attendance shall be recorded. For work requiring commissioning, see Section 01 91 00 “General Commissioning Requirements” for further training session agenda requirements.
   1. Prepare and submit a training plan for Owner’s information and coordination. For each training session, the training plan shall include the following:
      a. Dates, start and finish times, and locations
      b. Outline of the information to be presented
      c. Names and qualifications of the presenters
      d. List of texts and other materials required to support training

Template Last Revised June 23, 2017
1.6 CLEANING

A. Contractor clean up during construction is specified in the Contract Documents.

1. If Contractor fails to clean as specified in the Contract Documents, and after reasonable notification from Owner, Owner may do so and the cost thereof shall be charged to the Contractor.

2. For work in medical centers, reference housekeeping in Section 01 35 33 “Infection Control.”

3. Contractor shall employ continuous housekeeping cleaning during construction to minimize interior construction dust and particulates during the Work.

B. Preliminary Cleaning: Perform the following preliminary cleaning operations as a prerequisite for Owner’s Final Inspection. The following are examples, without limitation, of minimum cleaning requirements:

1. Remove labels that are not permanent.

2. Remove temporary protective coatings and wrappings from all products.

3. Remove glazing compounds and other vision obscuring substances from transparent and reflective materials provided by the Contractor including, but not limited to, mirrors, glass in doors and interior construction, glass canopies and skylights, and windows inside and out.

4. Clean all exposed building interior surfaces, including cabinet interiors, and new exterior surfaces to be free of foreign substances including, but not limited to, stains and films.

5. Leave floors broom-clean. Vacuum carpeted surfaces and clean consistent with manufacturer’s recommendations for installation.

6. Remove and clean all construction debris and refuse from:
   a. Roofs, mechanical and electrical rooms, tunnels and equipment vaults
   b. Limited access spaces, including above ceiling areas and shafts
   c. Physically inaccessible components of the Work including wall and chase cavities, gutters and downspouts, floor drains and other drainage systems

7. Wipe surfaces of M&E equipment, including elevator equipment and similar Architectural equipment. Remove excess lubrication and other substances.

8. Clean the Project site of construction waste, rubbish, and litter. Sweep paved areas broom clean and remove stains, spills, and other foreign deposits.

C. Compliance: The Contractor shall:

1. Use non-toxic Green Seal Certified cleaning products, or products with low-volatile organic compounds (VOC), and cleaning paper with a post-consumer recycled content;

2. Employ equipment with high efficiency particulate filtration and sweep compound to keep dust down; and

3. Comply with current regulations and standards of authorities having jurisdiction and the safety standards for cleaning specified in the manufacturer’s instructions.

1.7 OWNER’S FINAL INSPECTION

A. Prior to Final Inspection: The Contractor shall satisfactorily complete the following actions prior to the Owner’s final inspection of the Project.

1. Submit written notice that the Project is ready for final inspection. Include a copy of the Contractor’s final punch list report (see Section 01 45 00 “Contractor Quality Control”) and list all incomplete work items that have been reviewed with the Owner, and which the Owner has agreed are not necessary prior to Substantial Completion.

   a. Include: a written plan/schedule outlining all actions necessary to achieve Substantial Completion, without requiring extra ordinary participation by Owner and A/E.

2. Complete preliminary cleaning operations.
3. Submit a list of all equipment and systems requiring instruction and training with a proposed schedule of times and locations for the instruction, for Owner’s review and comment.

4. Complete start up and functional performance testing of all systems required by the Contract Documents and AHJ including, but not limited to: electrical testing; environmental control systems point-to-point testing; emergency eyewash and safety shower testing; fume hood face velocity testing; and HVAC air balancing (if included in the scope of the Work).

B. Owner’s Final Inspection: Upon satisfactory completion of the actions in 1.7A, Owner will determine if the Project is complete and ready for final inspection and, at Owner’s sole discretion, commence final inspection, or provide a written deficiency list of items to the Contractor of work that must be completed to the satisfaction of the Owner prior to the Owner’s final inspection. Final inspection is performed by the A/E and Owner’s representatives.

1. After the Owner has issued the final inspection list of corrective work items, the Contractor shall make the required corrections and/or identify items that the Contractor feels are not required by the Contract Documents, and resolve these items with the Owner.

C. Re-inspection: Contractor shall request, in writing, re-inspection after completing the Owner’s final inspection list of corrective work items and providing the Owner the final inspection report notated with a signed-off approval for each of the corrected items. Those items whose completion is delayed due to circumstances acceptable to the Owner will be exceptions. The Owner’s Representative will back check the items or have the A/E perform a re-inspection.

1. If the A/E is required to perform more than one re-inspection, the costs for additional inspections may be borne by the Contractor, at the Owner’s sole discretion.

1.8 SUBSTANTIAL COMPLETION

A. Substantial Completion: Substantial Completion (for either the entire Work or portions thereof) shall be achieved when all Work, other than incidental corrective and incidental punch list work, is complete including, but not limited to, the following actions:

1. Complete final cleaning operations.

2. Submit the "Preliminary" Operations and Maintenance Manual for Owner’s review and comment in one (1) hard copy and in PDF format, on Owner’s CMS.

3. Submit all sign-offs, releases, jurisdictional settlements, judgments, and other records from AHJ allowing the Owner’s full and unrestricted use and benefit of the facilities including, but not limited to, a temporary or permanent certificate of occupancy permit, operating permits and/or licenses for the use of building equipment such as elevators, boilers, paint booths, etc. and similar necessary certificates and releases.

   a. Provide a list of any outstanding work required by AHJ.

4. Submit the current Project Record as-built Drawings and Specifications identified “Preliminary” Project Record (marked with the date of submission) in PDF format, on Owner’s CMS.

5. Submit the Project Record as-built Shop Drawings required by the Contract Documents in accordance with this Section 1.2D, on Owner’s CMS.

6. Remove all construction tools and temporary facilities not required for Final Completion work from the Project site including, but not limited to, storage sheds, samples and mock-ups, Project identification signage, site fences, crane and hoist base foundation construction, temporary enclosures, and construction electrical power and service.

7. Complete final change-over of locks, transmit new keys to Owner, and return Owner’s loaned construction keys.
a. Submit one (1) hard copy each of the current air balancing report and M&E Commissioning Binders (marked with the date of submission) noting the corrections for deficiencies listed in the “Preliminary” report and binders and indicating any incomplete Work.

8. Submit all controls systems software files required by the Contract Documents including, but not limited to, lighting and environmental controls.

B. Substantial Completion: Upon a satisfactory completion of the actions in 1.8A above and the General Conditions requirements for Substantial Completion, the Owner will prepare a letter of Substantial Completion and forward to Contractor. The letter will identify the date of Substantial Completion and include the final punch list report and the commissioning deficiencies list, listing all remaining incomplete work. Contract warranties will begin as of the date of Substantial Completion, as specified in Section 01 78 36 “Warranties,” or as otherwise indicated in the Contract Documents.

1. Substantial Completion and the start of warranties for incomplete items will be established in writing by the Owner when the item is determined complete.

1.9 FINAL COMPLETION

A. Prior to Final Completion: Final Completion shall be achieved when the Work is fully and finally complete, to the Owner’s satisfaction in accordance with the Contract Documents including, but not limited to, the following:

1. All Work, including incidental corrective or punch list work, and air balancing and commissioning work (if included in the scope of the Work) is complete and correct to the satisfaction of the Owner.

2. All remaining temporary facilities are removed from the Project site and the site (including landscape) is restored to original conditions or Contract Documents requirements.

3. All final permits, originally issued as temporary permits, have been submitted.

4. The final marked-up Project Record as-built Drawings and Specifications identified Final Project Record (marked with the date of submission) have been submitted using Owner’s construction management system (CMS).

5. The complete Operations and Maintenance Manual and Warranties and Bonds Manuals have been submitted in PDF format, on Owner’s CMS, and a hard copy of the Warranties and Bonds Manual with original documents has been submitted.

6. The Contractor’s final 3-ring binder of all MSDS used for construction, marked with the date of submission, has been submitted in PDF format, on Owner’s CMS.

7. The Contractor’s final cumulative Construction Waste Management Report (marked with the date of submission) has been submitted in PDF format, on Owner’s CMS.

8. All Change Orders are approved and signed by both parties.

9. A draft of the Final Application for Payment has been submitted to Owner for review and approval.

10. The final Schedule of Values and the Building Componentization Report in hard and electronic copies (see Section 01 29 76 “Progress Payment Procedures”) have been submitted.

11. MS.

12. 

13. Specified spare parts, extra stock of materials, and extra materials of value to the Owner, with itemized summary list, have been submitted.

B. Final Completion: Upon satisfactory completion of the requirements in 1.9A above to achieve Final Completion, the Owner will approve and process the final Application for Payment and establish the date of Final Completion thereon.
1.10 FINAL ACCEPTANCE

A. Final Application for Payment has been approved by Owner and payment made to the Contractor.

B. The Owner will establish the date of Final Acceptance and issue the letter of Final Acceptance after the Contractor has completed the requirements of the Contract Documents.
   1. The Contractor shall follow the requirements outlined in the General Conditions and Section 01 29 76 “Progress Payment Procedures” for release of retainage.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies general administrative and procedural requirements for warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1. Refer to the following General Conditions for terms of the Contractor's warranty of Work:
   a. Part 5.16 "Correction of Non-conforming Work"
   b. Part 5.21 "Warranty of Construction"
   1) If there is any discrepancy in the Contract Documents regarding the warranty period or its date of commencement, the specified passage granting the Owner the longest warranty period ending on the latest date shall govern.

2. General closeout requirements are included in Section 01 77 00 "Closeout Procedures."

3. Specific requirements for warranties for the Work and products and installation that are specified to be warranted are included in the individual sections of the Specifications.

4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors that are required to countersign special warranties with the Contractor.

1.2 DEFINITIONS

A. "Standard Product Warranties" are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. "Special Warranties" are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.3 WARRANTY REQUIREMENTS

A. General: Upon determination that Work covered by a warranty has failed, correct or replace the Work to an acceptable condition complying with requirements of Contract Documents.

B. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

C. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected or replaced and retested and/or re-commissioned reinstated the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

D. Costs: The Contractor is responsible for the cost of correcting or replacing including the cost for retesting and/or re-commissioning defective Work, regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
E. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

2. Right to Refuse Work: The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.4 SUBMITTALS

A. Submit written warranties to the Owner's Representative. Provide a draft for Owner's review and comment prior to final execution. Warranties shall identify:

1. Scope description of what is covered (indicate labor and/or materials requirements);
2. The Specification reference stating the warranty;
3. The date of the warranty's start and finish (indicate the specified warranty duration);
4. Service and maintenance contracts, when specified in the Contract Documents;
5. Supplier's name, address, e-mail address, and telephone number;
6. Proper procedure in case of failure; and
7. Instances which might affect validity of warranty.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a Subcontractor, supplier, or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties.

1. Refer to individual sections of the Specifications for specific content requirements, and particular requirements for submittal of special warranties.

C. Include warranties in the Operations and Maintenance Manual (see Section 01 77 00 “Closeout Procedures”).

D. Review and acceptance, by the A/E or Owner's Representative, of submitted warranties does not relieve the Contractor of the warranty requirements of the Contract Documents.

E. The Owner may generate and keep electronic copies of original executed warranties, certifications, and other similar commitments and such copies shall be considered as originals.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Comply with the commissioning provisions specified in this Section and elsewhere in the Contract Documents.

B. General:
   1. Unless noted otherwise, functional performance tests (FPT) apply to all equipment and systems identified to be tested in the Contract Documents.
   2. Submittals shall be in accordance with Section 01 33 00 “Submital Procedures” and for CAD (Computer Aided Drafting) Record Drawings, in accordance with Section 01 77 00 “Closeout Procedures.”
   3. The duties of the Contractor’s “Test Engineer” and Owner’s “Commissioning Authority” are described in Section 01 75 00 “Test Engineer Services.”
   4. The Contractor shall ensure that the Commissioning Authority, or other Owner-designated witness, is provided safe access to witness the performance of the equipment or systems being commissioned and is reasonably furnished ladders, scaffolding, and staging, if required, for witnessing.

1.2 COMMISSIONING DOCUMENTATION

A. Commissioning Plan: The Contractor shall prepare and submit a “Commissioning Plan” that identifies how commissioning activities will be integrated into the construction Progress Schedule and how commissioning responsibilities are distributed. Include, as a minimum, the following:
   1. An organizational chart showing lines of communication and authority of the Test Engineer relative to key Contractor positions and to key Subcontractors
   2. Who will be responsible for producing the various procedures, reports, Owner notifications, and forms required by the Contract Documents
   3. list of all control systems software required by the Contract Documents
   4. The commissioning schedule
   5. Commissioning forms and other documentation
   6. Description of start-up and test procedures
   7. list of Subcontractors who will participate in each of the tests
   8. The instrumentation required for each test and who will provide the instrumentation
   9. Operational description for each test (This shall include, for example, the commissioning basis-of-design criteria provided by the commissioning authority, code requirements, the specifics of the equipment to be provided, sequences of operation, operating priorities, and other necessary information.)
   10. One-line system and riser diagrams

B. Mechanical and Electrical Commissioning Binders (M&E): The M&E “Commissioning Binders” shall include the submittals, test equipment, commissioning procedures, installation verification audits, and FPT procedures documentation described in this Section.

1.3 SUBMITTALS

A. Start-up plans: Submit start-up plans, with start-up test procedures and documentation forms, for the equipment and systems for which a start-up is specified in the Contract Documents. Start-up plans shall include the following:
   1. Start-up schedule
   2. Names of firms/individuals required to participate
3. Detailed start-up procedures
4. Start-up forms
5. Operations and maintenance product data

B. Start-up installation verification audit report: Submit installation verification audit reports prior to start-up of equipment and systems for which a start-up is specified in the Contract Documents. Identify:
1. Equipment and/or systems, to be started-up;
2. Prestart-up tests performed, including manufacturer’s factory tests;
3. Deficiencies noted;
4. Corrective action taken; and
5. Dates and initials of persons making the entries.

C. Start-up deficiency report form: Submit start-up deficiency report forms within five (5) days following the start-up of each equipment or system to report any deficiencies discovered in conjunction with start-up. Identify:
1. Equipment and/or systems started-up;
2. Location and identification of the deficient equipment and/or materials;
3. Date of observation and initials of observer;
4. Deficiencies noted;
5. Corrective action taken; and
6. Date of correction and initials of the person making the correction.

D. Test equipment identification list: Submit a list of all test equipment used in commissioning, sorted according to intended use. Provide an updated list, if any equipment is added to the commissioning, while testing is in progress. The list shall include the following information:
1. Manufacturer
2. Model number
3. Serial number
4. Date of most recent calibration
5. Range
6. Accuracy
7. Resolution
8. Intended use

E. Testing, Adjusting and Balancing (TAB) progress reports: Submit weekly TAB progress reports after TAB activities have begun. Identify the following:
1. Systems or subsystems for which preliminary balancing is complete
2. Systems or subsystems for which final balancing is complete
3. Status of deficiencies and balancing problems encountered, including corrective actions taken
4. Updated schedule of remaining TAB activities

F. FPT procedure documentation: Submit FPT procedure documentation for FPT specified in the Contract Documents. The documentation shall include the following:
1. FPT procedure description
2. Procedures that are based upon the actual equipment and/or systems configuration
3. The value for all set points and inputs, positions of adjustable devices, valves, dampers and switches
4. The acceptable test range for each FPT
5. Updated one-line system and riser diagrams
6. An alphanumeric designator for each procedure
7. Reference to the applicable Specifications section upon which the procedure is based
G. FPT data forms: Submit FPT data forms to document the equipment or systems FPT specified in the Contract Documents.
   1. Identify each FPT data form by a unique designator, consisting of an applicable FPT procedure designator followed by a dash and digit suffix to distinguish multiple repetitions of the same procedure.
   2. The FPT data form shall identify:
      a. Who needs to be in attendance for the tests, including but not limited to, Subcontractors, Commissioning Authority or other Owner-designated witness, regulatory agencies, and others as appropriate; and
      b. The sequence of the tests to be performed.
   3. Include space to record the following:
      a. Description of the procedure
      b. Whether the form is for a retest of a failed procedure
      c. Identification and location of the equipment being tested
      d. Identification of instrumentation used, by type and serial number
      e. Observed conditions at each step of the procedure
      f. Acceptable results, as specified
      g. Date of the test
      h. Names of technicians performing the procedure
      i. Name and signature of the Contractor’s Test Engineer
      j. Name and signature of the Commissioning Authority or Owner-designated witness
         1) Signature of witness shall only indicate concurrence with reported results and observations. Acceptance of the results will be reported separately by the Commissioning Authority after review of the FPT data forms.

H. FPT deficiency report forms: Submit FPT deficiency report forms at the end of each day for all tests in which acceptable results were not achieved during the day. When corrections have been completed, update the FPT deficiency report form. FPT deficiency report forms shall record the following:
   1. Associated FPT data form number and description
   2. Equipment identification and location
   3. Date of test
   4. Name of person reporting the deficiency
   5. Description of the observations associated with the failure of the test
   6. Cause of the failure, if apparent at the time of the test
   7. Date and description of corrective action taken
   8. Name and signature of person taking corrective action
   9. Schedule for retest

I. One-line system and riser diagrams: Submit one-line system and riser diagrams with the Commissioning Plan, updated one-line system and riser diagrams with the FPT procedure documentation, and as-built one-line system and riser diagrams with the final M&E Commissioning Binders. One-line system and riser diagrams shall be submitted for the following, when included in the work of the Contract Documents:
   1. Owner-provided one-line system and riser diagrams in CAD format for Contractor’s use:
      a. Hot water heating
      b. Domestic water
      c. Steam and condensate
      d. Chilled water
      e. Condenser water
      f. Supply air
      g. Return air
      h. Exhaust air
      i. Electrical normal and emergency power
2. Subcontractor-provided one-line system and riser diagrams CAD Shop Drawings, for Contractor’s use:
   a. Environmental control systems (ECS)
   b. Fire alarm/smoke evacuation/life safety graphics and riser diagrams
   c. Lighting control system diagrams
   d. Electrical distribution equipment and spot or network substations schematic diagrams

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. Provide industry standard test equipment required for performing the tests specified in the Contract Documents.

B. Instrumentation shall meet the following standards:
   1. Be of sufficient quality and accuracy to test and measure system performance within the tolerances required to determine adequate performance
   2. Be calibrated on the manufacturer’s recommended intervals with calibration tags permanently affixed to the instrument being used
   3. Be maintained in good repair and operational condition throughout the duration of use on this Project
   4. Be recalibrated/repai red if dropped or damaged in any way since last calibrated

C. For all temperature measurements, including air, liquids, and surfaces of pipes and components, use appropriate probes that meet the following requirements:
   1. Range: Minimum +14°F to 248°F
   2. Type: Thermometer, digital electronic
   3. Minimum accuracy: +/- 0.5°F
   4. Calibration Interval: Per manufacturer instruction, not to exceed every twelve (12) months.

D. For hydronic systems pressure and differential pressure measurement instruments, the test equipment shall meet the following requirements:
   1. Range: 0 to 30 psi (1 pound per square inch), 0 to 60 psi, and 0 to 200 psi
   2. Type: Calibrated test gauges, 3 inch, or electronic digital device (TSI Performance Measurement Tools or similar) meeting accuracy and calibration interval requirements.
   3. Minimum accuracy: 2% with a gauged scale; 3% with an electronic reading
   4. Calibration interval: Per manufacturer’s recommendation, not to exceed every twelve (12) months.
   5. Note: Use lowest range instrument or scale

E. For air pressure measurement instruments, the test equipment shall meet the following requirements:
   1. Range: 0 to 1 inch WC (water column), 0 to 4 inch WC, 0 to 10 inch WC
   2. Type: Use properly leveled and zeroed manometer, magnehelic or electronic instrument meeting accuracy requirements
   3. Minimum accuracy for electronic devices: 2% with a magnehelic reading; 3% with an electronic reading
   4. Calibration interval for electronic devices: Per manufacturer’s recommendation, not to exceed every twelve (12) months
   5. Note: Use lowest range instrument or scale
F. Refer to electrical inspection, calibration, and testing requirements for instrumentation related to electrical systems and equipment.

PART 3 - EXECUTION

3.1 COMMISSIONING PROCEDURE

A. Sequence of testing: Commissioning shall proceed from lower to higher levels of complexity. For each system, testing at the lower level shall be completed prior to starting the next higher level of tests. In general, the order of testing, from lowest to highest is as follows:
   1. Static tests (e.g., duct leakage tests)
   2. Motors, actuators, sensors, and other system components requiring start-up and FPT
   3. Point-to-point (PTP) testing
   4. Balancing
   5. System functional performance tests
   6. Cross-systems functional performance tests

B. Retesting: Repeat, at no additional cost to the Owner, the complete functional test procedure for each test in which acceptable results are not achieved. Repeat tests until acceptable results are achieved. Fill out a new FPT data form for each retest.

C. Correction of deficiencies:
   1. Correct FPT deficiencies promptly and schedule retest.
      a. Corrections during FPT are generally prohibited to avoid consuming the time of personnel waiting for the test, but not involved in making the correction. Exceptions will be allowed if the cause of the failure is obvious and corrective action can be completed in less than five (5) minutes. If corrections are made under this exception, the failure shall be noted on the FPT data form. A new FPT data form, marked “retest”, shall be submitted after the correction has been made. The entire FPT procedure shall be repeated.

3.2 INSTALLATION VERIFICATION AUDIT

A. Conduct an installation verification audit before equipment or system start-up begins. The audit shall include, but not be limited to, a check of the following equipment or systems:
   1. Piping specialties, including balance, control, and isolation valves
   2. Ductwork specialty items, including turning devices; balance, fire, smoke and control dampers; and access doors
   3. Control sensors by type and locations
   4. Piping, valves, starters, gauges, thermometers, and other components of the Work specified for formal start-up in the Contract Documents
   5. Accessibility to equipment in 1 - 4 above
   6. Verification of final programmed variable frequency drives (VFD) settings

B. If any part of the Work is found to be incomplete, inaccessible, incorrect, or non-functional, the Contractor shall make note of deficiencies, and correct deficiencies before system start-up work proceeds.

C. Coordinate with the electrical testing contractor (ETC) for the audit of electrical systems required by the Contract Documents.

3.3 TESTING, ADJUSTING, AND BALANCING (TAB)

A. Complete all PTP testing prior to start of TAB.
B. Coordinate and perform air and hydronic balancing. Advise the TAB firm when systems are complete and ready for balancing. Start TAB as early as possible following system start-ups and component FPT, in order to be essentially complete prior to system FPT. Coordinate TAB activities with other construction schedule activities.

C. Verify completion of PTP testing and the accuracy of the TAB work prior to commencing any FPT activities which may be adversely affected by incomplete PTP testing and improper balancing.

3.4 FUNCTIONAL PERFORMANCE TEST PROCEDURES

A. FPT procedures must confirm the performance of systems to the extent required by the Contract Documents.
   1. Emphasis shall be placed on testing procedures which will conclusively determine actual system performance and compliance with the design.

B. FPT procedures shall demonstrate the actual performance of specified safety shut-offs in a real or closely simulated condition of failure. Failure conditions shall include adequate oil pressure, proof-of-flow, non-freezing conditions, maximum head pressure, and other conditions common to the equipment.

C. Systems may include safety devices and components that control a variety of equipment operating as a system. Interlocks may be hard-wired or installed via software. FPT procedures shall demonstrate these interlocks.

3.5 ECS SOFTWARE REVIEW

A. Review ECS software and required ECS cross-systems software routines prior to the installation of control devices. The review shall include:
   1. Obtaining ECS program documentation
   2. Review of the programming approach
   3. Interface with other systems, including but not limited to:
      a. Lighting
      b. Fire alarm
      c. Security
      d. Clock
      e. Emergency generator monitoring
      f. Sump pumps
      g. Distributed and mechanical utility metering

B. Discrepancies in programming approaches shall be resolved with the Owner to provide the most appropriate, simple, and straightforward approach to software routines.

3.6 COMMISSIONING MEETINGS

A. The Contractor shall participate in the following meetings with the Commissioning Authority. Other Subcontractors may, at Owner’s sole discretion, be required to attend as necessary.
   1. Pre-commissioning kick-off meeting
   2. Commissioning meetings described in Section 01 31 19 “Project Meetings”
   3. ECS software review, and design intent clarification meeting
   4. Preliminary O&M Manual review meeting
3.7 EQUIPMENT OPERATING INSTRUCTIONS AND TRAINING AGENDA

A. Each training session shall include an agenda addressing the following:
   1. Introduction of presenters
   2. Using the O&M information:
      a. What is the equipment
      b. Basic operating procedures (including start-up/shut-down)
      c. Preventative maintenance procedures
      d. Troubleshooting procedures
   3. What does it do, or serve
   4. Any special features
   5. Safety precautions
   6. Maintaining warranties, guarantees, and warranty periods
   7. Instruction on how to use proprietary instrumentation or operating equipment
   8. Recommended spares
   9. Review of start-up reports and FPT results
  10. Jobsite walk-through

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Temporary removal or disconnection of selected portions of building or structure to facilitate
   a. Temporarily remove and store existing roof top exhaust vent for re-installation on new curb flashings.
   b. Temporarily remove and store existing roof top vent for installation/relocation at roof ridge.
   c. Temporarily disconnect and raise existing mechanical unit to facilitate installation of new curb cap flashings.
   d. Temporarily remove existing antenna for installation in new location as coordinated by Owner.

2. Demolition and removal of selected portions of building or structure for disposal as identified for demolition in construction documents.
   Select items include, but are not limited to:
   a. Demolition of existing polycarbonate skylight panels.
   b. Demolition of existing west facing gutters, and drop scuppers.
   c. Demolition of existing roof side facing metal wall panels to facilitate installation of new raised standing seam metal roof system.
   d. Demolition of miscellaneous sheet metal flashings that will interfere with the installation of new structural retrofit sub-framing system, standing seam metal roof system, or sheet metal flashings and trim.
   e. Demolition of existing roof access hatch.
   f. Demolition of existing loose wiring penetrating roof.
   g. Demolition of existing interior high bay fluorescent light fixtures, support chains, and anchor points.

B. Related Sections:

1. Section 01 52 40 - Construction Waste Management.
2. Section 07 41 13 – Standing Seam Metal Roof System.
3. Section 07 62 00 – Sheet Metal Flashings and Trim.
4. Section 07 72 00 – Roof Accessories.
5. Section 07 92 00 – Joint Sealants.

6. Section 13 34 21 – Structural Retrofit Sub-Framing System.

1.02 JOB CONDITIONS

A. Existing Conditions: Contractor to familiarize himself/herself with the requirements of the work and to visit the site to determine the full extent of demolition required. Contractor shall employ all reasonable means of site verification and review of reference documents of the existing facility to make this determination.

B. Occupancy: Conduct selective demolition work in manner that will minimize need for disruption of Owner’s normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities which will severely impact Owner’s normal operations:
   1. Obtain sequencing and scheduling approval from the Owner prior to demolition of existing polycarbonate skylight panels that are directly above spaces occupied during normal Operating hours.
   2. Obtain sequencing and scheduling approval from the Owner prior to demolition of existing lighting that will affect the Owners use of the buildings interior.

C. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

D. Protections: Provide temporary barricades and other forms of protection as required to protect Owner’s personnel and general public from injury or inconvenience due to selective demolition work.

E. Provide protection against debris or materials falling to floor or exterior spaces below. Protection shall be sufficiently durable and with small enough openings (if safety netting is used) to prevent any broken tiles, tools, or other materials from falling onto occupants or areas or items below.

F. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.

G. Protect adjacent roof areas outside of the work area with suitable coverings when necessary.

H. Protect existing roof system and related flashing components from damage due to work by other trades.

I. Protect trees, shrubs, landscaping, and exterior of project including driveways and sidewalks from damage due to work.

J. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure or interior areas of existing building.
K. Remove protections at completion of work and clean up or repair any damage or soiling resulting from protection and return areas to as-new condition.

L. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.

1.03 COORDINATION

A. Provide materials, services, and equipment required for all demolition work at the project site including, but not limited to: temporary roofing and flashings; carpentry items; metals; miscellaneous mechanical and electrical items; masonry materials and any other items or materials required to accommodate the new work described in the Contract Documents.

1.04 SUBMITTALS

A. Schedule of Demolition Activities: Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Owner’s Representative for review prior to commencement of work. Indicate the following:

1. Detailed sequence of Demolition and removal work, with starting and ending dates for each activity.

2. Location of scaffolding or waste chutes.

3. Location of dumpster’s for construction waste.

4. Proposed locations for lifts or cranes used during demolition, including temporary protections required to protect Owner’s personnel, and the general public.

5. Interruption of utility services. Although not expected, indicate how long utility services will be interrupted.

6. Coordination for shutoff, capping, and continuation of utility services.

7. Transportation of materials through interior spaces.

8. Locations of proposed dust- and noise-control temporary partitions and means of egress.

9. Means of protection for items to remain and items in path of material removal from building.

B. Scaffolding and Protection Plan: Submit plans for scaffolding and for protecting occupants of the building from falling debris, tools or materials during demolition.

C. Qualification Data: For Demolition firm.

D. Accurately record location of capped utilities if discovered.
1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company(ies) experienced and specializing in performing the Work of this Section with documented experience in similar types of Demolition work.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
   1. Comply with noise and dust regulations of authorities having jurisdiction.
   2. Obtain required permits from Regulatory Authorities before proceeding. Obtain permits before closing or obstructing roadways, sidewalks, hydrants, and fire lanes.

C. Pre-Demolition Conference: Conduct conference at Project site. Review methods and procedures related to Demolition including, but not limited to, the following:
   1. Inspect and discuss condition of building to be deconstructed.
   2. Review structural load limitations of existing structure.
   3. Review and finalize Demolition schedule and verify availability of materials, personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Review requirements of work performed by other trades that rely on substrates exposed by Demolition operations.
   5. Review areas where existing construction is to remain and requires protection.
   6. Review method for removing materials from the site.
   7. Review staging area for materials on the site.

1.06 DEMOLITION OF SCHEDULED ITEMS

A. Remove scheduled items, polycarbonate panels, roofing membranes, ducts, conduits, flashings, and the like and properly dispose in appropriate landfill.

1.07 SALVAGE/RELOCATION OF SCHEDULED ITEMS

A. General: Salvaged items are those items that are to be removed and reinstalled as part of the Work.

B. Protect and store items scheduled for salvage.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 INSPECTION

A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure surfaces, equipment or to
surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner’s Representative prior to starting work.

3.02 PREPARATION

A. Cover and protect, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.

B. Cover and protect mechanical vents as may be allowed by vent function to prevent water intrusion after roof tear-off or any demolition work.

C. Erect and maintain dustproof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.

3.03 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during Demolition operations.

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off mechanical systems during demolition.

3.04 SELECTIVE BUILDING DEMOLITION

A. General: Deconstruct and remove existing construction in accordance with the materials identified for removal in the Drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with demolition systematically, from higher to lower level. Unless temporarily supported, complete demolition operations for portion of the building resting on or bearing on other portions of the building before disturbing supporting members below.

2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing, prying or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Conduct operations so as to prevent damage to finished surfaces and portions of building systems to remain in place.


5. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

6. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents.
of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.

7. Maintain adequate ventilation when using cutting torches.

8. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site in accordance with all federal, state and local regulations.

9. Remove structural framing members in such a way as to maintain their highest value.

10. Locate Demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

11. Dispose of demolished items and materials promptly.

12. Remove abandoned items and extraneous material such as abandoned pipe, conduit, clips, fasteners, and fabrications.

B. Items to be removed and reused:

1. Sort and organize salvaged materials as they are removed from the structure.

2. Pack, crate or band materials to keep them contained and organized.

3. Store items in a secure and protected area until removed from the site, transferred to Owner, or reinstalled.

4. Transport items to Owner's long-term storage area designated by Owner.

5. Protect items from damage during transport and storage

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during Demolition activities. When permitted by Architect, items may be removed to a suitable, protected storage location during Demolition and cleaned and reinstalled in their original locations after Demolition operations are complete.

D. Refer to General Structural Notes and Structural Drawings for additional loading information and general selective demolition requirements.

E. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Advise Owner’s Representative on site before proceeding. Pending receipt of directive from Owner’s Representative rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off-site.
1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.

2. Burning of removed materials is not permitted on project site.

3.06 CLEAN UP AND REPAIR

A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas, including attic, broom clean.

B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SELECTIVE DEMOLITION SECTION
PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The Contractor shall perform all planning, notifications, administration and execution necessary to safely remove, dispose and/or handle the regulated materials listed within this Section in accordance with local, state and federal regulations.

1.2 RELATED WORK

A. Drawings, General Conditions, Modifications to the General Conditions, and Supplemental Conditions to the General Conditions, and other Divisions apply to this Section.

1.3 WORK INCLUDED

A. The Contractor shall supply all labor, equipment, notifications, services, insurance, special permits and equipment necessary for the following regulated materials:

1. Asbestos:

   a. Asbestos abatement is NOT included in this Roofing Project. Refer to other sections for Infection Controls or Covid-19 safe work practices and procedures.

   b. Contractor shall refer to the Hazardous Materials Survey Report (Attached in Appendix C and prepared by PBS Engineering and Environmental). This document lists suspect asbestos-containing materials (ACM) sampled and analyzed for asbestos content, or presumed to exist, at the areas of the building included in the Work. **The Contractor shall ensure that the Survey Report is reviewed by ALL and are made available to and retained at the project site by all subcontractors.**

   c. **Advisory Notice - ACM Caution (Hidden Materials).** The possibility exist that suspect ACM may be present at concealed locations in wall and ceiling cavities, within HVAC equipment and potentially in other select concealed areas. These may include, but are not limited to waterproofing membrane, vapor barriers, internal gasketing, mastics, caulking, and sealants on HVAC equipment, construction adhesives, electrical insulators, below grade pipe covering and insulation.

   d. Contractor shall be aware that suspect-ACMs may exist in inaccessible locations of the spaces included in the Work and in areas not included in the Work. Should suspect materials are found or uncovered during construction, they shall be assumed to contain asbestos until testing proves otherwise (by certified AHERA building inspector).

   e. The disturbance or impact of ACMs may cause asbestos fibers to be released into the building’s atmosphere, thereby creating a potential health hazard to building and tunnel occupants. Contractor is to apprise all workers, supervisory personnel, subcontractors and consultants who will be at the jobsite of the seriousness of this potential hazard and of proper Work procedures that must be followed, should it occur.
f. Where in the performance of the Work, workers, supervisory personnel, subcontractors, or consultants encounter, disturb, or otherwise function in the immediate vicinity of any identified ACMs, Contractor shall take appropriate continuous measures, as necessary, to protect its employees, sub-contractors, building occupants from the potential hazard of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with applicable local, state and federal regulations.

g. Damage of Asbestos by the Contractor: Damage to asbestos-containing materials to remain caused by the Contractor shall be repaired to the satisfaction of the Owner by the Contractor using certified asbestos workers according to these specifications, and at the sole expense of the Contractor.

2. Metals/Lead:

   a. Lead/metals-containing materials and associated health and safety compliance, risk management and controls are in the scope of work. Refer to section 02 83 00 (Lead Paint). Impact of mercury-containing compact fluorescent light bulbs and light tubes shall adhere to Metals in construction safe work practice rules and regulations.

   b. The Owner’s consultant has conducted a survey of representative areas in the Building to be impacted by the Work for the presence of lead-containing components. Findings and related analytical data are included in the attached Appendix C Hazardous Materials Survey Report.

   c. Contractor shall comply with all applicable Metals regulations, laws and ordinances concerning the impact, removal, handling, storage, disposal, monitoring and protection against exposure or environmental pollution related to building components containing lead coatings or lead products. Impacts to lead that may be required by the Work include, but are not limited to: product installation, manual demolition, mechanical demolition, cutting, sawing, drilling, sanding, scraping, welding or torch-cutting. Confirm required impacts with other applicable specification sections and drawing sheets. In addition, provide all infection controls and engineering controls per contract requirements.

   d. Work impacting lead/metals-containing painted coatings and lead/metals-containing items and products within this contract is the responsibility of the Contractor, and all affected Sub-Contractors, and shall be performed in accordance with all applicable local, state and federal regulations.

3. Polychlorinated Biphenyls (PCBs)

   a. PCB-containing light ballast or leaking ballasts were not identified at the project site.

   b. Representative light ballasts inspected were found to be labeled “No PCBs” or the electronic types without suspect potting compound. However, all magnetic ballasts not marked (unlabeled) or labeled with “No PCBs” must be segregated and
recycled through the Owner as they may contain PCBs in low concentrations. As part of the scope of the project, contractor is to inspect light fixtures and individual ballast (magnetic devices for suspect potting compound regardless of labeling) during demolition activities for proper handling and disposal/recycling.

c. Contractor is responsible for handling, removal, and proper storage of magnetic ballasts for Owner disposal in accordance with applicable local, state and federal regulations and these Specifications. Remove all magnetic ballasts (labeled or unlabeled with “No PCB”) as part of the scope for proper disposal by Owner.

d. Provide U.S. Department of Transportation approved 55-gallon drums (with approved lid) and deposit all removed ballast into containers.

e. Drummed ballast will be disposed-off or recycled by Owner through the UW Environmental Program Office (EPO) as a state regulated waste.

f. Prevent damage to any unlabeled ballasts and immediately report any leaking ballasts to the Owner’s Representative.

g. Submit for review a work plan to address handling and removal of PCB-containing light ballast (labeled and non-labeled) including all appropriate worker protection, environmental controls, and cleanup procedures.

4. Mercury

a. Fluorescent Lighting Tubes/Bulbs and Thermostats.

i. Work includes handling and removing of light tubes, compact bulbs, high-intensity discharge lamps and thermostats for Owner to properly dispose. Fluorescent lighting tubes/bulbs and thermostats may not be disposed of as construction debris because they contain mercury. Thermostats and whole/intact fluorescent and shall remain intact during handling, removal, storage, and transportation.

ii. Thermostats, whole fluorescent light tubes/bulbs and light ballast from the project on the Seattle campus are recycled through UW Recycling Program. Coordinate with the Owner’s representative for the recycling program. To initiate this process, the Owner will contact UW Recycling by calling the Recycle Information Line at 206.685.2811 or sending an email to recycle@u.washington.edu at a minimum one week prior to the scheduled removal of lamps.

iii. The Owner’s fluorescent tube recycling vendor will drop off and subsequently pick up the appropriate number of fiber drums at the project location on specified dates – coordinate with Owner for logistics. The project will be billed directly for tube recycling. Fluorescent tubes must be managed under the state Universal Waste rules. This means that all fluorescent tube drums must be labeled as Universal Waste (usually the recycling contractor does this, but it is the ultimate responsibility of the Owner to label them). The drums must also be under the generator’s control at all times and must be stored at a covered or indoor site.
iv. Damaged and broken tubes/bulbs are disposed of as hazardous waste through the UW Environmental Program Office (EPO) as well. Contractor to provide to Owner for review their work plan to address handling and removal of light tubes and light ballast including all appropriate worker protection and environmental controls.

5. Refrigerants – Not Used – Not in the Scope


8. Contaminated Ductwork - Not Used – Not in the Scope

   a. The purpose of the site specific safety plan (SSSP) is to inform workers of the unique characteristics of SARS-CoV-2 including common reference to the virus Covid 19 and to provide general guidelines for protecting the workers, UW staff visitors and the job site. As part of the scope the Contractor shall incorporate the best management work practice to prevent the spread of Covid 19 virus for this project.
   b. The plan and work practice submitted should incorporate by reference and not limited (including all amendments) of the University of Washington’s Project Delivery Group Covid-19 prevention guidance document, UW PDG Covid-19 construction project site guidance, April 9, 2020 and the Department of Labor and Industries, Division of Occupational Safety and Health (DOSH), General Coronavirus Prevention Under Stay Home - Stay Healthy Order Updated. And subsequent amendments, extensions, and clarifications, including the Implementation of Phase 1 Construction Restart – Proclamation 20-25 Addendum (4/24/2020) and associated guidance (e.g. DOSH F414-164 and F414-162) and all amendments.
   c. Submit SSSP Covid 19 for Owner review: Such plans should have the minimum guidelines such as a Covid 19 site supervisor, Covid 19 symptoms, worker Covid 19 safety training, infection prevention measure, social distancing, worker screening, engineering controls to prevent spread of virus, PPE, sanitation and cleaning, employee health symptoms, reporting system for confirmed cases and corrective action such as contact tracing and decontamination and enhanced sanitizing of work areas, job hazard analysis if work task is within the 6 feet distancing and project documentation.

10. Silica and Fugitive Dust
   d. Presumed silica-containing building materials such as in structural and finish assemblies of masonry walls and mortar, concrete slab (exterior walls, interior walls, floor, columns and ceiling assemblies), plaster walls, and wallboard assemblies are present in the areas of work. Silica controls and risk assessment shall apply during demolition and construction.
   e. Contractor is responsible for proper handling, removal, storage, and proper recycling of silica-containing materials according to all applicable regulation, employee and environment protection. Refer other section for engineering
requirements for dust and particulate controls during all work including demolition activities.

f. Construction activities including but not limited to floor preparation, grinding, chipping, drilling, sawing, cutting and jack hammering and other general construction or demolition require control of potentially airborne silica dust from contaminating the environment within the facility. Impact of these building materials with detectable concentrations of silica shall be performed according to Washington Labor and Industries regulations for Silica in Construction (WAC 296-840 and -841 Airborne Contaminants) including all applicable employee exposure assessment.

g. All employers of personnel performing work related to the above are to address the following information related to all tasks to be performed by their personnel. Provide for Owner review Work Safety Plan or Job Hazard Plan to address Silica in building materials to be impacted, including: worker training, personal protective equipment and engineering controls (to limit and control dust) to be implemented during the work, decontamination procedures, access restriction procedures and controlled/restricted areas, enclosures, debris clean-up procedures, worker exposure assessments and any related air monitoring.

11. Contaminated Soil Remediation – Not Used – Not in the Scope


PART 2 - PRODUCTS

2.1 MATERIALS

A. Not Used

2.2 EQUIPMENT

A. Not Used

PART 3 - EXECUTION

3.01 WORK PERFORMED BY ENVIRONMENTAL CONSULTANT

A. In addition to contractor’s ambient and personnel monitoring other necessary sampling such as post-remediation clearance, determination of hazardous and regulated materials or dangerous waste profiling for disposal may be performed by the Owner’s Environmental Consultant.
PART 1 - GENERAL

1.1 SUMMARY OF WORK

A. General work items include, but are not limited to:

1. Lead/Metals Compliance Health and Safety Program: Activities and performance requiring risk management and compliance with this Section include the impact of painted coatings or building components containing lead and other regulated heavy metals as defined in these Specifications. Impacts may include, but are not limited to: manual demolition, mechanical demolition, new work installation, grinding, tuck-pointing, cutting, sawing, scraping, surface preparation, surface cleaning, drilling, sanding, welding or torch-cutting. Refer to Section 01 11 01 and 02 80 00, for information regarding lead/metals-containing items in areas of the Work.

2. Managing and Handling: Conduct activities involving lead-containing paint (or metals-containing building materials) under Work of this Contract in accordance with this Section and current applicable state and federal regulations including: "Lead"; WAC 296-155-176: "Occupational Health and Environmental Control"; and 29 CFR 1926.62: "Lead Exposure in Construction - Interim Final Rule" and WAC 296-841 "Airborne Contaminants" rule.

3. Refer to the survey report for Lead paint findings. Lead-containing paint and assumed lead-containing paint was identified on the following building components.

- Gray/tan pant associated with metal roof panels (0.50% lead) – all standing seam metal roofs and associated gutters, curbs, and flashing. Assumed (tan) lead-paint on ceiling/roof access hatch door and hardware. Assumed lead paint associated with roof mounted HVAC units and equipment and Skylight frames, hardware and rough opening. Assumed lead paint on structural steel frames/truss/beams of metal building.

- Gray/tan paint on metal siding (0.14% lead) – all exterior metal siding walls, flashing and parapet walls.

- Tan/brown paint on metal roof gutters and curbs throughout (0.056% lead).

4. Waste Disposal: Disposal of waste as “dangerous” according to WAC 173-303 is required for debris or items failing characterization (waste profiling requirements related to lead). Dangerous waste will be separated and segregated from the general construction/demolition debris, properly packaged and disposed through UW EH&S Environmental Program Office (EPO).

5. Initial waste stream characterization of the site indicates demolition debris will not require special handling related to lead/metals and may be disposed-off as solid waste (construction demolition and land clearing debris) using Owner approved facilities and landfill.

6. Upon waste profiling, metals-containing items and lead painted building materials must be segregated and handled as regulated waste without regard to waste stream characterization and must be disposed of as general construction debris (for landfill) and cannot be recycled. Exception, paint on metals can be recycled as scrap metal.

7. Monitoring: Monitoring of airborne concentrations of lead in accordance with WAC 296-155-176 and this Section (contractor’s responsibility). The intent of this Section is to reduce and maintain employee exposure to lead and surrounding environmental airborne concentrations at or below the permissible exposure limit.
1.2 RELATED WORK

A. Drawings, General Conditions, Modifications to the General Conditions, Supplemental Conditions to the General Conditions, and other Divisions apply to this Section.

1.3 SUBMITTALS

A. Submit electronic documentation of the following "Pre-Work Submittals" prior to start of work. The Work may not proceed until complete Pre-Work Submittal package has been reviewed and approved by the Environmental Consultant. Allow ten days for Owner review.

1. Metals Compliance Program: Submit a site-specific lead/metals compliance program in accordance with WAC Chapter 296-155 and this section. The plan shall be developed and implemented to provide engineering, work practice and administrative controls to reduce and maintain employee exposure to lead/metals at or below the permissible exposure limit. The plan will include at a minimum task-specific descriptions of activities; engineering (such as and not limited to negative pressure enclosure) and dust controls; personnel; procedures; method of compliance; technology used to meet compliance; air monitoring plan; detailed schedule; work practice program; administrative controls and other relevant information. Implementation of work practices not described in the Metals Compliance Plan will not be permitted until an amendment to the submittal is reviewed by the Environmental Consultant and Owner.

2. Medical Program: Submit written proof medical exam program complies with OSHA Lead Regulations 29 CFR 1910.2 and 1926.62, and WAC Chapter 296-155. Initial medical surveillance consisting of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels shall be submitted for each employee occupationally exposed to lead at or above the action level.

3. Worker Training Program: Submit written proof indicating that all employees impacting lead-containing materials have received training per 29 CFR 1926.62 and WAC Chapter 296-155. Proof shall include a signature from the Contractor's Principal indicating that all employees performing lead related activities have completed such a program.


5. Waste Stream Calculations: Submit a detailed breakdown of waste stream constituents and associated volumetric calculations for review by the Environmental Consultant to determine the need for additional waste stream calculation or further waste characterization.

B. Final Submittals:

1. Project Record Documents: Provide record of metals control activities including disposition of each type of metals-containing item and products removed from the site.

2. Air Monitoring: Submit copies of all air monitoring data (including sample data sheets), chain-of-custody documentation and calibration records related to the initial exposure assessment for workers impacting metals-containing materials.

1.4 AIR MONITORING

A. Testing Laboratory: An Independent Testing Laboratory shall be retained by the Contractor for all metals air analysis. All personnel exposure monitoring analysis shall be performed in accordance
with 29 CFR Part 1926.62 and WAC Chapter 296-155. The laboratory must participate in the ELPAT Program and be a member of AIHA. Air sample collection may be performed by an Industrial Hygienist or the Contractor's trained supervisor at the Contractor's option.

B. Sample Documentation: Documentation shall be kept for each filter sample procured as to worker sampled, social security number, activity, work area location, date and time taken, volume of air drawn through filter, pump identification number and calibration. Documentation shall indicate in what areas tests were taken and shall clearly indicate the specified maximum allowable levels for each area tested. Report all data. Complete laboratory chain-of-custody records.

C. Analysis Procedures: The samples shall be collected on 37 mm filters and analyzed within 24 hours using NIOSH Analytical Method No. 7105 or 7082. The containers shall be clearly labeled with project name and Sample Number and shall become property of the Owner at work completion at the Owner's request.

D. Contractor's Sampling During Metals Related Activities:

1. Initial exposure: Personnel exposure monitoring shall be performed by the Contractor during impact of representative metals-painted building components per WAC 296-155.

2. Most Contaminated Worker: The Contractor shall determine which worker(s) in each work area is probably experiencing the most severe exposure. This is the "Most Contaminated Worker(s)". An 8-hour TWA samples shall be collected on this worker(s). Worker shall wear a personal sampling pump and the sample shall be drawn from the breathing zone of this worker.

3. Number of samples: The number of air samples collected shall be as defined in the approved Metals Compliance Program. Historical measurements per WAC 296-155 may be used to satisfy continuing exposure assessment requirements.

E. Work Area Monitoring

1. Monitoring: The Owner reserves the right to monitor Contractor's performance via air, dust wipe and TCLP samples during metals related activities, in addition to the Contractor's exposure monitoring and testing. Sampling by the Owner will not be available for use as the Contractor's Initial Exposure Assessment.

2. Quality Control

   a. Maximum allowable airborne concentrations: Contractor shall ensure that at all times airborne concentrations of metals outside lead or metals related work areas are maintained at or below the OSHA Action Level of 25 \( \mu \text{g/m}^3 \) (for Lead), 0.5 mg/m\(^3\) (for Barium/Chromium) and 0.05 mg/m\(^3\) (for Mercury).

   b. Immediately upon being notified of concentrations exceeding the specified maximum allowable levels, the Contractor shall perform the following steps in the order presented, at no additional cost to the Owner: Stop lead/metals related activities work, identify source of high metals concentrations, develop plan with Environmental Consultant and Owner to complete metals related activities in a manner to prevent visible emissions and elevated metals levels.

1.5 SUBCONTRACTORS

A. Subcontractors employed by the Contractor shall be bound to all the work and safety standards specified. Subcontractor’s personnel shall meet requirements as specified, and shall be supervised by the Contractor during performance of this work.
1.6 LIABILITY

   A. The Contractor is an independent contractor and not an employee of the Owner, Architect or Environmental Consultant. The Owner and the Environmental Consultant shall have no liability to the Contractor or any third persons for Contractor's failure to faithfully perform and follow the provisions of these Specifications and the requirements of the governing agencies. Notwithstanding the failure of the Owner or the Environmental Consultant to discover a violation by the Contractor of any of the provisions of these Specifications, or to require the Contractor to fully perform and follow any of them, such failure shall not constitute a waiver of any of the requirements of these Specifications which shall remain fully binding upon the Contractor.

PART 2 - PRODUCTS

2.1 PROTECTIVE CLOTHING AND EQUIPMENT

   A. Personnel Protective Equipment and materials (not limited to negative air equipment equipped with HEPA filters, flex-ductwork for exhaust, 6-mil plastic sheeting, duct tape, rigid barriers, wood studs, etc.) for Lead/metals-related activities shall be provided per WAC 296-155.

PART 3 - EXECUTION

3.1 WORK PRACTICES

   A. Restrictions:

      1. Use of mechanical methods including, but not limited to power sanding, grinding, sand-blasting, etc. shall be performed within a negative pressure enclosure (NPE) pending approval of negative exposure assessment by the Owner.

   B. Negative Exposure Assessment: The Contractor may waive the requirement of a negative pressure enclosure when using mechanical methods upon approval by the Environmental Consultant of data indicating a negative exposure assessment has been completed per WAC 296-155 and paragraph 1.6, Air Monitoring. The Contractor shall allow 48-hours for review of such data.

   C. Housekeeping: Maintain all surfaces as free as practicable of accumulations of metals and perform clean-up and wet wipe down of work areas as necessary according to WAC 296-155-17617.

   D. Work Practices:

      1. Set-up Activities: Prior to impact of metals-containing painted components, Contractor shall cover the ground below the work area with 6-mil plastic sheeting or equivalent. The drop-sheeting shall extend outward a minimum of 6 feet from the location of item(s) being removed. Any tears that occur in the drop-sheeting shall be immediately repaired with duct tape or other acceptable seal. Debris shall be collected with a wet/dry vacuum to avoid escape from the drop-sheeting. Wash water shall be retained on the drop-sheeting and removed by mops or wet/dry vacuums. The residue/debris and water shall be placed in storage drums for testing prior to disposal. See paragraph 3.1-E for testing requirements.

      2. Perform work impacting metals-containing items and painted components in accordance with approved metals work plan. Use procedures and equipment required to limit occupational and environmental exposure to metals when lead-containing paint is impacted. The procedures employed by the Contractor shall not create the potential for contaminating surrounding areas or materials with lead-containing dust. Dust generation shall be minimized at all times.
3. At completion of the above operations, HEPA vacuum drop-sheeting to remove any paint particles or debris and wet-wipe or mop-up plastic sheeting to remove all dust.

E. Debris Testing

1. It is recommended that the water collected with wet/dry vacuums be filtered to remove paint and debris chips and then stored in drums for testing prior to disposal. The paint and debris chips shall be placed in a separate drum for disposal at the Contractors expense. If appropriate, no rinse water shall be discharged without testing by the Environmental Consultant.

2. Debris Testing: Representative sample of debris shall be collected for TCLP testing by the Environmental Consultant. The method/location of general debris disposal will be established by test results - less than 5 parts per million (ppm) for Lead/Chromium and 100 ppm for Barium. See paragraph 3.1-F for disposal requirements.

F. Disposal Procedures:

1. Waste characterization of the anticipated general waste stream will be performed by the Owner as necessary. Results of such characterization will be provided to the Contractor as appropriate. The Owner anticipates that disposal of demolition debris can be performed as general construction waste and subject to Owner approved Subtitle D landfill.

2. Metals or Lead-Containing Building Materials Disposal: Any waste failing TCLP and categorized as hazardous and regulated waste will be separated and segregated from the general construction/demolition debris, packaged and disposed through UW's Environmental Programs Office.

3. Construction debris containing-lead and regulated metals (barium): Refer to Section 01 11 01 for exceptions (recycling of metals is allowed such as steel radiators and steel door casing). Construction and demolition debris generated from the project site will be treated as construction/demolition and land clearing debris (CDL) for landfill even if TCLP test analysis for metals are below acceptable levels. CDL solid waste will be dispose of at an Owner approved Subtitle D landfill listed below:

   a. Rabanco Regional Disposal Facility in Roosevelt, Washington
   b. Eastmont Transfer Station in Seattle, Washington
   c. Cedar Hills Landfill in Maple Valley, Washington
   d. Waste Management Columbia Ridge, Landfill in Arlington, Oregon
   e. WCI Finley Butte Landfill, in Boardman, Oregon
   f. Waste Management, Greater Wenatchee Landfill, East Wenatchee, Washington

END OF SECTION
PART 1 - GENERAL
1.01 SUMMARY

A. Section includes:

1. Roof Accessories Including the Following
   a. Non-penetrating railing system for roof edge fall protection

B. Related Sections:

1. Section 07 41 13 – Standing Seam Metal Roof System.
2. Section 07 62 00 – Sheet Metal Flashings and Trim.
3. Section 13 34 21 – Structural Retrofit Sub-Framing System.

A. References:

6. Occupational Safety and Health Administration (OSHA): 29 CFR 1926.500 - Scope, Application, and Definitions Applicable to this Subpart.
1.02 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Drawings showing plans, elevations, sections and details of components. Show member sizes and part identification, fasteners, anchors, fittings and evidence of compliance with structural performance requirements.

D. Manufacturer's Certificates:
   1. Certify that Railings and Base Castings are made in USA. Provide steel mill and foundry certificates for verification prior to shipment.
   2. Manufacturer must be American Welding Society Welding Certified for Welding Standards AWS D1.1 and AWS D1.3. Third party qualification documentation required prior to shipment.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the job site in good condition and adequately protected against damage as handrails are a finished product.

B. Inspect rail sections for damage before signing the receipt from the trucking company. Truck driver must note damaged goods on the bill of lading if damaged product is found.

C. Store products in manufacturer's unopened packaging until ready for installation.

D. Products to be palletized and labeled by roof level or designated drop zone.

1.04 PROJECT CONDITIONS

A. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication.

1.05 WARRANTY

A. Warranty: Provide manufacturer's limited two year warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design Manufacturer: Safety Rail Company, which is located at: 4244 Shoreline
B. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.02 NON-PENETRATING RAILING SYSTEM

A. Roof Edge Protection: Provide Safety Rail Company freestanding pedestrian egress barrier system on roof, including pipe railings, uprights, bases, accessories and fittings.

1. Product: ACCU-FIT Traditional Series Mobile Guard Rail System.
   a. System top and mid rail provided in accordance with OSHA Standards - 29 CFR 1910.29 (b)(1-14).
   b. Structural Load: 200 lb (90.7 kg), minimum, in any direction to all components in accordance with OSHA Regulation 29 CFR 1926.502.

2. Height: 42 inches (1067 mm), minimum.

3. Horizontal Railings: NPS 1-1/4 (DN 32) schedule 40 galvanized steel pipe 21 ft (6.4 m) lengths.

4. Freestanding Mobile Base Plate: 104 lbs (47.2 kg) Class 30 gray iron material cast with multiple post receivers. Provide rubber pads on bottom of bases. Receiver posts shall have drain holes.
   a. Membrane roofing.

5. Mechanically Fastened Base Plate: Galvanized base plates with appropriate fastening interface to mechanically attach to metal roof panels.
   a. Type: Standing seam metal roof, non-penetrating.
   b. Type: R-Panel metal roof, mechanical penetration.
   c. Type: Corrugated metal roof, mechanical penetration.

6. Receiver Stanchion Posts: Provided with construction pipe to support horizontal railing pipes. Receiver posts shall have drain holes.
   b. Designer Series (curved).
   c. Traditional Series (straight).

7. Base Mover Accessory: Provide Base Mover, Part No. 400062 two-wheeled steel cart to transport one base unit.
8. Finish: Steel surfaces.
   a. Hot Dip Zinc Galvanized.
   b. Factory finished powder coat paint.
   c. Hot Dip Zinc Galvanized and factory finished powder coat paint.
   d. Color: Safety Yellow.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Do not begin installation until substrates have been properly prepared.
   B. If substrate preparation is the responsibility of another installer, notify Architect of
      unsatisfactory preparation before proceeding.

3.02 PREPARATION
   A. Clean surfaces thoroughly prior to installation.
   B. Prepare surfaces using the methods recommended by the manufacturer for achieving the
      best result for the substrate under the project conditions.

3.03 INSTALLATION
   A. Install in accordance with manufacturer's instructions, approved submittals and in proper
      relationship with adjacent construction.

3.04 PROTECTION
   A. Protect installed products until completion of project.
   B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF ROOFTOP FALL PROTECTION SECTION
PART 1 – GENERAL

1.01 RELATED DOCUMENTS
A. General provisions of the Construction Contract, including Drawings and Specifications and all bidding requirements, Bid Form and all reference documents, apply to the work of this Section.
B. Technical publications, standards, and reference documents as outlined in individual Technical Specification Sections and as indicated on the Project Drawings.

1.02 SUMMARY
A. Section Includes
   1. Fiberglass batt insulation for infilling and insulating exposed ceiling areas below the roof where previous translucent polycarbonate panels are schedule to be removed and replaced with new sheet metal roof panels.
   2. Mineral wool insulation scheduled for insulation of the cavity between the existing and new metal roofing panels.
B. Related Sections
   1. Section 07 41 13 – Standing Seam Metal Roof System.
   2. Section 13 34 21 – Structural Retrofit Sub-Framing System.

1.03 SUBMITTALS
A. General, submit in accordance with Division 01 requirements.
B. Product Data: For each type of insulation product specified.
C. Product test reports from and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing of current products.

1.04 QUALITY ASSURANCE
A. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work
B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated on Drawings or specified elsewhere in this Section
as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Surface-Burning Characteristics: ASTM E 84
2. Fire-Resistance Rating: ASTM 119

1.05 PRODUCT 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. Materials shall be delivered in original, unopened containers bearing name of manufacturer, product identification and reference to UL testing.

PART 2 – PRODUCTS

2.01 INSULATING MATERIALS

A. General: Provide insulating materials that comply with requirements and with referenced standards.

1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer’s standard thicknesses, widths, and lengths

2.02 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.03 GLASS-FIBER BLANKET INSULATION

A. Manufacturers:

1. Certain Teed Corporation
2. Owens-Corning Fiberglass Corporation
3. Johns Mansville
4. Knauf Insulation

B. Flexible blanket Insulation with a laminated vapor retarder on one side: Thermal insulation combining mineral fibers of type described below with thermosetting resins to comply with ASTM C991, Type I Plain and NAIMA 202-96, with polyethylene vapor-retarder membrane on 1 face.

2.04 SLAG-WOOL-FIBER/ROCK-WOOL-FIBER BLANKET INSULATION

A. Manufacturers:

1. Fibrex Insulations Inc.
2. Owens-Corning.
3. Thermafiber.

B. Unfaced, Sla-Wool-Fiber/Rock-Wool-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

C. Faced, Slag-Wool-Fiber/Rock-Wool-Fiber Blanket Insulation: ASTM C 665, Type III (Blankets with reflective membrane facing), Class A (membrane-faced surface with a flame spread of 25 or less); Category 1 (Membrane is a vapor barrier), faced with foil-scrim-polyethylene vapor-retarder membrane on 1 face.

2.05 AUXILIARY INSULATING MATERIALS

A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.

B. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with installer present, for compliance with requirements of Section in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Clean substrates of substances harmful to insulations, including removing projections capable of puncturing vapor retarders or that interfere with insulation attachment.

3.03 INSTALLATION, GENERAL

A. Comply with insulation manufacturer’s written instruction applicable to products and application indicated.

B. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice 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. Remove projections that interfere with placement.

D. Apply single layer of insulation to produce thickness indicated.

3.04 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrates by method indicated, complying with manufacturer’s written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Seal Joint between closed-cell (non-breathing) insulation units by applying spray polyurethane foam insulation at edges and voids of each unit to form a tight seal. Fill voids in completed installation with spray foam as recommended by insulation manufacturer.

C. Install mineral wool-fiber blankets in cavities formed between Structural Retrofit Sub-Framing System members according to the following requirements:

1. Use blanket widths and lengths that fill cavities formed by framing members and that will produce a snug fit between ends.

2. Stuff insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. Ft. (40 kg/cu. M).

D. Set vapor-retarder-faced units with vapor retarder towards warm side of construction, unless otherwise indicated.

1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

3.05 PROTECTION
A. General: Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediacy after installation.

END OF THERMAL INSULATION SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. General provisions of the Construction Contract, including Drawings and Specifications and all bidding requirements, Bid Form and all reference documents, apply to the work of this Section.

B. Technical publications, standards, and reference documents as outlined in individual Technical Specification Sections and as indicated on the Project Drawings.

1.02 SUMMARY:

A. General: The Contractor shall furnish all materials, components, accessories, miscellaneous items, labor, equipment, services, and permits for safe and leak-free, complete reroofing at the areas indicated on the Roof Plan Drawings of the University of Washington Fleet Services Building, including successful, weatherproof and watertight integration with adjacent parapets and building systems, for a 100% wind resistant, weatherproof and watertight standing seam metal roofing system installation as described in this Specification Section, related Specifications Sections, and as illustrated in the Project Drawings.

B. Roof Replacement:

1. At all existing sheet metal roof areas indicated on the Project Drawings:

   a. Carefully remove and legally dispose of existing sheet metal counter flashings, ridge caps, gutters, and translucent polycarbonate roof panels as indicated. The Roofing Contractor shall carefully remove the existing metal wall panels at roof parapets and reinstall as specified in Specification Section 07 62 00 “Sheet Metal Flashing & Trim”.

   b. Install new metal roof panels at locations where existing translucent roof panels are scheduled to be removed followed by Structural Retrofit Sub-Framing System over the existing & new metal roofing, to meet current wind up lift and seismic requirements per code and Structural Engineer, as specified in Specification Section 13 34 21 “Structural Retrofit Sub-Framing System”.

   c. Install new fiberglass batt insulation as specified in Section 07 21 00 “Thermal Insulation” for infilling and insulating exposed ceiling areas below the roof where previous translucent polycarbonate panels are schedule to be removed and replaced with new sheet metal roof panels

   d. Install new loose laid mineral wool insulation to completely infill the cavity between the existing metal roofing and new standing seam metal roof panels.
e. Properly and carefully install new standing seam sheet metal roof panels and all flashing sealants, transitions, and details, properly secured and spaced per Specifications and Drawings, and lapped, secured, and detailed for long-term weatherproof and watertight successful performance.

f. Properly and carefully install new post and rail-type guardrail system as specified in Section 07 72 00 “Rooftop Fall Protection and Accessories”, and approved in-writing by Roofing Panel Manufacturer, fully secured without penetrating roof system, at areas designated on the Project Drawings.

C. Section Includes:

1. Mechanically attached standing seam metal roof panel system and flashings.

D. Related Sections:

1. Division 0 – All Related Sections.
2. Division 1 – All Related Sections.
3. Section 01 11 00 “Summary of Work”.
4. Section 02 41 19 “Selective Demolition”.
5. Section 07 21 00 “Thermal Insulation”.
6. Section 07 62 00 “Sheet Metal Flashing and Trim”.
7. Section 07 72 00 “Rooftop Fall Protection and Accessories”.
8. Section 13 34 21 “Structural Retrofit Sub-Framing System”.
9. Section 23 31 13 “Metal Ducts” for relocation/replacement of existing mechanical ducts.

1.03 RELATED DOCUMENTS, BENCHMARK REFERENCES, AND STANDARDS

A. Conform to the recommendations of the following documents, benchmark references, and standards, current edition unless otherwise noted. The most conservative references or standards on each item, issue, or point of contention that may arise shall apply.

B. Work shall conform, at a minimum, to the requirements of the 2018 Seattle Building Code (SBC), based on the 2018 International Building Code (IBC), as amended by the State of Washington, and the City of Seattle.

D. National Roofing Contractors Association (NRCA) Architectural Metal Flashing, Condensation and Air Leakage Control and Reroofing, published in 2014, as applicable to architectural sheet metal roofing, flashing, and systems work.


G. AAMA 621 “Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.”


K. ASTM A653 “Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.”


T. ASTM E1918 “Measuring Solar Reflectance of Horizontal and Low Sloped Surfaces in the Field.”


1.04 REGULATORY AGENCY REQUIREMENTS

A. Conform to applicable mechanical, plumbing, energy, and electrical codes.

B. Compliance: The Contractor shall comply with all applicable requirements to ensure compliance with all Federal, State, and Local regulations, laws, and ordinances.

1.05 COORDINATION

A. Coordinate sheet metal wall panel layout and seams with sizes and location of penetrations to be flashed with joints and seams in adjacent materials installed weatherproof and watertight.

B. Coordinate sheet metal roofing installation with adjoining metal wall panels, metal flashings and trim, joints, and seams to provide 100% watertight, leak-proof, well anchored and secured, weatherproof, and noncorrosive installation. Contractor to provide protection for opened areas to prevent water from entering the roof system and interior of building.

C. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations, etc. With actual equipment and items provided.

D. Coordinate metal panel roof system installation with rain water drainage work (i.e., gutters, drains, downspouts, etc.), flashing, trim, construction of adjoining work to provide a leak proof, secure, weatherproof, and noncorrosive installation.

A.06 PRE-INSTALLATION MEETINGS

A. Pre-installation Roofing Conference: Before starting tear-off and reroofing related work, conduct an organized conference at on-roof location at Project Site on a day and time mutually agreed upon by all involved parties.

1. Meeting to include Owner’s Project Manager, Project Architect, Roofing Contractor, Sheet Metal Sub-Contractor, and all other roof-related Sub-Contractors, and each of the designated Foremen (lead installer), roofing system manufacturers’ Representative, and all Sub-Contractor installers, whose work
interfaces with or affects roofing, including installers of sheet metal roof accessories, and roof-mounted equipment (e.g. roof drain plumber, etc.).

2. Review materials, guidelines and procedures related to roof removal, reroofing, flashing and all materials installation, including manufacturer’s written instructions,

3. Review and finalize construction schedule and verify availability of materials, Installer’s personnel, equipment, and facilities needed to make progress and avoid delays

4. Examine support conditions for compliance with requirements, including alignment between and attachment to roof deck and its attachment to building and structure.

5. Review structural loading limitations of deck during and after roofing.

6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.

7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.

8. Review temporary protection requirements for metal panel systems during and after installation.


10. Document proceedings, including protective measures and actions required. and furnish copy of record to each participant.

1.07 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include technical product data, construction details, material and product descriptions, dimensions of individual components and profiles, and finishes for each type of panel, manufactured products, fasteners, and all accessories.

2. Sample Manufacturer’s Warranty for all new materials, and Contractor’s Special Weatherproof and Watertight Guarantee, as required by Project Documents.

B. Project Drawings: Prior to start of any tear-off and reroofing work, a copy of the Project Drawings shall be reviewed and signed by the Roofing Contractor, and project designated Roofing Project Manager, Roofing Superintendent, and Roofing Foremen; the signed drawings shall be included in the submittal package to be reviewed by Project Architect. Contractor and sheet metal Sub-Contractor signatures shall indicate said party and
responsible personnel’s’ acknowledgement of review, understanding, and agreement with the Project Drawings and approved submittal shop drawings.

C. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

2. Accessories: Include details of the flexible-membrane flashing, sheet metal flashing, trim, and anchorage/fastening systems, as well as sealants, at a scale of not less than 1-1/2 inches per 12 inches.

3. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of and types of seams.

4. Include details of all flashings, including termination points and assemblies.

5. Include details of special conditions.

6. Include details of connections to adjoining work.

7. Accessories: Include details of the metal panels, closures, flashings, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.

D. Samples for initial selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar samples of trim and accessories involving color selection.

E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. “Flat” Metal Roofing System and Flashings: 12 inches long by actual panel or component profile width. Include clips, fasteners, bearing plates, closures, underlayment, vapor retarded, and all other roofing panel accessories.

1.08 INFORMATION SUBMITTALS

A. Qualification Data: For Installer and manufacturer:

1. Roofing Contractor shall be pre-approved in writing by the specified roof system Manufacturer prior to executing Project Contract. Contractor shall possess documented experience on at least ten (10) successful, similar size and scope projects using specified roof system. Bid Form requests listing of only three (3) such projects.
2. Submit product data for each roof system component, including product literature listing physical properties, and installation instructions, with specific information regarding storage, handling, and any warnings or precautions, including among other properties flammability. Clearly note on and/or mark data sheets to indicate all technical and testing results and information, which confirms full compliance with the requirements of the project.

3. Hazardous Materials Notification: “Material Safety Data Sheet” (MSDS) equivalent to OSHA Form 20 shall be submitted and a copy maintained in a binder stored on the project site for all roof system components and products.

B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in “Performance Requirements”.

1. Submit evidence of complying with all performance requirements.

C. Construction Administrative Schedules and Plans:

1. Construction Schedule related to tear-off, re-roofing, and flashing work, and duration;

2. Reroofing construction logistical staging, material storage, and roofing installation plan;

3. Contractor’s plan for coordination of the work with the various trades involved in executing the Project;

4. Quality control plan for the roof system installation;

5. A written or diagrammatic plan for implementing odor and fume control;

6. A written plan for controlling, capturing and containing any spills and/or fugitive fluid mishap, preventing wind-caught panels of flashings and any other potential issues related to materials during handling, storage, transporting, and during application of such materials.

D. Product of System Test Reports: For products and designated systems, tests performed by a qualified testing agency.

E. Sample of Contractor’s field quality-control reports.

F. Sample Warranty: For manufacturer’s full-system, no-dollar limit, 20-year minimum warranty.

1.09 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panel roofing system and flashings to include in maintenance manuals.
B. As-Built Drawings: Complete and accurate As-Built drawings clearly illustrating the mature and extent of work executed on the project and accurately comprising the Contractor’s Record Project Drawings.

1.10 QUALITY CONTROL

A. Contractor’s Responsibilities:

1. Roofing Contractor shall be pre-approved by sheet metal roof panel Manufacturer prior to execution of the contract. Contractor shall possess documented experience on at least five (5) successful similar projects using subject sheet metal panel roofing system.

2. The work of this Section shall be performed by an experienced, licensed roofing and sheet metal sub-contractor/certified installer that specializes and is experienced in sheet metal panel roofing with the roof system and flashing work required for this Project.

3. The Contractor shall be responsible for the quality control and quality assurance of all of their own work, as well as the work performed by their sub-contractors working under this Specification, and related specifications which are considered part of the Project Contract.

4. Any modification to the Specifications, Project Drawings, or Substitutions of specified products shall not be made without direct consultation, and written request or submittal for review and obtaining potential written approval from the Project Architect and Owners Representative/Project Manager.

5. If the Project Architect, Owner’s Representative, and/or Specified Roofing Manufacturer determine that the quality of the work does not conform to the Specifications, Project Drawings, Manufacturers’ written requirements, and/or recognized best practices and Industry Standards, the Roofing Contractor shall correct all deficiencies and in writing advise the Project Architect, Owner’s Representative, and Specified Roofing Manufacturer of the corrective actions taken.

6. Roofing Contractor shall notify the Project Architect of any conflicts that would result in a deviation from the Roofing Manufacturer’s Specifications, Best Practice Industry Standards, FM, UL, and/or Code compliance, roof longevity or roof function as a result of the Scope of Work. Specifications, and/or Project Drawings.

7. Contractor must demonstrate the ability to perform the work in a high quality craftsmanship, timely manner with minimal noise and disruption to or impact on the operations.

8. Contractor shall notify the Owners Representative and Project Architect a minimum of fourteen (14) day prior to commencement of Work.
B. Roofing Crew Requirements:

1. Roofing Contractor shall provide experienced supervisors (i.e. Project Manager, Superintendent, and Foremen) and an experienced, knowledgeable crew and on-site experienced foreman, as well as an alternate back-up lead man or foreman who have each been trained and have successfully passed the Manufacturer’s written and/or hands-on test requirements for the application of the materials and methods specified.

2. Foreman and back-up lead man of crew shall have at least ten (10) years minimum experience with the specified rppf system, its application, and with Projects of similar Scope of Work.

3. The qualified foreman shall be on-site at all times during the tear-off and reroofing and roof repair/retrofit Work.

4. Roofing Foremen is required to have a complete copy of this Project Manual, Project Drawings and a copy of the specified roofing material manufacturers’ installation instructions, in his possession on-site while work is in progress.

C. Manufacturers’ Responsibilities:

1. Manufacturer’s Technical Services Representative shall be available for technical information and participation in on-roof briefings or meetings, including Pre-Installation Conference(s), Job Progress Meetings, Project’s Pre-Completion and Completion Surveys, and be thoroughly experienced with the products to be installed, installation requirements and practices, quality control of the installation, and with published special considerations in the geographical area and climate where construction will take place. The Roofing Contractor is responsible for contacting and coordinating with the Manufacturer’s Technical Services Representative for site visits and meetings.

1.1 QUALITY ASSURANCE

A. Roofing Contractor and Sub-Contractors shall be responsible for complete weatherproof and watertight roof systems, quality control and quality assurance of their work and all sub-contractor(s), related to each and every roof areas complete assembly, and successful performance.

B. Outstanding items and efforts to resolve them may be reviewed during Construction Progress Meetings. Action Items identified in Field Reports shall be attended to by the Contractor. The Contractor and their sub-contractors shall cooperate fully with the Project Architect, and all mock-ups, installation, and testing.

C. On-Site Testing: As deemed necessary by the Project Architect the Contractor shall assist in required testing of the roof and building envelope systems installed. The Contractor shall restore testing locations to Project Standard condition. Costs for testing that indicate non-complying work shall be the Contractor’s responsibility. Non-
completing work shall be corrected, and testing repeated until the entire assembly
complies with Project’s Contract Documents, Best Practice and Industry Standards, and
the Manufacturer(s) installation specifications.

D. Contractor shall perform mock-ups, in-situ as specified, in the presence of the project
Architect, Construction Manager, and other members of the Project Team as may attend,
for the roof and all Building Envelope systems being installed on this Project.

1.12 MOCK-UPS

A. Mock-Ups: Build mock-ups to verify selections made through the Project Documents
and submittals process to demonstrate all materials and layers that make up the sheet
metal standing seam roofing system, the entirety of the assembly, the actual aesthetics
and effects, and to set quality standards for materials, the system’s attachment and
securement, and execution.

1. Build in-situ, on-roof mock-ups for standing seam sheet metal roof system including
all related roofing, flashing, insulation, etc. Materials that compose the roof
assembly.

a. General Size: 10-ft. by 10-ft. area to include the downslope roof edge, rake
ridge and transition with low-slope roofing, at least one penetration (e.g.
plumbing soil pipe stack), and other typical transition conditions anticipated
(i.e., adjacent control joint(s), dormer, and gutter)

2. Approval of mock-ups does not constitute approval of deviations from their
Contract Documents contained in mock-ups unless Architect specifically approves
such deviations in writing.

3. Do not proceed with remaining work until materials, installation, craftsmanship,
system quality, and appearance is approved by Project Architect and Owners
Representative.

4. Subject to compliance with requirements, approved mock-ups may become part of
the completed Work if undisturbed and in as-new condition at time of Substantial
Completion.

1.13 ELECTROLYTIC AND CORROSIVE ACTION

A. Protect from adjacent dissimilar metal and substrates (e.g., fire-resistant treated wood,
preservative treated wood, masonry, uncoated concrete, etc.) from electrolytic action by
adequate coating, high-heat resistant membrane ply or sheet, or separation tape.

1.14 DELIVERY, STORAGE, AND HANDLING

A. Deliver all components, including but not limited to, thermal barrier board, membrane vapor
retarder, rigid insulation, coverboard, roofing underlayment(s), metal panels, sheet metal
flashings and trim, and other manufactured items so as not to be damaged or deformed.
Package metal panels and all other materials for protection during transportation, handling, and storage.

B. Unload, store, and erect metal wall panel cladding system in a manner to prevent bending, warping, twisting, oil canning, waviness, surface damage, etc.

C. Stack metal panels and all metal goods horizontally on pallets, covered with suitable weather tight and ventilated covering, thoroughly wrapping materials so completely protected and away from the weather and moisture. Store metal panels and metal goods to ensure dryness, with positive slope for drainage of water such that water does not accumulate, puddle, or pond on stored material. Do not store metal panels or metal goods in contact with other materials that might cause staining, denting, abrasion, corrosion, or damage, including surface damage to finishes or underlying substrate.

1. Use only waterproof, breathable tarpaulins (canvas, etc.) well secured to resist wind and thoroughly cover all materials, so as to be completely weatherproof and watertight.

D. Retain strippable protective covering on metal wall panels during installation. Protect strippable covering on metal panels from exposure to sunlight and high humidity, except to extent necessary for period of metal panel installation. Do not allow strippable protective coatings to become fused or tenaciously adhered to metal surfaces such that removal is either impossible or causes damage to the underlying metal finish.

E. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by the manufacturer, Protect stored liquids and all materials from direct sunlight.

1. Discard and legally dispose of liquid and semi-liquid materials that cannot be applied within print marked shelf life; replace with new and Project-Approved liquid and semi-liquid materials at no additional cost to the Owner.

F. Handle and store roofing materials, and place materials and equipment in a manner to avoid overloading and so as not to cause deflection of roof deck.

G. If materials are found on site that are not approved or do not meet the specification requirements, they shall be marked for rejection, and permanently removed from the job site. Do not re-stock or use rejected materials.

1.15 GENERAL SAFETY, HEALTH, AND PROTECTION

A. Safety and Health: Comply with the requirements of State of Washington Department of Labor and Industries (L&I), Washington Industrial Safety and Health Act (WISHA), Division of Occupational Safety and Health (DOSH), Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), and all local governing authority for workplace safety.
B. Protection and General Safety: Protect building interior and exterior and it’s adjacent areas and spaces from rain, weather, dust, debris, construction-related scraps, odors and fumes, including providing odor control of materials potentially emitting offensive or hazardous odors. Use securely staged fans to divert fumes. Set trach chute and temporary cover adjacent to walls, windows and doors to avoid damage. Set dumpster and/or daily mobile dump truck with covering or tenting to capture and thus avoid air-born dust and debris, and provide other implements and provisions, as required to assure the health and safety inside and outside the building and its surrounding environment, including protecting Owner(s), occupants, facility workers, patrons, pedestrians, the public, as well as parking lots, driveways and the associated grounds all during the Project. Protection from falling material, equipment and debris shall be exercised at all hoisting points to protect the Owner(s), facility workers, patrons, pedestrians, and all personnel as well as the public, the roof, building structure, adjacent walls, fenestration, hardscape, landscape, etc.

C. Warning Signs: Post at eye level, within and a maximum of 50- and 100-feet from affected areas (or as established by Project Architect and Owners Representative/Project Manager), clearly visible and legible warning signs, brightly colored safety bollards/delineators, cones and ample caution tape, to clearly indicate and state the area is off limits to unauthorized persons, and to warn all persons of staging, loading, off-loading, and work-related area(s), and to caution all of potential dangerous or hazardous area(s). Locations of warning signs that shall be posted by Contractor include, but are not limited to the following:

1. At ground level near storage, staging, hoisting areas, etc.;
2. At ladder, roof hatch, and roof and other access doors.
3. On lifts and scaffolds adjacent to the work area.
4. At the specified roof installation areas as required.

D. Property and Other Protection: The Contractor shall provide protection during the Project, including coverings (e.g., wind and overspray shields, well-secured tarpaulins, netting, ethylene sheeting, etc.) to protect surfaces of, and around the building, as well as all adjacent structures, brick masonry and terra cotta surfaces, other roofs, parking lot, associated driveways, grounds, sidewalks, automobiles, equipment, vegetation, animals, and other items in the vicinity of the work areas against damage, liquid material spillage, potential falling roof-related materials, etc., all during the Project, and while reroofing work is being performed.

1. The type of covering shall be appropriate for the type of work being performed and the surfaces that are to be protected in that vicinity, area, or location. Protection requirements shall include those surfaces over or past which materials and adhesives and being transported and/or applied, especially with use of pressurized spray equipment.

2. Protection from airborne and falling materials shall be facilitated at all hoisting and off-loading points and work areas to protect the Owner, pedestrians, facility
employees, patrons, the public, occupants, and all other personnel, as well as the roof, building walls, windows, doors, air intake openings, etc.

3. Note: Contractor shall be liable to perform repairs or replace damaged components of the building and/or appurtenant structures, equipment, automobiles including facility employees, patrons, the public, occupants personal property, that are damaged by crew persons representing the Contractor and/or Sub-Contractors working under the Contractor during the project.

E. Facility Employees, Patrons, the Public, and On-Site Worker Safety Precautions: Take all necessary safety precautions to protect Facility Employees, Patrons, the Public, and On-Site Workers from ant and all hazards related to this Project. Safety precautions include, but are not limited to, the proper type and number of fully charged and operable fire extinguishers, trailed personnel to operate extinguishers, safety barricades, bright color bollards, safety standards, cones, caution tape, safety fences and Early Warning Lines as required. An updated Fall Protection Work Plan shall be maintained, and required safety meetings shall be conducted, etc.

1.16 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of the metal panel roof system to be performed according to Project requirements, manufacturers’ published instructions and warranty requirements.

B. Compliance: The Contractor shall comply with all applicable requirements to ensure the Owner’s Building quality and integrity are maintained; the occupants’ safety, healthy, and security are maintained, including the requirement6s as specified herein, are complied with throughout the project.

C. Detrimental Conditions: If conditions are discovered or created which could be detrimental to the roof repairs, the building, the occupants, or to the proper application of the new standing seam roof system, sheet metal flashings or any other work as part of this project scope of work, immediately notify the Project Architect of these conditions to obtain decision as to treatment or course of action.

1.17 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations, etc. with actual equipment and items provided.

B. Coordinate metal panel roof system installation with rain water drainage work (i.e., gutters, drains, downspouts, etc.), flashing. Trim, construction of soffits, and other adjoining work to provide a leak proof, secure, weatherproof, and noncorrosive installation.

1.18 WARRANTIES AND GUARANTEES
A. Manufacturer’s Warranties:

1. Manufacturer’s Special System Warranty: Manufacturer’s warranty form in which manufacturer agrees to repair or replace components of metal panel roof system that fail in materials or workmanship within the specified warranty period.

   a. Failures include, but are not limited to, the following:
      
      1) Failures including waviness, binding in clips, rupturing, fissuring, cracking, or puncturing.
      2) Deterioration of metals, including metal corrosion, and other materials degradation beyond normal weathering.

   b. Special Warranty Period: 20 years from date of Substantial Completion.

2. Manufacturer’s Special Warranty on Metal Panel System and Flashing Finishes:

   Manufacturer’s warranty form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of failure of factory-applied coating and/or within specified warranty period.

   a. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
      
      1) Color fading more than 5 Hunter units (Δ5) when tested according to ASTM D2244 “Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates”
      2) Chalking in excess of a No. 8 rating when tested according to ASTM D4214 “Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films”
      3) Fissuring, checking, cracking, bubbling, blistering, peeling, pocking, and/or failure of paint to adhere to bare metal.

   b. Finish Warrants Period: 20 years from date of Substantial Completion.

3. Special Weather tightness Warranty: Manufacturers’ warranty form in which manufacturer agrees to repair or replace standing-seam metal roof assemblies that fail to remain weatherproof, watertight, and leak free, within specified warranty period.

B. Contractor’s Special Guarantee:
1. Submit a copy of Five (5) Year “Special Weatherproof and Watertight Guarantee” covering the metal roof systems, flashings, and assembly work of this Section, including sealants and roofing accessories, in which Installer agrees to repair or replace components of roofing system and flashings that fail in materials or workmanship within specified Contractor Guarantee period. The guarantee document included at the end of this Specification shall be signed and countersigned by Contractor/Installer (Roofing Contractor) and Sub-Contractor (e.g., sheet metal sub-contractor, etc.).

2. Guarantee Period: Five (5) years from date of Final Acceptance of the Project.

3. Submit an executed original and two (2) copies of the five (5) year “Roofing Contractor’s Special Weatherproof and Watertight Guarantee” form included at the end of this Specification, covering all roof system and related membrane and sheet metal flashing work outlined in this Section, and the related sheet metal flashing Section, and included in this Project.

PART 2 - PRODUCTS

2.01 ROOFING PERFORMANCE REQUIREMENTS

A. General: Standing seam metal roofing assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defect(s) in construction. Completed standing seam metal roof panels shall not rattle, pop, or make noise or vibrations that are audible to building interior. Standing seam metal roofing assembly shall not leak or loosen, and shall remain weatherproof and watertight for the long-term.

B. Structural Performance: Provide metal roof systems capable of withstanding the effects of the weather and the following loads, based on testing according to ASTM E1592 “Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference”:

1. Wind Loads: As indicated below, and per the Project Drawings and Project Structural Engineer.
   c. Exposure Category: B
   d. Risk Category: II (General)
   e. Zone Dimensions: See Structural Sheet S3.0.
2. Deflection Limits: For wind loads, no greater than 1/180 of the span.


C. Water Penetration under Static Pressure: No water penetration when installed on the designated roof areas, and no water penetration when tested according to ASTM E1646 “Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference,” at the following test-pressure difference:

1. Test-Pressure Difference: 10.0 lb/sq. ft.

D. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E1680 “Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems.” At the following test-pressure difference:

1. Test-Pressure Difference: 10.0 lb/sq. ft.

E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing distortion, oil canning, waviness, wrinkling, buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on ambient and surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss/cooling.

1. Temperature Change (Range): -20 degrees F to 120 degrees F, ambient.

F. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E2140 “Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head.”

G. Energy Performance: Provide roof panels that are listed on the EPA/DOE’s ENRGY STAR “Roof Product List” for steep-slope roof products.

H. Energy Performance: Provide roof panels according to one of the following when tested according to CRRC-1:

1. Three-year, aged solar reflectance of not less than 0.55 and emissivity of not less than 0.75.

2. Three-year, aged solar reflectance index of not less than 64 when calculated according to ASTM E1980 “Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.”

2.02 STANDING SEAM METAL ROOF PANELS

A. Factory Formed and On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels are to be factory formed, or may fabricated on-site using UL-certified, semi-truck trailer mounted roll-forming equipment if panels are of the exact same profile and warranted by Manufacturer to be equal to factory-formed panels.
Fabricate according to equipment manufacturer’s written instructions and to comply with details shown.

B. Fabricate metal panel joints with factory-installed captive butyl tape sealant gasket that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movement.

C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer’s recommendations and recommendations in NRCA and SMACNA’s “Architectural Sheet Metal Manual” that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal and flashing components and accessories that are without waviness, oil canning, wrinkling, buckling lines, and tool marks, and that are true to line and levels indicated, with exposed edges folded to form hems.

2. Fabricate non-moving seams in stainless steel saddles and accessories, as applicable, with 100% soldered or welded joints. Treat edges to be seamed, form seams, and solder or shop weld all joints watertight.

3. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA and/or NRCA benchmark standards.

4. Conceal fasteners and expansion provisions where possible. Exposed fasteners (e.g., drag-load screws) are not allowed on faces of accessories exposed to view, but shall be concealed from view and the weather.

5. Fabricate cleats and attachment devices from the same type of material as accessory being anchored or from compatible noncorrosive stainless steel or monel metal recommended in writing by metal panel manufacturer. Cleats and attachment devices shall be a minimum of one-gauge or thickness heavier than accessory being anchored.


D. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include all screws, clips, cleats, bearing and pressure plates, in-seam sealant, lap sealants, and all other fasteners and accessories required for successful drag-load resistant, weatherproof and watertight installation.


1. Nominal Thickness: 22-guage minimum for panels and primary flashings.
2. Exterior Finish: Pre-treatment and minimum three-coat fluoropolymer (PVF2) Baked-on high performance coating system.

F. Vertical-Rib, Mechanically seamed, Standing-Seam Metal Roof Panels (for installation at all sheet metal roof panel areas): Formed with vertical standing ribs at panel edges and two (2) intermediate stiffening ribs symmetrically spaced between ribs; designated for sequential installation by mechanically attaching panels to supports using concealed clips and screw fasteners located under one side of panels, engaging opposite edge of adjacent panels. Panels shall include factory-applied in-seam non-skinning butyl sealant at all panel seams.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

   a. AEP Span; a BlueScope Steel Company.

      1) “SpanSeam”.

         a) Panel Coverage: 16-inches.
         b) Panel Rib Height: 2-inches.
         c) Panel Seam: 180 Degree.
2. Bearing Plates: Sized as recommended by manufacturer for roof assembly specified and to be installed on the Project.

2.03 ROOF INSULATION SYSTEM
   A. General: All insulation installed directly below the new standing seam roof system shall be from a single insulation Manufacturer.
   B. See Specification Section 07 21 00 “Thermal Insulation” for approved insulation manufacturer’s and products.

2.04 STRUCTURAL RETROFIT SUB-FRAMING SYSTEM
   A. General: Structural retrofit sub-framing system to provide support for a new metal roofing system constructed over the existing building roof. Engineered in accordance with the specified code and design loading and shall transfer positive acting loads at each attachment location into an existing structural member.
   B. Basis of Design: See Specification Section 13 34 21 “Structural Retrofit Sub-Framing System”.

2.05 ACCESSORIES AND MISCELLANEOUS MATERIALS
   B. Panel Accessories: Provide components required for a complete, weatherproof and watertight metal panel roofing and flashing system including trim, thermal movement joints, copings, fascia, mullions, sills, corner units, clips, flashings, all types of fasteners, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
   1. Sheet Metal Closures: Provide closures at eaves, ridges, etc., fabricated of same metal as metal panels.
   2. Closure Strips” Closed-cell expanded, cellular, rubber or crosslinked, polyurethane-foam or closed-cell laminated polyethylene; minimum 1-inch thick, long-term supple and flexible closure strips; pre-molded to match metal panel
roofing profile. Provide closure strips where indicated or required to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to cap, guard, shield, and seal roof system against weather and to provide thoroughly flashed perimeters, penetrations and result in neat finished appearance. Locations include, but are not limited to eaves, rakes, corners, bases, framed openings, ridges, fascia, and fillers. Finish flashing and trim with same corrosion-resistant coating and finish system as adjacent metal panels.

1. All saddles, aprons, and other three dimensional flashings are to be fabricated from stainless steel with all joints welded/soldered 100% watertight per Specification Section 07 62 00 “Sheet Metal Flashing and Trim.”

D. Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-long sections, of size and metal thickness according to SMACNA’s “Architectural Sheet Metal Manual.” Furnish gutter supports spaces a maximum of 36-inches o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match roof panels and roof fascia and rake trim.

E. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot-long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA’s “Architectural Sheet Metal Manual.” Finish downspouts to match gutters.

F. Fasteners: Screws designated to withstand design wind, snow, ice, and drag loads.

1. Concealed Clip Panel Fasteners: Provide new No. 10 bond-coated self-tapping screw fasteners of length to penetrate metal roof deck a minimum of 1-inch through the top flange of the steel roof deck.

2. Hold-Down Clip Panel and Joggle Cleat Fasteners (Metal Roof Panel Edge) Provide new No. 10 stainless steel, AISI Type 304, self-tapping fasteners, of sufficient length to penetration metal support framing a minimum of 1-inch.

3. Drag Load Fasteners: Provide new No. 10 stainless steel, AISI Type 304, high dome capped, EPDM-gasketed screw fasteners, self-tapping fasteners, of sufficient length to engage top flange of “Structural Retrofit Sub-framing System” secured per Project Structural drawings.

4. Rivets, as necessary, shall be stainless steel, closed-end watertight pop-rivets, with stainless steel mandrels, lengths as required for securing jointing (minimum 0.125-inch diameter with a grip range of 0.188-inch to 0.250-inches) as manufactured by POP, Emhart Fastening Technologies, Shelton, CT (203) 924-9341, Aerospace Southwest (425) 984-2001 or Project-Approved equivalent submitted through the Substitution Request and approved by the Project Architect and Envelope Consultant.
G. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are non-staining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape ½-inch wide and 1/8-inch thick, or as otherwise sized.

2. Joint Sealant: ASTM C920 “Standard Specification for Elastomeric Joint Sealants”; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.


H. Pipe Penetration Moldable Flashings” Provide new metal roof panel moldable rubber flashings.

1. Acceptable Manufacturer and Product: Dektite, “Premium” moldable-base flange penetration flashing or Project-Approved equal submitted through the Substitution Request and approved by the Project Architect.

2.06 FABRICATION

A. Fabricate, coat, and finish metal roofing panels, roof-related flashings, and accessories at the factory, by manufacturer’s time-proven procedures, best processes, and as required to fulfill indicated corrosion-resistance and long-term successful performance requirements as demonstrated by laboratory testing and a minimum of 20-years of successful field performances. Comply with indicated profiles and with dimensional and structural requirements.

B. Factory Formed or On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of exact same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer’s written instructions and to comply with details shown.

C. Provide panel profile, including major ribs and intermediate stiffening ribs, for full length of panels.

D. Fabricate metal panel joints with factory-installed captive butyl sealant tape gaskets, and separator strips where needed, that provide a weatherproof and watertight seal, and to prevent metal-to-metal contact, and that minimize noise from thermal movements.

E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer’s recommendations and recommendations in referenced NRCA and/or SMACNA’s “Architectural Sheet Metal Manual” (whichever most conservative) that
apply to condition and design, dimensions, metal, and other characteristics of item indicated. Comply with Specification Section 07 62 00 “Sheet Metal Flashing and Trim.”

1. From exposed sheet metal accessories that are without oil canning, waviness, buckling, and tool marks such that panels, flashings, and trim are true to line and levels indicated, with exposed edges folded back to form hems. Note hems indicated in Project Drawings that are to be continuously cleated and-or intermittently clipped.

2. Fabricate non-moving seams in stainless steel accessories, as applicable, with flat-lock seams. Tin edges to be seamed, form seams, and solder or shop weld watertight.

3. Sealed joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with NRCA and/or SMACNA standards (whichever is most conservative).

4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

5. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

a. Size: As recommended by NRCA and/or SMACNA’s “Architectural Sheet Metal Manual” or metal panel manufacturer for application (whichever is most conservative), but not less than one gauge or thickness heavier/thicker than metal being secured.

2.07 FINISHES

A. Protect mechanical and painted finishes on exposed and concealed (e.g., backside) surfaces from scratches, abrasion, and damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare metals, pretreat, and apply primer, and coatings to metal surfaces to comply with coating and resin manufacturers’
written instructions for seacoast and inland marine and severe and salt-laden corrosive environments.

2. Concealed Finish: Prepare and apply pretreatment and manufacturer’s primer and standard white or light-colored backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

3. Shop and Field Touch-Up Paints: Provide compatible equivalent finish paint coating, as recommended by listed standing seam sheet metal panel and flashing Manufacturer, for cut ends and edges, and for touch-up of scratched and/or mildly abraded surfaces.

PART 3 - EXECUTION

3.01 GENERAL

A. Materials and execution procedures used for reroofing and flashing portions of the Project shall comply with the Contract Documents, the specified material Manufacturers’ published recommendations, and the reference standards indicated (e.g., NRCA, SMACNA, and/or WSRCA). Any conflict or disagreement between the reference standards, Specifications, and/or Drawings shall be brought to the attention of the Owner and Project Architect for their mutual direction prior to Contractor performing the work. Generally, decisions rendered may be based on the strictest of the conflicting documents or standards.

B. Complete terminations, closures, and flashings, and provide temporary seals, to prevent water from entering completed sections of roofing system at end of each workday ro shift, and when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing, flashing, and trim.

3.02 FIELD MEASUREMENTS

A. Contractor and Roofing Sub-Contractor (if Roofing Sub-Contractor is utilized) shall verify all measurements, locations, areas, and conditions for material quantities, sizes, and coverage rates, etc. If any measurements differ substantially from that of the Project Drawings, request direction from the Project Architect.

3.03 ENVIRONMENTAL REQUIREMENTS

A. Weather Condition Limitation: No existing roofing or flashing may be removed (i.e., torn off) and materials shall not be applied when water in the form of rain, ice, snow, hail, etc., is anticipated or present on the substrate.

B. Any temporary roofing materials applied under inclement or non-compliant conditions to protect the structure, contents, applied insulation, or building surfaces shall be removed before application of the roof system continues, and may not be incorporated into the finished roof.
C. Generally, the ambient temperature shall be 40 deg F minimum and rising during the application of materials intended to be sealed or adhered layers (e.g., sealed sheet metal seams). For specific requirements for cold weather roofing, see Manufacturer’s cold weather application instructions.

D. All installed materials, including sheet metal roof panels shall be protected from repetitive traffic with foam pads, plywood or other soft but sturdy and relatively rigid and well secured materials. Do not score, cut, scratch, abrade, slice, puncture, or otherwise damage installed material(s).

3.04 SELECTIVE DEMOLITION

A. Carefully remove existing flashings, unused existing roof curbs, and other existing roof appurtenances scheduled to be removed or relocated as part of this roof replacement project.

3.05 EXAMINATION

A. Examine existing roof areas and completion of new structural retrofit sub-framing system and/or sub-purlins required to support new standing seam roof system. Do not begin installation of new standing seam roof system until unacceptable conditions have been corrected.

3.06 PREPARATION

A. After selective demolition remove any and all loose existing sheet metal flashings, fasteners, dirt, dust, and all other debris from the roof deck/substrate prior to repairs or retrofit as required, and reroofing installation.

B. Remove projections, sheet metal or other abandoned accessories that are not flush to the profile of the roof deck or would potentially impair the application or quality of new roof and flashing system(s).

3.07 EXAMINATION OF EXISTING ROOF PANELS

A. General: Roofing Contractor shall examine all substrates that roofing, cladding and/or sheet metal are to be applied over. All existing roof panels, walls, nailers, equipment curbs, and other roof accessories scheduled to remain that are visibly corroded, decayed, deformed, or exhibit other degraded conditions that would cause the subject material to be unsound for use, or which lack the proper load capacity to support the new roof system, including all environmental loads, shall be repaired, overlaid (i.e. nesting of new roof panels), or replaced with new materials as required prior to commencement of roofing work.

3.08 INSTALLATION OF STRUCTURAL RETROFIT SUB-FRAMING SYSTEM

A. Refer to specification Section 13 34 21 “Structural Retrofit Roof Sub-Framing System for specific requirements.”
3.09 INSTALLATION OF ROOF INSULATION
A. Refer to Specification Section 7 21 00 “Thermal Insulation.”

3.10 INSTALLATION OF STANDING SEAM METAL ROOF PANELS
A. Install metal panels according to manufacturer’s written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Carefully shim or otherwise align, plumb, and correct substrates to smooth, even, and continuous plane prior to receiving metal panels, to result in even installation of metal roofing panels.

2. Carefully flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until structural retrofit sub-framing system and roof insulation that will be concealed by metal panels are installed and secured as specified.

3. Carefully install screw fasteners in predrilled holes.

4. Locate and space fastenings in uniform vertical and horizontal alignment to properly secure panels.

5. Carefully install flashing and trim in watershedding sequence as metal panel work proceeds.

6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.

7. Align bottoms of formed metal panels and fasten with waterproof blind rivets, gasketed self-tapping screws, or bolts as required. Fasten flashings and trim around openings and similar elements with self-tapping screws.

8. Provide lapped, sealed, and weathertight escutcheon plates for pipe-and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Contractor shall use stainless steel fasteners for surfaces exposed to the exterior and hot-dip galvanized-steel fasteners for surfaces exposed to the interior.

2. Drag Load Fasteners:
a. Steel Roofing Panels: Install stainless steel drag-load screw fasteners, of sufficient length to penetrate structural retrofit sub-framing system a minimum of 1-inch.

b. Install drag load fasteners spaced and staggered as required by Panel Manufacturer to meet Project load requirements.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer’s approved fasteners according to manufacturer’s written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to roof deck with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by Manufacturer.

1. Install with self-tapping fasteners.

2. Install backer plates at locations indicated in Manufacturer’s written installation instructions.

3. Mechanically Seam: Nest standing seams and mechanically seam together and completely engaging seam and fully capturing factory-applied in-seam sealant.

4. Weatherproof and Watertight Installation:

   a. Apply continuous ribbons of non-skinning butyl sealant or sealant tape to seal joints of metal panels as indicated on the Project drawings, using sealant and/or tape as recommended in writing by metal panel and sealant manufacturers, as required to make panels and roof watertight.

   b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.

F. Accessory and Miscellaneous Component Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Stainless Steel Joggle Cleat: Contractor shall fabricate and install stainless steel joggle cleats from which to secure the down-slope edge of all sheet metal roofing panels from wind uplift and moisture entry. Fabricated joggle cleat shall allow for a minimum of 2-inch engagement of the standing seam metal roof panel’s down-slope edge.

   a. Stainless steel joggle cleat shall be fabricated with a slight bend to allow for the engagement of the metal roof panels but to maintain a low profile
so as to successfully resist high wind-uplift pressures. Set existing metal roof panels at joggle cleat and joggle in non-skinning butyl sealant.

b. Contractor to secure joggle cleats into structural retrofit sub-framing system using stainless steel No. 10 screw fasteners. Screw fasteners must engage sub-framing system a minimum of 1-inch at a maximum spacing of 8-inches o.c.. Set new, fabricated joggle cleats in a minimum of two continuous beads/rows of Project Approved non-skinning butyl sealant.

c. Contractor to ensure joggle cleats are installed smooth and even, without voids and or openings, so cleat is continuous along standing seam metal roof system.

2. Stainless Steel Cricket: At roof access hatches, mechanical rooftop curbs and other locations indicated on the Project Drawings, Contractor is to fabricate and install new stainless steel sheet metal cricket with all joints soldered fully watertight, properly sized and configured to promote water runoff-drainage around and away from roof access hatches mechanical rooftop curbs, etc. Prior to installation of sheet metal cricket, install fully-adhered new self-adhering membrane and integrate with all other new and existing components. Strip in and seal edges as required.

a. Fabricate sheet metal cricket with horizontal flanges extending past the edges of the existing standing seam metal roof panels a minimum of 18-inches. Fabricate horizontal flanges with interlocking clips to engage edge of standing seam metal roof panels into cricket flange with interlocking flanges to engage edge of standing seam metal roof panel minimum of 2-inches. Set metal roof panel edge to interlocking flange in non-skinning butyl sealant so weatherproof and watertight.

3. Penetration Flashings:

a. Install new formable-base pipe-penetration boot flashings, set in Project-Approved sealant, and screw fastened secure to metal roof panels so weatherproof and watertight.

4. Install components required for a complete metal panel system including trim, copings, corners, batten seam covers, flashings, seals, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panels manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

5. Flashing and Trim: Comply with performance requirements, manufacturer’s written installation instructions, and NRCA and/or SMACNA’s “Architectural Sheet Metal Manual” (whichever is most conservative). Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
6. Comply with Section 07 62 00 “Sheet Metal Flashing and Trim” and the Project Drawings.

7. Install exposed flashing and trim that is without buckling and tool marks, and that is true and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.

8. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24-inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with non-skinning butyl sealant (concealed within joints).

G. Gutters: Join sections with riveted and soldered, or lapped and sealed joints, as indicated. Attach gutters to eave with gutter hangers spaced not more than 36-inches o.c., using manufacturer’s standard fasteners. Provide expansion joints and end closures, and seal watertight with sealant so gutters can successfully expand and contract with thermal movement, but shall provide a weatherproof and watertight performance.

H. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1-inch away from walls; locate fasteners at top and bottom and at approximately 60-inches o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.

I. Curbs: Install membrane and sheet metal flashings around curb bases and where they intersect with metal roof panels.

J. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.11 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal panel units within installed tolerances of maximum 1/8 inch in 20 feet on slope and location lines as indicated and within maximum of 1/8 inch offset of adjoining faces and of alignment of matching profiles.

3.12 FIELD QUALITY CONTROL

A. Manufacturer’s Field Service: Engage a factory-authorized and trained service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
C. Additional tests and inspections, at Contractor’s expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.13 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films as metal panels are installed, unless otherwise indicated in manufacturer’s published installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

3.14 ROOFING CONTRACTOR’S GUARANTEE (SEE NEXT PAGE)

END OF STANDING SEAM METAL ROOFING SYSTEM SECTION

ROOFING CONTRACTOR’S SPECIAL GUARANTEE

WHEREAS (Contractor) __________________________________________
of (Address) ________________________________________________
herein called the “Roofing Contractor”, has performed roofing and associated (“work”) on following project: __________________________________________
Owner: _________________________________________________________
Address: _________________________________________________________
Name and Type of Building: _________________________________________
Address: _________________________________________________________
Area of Work: __________________________ Date of Acceptance: __________
Warranty Period: __________________________ Date of Expiration: __________

AND WHERE Roofing Contractor has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period.

NOW THEREFORE Roofing Contractor hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will at his own cost and expense, make or cause to be made such repairs to or replacement of said work as are necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by: a) lightning, windstorm; b) fire; c) failure of roofing system substrate including cracking, settlement, excessive deflection, deterioration, and decomposition; d) faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports,
and other edge conditions and penetrations of the work, e) vapor condensation on bottom of roofing; and f) activity on roofing by others including construction contractors, other persons and animals whether authorized or unauthorized by Owner with the exception of normal light foot traffic by the Owner's authorized maintenance personnel. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Contractor, and until cost and expense thereof has been paid by owner or by another responsible party so designated.

2. The Roofing Contractor is responsible for damage to work covered by this Warranty, including consequential damages to building or building contents, resulting from leaks or faults or defects of work.

3. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Contractor or Owner's qualified maintenance staff, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void upon date of said alterations, but only to extent said alterations affect work covered by this Warranty. If Owner engages Roofing Contractor to perform said alterations, Warranty shall not become null and void, unless Roofing Contractor, prior to proceeding with said work, shall have notified Owner in writing, showing reasonable cause for claim that said alterations would like damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

4. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void upon date of said change, but only to extent said change affects work covered by this Warranty.

5. The Owner shall promptly notify Roofing Contractor of observed, known or suspected leaks, defect or deterioration, and shall afford reasonable opportunity for Roofing Contractor to inspect work, and to examine evidence of such leaks, defects or deterioration.

6. This Warranty is recognized to be the only warranty of Roofing Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Contractor of responsibility for performance of original work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

IN WITNESS THEREOF, this instrument has been duly executed this __ day of ______, 20__.

Signature of Roofing Contractor___________________________________________________

END OF SPECIAL ROOFING GUARANTEE
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. General provisions of the Construction Contract, including Drawings and Specifications and all bidding requirements, Bid Form and all reference documents, apply to the work of this Section.

B. Technical publications, standards, and reference documents as outlined in individual Technical Specification Sections and as indicated on the Project Drawings.

1.02 SUMMARY:

A. General: This section shall be read in conjunction with other Project Specification Sections, Drawings and related photographs indicating the nature of and general extent of sheet metal work necessary for this Project.

B. The Contractor shall furnish all materials, labor, equipment, services, and accessories to provide and install all sheet metal flashing work including all related accessories required for a complete 100% weatherproof and watertight installation as described in this Specification Section, and illustrated in Project Drawings.

C. Section includes but is not limited to the below general sheet metal flashing for Building Envelope Systems components:

1. S-lock receiver and counterflashing at roof-to rising wall and curb components.
2. Soldered sheet metal transition, crickets and saddles.
3. Formed sheet metal flashings, coping caps, and continuous cleats.
5. Sheet lead soil pipe vent stack flashings
7. Diverter Flashings.
8. Drip Edge Flashings.

D. Related Requirements:

1. Division 0.
2. Division 1.

4. Section 07 14 13 “Standing Seam Metal Roofing System” for fabrication, provision, and installation of new sheet metal flashing and trim integral with steep-slope standing seam metal roofing system.

5. Section 07 72 00 “Roof Accessories”

6. Section 07 92 00 “Joint Sealants” for sealing laps and terminations of sheet metal flashings.

7. Section 13 34 21 “Structural Retrofit Roof Sub-Framing System.

1.03 BENCHMARK REFERENCES AND STANDARDS

A. Work shall conform to the requirements of the 2018 Seattle Building Code derived from the 2018 International Building Code (IBC).


C. National Roofing Contractors Association (NRCA) Architectural Metal Flashing, Condensation and Air Leakage Control and Reroofing, published in 2014, as applicable to architectural sheet metal work.

D. SMACNA “Architectural Sheet Metal Manual” (current addition), as applicable to architectural sheet metal work.


1.04 REGULATORY AGENCY REQUIREMENTS

A. Contractor shall comply with the 2018 Seattle Building Code (SBC) including any requirements by state or city jurisdictions. Conform to all applicable codes for cladding and roofing system requirements, including wind-resistance, fire-resistance, etc. Report
any conflicts of material manufacturers’ installation instructions, with these Project Specifications and/or manufacturer’s installation instructions and/or Detail Drawings and/or Code to the Consultant prior to proceeding with work.

B. Conform to applicable sheet metal, roofing, cladding, and waterproofing codes.

C. Comply with the requirements of Occupational Safety and Health Administration (OSHA), National Industry Occupational and Health (NIOSH), and all local governing authorities for work place safety.

D. Compliance: The Contractor shall comply with all applicable requirements to ensure the building occupants and public, as well as workers’ safety, protection, and security are met or exceeded as specified herein, and in compliance with all applicable Federal, State, and Local regulations, laws, and ordinances.

1.05 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations and perimeters to be flashed, and joints and seams in adjacent materials, as all shall be weatherproof and watertight.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall cladding materials, joints, and seams to provide leak-proof, secure, weatherproof and watertight, noncorrosive installation. Contractor to provide protection for opened locations and areas to prevent insects, vermin, weather, and water from entering the roof and cladding system and interior of building.

1.06 ACTION SUBMITTALS

A. Submittal Requirements: Submit the following, according to Conditions of the Construction Contract, Division 1 Specification Sections, and as required herein, to the Project Architect for review and potential approval prior to the Pre-Construction Conference.

B. Product Data: Product Data Sheets required for each type of product.

1. Include technical product data, construction details, material descriptions, dimensions of individual components and profiles and finishes for each manufactured product, fasteners and accessories.

C. Shop Drawings: For sheet metal flashing, trim, and all associated components,

1. Include plans, elevations, sections, and attachment and sealant details related to sheet metal and trim work.

2. Include identification of materials, thicknesses, gauges, and/or weights, and finish for each item and location in Project.

3. Include details for forming, including profiles, shapes, laps, seams, and dimensions. Distinguish between shop and field-assembled work.
4. Include details for joining, supporting, sealing, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of and types of seams.

5. Include details of termination points, end closures, and assemblies.

6. Include details of edge conditions, including eave, ridges, valleys, rakes, cleats, saddles, reglets, and counterflashings as their and their end closures and applicable items.

7. Include details of all potential and unique special conditions.

8. Include details of connections to adjoining work.

9. Detail formed flashings and trim at scale of not less than 1-1/2 inch per foot, layouts ¼ inch per foot.

D. Samples for Initial Selection: For each type of sheet metal, fasteners, and accessories indicated.

E. Physical Samples for Verification: For each profile type.
   1. Sheet Metal Flashings: 12 inches long by actual width of flashing or trim piece, including finished seams and seams, and in required profile. Include fasteners, cleats, clips, closures, and other attachments, items, and accessories.
   2. Other Components and/or Unit-Type Accessories and Miscellaneous Materials: Product data and full-size sample as required.

F. Project Drawings: A copy of the Project’s sheet metal related drawings shall be re-reviewed and signed by the General Contractor and Sheet Metal Sub-contractor, and their designated Superintendent(s) and Project Foreman and included in the submittal package to be reviewed by the Project Architect. Signatures shall indicate said Parties’ acknowledgement of review and full understanding of Project Drawings and requirements.

1.07 INFORMATION SUBMITTALS

A. Qualification Data: For fabricator and installer.
   1. Written documentation stating a minimum of ten (10) years’ experience with architectural sheet metal fabrication and installations similar in scope and details. List of completed projects to include five (5) installations similar in size and scope.

B. Product Certificates: For each type of coping, roof edge flashing, and gutter that is ANSI/SPRI ES-1 tested and approved as required by Project Requirements and Code.

C. Product Safety Data Sheets (SDS).
1.08 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

B. Manufacturer’s Warranty(ies): Submit Manufacturer’s warranties as required, signed, and dated, for Owner’s records; and submit copies of Manufacturer’s warranty to Architect for their file.

C. Contractor’s Special Weatherproof and Watertight Guarantee: Form included at the end of this Section for execution and submittal with completion and close-out documents.

1.09 QUALITY CONTROL

A. Contractor’s Responsibilities:

1. Contractor shall provide experienced supervisors (i.e., Superintendent and Foreman) and personnel (i.e., crew) to perform the work, who are trained in the application of the materials and procedures specified in this Specification. Contractor shall provide documentation from the Manufacturer that the Contractor meets experience and training requirement for the specified system. Contractor shall maintain on-site supervision continuously to assure on-going quality control for superior quality application.

2. Contractor shall have a minimum of five (5) years’ experience with similar type installations. Provide a list of completed projects similar in scope of work located in the State of Washington

3. The Contractor shall be responsible for the quality control of all of their own work, as well as the work performed by employed crewpersons working under this Specification, and/or related specification which is considered part of the Project Contract.

4. Contractor shall notify the Consultant of any conflicts that may result in a deviation from the Manufacturer’s Specifications, Industry Standards, Code compliance, job safety, or function as a result of the Project’s Scope of Work, Specifications, and/or Project Drawings.

5. If the Project Architect, Owner, and/or Specified Manufacturer determine that the quality of work does not conform to the Specifications, and Project Drawings, and/or Manufacturer’s requirements, as well as Industry Standards, the Contractor must correct all deficiencies and advise the Architect, Owner, and Manufacturer of the corrective actions taken.

6. Contractor must demonstrate the ability to perform the work in a quality, timely manner with minimal noise and disruption to or impact on Owner, Tenants, Patrons, Employees, and the Public.
7. No modification to the Specifications, Project Drawings or substitutions of specified products shall be made without direct approval by Project Architect and Envelope Consultant. Contractor shall provide Project Architect and Envelope Consultant with a written request for review and potential approval.

B. Manufacturer’s Responsibilities:

1. Manufacturer's Technical Services Representative shall be available for technical information and project-site meetings, and be thoroughly experienced with the products to be installed, installation requirements and practices, quality control of the installation, and with any published considerations in the geographical area and climate where construction will take place.

1.10 QUALITY ASSURANCE

A. The General Contractor and Sub-contractors shall be responsible for complete, watertight, and weatherproof building envelope systems and assemblies. The Contractor shall establish and follow best practices for the trade and of quality-control and quality assurance to assure each and every building envelope systems successful completion.

B. On-Site Observation: The Owner reserves the right to have an Envelope Consultant perform observation or monitoring of the sheet metal flashing and trim installation. Such observation shall not relieve the Contractor of responsibility for proper execution and thorough completion of the Work.

C. Outstanding items and efforts to resolve them may be reviewed during Construction Progress Meetings. Action Items identified in Field Reports shall be attended to by the Contractor. The Contractor and their Sub-contractors shall cooperate fully with the Project Architect, Envelope Consultant, the Consultant’s Monitors, and all mock-ups and testing. Any testing that may be deemed necessary will be performed to determine compliance with these Contract Documents.

1.11 MOCK-UPS:

A. Mock-ups: Build mock-ups to verify sheet metal flashing and trim integration with roofing and cladding and to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1. Build in-situ mock-ups of typical sheet metal coping, soldered saddle(s), reglets, flashing, counterflashing, slope transitions, building control joint intersections, and other flashings, including supporting substrate construction, cleats, clips, seams, fasteners, attachments, self-adhering membrane, metal-to-dissimilar metal isolators, and accessories.

a. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless Architect and Owner’s Representative specifically approves of such deviations in writing.
b. Subject to compliance with requirements, approved in-situ mock-ups may become part of the completed Work if undisturbed and in as-new condition at time of Substantial Completion.

1.12 PROTECTION FROM ELECTROLYTIC AND CORROSIVE ACTION

A. Protect adjacent dissimilar metals from electrolytic action by adequate coating or separation tape.

   1. Coat exterior plates and concrete surfaces against which sheet metal work is to be applied with suitable divorcing coating, paints and/or membrane separator ply or sheet.

1.13 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site in original unopened containers with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.

B. Store and handle sheet metal products, and all related materials to prevent degradation, damage and discoloration.

C. Remove strippable protective film immediately prior to or after installation and do not allow the strippable film to remain on materials in extreme cold, heat, or direct sunlight.

1.14 CONTRACTOR’S GUARANTEE

A. Contractor’s Special Guarantee: Contractor’s Weatherproof and Watertight Guarantee, on guarantee form at end of this Section, shall be issued covering the Work of this Section, for the following guarantee period:

   1. Guarantee Period: Five years from Date of Substantial Completion.

   2. Contractor’s Special Guarantee document issued shall be the original, with all required signatures. Copies of same shall be issued to the Project Architect, Envelope Consultant, and the Owner’s Facilities and Maintenance Department.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, damage adjacent components, or loosen, and shall remain, intact, weatherproof and watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with requirements of NCRA’s Roofing and Architectural Sheet Metal Manuals and SMACNA’s Architectural Sheet Metal” Manuals as listed in Benchmark References and Standards section of this
specification. General dimensions and profiles shown in Project Drawings and more stringent requirements may be indicated in Drawings’ labeling language and/or notes. All sheet metal installations at roof perimeters are to comply with ANSI/SPRI ES-1 for tested profile and securement.

C. Thermal Movement: Allow for thermal movement from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

D. Contractor to ensure all flashings, reglets, counterflashings, copings, cleats, clips, trim, and associated fasteners and accessories are free of defect and damage prior to and during installation, and at Project Close-out so as to ensure long-term successful performance as Architect and Owner intends.

2.02 SHEET METAL

A. General: Protect metals and their finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Stainless Steel: Provide new AISI Type 304 stainless steel sheet metal, 24-gauge (or as indicated), with all joints soldered, complying with ASTM A 167. Stainless steel shall be mill finish, soft, except where harder temper required for forming and performance.

C. Factory Coated Galvanized Steel Sheet: Provide new zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation coated steel or aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation, Grade 40; Galvalume ® or Zincalume ®, Pre-painted by the coil-coating process to comply with ASTM A755/A755M.

1. Exposed Coil-Coated Finish:
   a. Minimum Primer and Two-Coat Fluoropolymer Finish: AAMA 621. Fluoropolymer finish containing not less than 70 % polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer’s written instructions.

2. Concealed Finish: Pretreat with manufacturer’s standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry thickness of 0.5 mil.

3. Gauge: 24-gauge minimum for flashings and trim, 22-gauge minimum or thicker as required for cleats and clips, and as indicated below and in applicable Project Drawings.

4. Color: As selected by the Architect to match existing and as approved by the Owner Representative.
D. Stainless-Steel Sheet: Provide new stainless steel flashings; AISI Type 304, with, complying with ASTM A240/A240M, mill finish, soft, except where harder temper required for forming and performance.

1. Gauge: 24-guage minimum for flashings and trim, 22-guage minimum or thicker as required for cleats and clips, and as indicated below and in applicable Project Drawings.

2. All joints of stainless steel saddles and flashings shall be fully-soldered at water bearing transitions (e.g. all saddles, crickets, backer flashing, etc.).

E. Galvanized Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G120 coating designation (or aluminum-zinc alloy-coated sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation. Grade 40 (Grade 275).

1. Gauge: 24-guage minimum for flashings and trim, 22-guage minimum or thicker as required for cleats and clips, and as indicated below and in applicable Project Drawings.
2.03 SELF-ADHERING MEMBRANE MATERIALS

A. Pressure-Sensitive/Self-Adhering, High-Temperature Resistant Sheet Flashing: Minimum 20 mils thick, polyethylene- or polypropylene-film top surface laminated to a layer of butyl-based adhesive backing, with release-film backing; specifically designed to withstand high temperatures (minimum of 240° F or higher) beneath metal components. Provide primer according to written recommendations of membrane flashing manufacturer.

1. Provide one of the following products:
   a. Protecto BT20XL Butyl and manufactured by Protecto Wrap;
   b. FortiFlash Butyl Flashing Membrane as manufactured by Henry;
   c. Or Project-Approved equal submitted through the Substitution Request and Approved by the Project Architect.

B. Double-Sided Self-Adhering Sealant Tape: 60 mil, pressure-sensitive self-sealing adhesive tape, on both sides of tape strip. Provide primer according to written recommendations of membrane flashing manufacturer.

1. Eternabond DoubleStisk sealant tape.

2. Or Project-Approved equal submitted through the Substitution Request and Approved by the Project Architect.

2.04 FASTENERS

A. General: Provide wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. Concealed fastening of sheet metal to metal shall be self-taping, flat or pan head screws to be Project Approved.
   a. Length shall be sufficient to penetrate a minimum of ¾-in. through the flange of metal framing.

2. Concealed fastening of sheet metal to concrete and masonry shall be ¼-in. stainless steel Tapcon® by Textron, Rawl Zamac Lead “Nailin”, or Project Approved.
   a. Length shall be sufficient to penetrate a minimum of 1 3/8-in. into substrates.

3. Exposed fastening of sheet metal shall be self-tapping, high-dome capped screws with punched bonded EPDM washers. Finish to match exposed metal.
4. Exposed Pop Rivets: Rivets, as necessary shall be copper, closed-end watertight pop-rivets, with copper mandrels, length as required for securing jointing (minimum .125-inch dia. With a grip range of .188-inch to .250-inches).

2.03 MISCELLANEOUS MATERIALS
A. Joint Sealants: Joint sealant as specified in Section 07 92 00.
B. Solder:
   1. For Stainless Steel: ASTM B32, Grade Sn96, with acid flux of type recommended by stainless steel sheet manufacturer.
   2. For Sheet Lead: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead.
C. Sealant Tape: Tremco MBT-35 Metal Building Tape or butyl tape to meet TT-C-1796-A OR approved equivalent, for concealed metal-to-metal joints.
F. Separation Tape: 1/16” x ½” neoprene tape for concealed locations.
G. Bituminous Coating: FS TT-C-494 or SSPC - Paint 12, solvent-type bituminous paint, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
H. Miscellaneous: Provide stainless steel draw bands,.045 EPDM storm collars sheet metal anchoring devices and similar accessory units indicated in drawings and as required for long-term, weathertight, successful performance.
I. Liquid-Applied PMMA Flashing Membrane with polyester-Fleece Fabric Reinforcement: A too-part fast curing liquid-applied polymethyl methacrylate (PMMA) resin based membrane, all polyester fleece reinforced, for use as a flashing membrane. Install PMMA flashings incorporated with sheet metal flashing, as depicted in Project Drawings.
   1. Siplast Parapro 123 Flashing PMMA liquid-applied membrane system including appropriate system primer, resin, catalyst, fleece, and accessories.

2.05 FABRICATION, GENERAL
A. General: Custom fabricate sheet metal flashings and trim to comply with details shown and recommendations in cited sheet metal standards that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
   1. Fabricate sheet metal flashing and trim in thickness (gauge) and/or weight as required, and to comply with performance requirements, but not less that specified for each type of finishing and trim, the application and each metal type.
   2. Obtain field measurements and verify for accurate profile/shape and fit before shop fabrication. Contractor and sub-contractors to Field Verify all dimensions prior to fabrication.
3. Form sheet metal flashings and trim from tension-leveled metal sheet stock, and to fit substrates without observable oil canning, waviness, wrinkling, buckling, and/or tool marks; form true to line, levels, and slopes; and with exposed edges neatly folded back to form hems.

4. Conceal fasteners and allow for expansion provisions where possible. Do not use exposed fasteners on exterior (outboard) faces, unless otherwise indicated.

5. Shop and Field Touch-Up Paints: Provide compatible equivalent finish paint coating, as recommended by listed standing seam sheet metal and flashing Manufacturer, for cut ends and edges, and for touch-up of scratched and/or mildly abraded surfaces.

B. Shop-fabricate work to greatest extent possible.

1. Fabricate for weatherproof and watertight performance; with thermal expansion and contraction provisions for running work, satisfactory to permanently prevent deformation, leakage, damage or deterioration of the work. Form work to neatly fit substrates for aesthetically pleasing, professional appearances. Comply with material manufacturer instructions and industry recommendations for forming material. Form exposed sheet metal work in 10’ or 12’ lengths without oil-canning, waviness, wrinkling, buckling, and/or tool marks, true to line and level, or sloped as indicated, with exposed edges folded back to form clean, safe hems.

2. Shop fabricate to shapes and profiles indicated. Where indicated, joints and connections shall be soldered for strong, weatherproof and waterproof performance.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where moveable, non-expansion-type joints are required, form metal to provide for proper installation and weatherproofness of specified sealant according to cited sheet metal standard.

E Fabricate cleats and attachment devices of sizes as specified and as indicated on Drawings, and as recommended by cited sheet metal standard for application, but not that one gauge greater in thickness for flashing face-flange dimension of 6 inches or less, and two gauges greater in thickness for flashing face-flange dimensions greater than 6 inches than gauge of metal being secured.

2.06 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Downspouts at Standing Seam Sheet Metal Panel Roofs: Provide new downspouts. Shop fabricated to match existing downspout aesthetically and to fit securely at drop scupper flange.

1. Material: 24-gauge factory coated galvanized steel to match existing in size shape, and color.
2.07 SHEET METAL FABRICATIONS

A. Draining Roof Edge Flashing: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long sections, for butyl-sealed lap-seams, in slip-fit bayonet-joint fashion to allow for thermal movement while remaining weatherproof and watertight. Shop fabricate interior and exterior corners and saddle flashings from stainless steel; with all seams fully soldered watertight.


2. Flange Widths: Roof-side flange to be 6-inches wide, exterior face flange to be 3-to-8-inches as required to route run-off water away from underlying construction and into gutter and/or to drip water away from building below.

3. Fabricate from the following materials: Stainless Steel or Kynar-finished as indicated on the Project Drawings, and as reviewed and approved by the Architect; 24 gauge.

B. Saddle Flashings: All joints fully soldered watertight. Fabricated from the following materials:

1. Stainless Steel: 24 gauge.

C. Counterflashings: Furnish counterflashings with intermittent wind clips at minimum 18-inches o.c., to secure face flanges lower edge, set uniformly on center, to prevent wind vibration and uplift of counterflashing. Shop fabricate interior and exterior corners from stainless steel, with all joints fully soldered watertight. Furnish weatherproof and watertight end closures, high-dome, hex-headed, EPDM-gasketed fasteners.

1. Joint Style:
   a. Overlapping Vertical Seams: Overlapped 6-inches with bayonet interlocking lap seams set on three continuous beads of non-skinning butyl sealant.

2. Fabricate from the following materials:
   a. Stainless Steel 24 gauge.
   b. PVDF (e.g., Kynar) 70% Resin-Finished, over Factory Coated Galvanized or Aluminum-Zinc Alloy Coated Steel: 24-gauge.

D. Reglets and Flashing Receivers: Furnish inset flashing receivers at locations indicated on the Project Drawings. Shop fabricate interior and exterior corners from stainless steel, with all joints fully soldered watertight.

1. Joint Style:
   a. Overlapping Vertical Seams: Overlapped 6-inches with bayonet interlocking lap seams set on three continuous beads of non-skinning butyl sealant.

2. Fabricate from the following materials:
a. Stainless Steel 24 gauge.

b. PVDF (e.g., Kynar) 70% Resin-Finished, over Factory Coated Galvanized or Aluminum-Zinc Alloy Coated Steel: 24-gauge.

E. Ridge Flashing: Fabricate to profiles/shapes as indicated on the Project Drawings: Shop fabricate not to exceed 12-foot lengths with 8-inch downslope flanges hemmed to be engaged with Z-shaped furring cleats integrated into roof system. Shop fabricate end closures and ridge-to-wall transitions from stainless steel; with fully soldered weatherproof and watertight.

1. Joint Style:
   a. Overlapping Seams: Overlapped 6-inches with bayonet interlocking lap seams set on three continuous beads of non-skinning butyl sealant.

2. Fabricate from the following materials:
   a. Stainless Steel 24 gauge.
   b. PVDF (e.g., Kynar) 70% Resin-Finished, over Factory Coated Galvanized or Aluminum-Zinc Alloy Coated Steel: 24-gauge.

F. Apron Flashings (e.g., down-slope roof-to-curb intersections, etc.): Shop fabricate in lengths not to exceed 12-feet, formed with 6-inch downslope flange and 8-inch vertical flange to return to engage and secure into reglet receiver flashing, or exceed behind counterflashing.

1. Fabricate from the following materials:
   a. PVDF (e.g., Kynar) 70% Resin-Finished, over Factory Coated Galvanized or Aluminum-Zinc Alloy Coated Steel: 24-gauge.

G. Wind Clips: Fabricate 3-inches wide. Fabricate from the following materials.

1. Stainless Steel 20 gauge.

H. Storm Collars: Fabricate weatherproof flashing collars from the following materials:

1. Stainless Steel 24 gauge.

PART 3 - EXECUTION

3.01 PROTECTION

A. Installer shall advise Contractor of required procedures for protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

B. Electrolytic and Corrosive Action:

1. Protect adjacent dissimilar metals from electrolytic action by adequate coating. Coat plates and concrete surfaces against which galvanized and/or stainless steel work is intended to be applied with suitable paint or membrane separation.
3.02 EXAMINATION

A. Examine surfaces to receive sheet metal and verify that substrate and adjacent materials are dry, clean, cured, sound and securely attached. Verify substrate surface is flat, smooth, free of fins, projections, voids, or planar irregularities.

B. Ensure that installation of sheet metal is properly sequenced with the work of other Sections.

C. Unsatisfactory conditions shall be reported to the General Contractor and corrected before application of sheet metal. Begin installation only after unsatisfactory conditions have been corrected and surfaces are dry. Initiation of installation constitutes Contractor's acceptance of substrates and conditions.

3.03 INSTALLATION / APPLICATION

A. Workmanship:


2. Execute work by skilled craftsmen according to best methods of the trade. Lines, moldings, and edges shall be sharp and true. Reinforce as required for stiffness. Allow for thermal expansion and contraction, and for shrinkage of any new wood nailers, and/or blocking that may be part of construction. Set units true to line and level as indicated. Joints and seams shall be neatly formed and finished with surfaces free of oil canning, waves and buckles. Exterior work shall be permanently watertight and weathertight.

3. Install work in a permanently watertight and weatherproof manner, with laps, joints, and seams in shingle fashion to drain runoff over joint and/or laid away from prevailing weather.

4. Anchor units of work securely in place by methods indicated. Spacing of fasteners shall be adequate to assure strong, wind uplift resistant, watertight joints. Use concealed fastenings wherever possible. Where necessary to expose fasteners, use high dome hex-head EPDM gasketed screw fasteners with finish color to match sheet metal. All materials exposed to view shall receive matching exterior finish.

5. Provide for thermal and mechanical expansion of exposed sheet metal work. Space movement joints at maximum 10 feet intervals with no joint allowed within 24-inches of corner or intersection.

6. Provide for separation of metal from non-compatible metal or corrosive substrates by covering surfaces at locations of contact, with separation tape or other permanent separation as recommended by manufacturer/fabricator.

7. Tinning and Soldering:
a. Prior to soldering, sheet metal shall be mechanically cleaned of all oxides and oils on both sides for a width of not less than 1½-inch. Tinning is not required with lead coated or tin zinc alloy coated copper but is suggested to promote better soldering.

b. All joints and connections shall be soldered where indicated to produce strong and watertight joints. Soldering shall be done slowly with well-heated coppers to heat the seam thoroughly and to sweat solder completely through the full width of the seam. Seams shall show at least one full inch of evenly flowed solder. Whenever possible, all soldering shall be done in the flat position. Seams on slopes steeper than 45 degrees shall be soldered a second time.

B. Fabricated Units:

1. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with Detail Drawings, and with applicable requirements of SMACNA “Architectural Sheet Metal Manual” and other recognized, Consultant-approved industry practices.

   a. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work in 10' lengths without oil-canning, buckling and tool marks, true to line and level, or sloped as indicated, with exposed edges folded back to form hems.

2. Shop fabricate to shapes and profiles indicated. Where indicated, joints and connections to be soldered for strong and 100% watertight joints.

3. Take necessary steps to remove coating in area of solder joints prior to fabricating flashings out of colored stainless steel. Grind and clean immediate area around solder joints. Coating shall not be removed from any portion of the flashing that is visible when surrounding components have been installed, unless it is necessary in order to achieve watertight solder joint.

4. Lap all flashings 6-inches minimum away from prevailing weather utilizing bayonet joints shown in the Drawings as detailed. Prior to installing joint apply double rows of continuous sealant as specified in section 07 92 00 - Joint Sealants along entire lap joint including both horizontal and vertical surfaces. All laps, joints, etc. shall be fully sealed, watertight.

5. Provide for thermal expansion of exposed sheet metal work. Space movement joints at maximum 10 feet intervals with no joints allowed within 24- inches of corner or intersection.

6. Provide where flashings are indicated on drawings or are required for a weathertight job. Exposed corners shall be shop formed and soldered where
stainless steel or galvanized steel. Use concealed fastenings wherever possible. Where necessary to expose fasteners, use high dome hex-head EPDM gasketed screw fasteners with finish color to match sheet metal.

7. Counterflashings: Form to detail in standard sheet lengths of specified sheet metal, width to overlap base flashings at least 4 inches. Lap with bayonet joints and provide continuous hemmed drip edge at bottom. Provide watertight end closures at ends of reglets and counterflashings.

8. Provide end dams or other watertight closure at end termination of all flashing to ensure water is directed to exterior of building.

3.04 INSTALLATION OF ROOF-DRAINAGE SYSTEM

A. Install sheet metal related roof drainage flashings and items to produce complete watertight roof-drainage system in accordance with cited sheet metal standard, unless otherwise indicated. Coordinate installation of roofing perimeter flashings, with installation of roof –drainage system.

3.05 ROOF FLASHING INSTALLATION

A. General: Provide and install membrane flashings, sheet metal flashings, and trim at all intersections, transitions, penetrations, roof perimeters, etc. as indicated in the Project Specifications and Drawings for a neat, weatherproof and watertight application. Install sheet metal flashing and trim to comply with Project Documents, performance requirements, sheet metal manufacturer’s written installation instructions (where applicable) and cited sheet metal standards. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently weatherproof and watertight.

B. Roof Edge Flashing:

1. Install roof edge flashings securely anchored and in accordance with ANSI/SPRI/FM 4435/ES-1.

C. Pipe or Post Storm Collars: Install new 24-gauge stainless steel sheet metal storm collars to provide weatherproof protection to the terminated edges of the pipe or post penetration flashings. Storm collars are to be installed and fastened to provide watertight compression at the top terminating edge of the pipe penetration flashing. Apply Project-Approved sealant at the top terminating edge of the installed and secured storm collar.
C. Counterflashing: Coordinate installation of counterflashing with installation of membrane flashing plies and reglet receivers. Prior to installing sheet metal counterflashings, ensure all membrane and sheet metal base flashings (where indicated) have been installed and are properly set, secure, and terminated weatherproof and watertight.
1. Install wind clips, properly fastened and uniformly spaced at 18-inches on center, prior to counterflashing installation.
2. Insert counterflashing in receivers and fit tightly over sheet metal base flashing.
3. Extend counterflashing a minimum of 4-inches over sheet metal base flashing.
4. Secure in waterproof manner by means of gasketed fasteners or stainless steel stitch screws spaced at 12-inches on center through receiver, unless otherwise indicated.
5. Tong and engage wind clips to counterflashing securely to prevent wind flutter, vibration, noise, etc., and so weatherproof.

D. Stainless Steel Saddle Flashings:
1. All saddle flashing joints shall be fully-soldered to be weatherproof and watertight. Properly clean and prepare surfaces to allow for complete seals of lap seams.
2. Fabricate saddle flashings to fit snug and uniformly to transition surfaces, sloped to drain water, to allow for subsequent sheet metal flashings to be correctly sequenced and installed properly. Contractor to field verify dimensions prior to the installation of the saddle flashings. Improperly fitting and configured saddle flashings will be rejected.
3. Install saddle flashings at all parapet wall corners, intersection to rising walls/parapets, sheet metal corners conditions.

3.06 SHEET METAL WALL FLASHING INSTALLATION
A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture (i.e., watershedding) according to cited sheet metal standard unless otherwise indicated. In all cases the higher element overlaps the lower element, allowing water to flow to the exterior.

B. Typical sheet metal flashing features and dimensions:
1. Vertical (upturned) flanges shall be minimum 4-inches (typical), or as otherwise specified or indicated on Drawings, and lapped minimum 3-inches by overlapping higher elements.
2. Downturned flanges shall be minimum two (2) inches, or as otherwise specified or indicated on the Project Drawings.
3. Exposed downturned flanges shall have hemmed and touch-up painted drip edges.

C. Provide and install flashing at all intersections and transitions as specified, and indicated in the Project Drawings, in order to provide a weatherproof and watertight (i.e., Leak-proof) cladding and roof systems.

D. Sealant at Lap Joints in Sheet Metal Flashing:
1. Preparation: Clean all lap joints thoroughly and prime per Sealant Manufacturer’s written instructions prior to sealing.

2. Sealant: Place three (3) separate beads of non-skinning butyl sealant or sealant as indicated in lap joints at sheet metal to fully seal lap joint at the horizontal flange and vertical flanges. Carefully remove excess and neatly tool-back sealant. Ensure clean, uniform, and aesthetically pleasing finished appearance, with no sealant exposed to view, and with sheet metal joint closed, even, all uniform, flush, and weatherproof and watertight. Edge of sheet metal flashing at lap shall not be raised due to excess buildup of sealant in lap.

3.07 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashings with installation of roofing, disconnection and reconnection of existing rooftop mounted equipment. Solder, weld, and seal flashing with specified sealant to equipment support member or as detailed in the Project Drawings.

3.07 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer’s written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as specified and as recommended by sheet metal flashing and trim manufacturer. Protect and maintain sheet metal flashing and trim in clean condition during construction.

B. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes, and promptly apply matching touch-up paint to surface scratches and cut “raw” edges prior to exposure to weather.

C. Replace sheet metal flashing and trim that have been scratched, abraded, or damaged, or that have deteriorated beyond successful repair and finish touch-up procedures.

D. Clean off excess sealants.

END OF SHEET METAL FLASHING AND TRIM SECTION
PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

B. Technical publications, standards, and reference documents as outlined in individual Technical Sections and as indicated on Project Drawings.

1.02 SUMMARY

A. The Contractor shall furnish all materials, labor, equipment, services and accessories to provide and install the work of this Section, including all related accessories required for a complete 100% weatherproof, watertight installation and as described in this Specification Section, related Specification Sections, and as illustrated in Project Drawings.

B. This Section includes the following:

1. Galvanized Steel Roof Hatches, for replacement of existing roof hatches, secured to existing framing.

B. Related Sections:

1. Section 02 41 19 “Selective Demolition”.
2. Section 07 41 13 “Standing Seam Metal Roof Panels”.
3. Section 07 62 00 “Sheet Metal Flashing and Trim”.
4. Section 07 92 00 “Joint Sealants”.
5. Section 13 34 21 “Structural Retrofit Sub-Framing System”.

1.03 COORDINATION

A. Coordinate layout and installation of Roof Hatches with Structural Retrofit Sub-Framing System, Standing Seam Metal Roof Panels, Sheet Metal Flashing and adjoining construction to provide a leak proof, weather-tight, secure, and non-corrosive installation.

B. Coordinate dimensions with field verified rough-in information.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, materials, dimensions of individual components and profiles, and finishes.
B. Shop Drawings: Show fabrication and installation details. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other Work.

C. Coordination Drawings: Roof plans drawn to scale and coordinating penetrations and roof-mounted items. Show the following:

1. Size and location of roof hatches specified in this Section.
2. Method of attaching roof hatches to roof or building structure.

1.05 QUALITY ASSURANCE

A. Standards: Comply with the following:

1. Manufacturer: A minimum of 5 years’ experience manufacturing similar products.
2. Installer: A minimum of 2 years experience installing similar products.
3. SMACNA’s “Architectural Sheet Metal Manual” details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.
4. NRCA’s “Roofing and Waterproofing Manual” details for installing units.

1.06 CLOSEOUT SUBMITTAL

A. Operation and Maintenance Data: For Roof Hatches included in operation and maintenance manuals.

1.07 WARRANTY

A. Manufacturer’s Warranty for Roof Hatches: Provide manufacturer’s standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Roof Hatches:
   a. The Bilco Company
      P.O. Box 1203
New Haven, CT 06505
Phone: (203) 934-6363
Fax: (203) 535-1582
www.bilco.com

b. Acudor
9 Woodland Rd, Unit A
Roseland, NJ 07068
Phone: (800) 722-0501
www.acudor.com

c. Or Project Approved Equal

2.02 MATERIALS, GENERAL

A. Insulation: Manufacturer’s standard rigid or semirigid glass-fiber board of thickness indicated.

B. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by manufacturer. Match finish of exposed fasteners with finish of material being fastened.

C. Gaskets: Manufacturer’s standard tubular or fingered design of neoprene, or EPDM, ; or flat design of foam rubber, sponge neoprene.

F. Sealant: See Section 07 92 00 “Joint Sealants”.

2.03 FINISHES, GENERAL

A. Comply with NAAMM’s “Metal Finishes Manual for Architectural and Metal Products” for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.04 ROOF HATCH TYPE E

A. Basis-of-Design Manufacturer: Type E Single Leaf Roof Hatch as manufactured by The BILCO Company.

1. Factory pre-assembled.

2. Width: 36 in (914 mm). Length: 30 in (914 mm). Length denotes hinge side.
B. Performance Characteristics:

1. Cover:
   a. Minimum Live Load: 40 lbs per sq ft (195.3 kg per sq m).
   b. Maximum Deflection: 1/150th of span or 20 lbs per sq ft (97.6 kg per sq m) wind uplift.
   c. Smooth and easy controlled operation through entire opening and closing arc.
   d. Operation not to be affected by temperature.


C. Cover:

1. Material: 14 gauge, 0.078 in (1.99 mm) paint bond G-90 galvanized steel.
2. Beaded Flange: 3 in (76 mm) with formed reinforcing members.
3. Heavy extruded EPDM rubber gasket bonded to cover interior assuring a continuous seal with the top surface of the curb.
4. Hardware: Bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.
5. Insulation: 1 in (25 mm) thick fiberglass. Covered and protected by a metal liner.

D. Curb:

1. Height: 12 in (305 mm)
2. Material: 14 gauge, 0.078 in (1.99 mm) paint bond G-90 galvanized steel.
3. Formed with 3-1/2 in (89 mm) flange with 7/16 in (11 mm) holes provided for securing to the roof deck.
4. Integral Metal Cap flashing: Same gauge and material as curb and fully welded at the corners. Bil-Clip Flashing System: Stamped tabs, 6 in (153 mm) on center, bent inward to hold single ply roofing membrane securely in place.
5. Insulation: Rigid, 1 in (25 mm) thick, high-density fiberboard on outside of curb.

E. Lifting Mechanisms: Compression spring operators enclosed in telescopic tubes. The upper, outer tube prevents accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube interlocks with a flanged support shoe. Compression Spring Tubes: Anti-corrosive composite material.
1. Flanged Support Shoe, Steel: Through bolted to the curb assembly

F. Hardware:

1. Heavy pintle hinges.
2. Latch: Enclosed spring latch. Interior and exterior turn handles.
3. Latch strike: Stamped component bolted to the curb assembly.
4. Automatic Open Position Lock: Rigid hold open arm equipped with 1 in (25 mm) diameter red vinyl grip handle to permit easy release for closing.
5. Roof hatch equipped with interior and exterior padlock hasps.

G. Factory Finish: Alkyd based red oxide primed steel

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION - GENERAL

A. General: Comply with manufacturer’s written instructions. Coordinate installation of roof accessories with installation and / or repair of roof deck, roof insulation, flashing, roofing membranes, penetrations, equipment, and other construction involving roof accessories to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight. Anchor roof accessories securely to supporting structural substrates so they are capable of withstanding lateral and thermal stresses, and inward and outward loading pressures.

B. Install roof accessory items according to construction details of NRCA’s “Roofing and Waterproofing Manual,” unless otherwise indicated.

C. Separation: Separate metal from incompatible metal or corrosive substrate, by coating concealed surfaces, at locations of contact, with bituminous coating or providing other permanent separation.

D. Flange Seals: Unless otherwise indicated, set flanges of accessory units in a thick bed of silicone sealant to form a seal.

E. Counter Flashing: Where indicated in the Project Drawings, install counter flashing to provide a waterproof overlap with underlying sheet metal flashings as part of standing
seam roof system. Seal overlaps with thick bead of project approved silicone or non-skinning butyl sealant.

F. Operation Units: Test-operate unit with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

3.03 ADJUSTING

A. Adjust movable parts for smooth operation.

B. Operational Units: Test-operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

3.04 CLEANING AND PROTECTION

A. Clean exposed surfaces according to manufacturer’s written instructions. Touch up damaged metal coatings.

END OF ROOF HATCHES SECTION
1.01 RELATED DOCUMENTS

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

B. Technical publications, standards, and reference documents as outlined in individual Technical Sections and as indicated on Project Drawings.

1.02 SUMMARY

A. Building Envelope-Related Sealant Work: At all locations where sealant performs as the primary weather barrier for the building envelope system, junctures where dissimilar materials intersect, and where depicted in the Project Drawings, remove old sealants (if and where present), clean and, as required, prime substrates, and apply new specified sealant, watertight and in proper configuration that will allow long-term successful performance and dimensional movement of the sealant.

B. This section includes:

1. Exterior joints: in the following vertical surfaces and non-traffic horizontal surfaces:
   a. Non-staining silicone joint sealants.
   b. Butyl joint sealants

C. Related Requirements:

1. Divisions 0 and 1 – All related sections.

2. Section 02 41 19 - Selective Demolition, for sealing of existing metal roof system to selective removal of existing roof related components.

3. Section 07 42 13 – Standing Seam Metal Roof System, for sealing of overlapping joints and terminations of metal roof panels and flashings.

4. Section 07 62 00 - Sheet Metal Flashing and Trim, for sealing overlapping joints and terminations of flashings.

4. Section 07 72 00 – Roof Accessories, for roof hatches, vents, storm collars and other manufactured roof accessory units.

1.03 BENCHMARK REFERENCES AND STANDARDS

A. Conform to the recommendations of the following benchmark references and standards current edition unless otherwise stated. The most conservative reference or standard on each item or point shall apply.


1.04 PRE-INSTALLATION MEETINGS

A. Conduct conference at Project Site before start of building envelope work.

1. Meeting to include Owner’s Project Manager, Project Architect, Contractor, Superintendent, and designated lead foreman (lead installer), and subcontractor/installers whose work interferes with or affects the installation of sealant joints. Project Team to examine Project Site to analyze site conditions, including surfaces and joints to be sealed so that adjustments may be made, should adverse conditions exist.

B. Discuss the following items:

1. Review sealant joint substrate conditions, proper cleaning techniques, surface preparation, priming, injection, and tooling for the installation of a watertight and weatherproof sealant joint.

2. Review material guidelines and procedures related to sealant application and priming procedures.

3. Review sealant joint design at various locations where the sealant application is scheduled to take place.

4. Discuss acceptable weather conditions and thresholds under which work will be performed.

5. Review anticipated frequency and extent of joint movement.

6. Review location(s) of mock-up(s) for sealant joint installation.

1.05 ACTION SUBMITTALS

A. Product Data: For each joint-sealant & bond-breaker product.
1. Include data to indicate chemical characteristics, performance criteria, limitations, substrate preparation, installation requirements, and curing requirements.

2. Manufacturer’s installation instructions. Include requirements for surface preparation, cleaning, priming, joint size ratios, adhesion testing, and perimeter conditions requiring special attention.

3. Include information for accessories and other required components.

4. Include color charts indicating manufacturer’s full color range available of each sealant type for Owner’s Representative (i.e. Project Manager) and/or Project Architects initial selection.

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. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.

2. Joint-sealant manufacturer and product name. Product name of primer if required.


1.06 INFORMATION SUBMITTALS

A. Product Data:

1. “Material Safety Data Sheets” (MSDS) equivalent to OSHA Form 20 for each product.

B. Qualification Data: For Installer and manufacturer.

1. Contractor(s) must provide written documentation of having a minimum five (5) years’ experience and specialize in applying weather-tight and weatherproof sealants. Submit listing of five (5) projects of similar size and scope.

1.07 CLOSEOUT SUBMITTALS

A. Sealant Schedule: For all installed sealant joints.

1.08 QUALITY CONTROL

A. Contractor’s Responsibilities:

1. Contractor shall provide experienced supervisors (i.e., Project Manager, Superintendent and Foreman) and personnel (i.e. crew) to perform the work, who
are trained in the application of the materials and procedures specified in this Specification. Contractor shall maintain on-site supervision continuously to assure on-going quality control.

2. Contractor(s) must have a minimum five (5) years’ experience and specialize in applying weather-tight and waterproof sealants.

3. The Contractor shall be responsible for the quality control of all of their own work, as well as the work performed by the sub-contractors working under this Specification, and/or related Specification which is considered part of the Project Contract.

4. Contractor shall notify the Project Architect of any conflicts that may result in a deviation from the Manufacturer’s Installation Instructions, Industry Standards, Code compliance, job safety, or function as a result of the Project’s Scope of Work, Specifications, and/or Project Drawings.

5. If the Project Architect, Owner’s Representative, and/or Specified Manufacturer determine that the quality of Work does not conform to the Specifications, Project Drawings, Manufacturer’s requirements, as well as Industry Standards, the Contractor must correct all deficiencies and advise the Project Architect of the corrective actions taken.

6. Contractor must demonstrate the ability to perform the work in a high quality, neat, uniform, water-tight and weatherproof, timely manner with minimal noise and disruption to, or impact on, Facility Operations, Staff, and the Public.

7. Any modification to the Specifications, Detail Drawings, or Substitutions of specified products shall not be made without direct consultation, and written request for review and written approval from the Project Architect and Owner’s Representative.

8. Contractor shall notify the Owner’s Project Manager, Project Architect a minimum of fourteen (14) days prior to commencement of Work.

9. Provide products for each type of sealant system from a single Project Approved manufacturer for the entire Project, unless otherwise deemed acceptable by the Project Architect.

10. Provide each sealant system as a complete unit, including all accessory items necessary for proper function.

1.09 QUALITY ASSURANCE

A. The Contractor and Sub-Contractors shall be responsible for the complete, watertight, and weatherproof building envelope systems and assemblies. The Contractor shall establish and follow best practices for the trade and of quality-control and quality assurance to assure each and every building envelope systems successful completion.
B. Outstanding items and efforts to resolve them may be reviewed during the Project Progress Meetings. Action Items identified in the field or in field reports shall be attended to by the Contractor. The Contractor and their Sub-Contractors shall cooperate fully with the Project Architect in addressing Action Items as well as executing all mock-ups and testing.

C. Contractor shall perform mockups, in-situ or stand alone as specified, in the presence of the Project Architect, and other members of the Project Team as may attend, for all Building Envelope systems being installed on this Project.

1.10 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver sealant materials to Project site in original containers with seals unbroken and labeled with manufacturer’s name, product brand name and type, color, expiration date, working life, curing time, notice of compliance with relevant and applicable ASTM standards, and directions for storing and mixing with other components.

B. Storage and Protection:

1. Store products within manufacturer’s required temperature and humidity ranges.

2. Store products in a manner that protects containers from inclement weather, and becoming wet.

3. Prior to use, condition products within manufacturer’s required temperature range and/or humidity range for the required time period.

1.11 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturers. Or below 40 degrees Fahrenheit.

2. When joint substrates are wet or frozen surfaces. Do not apply in the rain or any other form of precipitation.

3. Where joint widths are either greater or less than those allowed by joint-sealant manufacturer for applications indicated.

4. Where substrate bond face widths are either greater or less than those allowed by joint-sealant manufacturer for applications indicated.

5. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.12 WARRANTY

A. Installer’s warranty: Written warranty, signed by installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within the specified warranty period.
1. Warranty period: Five (5) years from the date of Physical Completion

B. Manufacturer’s warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty period: 10 years from the date of Physical Completion

PART 2 – PRODUCTS

2.01 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

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

C. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168, VOC Limits, effective January 7, 2005.

1. Sealants: 250 g/L (less water).
2. Sealant Primers for Nonporous Substrates: 250 g/L (less water).
3. Sealant Primers for Porous Substrates: 775 g/L (less water).

2.02 NONSTAINING SILICONE JOINT SEALANTS

A. Non-staining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Non-staining, S, NS, 50, NT: Non-staining, single component, non-sag, plus 50 percent and minus 50 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Dow Corning 795
   b. Dow Corning 791
   c. Pecora 895 NST
   d. Project approved equal
2.03 POLYURETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, NT: Single component, non-sag, non-traffic use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Sika – Sikaflex 15LM
   b. Sika – Sikaflex 1A
   c. Pecora Dynatrol I-XL
   d. BASF – Sonolastic NP-1
   e. Project approved equal

2.04 NON-SKINNING BUTYL JOINT SEALANTS

A. Non-Skinning Butyl-Rubber-Based Joint Sealants: ASTM C 1311.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Sika – Sikalastomer 511
   b. Pecora BA-98
   c. Tremco – JS-773 Synthetic Butyl Sealant
   d. Project approved equal

2.05 JOINT SEALANT BACKING:

A. General: Provide sealant backings of material and type which are non-staining, 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. Foam Backer Rod: Preformed, compressible, resilient, non-staining, non-gassing, non-waxing, closed-cell lengths of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum, long-term, watertight sealant performance.
1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Sonneborn – Sonolastic Closed-Cell Foam Backer Rod.
   b. NOMACO – HBR Closed-Cell Foam Backer Rod.
   c. W.R. Meadows – Kool Rod
   d. Project approved equal

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.06 ACCESSORIES

A. Joint Cleaner for Nonporous Surfaces:
   1. 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.
   2. Free substances capable of staining, corroding, or harming:
      a. Joint substrates.
      b. Adjacent nonporous surfaces.
      c. Sealant.
      d. Sealant backing.
   3. Formulated to promote optimum adhesion of sealants to joint substrates.

B. Sealant Substrate Primer:
   1. Material recommended by joint-sealant Manufacturer where required for adhesion of sealant to joint substrates by Manufacturer, and as determined by field adhesion tests.
   2. Non-staining to joint substrate beyond the substrate surface.
   3. Required for use unless not required by results of:
a. “Manufacturer’s Sealant Substrate Compatibility and Adhesion Test” described under Field Adhesion Testing.

2.07 MISCELLANEOUS MATERIALS

A. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

2.08 JOINT-SEALANT SCHEDULE

A. Joint Locations:
   1. Exterior air and water-seals at mechanical equipment perimeter joint locations:
      a. Silicone.
   2. Metal-to-Metal (exposed):
      a. Silicone.
   3. Metal-to-Metal Lap Joints (Concealed):
      a. Non-Skinning Butyl.
   4. Openings at Apex of Sheet Metal Coping Standing Seams:
      a. Non-Skinning Butyl.
   5. To Seal EPDM Storm Collars:
      a. Polyurethane.

PART 3 – EXECUTION

3.01 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 performance of the Work.

B. Verify that sealant backing is compatible with sealant and that substrate surface is within manufacturer’s moisture content range.

C. Verify that temperature and humidity are within acceptable range for manufacturer’s installation instructions.

D. Joint Width:
   1. Verify joints are greater than ¼-inch or minimum widths required by manufacturer, whichever is greater. If joints are narrower than minimum required widths, widen narrow joints to indicated width. Do not place sealant in joints narrower than Manufacturer’s required minimum.

E. Fillet Joints:
1. Where backer rods cannot be used, apply bond-breaker tape per sealant manufacturer’s application instructions.

F. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with installation indicates installer’s acceptance of substrate and acknowledgement that all unsatisfactory and/or non-conforming conditions have been remedied.

3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

B. Remove all foreign material from joint substrates which could interfere with adhesion and cohesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellents; water; surface dirt and frost.

C. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

D. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile; and other non-porous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.

E. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on pre-construction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer’s recommendations. Confine primer to areas of joint sealer bond; do not allow spillage or migration onto adjoining surfaces.

F. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact of be cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing seal.

3.03 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, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.
3.04 INSTALLATION OF JOINT SEALERS

A. General: Comply with joint sealer manufacturer’s printed installation instructions, including "tooling" and all techniques applicable to products and applications indicated, except where more stringent requirements apply

1. Provide compatible sealant system between dissimilar assemblies and adjacent construction.

2. Seal locations as necessary to create and secure continuous enclosure even though Detail Drawings may not indicate all locations.

3. Seal to prevent migration of water, vapor, and air through joints.

4. Comply with requirements of Manufacturer(s) for application temperature and relative humidity ranges. Consult Manufacturer when sealant cannot be applied within these ranges.

B. Priming:

1. Prime joint substrate unless priming is not required by:
   a. Manufacturer’s Sealant-substrate compatibility and adhesion recommendations.
   b. “Field Hand-Pull Adhesion Test” described in Field Quality Control.

2. Apply primer/adhesion promotor to substrate at locations where sealant is to be adhered.

3. Comply with manufacturer’s sequencing requirements for joint priming and sealant bond breaker installation to assure required primer application coverage and rate without placement of primer on bond breaker surface in contact with sealant and avoid three-sided adhesion.

4. Do not allow spillage and migration of primer onto surfaces not to receive primer/adhesion promotor.

5. Install sealant to primed substrates after primer/adhesion promotor has cured per the manufacturer’s recommendations.

C. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Sealant Backing Bond Breaker:

1. Measure joint dimensions and size materials to achieve Manufacturer-required width-to-depth ratios.
2. Install to achieve sealant depth and sealant contact depth no greater than distance required by Manufacturer for sealant material, joint width, and joint movement range.

3. Install using blunt instrument to avoid puncturing.

4. Do not: twist, puncture, or tear material, leave gaps between ends of material pieces, stretch or compress material along its length, or stretch or compress tape material along its width.

5. Install to provide optimum joint profile and in manner to provide not less than ¼-inch sealant depth when tooled.

6. Replace backing bond breaker materials which have become wet with new dry materials prior to sealant application.

E. Carefully install bond-breaker tape behind sealants where backer rod is not used between sealants and back of joints.

1. Install tape at locations where insufficient joint depth makes the use of backer rod impossible. Match tape width to joint width to prevent three-side adhesion. Do not wrap tape onto sides of the joint.

F. Carefully install sealants using proven techniques that comply with the following:

1. Apply sealants at the same time as backing materials are installed.

2. Tool installed sealant to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

3. Place and inject sealants so they directly contact and fully wet joints substrates.

4. Do not exceed Manufacturer’s required material shelf life, material working life, or installation time after mixing.

5. Comply with Manufacturer’s requirements for applying different sealant materials in direct contact with each other (i.e., polyurethane sealant shall not come into contact with asphaltic materials).

6. Use gun nozzle size to suit joint size and sealant material.

7. Install sealant with pressure-operated devices to form uniform continuous bead and with sufficient pressure to fill voids and joints full.

8. Install to adhere to both sides of joint and not adhere to back of joint; provide sealant backing. Install free of air pockets and embedded matter.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform joints of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.

2. Do not use tolling agents which degrade or discolor sealants or adjacent surfaces, or are not approved by the Sealant Manufacturer.

3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

4. Provide flush joint profile at locations indicated on drawings according to Figure 8B in ASTM C 1193.

5. Provide recessed joint configuration of recess depth and at locations indicated on Drawings according to Figure 8C in ASTM C 1193.
   a. Use macking tape to protect surfaces adjacent to recessed tooled joints.

3.05 MASKING TAPE

A. Remove immediately after tooling sealant and before sealant skin forms.

B. Remove without disturbing or damaging sealant.

3.06 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 Manufacturer’s of joint sealants and of products in which joints occur.

END OF JOINT SEALANTS SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. General provisions of the Construction Contract, including Drawings and Specifications and all bidding requirements, Bid Form and all reference documents, apply to the work of this Section.

B. Technical publications, standards, and reference documents as outlined in individual Technical Specification Sections and as indicated on the Project Drawings.

1.02 SUMMARY:

A. The structural retrofit roof sub-framing system will provide support for a new metal roofing system constructed over the existing building roof. It shall be engineered in accordance with the specified code and design loading and shall transfer positive acting loads at each attachment location into an existing structural member.

B. Furnish labor, material, tools, equipment and services for the fabrication of retrofit roof sub-framing as indicated, in accordance with provisions of the Contract Documents.

C. Completely coordinate work with of other trades.

D. Although such work is not specifically indicated, the contractor/installer shall coordinate with the metal roof system supplier to furnish and install supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

E. Reference Division 1 for General Requirements.

F. Related Requirements:

1. Division 0.

2. Division 1.


4. Section 05 52 17 “Rooftop Fall Protection”.

5. Section 07 21 00 “Thermal Insulation”.

6. Section 07 41 13 “Standing Seam Metal Roofing System”.

7. Section 07 72 00 “Roof Accessories”.

8. Section 07 92 00 “Joint Sealants” for sealing laps and terminations of sheet
metal flashings.

9. Section 23 31 13 “Metal Ducts” for relocation/replacement of existing mechanical ducts.

1.03 BENCHMARK REFERENCES AND STANDARDS

A. Work shall conform to the requirements of the 2018 Seattle Building Code derived from the 2018 International Building Code (IBC).

B. ASTM International

1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.


C. American Iron and Steel Institute (AISI)

1. AISI D100-13: Cold-Formed Steel Design Manual, [2013 Edition].

2. AISI S100-16: North American Specification for the Design of Cold-Formed Steel Structural Members, [2016 Edition].

D. American Institute of Steel Construction (AISC)


1.04 COORDINATION

A. Coordinate “Structural Retrofit Roof Sub-framing System” with installation of “Standing Seam Metal Roofing System”, locations of penetrations and perimeters to be flashed, and joints and seams in adjacent materials, as all shall be weatherproof and watertight.

B. Contractor to provide protection for opened locations and areas to prevent insects, vermin, weather, and water from entering the roof and cladding system and interior of building.

1.05 ACTION SUBMITTALS

A. Comply with Section 01 33 00 - Submittals.
B. **Submittal Requirements:** Submit the following, according to Conditions of the Construction Contract, Division 1 Specification Sections, and as required herein, to the Project Architect for review and potential approval prior to the Pre-Construction Conference.

C. **Product Data:** Submit manufacturer's product data, including installation instructions.

D. **Shop Drawings:** Submit manufacturer's shop drawings for sub-purlins indicating gauge, yield strength, flange and web sizes, cut-out dimensions, and punch pattern for attachment holes in base flange.

E. **Design Data:** Submit design data from independent engineering firm indicating table of wind uplift capacity of sub-purlins.

1.06 **INFORMATION SUBMITTALS**

A. **Qualification Data:** For fabricator and installer.

1. Written documentation stating a minimum of ten (10) years’ experience with architectural sheet metal fabrication and installations similar in scope and details. List of completed projects to include five (5) installations similar in size and scope.

1.07 **CLOSEOUT SUBMITTALS**

A. **Manufacturer’s Warranty(ies):** Submit Manufacturer’s warranties as required, signed, and dated, for Owner’s records; and submit copies of Manufacturer’s warranty to Architect for their file.

1.08 **PROTECTION FROM ELECTROLYTIC AND CORROSIVE ACTION**

A. **Protect adjacent dissimilar metals from electrolytic action by adequate coating or separation tape.**

1. Coat exterior plates and concrete surfaces against which sheet metal work is to be applied with suitable divorcing coating, paints and/or membrane separator ply or sheet.

1.09 **DELIVERY, STORAGE, AND HANDLING**

A. **Delivery:** Deliver materials to site in manufacturer's original, unopened bundles, containers, and packaging, with labels clearly identifying product name and manufacturer.

B. **Storage:**

1. Store materials in accordance with manufacturer's instructions.
2. Protect sub-purlins from corrosion, deformation, and other damage.

3. Store sub-purlins off ground, with 1 end elevated to provide drainage.

1.10 EXISTING ROOF SYSTEM AND PRE-CONSTRUCTION INSPECTION

A. The existing roof is a [Insert existing roof description here per specifier notes below]

B. Conduct a detailed inspection of the existing roof(s) to identify any existing roof elements that are a cause for concern such as: panel deterioration, structural deterioration, equipment curbs, plumbing and electrical penetrations, special flashing requirements, and any other items that should be submitted to the Architect [Engineer][Consultant] for review and evaluation.

C. Perform a detailed survey of the existing roof(s) and confirm the existing panel dimensions, type and profile. In the case of existing standing seam roofing it should be determined if the existing roof employs standard or tall clips. If high panel clips are existing, the standoff dimension must be determined.

D. Record field measurements on the existing roof geometry including width, length, eave height, roof pitch and purlin spacing. This information is to be forwarded to the retrofit sub-framing system manufacturer for coordination and integration into the design and installation documents.

1.11 DESIGN REQUIREMENTS

A. General

1. Design for approval and installation in accordance with the Contract Documents, a complete retrofit sub-framing and metal roof panel assembly as a structural package.

2. Engineer and factory fabricate sub-framing system in accordance with applicable references.

3. Coordinate design with the retrofit sub-framing manufacturer and the metal roof panel manufacturer to perform as one engineered structural package where the metal roof system controls the placement of sub-framing members.

4. Any additions/revisions to sub-framing members as a result of field conditions and/or demands, shall be the contractor’s responsibility, and shall be submitted for review and approval by the manufacturer.

B. Engineering Design Criteria:


2. Occupancy Group: Business-B
4. Risk Category: II (General)
5. Importance Factor: 1.0
6. Minimum Roof Snow Load: 25 PSF.
7. Ground Snow Load: 25 PSF.
8. Wind Speed: 110 MPH, 3 Second Gust.
9. Exposure Category: B.

PART 2 - PRODUCTS

2.1 MANUFACTURER QUALIFICATIONS
   A. Manufacturer shall have a minimum of five (5) years experience in manufacturing and fabrication of retrofit sub-framing systems of this nature.
   B. Light-gauge steel sub-framing components specified in this section shall be produced in a factory environment by roll forming and press-brake equipment assuring the highest level of quality control.
   C. Basis of Design Manufacturer.
      2. Other manufacturers must submit a request for approval prior to the established bid date according to applicable Division 1 Section(s) and shall be equal to the performance requirements listed below.

2.2 RETROFIT STEEL SUB-PURLINS
   A. Basis of Design: Standard Retrofit Factory-notched Sub-Purlins: “Roof Hugger”.
   B. Description:
      1. 1-piece, custom-notched and punched, Z-shaped section.
      2. Pre-punched to nest over existing through-fastened, low clip and high clip standing seam roof panel ribs for low-profile attachment.
      3. Pre-punched for attachment fasteners.
4. Integraphically formed Anti-Rotational Arm as required for high clip standing seam panels.

5. Fastens directly into existing purlins, joists or structural decking with fasteners.

C. Material:

1. Galvanized steel, ASTM A 653 or A 1011, G-90, yield strength 50 KSI.

2. Thickness: 0.060 inch minimum, 16-Gauge

3. Web Height: manufacturer's standard.

4. Base Flange Width: Pre-punch base flange to manufacturer's standard unless otherwise specified.

5. Top Flange Width: Nominally 2 inches with 0.25 inch minimum stiffening lip unless otherwise specified.

6. Length: Nominally 10 feet long, plus an additional +/- 1 inch top flange extension for part lap or per manufacturer's recommendations.

D. Attachment Fasteners/Anchorage

1. “Standard” Roof Hugger Sub-Purlin:
   
a. Attachment to Existing Purlins/Joist/Decking: [two-¼ inch-14 2 inch], DP3 self-drilling screws.

b. Existing Purlin Strengthening, Top Flange Lap Connection: [four-#10-16 x 1 inch] pancake head screws through overlapping sub-purlin top flanges, joining them into a continuous member, per lap connection or as specified.

c. Mid-Span Hugger Sub-Purlin to Sub-Rafter: [two, ¼”-14 1 inch], DP3 self-drilling on each side of cutout and [one #10-16x1 inch] pancake head screw installed through sub-purlin top flange, into sub-rafter.

d. Mid-Span Hugger Sub-Purlin to Existing Panel: #17-14 fasteners shall be installed through the mid-span of sub-purlin into the existing roof panels as specified or per standard details (over-drilling of pre-punched hole will be required).

e. Fastener Length: As required to penetrate existing purlins in accordance with fastener attachment standards.

2. “Special” Roof Hugger Sub-Purlin w/ Anti-Rotational Arm:
a. Attachment to Existing Purlins/Joist/Decking: Typical 2-¼inches-14 x 2inches DP3 self-drilling fastener with 1inch standoff or as specified.

b. Attachment of Anti-Rotational Arm to Existing Panel: #17-14 fastener or as specified.

3. Integral Sub-Rafters beneath the rib cut out in the sub-purlin: ¼inch-14 threads per inch, DP3 self-drilling fasteners install through the sub-purlin, through the integral sub-rafter, through the existing panel and into the existing purlin, rafters or joist; quantity as specified by design (typically 4 per intersection).

4. Sub-Rafter Hat Channels for designated high load areas:
   a. Attachment to Existing Purlins, Trusses, Rafters or Joist: 1/4inch-14 threads per inch DP3 self-drilling screws.
   b. Length as required for minimum required penetration into truss, rafter or joist.

5. Sub-Purlin Hat Channels: Attachment to installed sub-rafters: ¼ inch-14 threads per inch, DP3 self-drilling fasteners, quantity as specified.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Examine existing roof areas to receive sub-purlins. Notify Architect if areas are not acceptable or structurally adequate. Do not begin installation until unacceptable conditions have been corrected.
   B. Verify existing purlins and eave struts are in good serviceable condition, without rust-thru of flanges.
   C. Field Verify Before Ordering of and Installation of Sub-Purlins:
      1. Existing panel profile and panel rib dimensions.
      2. Existing panel run-out by measuring roof over several 20-foot areas to confirm panels were installed on module and in-square. Note variations.

3.2 INSTALLATION OF SUB-FRAMING AND OTHER ROOFTOP APPURTENCES
   A. Install sub-purlins in accordance with manufacturer's instructions at locations indicated on the standard details or Engineered Drawings if provided.
   B. Limit installation of sub-purlins to amount that can be roofed over each day.
   C. Install fasteners per Structural Drawing S3.0.
D. Install sub-purlins directly over existing purlins and fasten to existing purlin through existing panel pan section.

E. If integral sub-rafters are used, loosely lay Sub-rafters over the existing panel high ribs and between the existing purlins. Sub-rafter spacing and number of fasteners shall be as specified on the applicable Roof Hugger approved submittal to meet the site specific wind uplift requirements listed in this specification.

F. Press the Roof Hugger sub-purlins over the sub-rafters on the existing purlin lines in areas where they are specified and install 1/4"-14 DP3 screws through the base flange of the sub-purlin, through the sub-rafter and then into the existing purlins being careful to maintain the alignment of the sub-rafters.

G. Install sub-purlins onto the integral sub-rafters between the existing purlins as specified with 1/4"-14 threads per inch, DP3 fasteners, typically one fastener on each side of the sub-rafter unless otherwise specified.

H. Where the sub-purlin is attached to the existing roof panel the pre-punched base flange hole should be drilled out to the correct diameter to allow for the installation of a #17-14 fastener through the Roof Hugger and into the existing roof panel.

I. Where the sub-purlin passes over the fitted sub-rafter, fasten through the top flange of the sub-purlin with a #10-16 pancake head fastener into the top of the new fitted sub-rafter.

J. Removal of Existing Roof Fasteners: Do not remove existing roof fasteners unless installation of sub-purlins over fasteners causes sub-purlins to “roll” or “porpoise”. Some distortion of base flange of sub-purlins caused by existing roof fasteners is normal.

K. Existing Skylights:
   1. Seal gap between existing metal roof and new metal roof with sheet metal trim to prevent air infiltration into the newly created roof cavity.

L. Existing Rooftop Components and Equipment
   1. When mechanical equipment locations conflict with retrofit roof sub-framing components, the contractor will provide additional framing that accommodates the relocation, replacement or re-flashing of the equipment. Submit construction details for this condition to the Architect for approval.

   2. When electrical service and equipment needs to be removed, extended and reinstalled at the new metal roof system height/plane, extend the wiring in accordance with the Section 26 05 00, local building and electrical codes.

   3. Comply with provisions Section 07 41 13, Section 23 31 13 and local building codes for extending, relocating ducts and curbs.
M. New Roof Access Hatch within the New Roof Cavity

1. Review all clearances, attachment requirements, penetrations, and other critical details as necessary for the proper installation of roof access hatch to be installed within the new roof cavity.

2. Obstructions with new sub-purlins shall be avoided. If cutting of sub-purlins is necessary, a continuous top flange must be provided to provide continuous bearing for the new metal roof system.

END OF STRUCTURAL RETROFIT SUB-FRAMING SYSTEM SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following metal round segmented ducts and fittings for supply, return, outside exhaust air-distribution systems.

1. Replacement of existing corroded rooftop round segmented ducting and installation of ductwork extensions as necessary to facilitate installation of new raised roof assembly.

B. Related Sections:

1. Division 0 – All Related Sections.
2. Division 1 – All Related Sections.
3. Section 07 41 13 “Standing Seam Metal Roof System”.
4. Section 07 62 00 “Sheet Metal Flashing and Trim”.
5. Section 07 92 00 “Joint Sealants”.
6. Section 13 34 21 “Structural Retrofit Sub-Framing System”.

1.02 REFERENCES

A. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.

B. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.

C. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

D. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE):

1. ASHRAE Handbook Series Fundamentals: Ch. 2. Duct Design

E. The American Society of Testing and Materials (ASTM) Standards:


F. Sheet Metal and Air Conditioning Subcontractors National Association (SMACNA):
   1. SMACNA HVAC Duct Construction Standards
   2. SMACNA Round Industrial Duct Construction Standards
   3. IAQ Guidelines for Occupied Buildings under Construction.

1.03 DEFINITIONS

A. Medium pressure ductwork includes:
   1. All exhaust ductwork connected to fans with scheduled static pressure exceeding 2" water column.
   2. Other ductwork noted or specified as medium pressure construction.

B. Low pressure ductwork includes:
   1. All galvanized ductwork downstream of air terminals and reheat coils, horizontal toilet exhaust duct, and ducts not included under medium pressure ductwork above.

C. Fume Exhaust Ductwork:
   1. See Drawings for locations and extent of stainless steel, coated steel ductwork, and galvanized ductwork.
   2. General extent of stainless steel ductwork includes exterior roof top locations.

D. Duct pressure classification shall be as specified herein and not as recommended in SMACNA publications.

1.04 SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for metal ducts.
   1. Showing duct sizes, connections between new and existing work and attachment methods

1.03 QUALITY ASSURANCE

A. NFPA Compliance:
2. NFPA 90B, “Installation of Warm Air Heating and Air Conditioning Systems.”

B. ASHRAE Compliance:
1. Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."

C. ASHRAE/IESNA Compliance:
1. Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS

2.01 DUCTWORK

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 (For interior locations only): Lock forming quality; complying with ASTM A 653 and having a G90 coating designation; ducts shall have mill-phosphatized finish for interior surfaces exposed to view.

C. Stainless Steel (For all exterior locations, no exceptions): ASTM A 480, Type 316L, 16 gauge sheet form with No. 1 finish.

2.02 DUCT SEALANT

A. For non-fume exhaust duty and galvanized fume exhaust duty: United Duct Sealer, 3M #800, or equal, non-flammable, U.L. labeled.

B. For coated steel fume exhaust duty: Epoxy sealant specified hereinafter.

1. Two-Part Tape Sealing System: For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2. Solvent-Based Joint and Seam Sealant: For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

3. Flanged Joint Sealant: Comply with ASTM C 920. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.03 GASKET MATERIAL
A. For non-fume exhaust duty and galvanized fume exhaust duct duty: Tremco 440, Ductmate 440, or equal, minimum 3/16" thick by 1/2" wide

B. For stainless steel and coated fume exhaust duct duty: Where removable sections are required, use hypalon gaskets with silicone mastic.

PART 3 - EXECUTION

3.01 DUCTWORK

A. Where not otherwise specified herein, shown, noted, or required by codes, work shall conform to "HVAC Duct Construction Standards, Metal and Flexible," latest edition, as published by the Sheet Metal and Air Conditioning Contractors National Association, Inc., (SMACNA).

1. 4 inches (100 mm) w.g. class for herein specified medium pressure ductwork.

2. 2 inches (50 mm) w.g. class for herein specified low pressure ductwork.

3. Provided that new duct with the same cross-sectional area of the original duct. Contractor bears the responsibility for equivalency, fit, clearances, coordination, etc.

B. Construction Indoor Air Quality:

1. Follow control measures of SMACNA IAQ Guidelines for Occupied Buildings under Construction, Chapter 3, latest edition as described in Division 01 Section "Construction IAQ Management Plan".

2. Protect stored on-site or installed absorptive materials from moisture damage.

3. After fabrication in the shop, wipe down interior of each piece of supply air and return air ductwork with a lint-free rag, using a solution of 30 percent isopropyl alcohol and 70 percent water. Cap/seal supply, return, and exhaust air duct openings immediately after fabrication or cleaning. Schedule deliveries to the job site to match installation to avoid excessive storage at the job site. Store ductwork at the job site in closed trailers or in the immediate area in which it will be installed. Ducts at the site that have opening seals perforated are to be re-cleaned per shop cleaning requirements and re-sealed until needed for installation. Maintain caps/seals on openings of installed ducts. If openings of installed ducts have their seals perforated, re-clean contaminated duct sections per shop cleaning requirements. Demonstrate the cleanliness quality control to the University.

4. Prior to operating air handling systems, verify internal cleanliness of air handlers, plenums, and ducts, and that filters are in place. Contamination requires re-cleaning per shop cleaning requirements. Demonstrate to the University the cleanliness of the systems before operation. Provide security protocol to limit access to systems to avoid contamination.
5. No supply, return, or exhaust air systems are to be operated without the specific permission of the University.

C. Duct Placement and Fittings:

1. Fabricate ducts to net inside clear dimensions using specified sizes. Where internal duct liner is used, enlarge duct sizes so that specified sizes result in net clearance dimensions inside lining.

2. Form transitions with uniform taper not exceeding 15 degree included angle, unless shown otherwise on Drawings.

3. Offsets over 15 degrees shall have two radius turns or square turning vanes.

4. Exposed Ducts: Exercise extreme care to produce neat and pleasing-in-appearance joints, connections, supports and other modifications. Ducts shall have no offsets, dents or dings. They shall be clean and grease-free. Remove excess sealant. Appearance must be acceptable to the University.

5. Install ducts true to line and grade.

6. Make changes of direction by curved sections with inside radius equal to duct width or square elbows with turning vanes as shown. Where square elbows are definitely shown, radius turns may not be used.

7. Closely fit and accurately place ducts and coordinate with work of other trades. Ducts must be so placed that piping, ceiling support grid, ceilings, and light fixtures may be installed without warping, springing or deforming ducts.

8. Angles and standing seams on ducts exposed in occupied areas shall have the corners chamfered 45 degrees with 1/4" rounded edges and ground smooth.

9. Seal duct penetrations through walls and floors.

10. Provide inlet and outlet duct transitions at reheat coils, constant, variable, and air flow control terminal whether or not such transition is shown on the drawings.

11. Provide openings in ductwork where required to accommodate sensors.

12. Closely coordinate roof penetrations with architectural details.

3.02 WASTE MANAGEMENT

A. Conform with Division 01 Construction Waste Management.

B. Collect off cuts and scrap and place in designated areas for recycling

C. Separate other materials, including packaging and banding, in accordance with the Waste Management Plan and place in designated areas for recycling.
3.03 FIELD QUALITY CONTROL

A. Inspect each installed ductwork section. Replace damaged ductwork and components.

B. Corroded Fixtures: During warranty period, replace fixtures that show any signs of corrosion.

END OF METAL DUCTS SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Interior lighting fixtures, lamps, and ballasts.
2. Accessories, including fixture dimmers, occupancy sensors, and Lighting fixture retrofitting.

1.02 SUBMITTALS

A. Product Data: For each type of lighting fixture scheduled, arranged in order of fixture designation, include data on features, accessories, finishes, and the following:

1. Physical description of fixture, including dimensions and verification of indicated parameters.
2. Emergency lighting unit battery and charger.

B. Coordination Drawings: Reflected ceiling plan and other details, drawn to scale, on which the following items are shown and coordinated with each, based on input from installers of the items involved.

1. Structural members to which lighting fixture suspension systems will be attached.
2. Proposed attachment method.

C. Product Certificates: For dimmer-controlled fixtures, signed by product manufacturer.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For lighting equipment and fixtures to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 include the following:

1. Catalog data for each fixture, include the diffuser, ballast, and lamps installed in that fixture.

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. Comply with NFPA 70.
PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products as indicated on contract drawings or approved equal.

2.02 LIGHTING FIXTURES AND COMPONENTS, GENERAL REQUIREMENTS

A. Refer to the Light fixture schedule provided as part of the Contract Documents.

B. LED Fixtures: Comply with UL8750. Where LER is specified, test according to NEMA LSD-45

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.
4. Laminated Silver Metallized Film: 90 percent.

E. Plastic Diffusers, and Covers:

1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
   a. Lens Thickness: At least 0.125-inch minimum unless different thickness is indicated.
   b. UV stabilized.
   c. Pattern 12 lenses where a diffuse light source is desired.
   d. Pattern 15 lenses to minimize imaging on video monitors.

F. Fixture Size:

1. Length: Approximately, 44-to-48 inches.
2. Width: Approximately, 12-to-16 inches.

G. LED Lumen Output: 30,000-to-36,000 Lumens.
H. Color Temperature: 4000K


J. Driver: 0-10V Dimming.

2.03 LED LIGHT FIXTURES

A. Manufacturer’s:
   1. Lithonia
   2. Metalux
   3. Or Project Approved Equal.

B. Models:
   1. Lithonia: IBE_L48_30000LM_ATC_MD_120_GZ10_40K
   2. Metalux: LHB_36_UNV_L840_CD
   3. Or Project Approved Equal

2.04 LIGHTING FIXTURE SUPPORT COMPONENTS

A. Wires: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gauge (2.68 mm).

B. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceiling. Install lamps in each fixture.

B. Suspended Fixture Support: Suspend fixtures from a minimum of two (2) new wires for each fixture.

3.02 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer’s published torque-tightening values. If manufacturer’s torque values are not indicated, use those specified in UL 486A and UL 486B.

3.03 FIELD QUALITY CONTROL
A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Verify normal operation of each fixture after installation.

C. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer to battery power source and retransfer to normal.

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

E. Corroded Fixtures: During warranty period, replace fixtures that show any signs of corrosion.

END OF INTERIOR LIGHTING SECTION