

CITY OF KIRKLAND
KJC TI – JAIL BOOKING AREA
JOB NO. 15-26-PW
CIP NO. PDTCOSSUPG
11740 NE 118th St, Kirkland, WA 98034



PROJECT MANUAL

July 8, 2026

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CITY OF KIRKLAND
KJC TI - JAIL BOOKING AREA
KIRKLAND, WASHINGTON

SECTION 00 00 02
APPROVED FOR CONSTRUCTION

**CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS**

**KJC TI - JAIL Booking Area
JOB NO. 15-26-PW
CIP NO. PDTCOSSUPG**

Approved for Construction:

A handwritten signature in blue ink, appearing to read "Robert English", is written over a horizontal line.

Robert English, P.E.
Capital Division Manager

**CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS**

**KJC TI – JAIL BOOKING AREA
JOB NO. 15-26-PW
CIP NO. PDTCOSSUPG**

Certificate of Architect/Engineer:

The technical portions of the Special Provisions and Plans contained herein have been prepared by or under the direction of the undersigned, whose seal as a Professional Engineer or Professional Architect licensed to practice in the State of Washington, is affixed below.



Sian Roberts, FAIA
Partner, The Miller Hull Partnership, LLP (MHP)

The undersigned hereby certifies that the Division 22 Technical Specifications in this Project Manual were prepared by me or under my direct supervision, and that I am duly registered under the laws of the State of Washington and hereby affix my "Professional Seal".

Wood Harbinger, Inc.
Nicholas R. Baker, PE



July 8, 2026

00 00 03 - 1 of 2

The undersigned hereby certifies that the Divisions 26, 27, and 28 Technical Specifications in this Project Manual were prepared by me or under my direct supervision, and that I am duly registered under the laws of the State of Washington and hereby affix my "Professional Seal".

Wood Harbinger, Inc.
Sean M. Bollen, PE



END OF DOCUMENT

INVITATION FOR BIDS

**City of Kirkland
KJC TI – Jail Booking Area
CIP # PDTCOSSUPG
JOB # 15-26-PW
11740 118th AVE ST, Kirkland, WA 98034**

The City of Kirkland invites interested and qualified contractors to submit sealed bids for the following project:

TITLE: KJC TI – Jail Booking Area

ESTIMATED BID AMOUNT: Approximately \$175,000 excluding sales tax

BID SUBMITTAL TIME/DATE/LOCATION: Prior to 2:00 P.M. on July 29, 2026 at
Cashier - City of Kirkland
123 5th Avenue
Kirkland WA 98033

Bids can be hand delivered or mailed, but must be received by the City, at the Cashier counter at City Hall, prior to the stated date and time.

PUBLIC BID OPENING 2:00 P.M. on July 29, 2026
Council Chambers
City of Kirkland
123 5th Avenue
Kirkland WA 98033

Bids will be publicly opened and read aloud and initially verified for completeness. Bid results will be posted online after the public bid opening. The City reserves the right ascertain full compliance with the bid proposal requirements in a more detailed review after the public bid opening.

PRE-BID CONFERENCE July 15, 2026 @ 1:00 PM
11740 NE 118th St, Kirkland, WA 98034

Meet at Jail entrance on south side of building
Attendance at pre-bid conference is mandatory.
No weapons. Please check-in upon arrival.

All bid submittal envelopes must be opaque, sealed, and *plainly marked on the outside* with “Bid for KJC TI – Jail Booking Area, Job #15-26-PW.” The bid submittal envelope must contain all documents required at the bid submittal time. **NO BIDS WILL BE ACCEPTED AFTER THE BID SUBMITTAL TIME.** Upon submittal, bids will be marked by the City of Kirkland with the time and date received and then secured until the date and time set for the public bid opening.

ITEM FOR BID:

The Project includes all work as indicated in the Project Manual, Drawings, and any issued Addenda. The Work consists of providing all labor, materials, equipment, and incidentals necessary to complete the remodel and alteration of approximately 270 square feet of existing facility space adjacent to the Kirkland Justice Center jail booking area, as described in the Project Manual. The scope of work includes, but is not limited to, selective demolition; electrical and low-voltage systems; plumbing; concrete work; and associated interior alterations. The Work will be performed within an active, continuously operating jail facility. The Contractor shall coordinate all activities with the Owner and facility staff and shall conduct the Work in a manner that maintains security, safety, and uninterrupted facility operations at all times.

After execution of the Contract, the Owner will issue a Limited Notice to Proceed authorizing the Contractor to proceed with submittals and the procurement of long-lead items. The full Notice to Proceed will be issued on a mutually agreed-upon date to ensure that delivery of long-lead items aligns with the required installation schedule. Substantial Completion shall be achieved within seventy (70) calendar days following issuance of the full Notice to Proceed. Final Completion shall be achieved within twenty-eight (28) calendar days after Substantial Completion.

BID DOCUMENTS:

The City will not sell bid packages. Plans, specifications, and addenda may be viewed and obtained online at www.bxwa.com. Click on: “Posted Projects”; “Public Works”; “City of Kirkland”. The Bidders List is maintained by the Builder’s Exchange of Washington, Inc. Registration for the bidder’s list may be made online, by phoning (425) 258-1303, or at Builder’s Exchange of Washington located at 2607 Wetmore Ave, Everett, WA.

This online plan room provides Bidders with fully usable online documents with the ability to: download, view, print, order full/partial plan sets from numerous reprographic sources, and a free online digitizer/take-off tool. It is recommended that Bidders “Register” in order to receive automatic e-mail notification of future addenda, schedule changes, and to place themselves on the “Self-Registered Bidders List”. Bidders that do not register will not be automatically notified of addenda and will need to periodically check the on-line plan room for addenda issued on this project. Contact Builders Exchange of Washington at (425) 258-1303 should you require assistance with access or registration.

The content available through bxwa.com is our property or the property of our licensors and is protected by copyright and other intellectual property laws. Access to project documents is intended for use by bidders (general contractors/prime bidders, subcontractors and suppliers), agency personnel and agency’s consultants, as well as for personal, noncommercial, use by the public. You may display or print the content available for these uses only. "Harvesting" (downloading, copying, and transmitting) of any project information and/or project documents for purposes of reselling and/or redistributing information by any other party is not allowed by BXWA.

QUESTIONS:

Questions regarding this project must be submitted in writing to Anneke Davis (adavis@kirklandwa.gov) via e-mail with the subject line of "Jail Renovation: Bid Question". Questions received via phone or any other method other than e-mail method prescribed above will not be accepted. Bidders shall submit questions no later than July 17, 2026 at 5PM. Receipt of questions will be acknowledged however bidder questions will be answered via addendum.

CONTRACTOR REGISTRATION:

Pursuant to RCW 39.06, the bidder shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

In order to perform public work, the successful bidder and subcontractors, prior to Contract award, shall hold or obtain such licenses and registrations as required by State Statutes and Codes, and Federal and local laws and regulations and a City of Kirkland business license.

BID SECURITY:

Certified check, bank cashier's check or bid bond congruent with the Bid Bond Security Form (Section 00 43 30) as identified in the "Instructions to Bidders" is required to be submitted with each proposal, in the amount equal to five percent (5%) of the total base bid plus additive alternate bids (if applicable). Make bid security payable to the City of Kirkland, furnish bond executed by a licensed bonding agency authorized to do business in the locality of the Project. No bid shall be considered unless accompanied by such bid security.

RIGHT TO ACCEPT OR REJECT:

The Contract will be awarded to the responsible bidder submitting the lowest proposal complying with these contract documents provided the bid is reasonable and in the best interest of the City of Kirkland.

The Owner (City of Kirkland) reserves the right to reject any or all bid proposals and the right to waive any irregularities or informalities in any proposal, subject to the Laws of the State of Washington as pertinent to Public Works and congruent with requirements and policies of City of Kirkland, and as may be deemed in the best interest of the Owner. In particular, the Owner reserves the right to reject a bid which is not accompanied by the documents specified in the Instructions to Bidders and incomplete or irregular bids which may exclude any item(s) as may be required by the Project Manual.

The City of Kirkland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21 Nondiscrimination in Federally-Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this invitation, disadvantaged business enterprises as defined in 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

City of Kirkland is an Equal Opportunity and Affirmative Action Employer.

Small, Minority and Women-Owned firms are encouraged to submit bids.

WITHDRAWAL OF BID:

No bid may be withdrawn after the date set for the public bid opening for a period of sixty (60) calendar days.

NOTICE GIVEN BY ORDER OF THE CITY OF KIRKLAND:

Published in the Daily Journal of Commerce: July 8, 2026
Published in the Daily Journal of Commerce: July 15, 2026

END OF SECTION

BIDDER'S CHECKLIST

The omission or deletion of any bid item may be considered non-responsive and may be cause for the rejection of the bid.

1. Has a bid bond or certified check been enclosed with your bid? Is the amount of the bid guaranty at least 5 percent of the total amount of the bid?
2. Has the proposal been properly completed and signed? Do written amounts on the proposal agree with the amounts shown in the figures?
3. Have you bid on all items including, if applicable, all alternates and unit prices?
4. Have you acknowledged all addenda, if any, in the Bid Form (Section 00 41 00)
5. Do not submit any of the forms still attached to the Project Manual. Remove or copy the forms and submit them in the sealed envelope as directed.
6. Are you and all your subcontractors familiar with the schedule of value requirements including but not limited to the required placement of 5% of the bid for work between substantial completion and final completion?
7. Have you reviewed the Bidder's Qualifications and Bidder Responsibility Criteria forms and understand these obligations if you are selected as the apparent low bidder?
8. The following items must be completed and included within the sealed bid submittal envelope:
 - A. **Bid Form (00 41 00)** The bid price must be shown in the space provided. Show price in both words and figures. The bid form must be completed in full, signed, and dated.
 - B. **Bidder's Qualifications Form (00 10 20):** This form must be filled in and signed. The owner reserves the right to check all statements and to judge the adequacy of the bidder's qualifications.
 - C. **Bid Bond Security Form (00 43 30):** A surety issued bid bond must be executed by the bidder and its surety company. The amount of the bid bond shall be not less than five (5%) of the total bid and may be shown in dollars or on a percentage basis. A cashier's check payable to the City of Kirkland and issued for an amount not less than 5% of the total bid may be submitted in lieu of a bid bond.
 - D. **Non-Collusion, Bidder Responsibility, and Minimum Wage Certification Form (00 15 40):** This form must be filled in, signed, and notarized.
9. All bidders must submit the following either within the sealed bid submittal envelope **or** within the stated time requirement after the published bid submittal time, as specified. If submitting after the published bid submittal time, Bidder must hand deliver this form to the Cashier Counter at City Hall, 123 5th Avenue, Kirkland WA 98033.
 - E. **Subcontractor Identification List (1 of 2) (00 44 00):** This form must be filled in and submitted within one (1) hour of the published bid submittal time, identifying subcontractors for HVAC, Plumbing, and Electrical.
 - F. **Subcontractor Identification List (2 of 2) (00 44 00):** This form must be filled in and submitted within forty-eight (48) hours of the published bid submittal time, identifying subcontractors for structural steel installation and rebar installation.

10. The following forms are to be executed after the contract is awarded:
- A. **AGREEMENT FORM (00 52 20):** This agreement to be executed by the successful bidder.
 - B. **PERFORMANCE BOND (00 61 40):** One hundred percent of the Contract Price to be executed by the successful bidder and his surety company. The surety on such bonds shall be a duly authorized surety company satisfactory of the Owner.
 - C. **LABOR MATERIALS AND TAXES BOND (PAYMENT BOND) (00 61 41):** One hundred percent of the Contract Price to be executed by the successful bidder and his surety company. The surety on such bonds shall be a duly authorized surety company satisfactory of the Owner.
 - D. **RETAINAGE INVESTMENT OPTION (00 45 70):** This agreement to be executed by the successful bidder.
 - J. **CERTIFICATES OF INSURANCE (00 60 00):** To be executed by the successful bidder and by an acceptable insurance company. The City of Kirkland must be named as an additional insured.
 - K. **CONTRACTOR'S CERTIFICATION (00 83 00):** Concerning Labor Standards and Prevailing Wage Requirements. Submit Statement of Intent to Pay Prevailing Wages. (Form F 700-029-000, available at Offices of Washington State Department of Labor and Industries).
11. Special Note: Prior to commencing work, the Contractor and all subcontractors must have applied and paid for a City of Kirkland Business License.

END OF SECTION

BIDDER'S QUALIFICATIONS

Each bidder submitting a proposal for this Project shall submit, as part of its bid, the following information:

1. Bidder (Contractor): _____
2. Contractor's Address: _____
3. Telephone Number and Area Code: _____
4. IRS Federal Employer's Identification Number: _____
5. Current State Unified Business Identification Number: _____
6. Number of years engaged in the construction business under the present company name.
Number of Years: _____
Name: _____
7. Total value of contracts in force: _____
8. The Bidder shall have successfully completed at least one (1) construction, renovation, or systems installation project within an active and occupied municipal facility, with a construction value of \$100,000 or greater, within the past five (5) years.

Required project experience shall demonstrate effective coordination with the owner, controlled movement of personnel and material, phased scheduling, and maintenance of continuous facility operations.

9. For the Bidder, list below project(s) which meet the qualifications as outlined above.
(Attach additional project pages if required)

Project Name: _____
Project Value: _____
Reference Name, phone number and email: _____

Project Name: _____
Project Value: _____
Reference Name, phone number and email: _____

Project Name: _____
Project Value: _____
Reference Name, phone number and email: _____

11. Washington State Contractor's Registration Number: _____

12. Bonding Reference: _____

13. Bonding Capacity: _____

Bidder:

By (Name): _____

Title: _____

Date: _____

14. For all work involving detention doors, frames, locking devices, door controls, security electronics, and related detention hardware, the bidder shall identify the subcontractor(s) proposed to perform this work. The identified subcontractor must have successfully completed at least three (3) detention door, locking control, or comparable security systems installation project within an active jail, detention, or corrections facility within the past five (5) years.

Required project experience shall demonstrate successful performance under active security operations, including restricted access, coordination with owner security staff, controlled personnel and material movement, phased scheduling, and maintenance of continuous facility operations. The bidder shall provide project references and evidence of the subcontractor's specific detention systems experience as part of the responsibility evaluation.

Subcontractor Name: _____

Scope of Work to be Performed: _____

Subcontractor Name: _____

Scope of Work to be Performed: _____

Project Name: _____

Project Value: _____

Reference Name, phone number and email: _____

Project Name: _____

Project Value: _____

Reference Name, phone number and email: _____

Project Name: _____

Project Value: _____

Reference Name, phone number and email: _____

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Reference Name, phone number and email: _____

Project Name: _____

Project Value: _____

Reference Name, phone number and email: _____

Project Name: _____

Project Value: _____

Reference Name, phone number and email: _____

Project Name: _____

Project Value: _____

Reference Name, phone number and email: _____

Bidder:

By (Name): _____

Title: _____

Date: _____

This Form Must Be Submitted with the Bid.

END OF SECTION

BIDDER'S RESPONSIBILITY CRITERIA

Low Responsible Bidder

It is the intent of the Owner to award a contract to the low responsible bidder. The Bidder must meet the minimum project bidding requirements outlined in Section 00 10 20 Bidder's Qualifications Section, Item 8.

In addition, the Owner shall consider an overall accounting of the items listed below which the bidder must meet. The bidder must submit the Non-Collusion, Bidder Responsibility, and Minimum Wage Certification Form (00 15 40) demonstrating that they meet the following criteria:

Bid Procedures and Conditions

Qualifications of Bidder

- A. Bidders must meet the minimum qualifications of RCW 39.04.350, as amended:
"Before award of a public works contract, a bidder must meet the following responsibility criteria to be considered a responsible bidder and qualified to be awarded a public works project. The bidder must:
- (a) At the time of bid submittal, have a certificate of registration in compliance with chapter 18.27 RCW;
 - (b) Have a current State unified business identifier number;
 - (c) If applicable, have industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a State excise tax registration number as required in Title 82 RCW; and
 - (d) Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
 - (e) If bidding on a public works 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 bid solicitation; and
 - (f) Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The bidder must designate a person or persons to be trained on these requirements. The training must be provided by the department of labor and industries or by a training provider whose curriculum is approved by the department. The department, in consultation with the prevailing wage advisory committee, must determine the length of the training. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this subsection. The department of labor and industries must keep records of entities that have satisfied the training requirement or are exempt and make the records available on its web site. Responsible parties may rely on the records made available by the department regarding satisfaction of the training requirement or exemption; and

- (f) Until December 31, 2013, not have violated RCW 39.04.370 more than one time as determined by the Department of Labor and Industries.
- 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:
- a. The Bidder shall not currently be debarred or suspended by the Federal government. The Bidder shall not be listed as a current debarred or suspended bidder on the U.S. General Services Administration's "Excluded Parties List System" website. Bidder debarment or suspension status may be verified through this website: <http://www.sam.gov/>. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
 - b. The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue, without a payment plan approved by the Washington State Department of Revenue. The Bidder shall not be listed on the Washington State Department of Revenue's "Delinquent Taxpayer List", which may be verified at the following website:
<http://dor.wa.gov/content/fileandpataxes/latefiling/dtlwest.aspx>. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
 - c. The Bidder shall not have been convicted of a crime involving bidding on a public works contract within five (5) years prior to the bid submittal deadline. The Bidder shall provide a duly executed sworn statement (on the included form, or on a form otherwise determined to be acceptable by the Owner), that the Bidder has not been convicted of a crime involving bidding on a public works contract. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental.
 - d. The Bidder's standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established written procedure which the Bidder uses to validate the responsibility of each of its subcontractors. The Bidder's subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also "responsible" contractors as defined per RCW 39.06.020. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
 - e. The Bidder shall not have a record of prevailing wage complaints filed against the Bidder within five (5) years prior to the bid submittal date that demonstrates a pattern of failing to pay workers prevailing wages, unless there are extenuating circumstances that are acceptable to the Owner. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

- f. The Bidder shall not have had any public works contract terminated for cause by a government agency during the five (5) year period immediately preceding the bid submittal deadline for the project, unless there are extenuating circumstances acceptable to the Owner. The Bidder shall provide a duly executed sworn statement (on the included form, or in a form otherwise determined to be acceptable by the Owner), that the Bidder has not had any public works contract terminated for cause by a government agency during the five (5) year period immediately preceding the bid submittal deadline for the project. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
 - g. The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects within three (3) years of the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances which are acceptable to the Owner. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
 - h. Within two (2) years prior to the bid submittal date the Bidder shall not have had a project construction site shut down due to a safety violation (i.e., WISHA / OSHA written citations) from the Washington State Department Labor & Industries or analogous agency with jurisdiction in the location the work was performed, regardless of whether such willful and/or serious safety violations have been abated or not. The Bidder shall maintain compliance with all safety and health requirements (i.e., WISHA / OSHA) from the Washington State Department Labor & Industries (or analogous agency with jurisdiction in the location the work is performed). The Owner may verify such information provided with the Washington State Department Labor & Industries or analogous agency with jurisdiction in the location the work was performed. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.
- C. If a Bidder fails to supply the required bidder responsibility documentation, information, or materials, then Bidder may be determined by the Owner to be non-responsive, and the bid may be rejected on this basis. If the Owner determines the apparent successful bidder does not meet the bidder responsibility criteria 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 twenty-four (24) hours of receipt of the Owner's determination by presenting additional written information to the Owner. The Owner will consider the additional information before issuing its final determination. If the Owner's final determination affirms that the bidder is not responsible, the Owner will not execute a contract with any other bidder until two (2) business days after the bidder determined to be not responsible has received the final determination. Please note that the above-described information, materials, and documentation requested by the Owner for purposes of determining Bidder responsibility is not necessarily exclusive, and the Owner expressly reserves the right to request additional information, materials, and

documentation as may be determined to be necessary or desirable by the Owner in order to evaluate and determine Bidder's compliance with the above-described bidder responsibility criteria. At all times, the Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with the forgoing bidder responsibility criteria.

END OF SECTION

**NON-COLLUSION, BIDDER RESPONSIBILITY, AND
MINIMUM WAGE CERTIFICATION FORM**

In accordance with the Contract Documents and Instructions to Bidder, the Bidder must provide the following sworn statement and certification:

Bidder (Contractor): _____

Contractor Address: _____

Telephone No. _____ E-Mail: _____

I, _____, the undersigned declarant, as the duly authorized representative on behalf of _____ (herein the "Bidder") hereby make this declaration on the basis of facts within the scope of my first-hand knowledge and authority to which I am competent to testify:

1. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, as of the date of this declaration (below) meets all of the minimum bidder responsibility qualifications of RCW 39.04.250, as amended.
2. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, as of the date of this declaration (below) meets all of the minimum project bidding requirements outlined in the Bidder's Qualifications Form (Section 00 10 20) Item 8, if any.
3. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, as of the date of this declaration (below) meets all of the supplemental bidder responsibility criteria as set forth in the Bidder's Responsibility Criteria (Section 00 15 30), Section B.
4. I hereby certify, swear and affirm under penalty of perjury, that the undersigned is the person that submitted the bid herewith, that such bid is genuine and not a sham or collusive, or made in the interest of any person not therein named; and he/she further says that said Bidder has not directly or indirectly induced or solicited any Bidder on the above work or supplies to put in a sham bid, or any other person or corporation to refrain from bidding; and that said Bidder has not in any manner sought by collusion to secure to himself or to any other person an advantage over any other Bidder or Bidders.
5. I hereby certify, swear and affirm under penalty of perjury, that in connection with the performance of the work of this Project, if awarded, I will pay each classification of laborer, workman, or mechanic employed in the performance of such work; not less than the prevailing rate of wage or not less than the minimum rate of wages as specified in the Contract Documents.

Signed under penalty of perjury under the laws of the State of Washington this ____ day of _____ 20 ____, at _____, Washington.

Bidder (Contractor): _____

Signature: _____

Name (Printed): _____

Title: _____

STATE OF WASHINGTON }
COUNTY OF _____ } ss.

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was duly authorized execute the instrument and acknowledged it as the _____ of _____, to be the free and voluntary act of such party for the uses and purposes herein mentioned.

DATED this ____ day of _____, 20 ____.

Notary Public in and for the State of Washington

Name (Printed): _____

Residing at: _____

Commission Expiration: _____

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071

The U.S. Department of Transportation (USDOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., ET. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of USDOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the USDOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

END OF SECTION

INSTRUCTION TO BIDDERS

A. EXAMINATION OF SITE AND CONSTRUCTION DOCUMENTS

1. Before submitting a proposal, the bidder shall:
 - a. Carefully examine the Project Manual, Drawings, and any Addenda
 - b. Visit the site of the work. Bidders are required to attend the pre-bid conference meeting on site (Section 00 00 10)
 - c. Fully inform itself of existing conditions and limitation, relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of its obligation to furnish all material and labor necessary to carry out the provisions of this contract.
 - d. Rely entirely upon its own judgment in making its bid,
 - e. Include in its bid a sum sufficient to cover all items required by the contract including all labor, materials, services, and incidentals necessary to complete this project.

B. ADDENDA AND INTERPRETATIONS

Bidders shall promptly notify the City of Kirkland of any ambiguity, inconsistency, or error which they may discover upon examination of the Project Manual, Drawings, and any Addenda or of the site and local conditions.

Bidders requiring clarification or interpretation of the Project Manual, Drawings, and/or any Addenda shall provide a written request to Anneke Davis (adavis@kirklandwa.gov) via e-mail with the subject line of "KJC TI: Bid Question". Requests received via phone or any other method other than e-mail will not be accepted. Bidders shall submit requests no later than July 17, 2026 at 5PM. Receipt of requests will be acknowledged however response will be via addendum.

Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Project Manual and Drawings. Any interpretation, correction or change of the Project Manual, Drawings, and any Addenda made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes.

Failure of any bidder to receive Addenda shall not relieve any such bidder from any obligation under its bid as submitted. All Addenda so issued shall become part of the Contract Documents. Bidders shall acknowledge receipt of all Addenda, if any, on the Bid Form. Failure to do so may result in the bid being declared non-responsive.

No oral or written statements by Owner, Engineer, Architect, or other representative of the Owner shall, in any way, modify the Project Manual, Drawings, and any Addenda whether made before or after letting the Contract.

C. PRODUCT SUBSTITUTIONS:

1. Substitutions: Bids must be based upon the specific articles and materials named in the Project Manual, Drawings, and any Addenda. Substitution may be made only under the following conditions:
 - a. Prior to Bid Opening: No later than July 17, 2026, at 5PM, prime bidders may submit to the City of Kirkland written requests for approval of articles or materials, accompanied by complete descriptions, technical data and samples. Approval or rejection of the proposed substitutions will be made by addenda issued to all bidders. Submit material/product requests as specified in Section 01 61 00 to Anneke Davis (adavis@kirklandwa.gov) via e-mail with the subject line of "KJC TI: Substitution Request". Requests received via phone or any other method other than e-mail will not be accepted. Receipt of requests will be acknowledged however response will be via addendum.
 - b. After Award of Contract: Approval of substitution will be made only in exceptional cases where the Contractor submits satisfactory evidence to the City of Kirkland that through no fault of its own, specified or otherwise approved items cannot be obtained in time to avoid delay to the work. Approval in such cases shall conform to the other requirements above.

D. BID FORM (Section 00 41 00)

Bids must be submitted on and according to the Bid Form. Fill in all spaces. Bids shall not contain any recapitulation of work done. State numbers in writing and in figures. Completed form must be without interlineation, alteration or erasure. Signatures shall be in longhand. The bid price(s) for the work as specified in the Project Manual, Drawings, any Addenda and any Alternates must be the total price to cover all items required by the contract including all labor, materials, services, taxes, permits, and incidentals necessary to complete this project.

E. POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of the power of attorney.

F. ORAL AND TELEGRAPHIC BIDS

Oral and telephonic modifications of bids cannot be considered.

G. SUBMISSION OF BID

Enclose all required bid submittal documents an envelope, as indicated in the Invitation to Bid. Deliver as indicated in the Invitation to Bid. Bidder is responsible for delivery of bid at or before the time set for bid opening. The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligation of the contract and to complete the

work contemplated therein. Conditional bids will not be accepted. No proposal or bid may be changed after the time set for receiving bids.

H. BID BOND

Each bidder agrees to furnish a certified check, bank cashier's check, or bid bond in the amount equal to five percent (5%) of the total base bid plus additive alternative bids (if applicable) within its bid proposal. Failure to provide this bid security when required shall render the bid non-responsive. The right is reserved to hold the bid security of the three lowest bidders until the award of the contract or for a period of sixty (60) days, whichever is the shorter time. Bids of all unsuccessful bidders will be returned as soon as feasible after the bid opening.

I. WITHDRAWAL OF BIDS

Any bidder may withdraw its bid either personally or by written request at any time prior to the time set for the bid opening. No bid may be withdrawn or modified after the time set for opening unless and until the award of the contract is delayed for period exceeding sixty (60) days.

J. TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Owner can issue Notice to Proceed at any time after contract execution. Bidder must agree to commence work within 7 calendar days of receipt of the Notice to Proceed; and achieve Substantial Completion of the Work within 70 consecutive calendar days of the date of the Notice to Proceed, and to achieve Final Completion of the work within twenty-eight (28) consecutive calendar days thereafter. Bidder must agree to pay as liquidated damages the sum of \$211.60 for each consecutive calendar day that Substantial Completion is delayed and the sum of \$105.80 thereafter for each consecutive calendar day that Final Completion is delayed. Liquidated damages have been established based on the estimated cost that will be incurred by City of Kirkland in the event the Contractor fails to complete the Work in the time stipulated.

K. SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with its delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of the Contract and for payment of all persons performing labor under the Contract and furnishing material or services in connection with the Contract as described in the Contract Documents. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner, registered in the State of Washington, Insurance Commissioner's Office. List Bonding Agent and address of same.

L. INSURANCE

The Contractor shall obtain such construction insurance as is set forth in Section 00 60 00 "Bonds and Certificates."

M. QUALIFICATIONS OF BIDDERS

Bidder must meet all criteria set forth in the Bidder's Qualifications (Section 00 10 20), Item 8 and the Bidder's responsibility Criteria in Section 00 15 30). The Owner may make such investigations as necessary to determine the ability of a Bidder to perform the work, and the Bidder shall furnish all such information and data as may be requested prior to bidding. The Owner reserves the right to reject any bid if the evidence submitted by, or if investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to perform the obligations of the Contract and to complete the work contemplated therein. Conditional Bids will not be accepted.

N. LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they shall be deemed to be included in the Contract the same as though written out in full therein. Bidders are advised that if successful, they will be required to meet all applicable federal, state, and local laws pertaining to permits, licenses, fees and taxes, as well as laws pertaining to employment and wages. Bidders are responsible for determining the extent and applicability of such laws.

O. AWARD OF THE CONTRACT/REJECTION OF BIDS

1. The Contract will be awarded to the responsible bidder submitting the lowest proposal complying with the condition of the Invitation for Bid and these contract documents provided the bid is reasonable and in the best interest of The Owner. Items in this bid, approved for contract by City of Kirkland, shall be awarded by the City of Kirkland.
2. If applicable, City of Kirkland reserves the right to select, or not select, all or individual alternate bid items whichever is determined to be in the best interest of the City of Kirkland. The City of Kirkland has the right to determine the low bidder on the basis of the sum of the Total Base Bid and Unit Prices (per bid form multipliers), and Alternates accepted (if any).
3. City of Kirkland reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in the interest of the Owner.
4. The bidder to whom the award is made will be notified at the earliest practicable date.

P. DISQUALIFICATION OF BIDDERS

Any one or more of the following causes may be considered sufficient for the disqualification of a Bidder and the rejection of its bid or bids:

- a. Evidence of collusion among Bidders.
- b. Lack of expertise as shown by past work, and judged from the standpoint of workmanship and performance history.
- c. Uncompleted work under other contracts which, in the judgment of the City, might hinder or prevent the prompt completion of additional work if awarded.

- d. Being in arrears on existing contracts, in litigation with an Owner, or having defaulted on a previous contract.
- e. Contractor's naming oneself as a Subcontractor for which they have no expertise and working knowledge directly within the firm.
- f. Contractor's inability to meet the Bidder's Qualifications (Section 00 10 20) outlined in item 8.
- g. Contractor's inability to meet the Bidder's Responsibility Criteria outlined in Section 00 15 30.
- h. Failure to comply with any requirements of the Invitation for Bid or Instructions to Bidders.

END OF SECTION

BID FORM

Bidder (Contractor): _____ Date: _____

Address: _____

Phone: _____ E-mail: _____

**TO: City of Kirkland
123 5th Avenue
Kirkland, WA 98033**

**RE: KJC TI – Jail Booking Area
JOB NO. 15-26-PW
CIP NO. PDTCOSSUPG
11740 NE 118th St, Kirkland, WA 98034**

GENERAL PROPOSAL

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this proposal are those named herein; that this proposal is in all respects fair and without fraud; that it is made without collusion with any official or employee City of Kirkland; and that the proposal is made without any connection or collusion with any person making another proposal on this contract.

The Bidder further declares that they have carefully examined the contract documents for the construction of the project; that they have personally inspected the site; that they have satisfied themselves as to the quantities involved, including materials and equipment and conditions of work involved, including the fact that the description of the quantities of work materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the contract documents; and that this proposal is made according to the provisions and under the terms of the contract documents, which documents are hereby made a part of this proposal.

The Bidder further agrees that they have exercised their own judgment regarding the interpretation of subsurface information and have utilized all data which they believe is pertinent from the Architect, Owner and other sources in arriving at his/her conclusions.

The Bidder agrees to hold their bid proposal open for sixty (60) days after the actual date of bid opening and to accept the provisions of the Instructions to Bidders regarding disposition of bid bond.

The Bidder agrees that if this bid is accepted through Award of Contract by Council, it will, within ten (10) calendar days after notification of acceptance, execute the contract with the Owner in the form of contract included in the contract documents, and will, at the time of execution of the Contract, deliver to the Owner the Performance and Payment Bonds and all Certificates of Insurance required therein, and will, to the extent of its proposals, furnish all machinery, tools, apparatus, and other means of construction and do the work in the manner, in the time, and according to the requirements as specified in the contract documents and required by the engineer/architect or other project manager designated thereunder.

BID FORM

TIME OF COMPLETION:

The Owner can issue Notice to Proceed at any time after contract execution. The undersigned understands and agrees that Substantial Completion of the work shall be no later than 70 consecutive calendar days after the Notice to Proceed, and that Final Completion of the work shall be no later than 28 consecutive calendar days after Substantial Completion. The Owner intends to issue a Limited Notice to Proceed prior to the issuance of the Notice to Proceed. See Section 01 10 00.

PERMITS, FEES AND INSPECTIONS:

Owner will obtain and pay for the general building permit. The contractor is required to meet the requirements and conditions of any owner-procured permits, to post the permits, and for the scheduling and inspections related to these permits. The Contractor is responsible for all other required permits for the project in their entirety: including, but not limited to, the plumbing, electrical low voltage, temporary power, mechanical, irrigation, trade, and utility permits. A City right-of-way permit is not required to be applied for or paid for as this is a City project, although the Contractor will need to comply with requirements of working in the right of way, such as, but not limited to, developing an approved traffic control plan for approval by the City. Utility charges and utility connection fees, if incurred by the contractor to facilitate the work, shall be paid back to the contractor by the Owner within the contract document change order process without markup of any kind. All other City of Kirkland and other State of Washington or local agency permits and requirements are the financial and administrative responsibility of the Contractor at no cost to the City of Kirkland.

BASE BID:

The Bidder further proposes to accept as full payment for the work proposed herein the amounts computed under the provisions of the contract documents and based upon the bid price for fully completed work as included in the proposal and the Bid Price represents a true measure of the labor, equipment, and materials required to perform and complete the work, including all allowances for overhead and profit for each type of work called for in these contract documents, as well as all use taxes, overhead, profit, bond premiums, insurance premiums and all other miscellaneous and incidental expenses. The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

The undersigned bids for complete construction of the **KJC TI – Jail Booking Area** project as follows:

For the **Total for Base Bid**, which does not include Washington State sales tax, the sum of:

_____ DOLLARS
(Please print dollar amount in words in space above.)

\$ _____
(Please write dollar figure in numerals in space above.)

TRENCHING

Trenching is included in the Total for Base Bid above. The bidder shall enter in the blank space provided below; the dollar amount (in numbers) the bidder has included in its Total for Base Bid for any work requiring trenching that will exceed a depth of 4'-0" per Chapter 49.17 RCW. If trenching excavation safety provisions do not pertain to the project the Bidder should enter "N.A." or "Not Applicable" in the following blank \$ _____. **The bidder must fill in the blank.**

BID FORM

ADDENDA

Receipt of the following Addenda is hereby acknowledged.

Addendum No. _____ dated _____

Addendum No. _____ dated _____

Addendum No. _____ dated _____

Addendum No. _____ dated _____

BID REVIEW MEETING

The Undersigned agrees that if they are the successful bidder, they will be available for a bid review meeting with the Architect and the Owner at the Owner's office, at a time to be agreed upon.

Within the three-year period immediately preceding the date of the bid solicitation for this Project, bidder has not been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

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

CONTRACTOR (Company Name)

By (Signature)

Printed Name/Title of Signatory

(Indicate whether Contractor is Partnership)

Washington State Contractor's
Registration Number

Contractor's Industrial Insurance
Account Number

Contractor's Address:

Telephone Number

Fax Number

BID FORM

**BID FORM TO BE SUBMITTED IN A SEALED ENVELOPE
END OF SECTION**

BID DEPOSIT

Herewith find deposit in the form of a cashier's check or certified check in the amount of \$ _____ which amount is not less than five percent (5%) of the total bid.

SIGN HERE _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Kirkland, as Obligee, in the penal sum of _____ dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for

_____ Project Name _____ Job Number _____

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award and shall give bond for faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure to do so, pay and forfeit to the Obligee the penal amount of the deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS _____ DAY OF _____, 20 _____.

PRINCIPAL:

SURETY:

Note: If a Bid Bond is provided, it must be accompanied by a power of attorney which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this Bid Bond.

**CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT
OF STATUTORY RETAINED PERCENTAGE**

CONTRACTOR: _____

RETAINAGE OPTIONS

Monies reserved under provisions of Chapter 60.28 RCW, at the option of the Contractor, shall be (Contractor to initial selection):

- ____ 1. Retained in a fund by the City: The Owner will hold retained monies in its Current Expense Fund Account. No interest will be earned on the retained percentage amount under this election.
- ____ 2. Bonded-in-Lieu: With the consent of the Owner, the contractor may submit a retainage bond for all or any portion of the amount of funds retained by the Owner in a form and from an authorized surety insurer acceptable to the Owner. Such bond and any proceeds therefrom shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in this chapter. The Owner shall release the bonded portion of the retained funds to the contractor within thirty days of accepting the bond from the contractor. Whenever an Owner accepts a bond in lieu of retained funds from a contractor, the contractor shall accept like bonds from any subcontractors or suppliers from which the contractor has retained funds. The contractor shall then release the funds retained from the subcontractor or supplier to the subcontractor or supplier within thirty days of accepting the bond from the subcontractor or supplier.
- ____ 3. Placed in Escrow/Investment: Monies reserved are placed in escrow with a bank or trust company by the City. When the monies reserved are placed in escrow, the City will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by the City and the bonds and securities held in escrow.

The Contractor in choosing option (3) agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges or both, and further agrees to assume all risks in connection with the investment of the retained percentages in securities.

- ____ 4. Placed in Interest Bearing Account: Monies reserved are deposited by the City in an interest-bearing account at the FDIC insured bank currently providing contracted banking services to the City of Kirkland. Interest on the account will be paid to the Contractor. Any fees incurred shall be the responsibility of the Contractor.

RELEASE OF RETAINAGE

The steps to release retainage begin after the Contractor has achieved Final Completion. The following documents are required to be on file prior to the release of retainage:

1. Intent to Pay Prevailing Wage (Contractor and all subcontractors)

Department of Labor/Industries
Employment Standards Division
General Administration Building
Olympia, Washington 98504
(360) 956-5335

2. Notice of Completion of Public Works Contract (City generates)

Department of Revenue
Excise Tax Division
Olympia, Washington 98504

3. Affidavit of Wages Paid (Contractor and all subcontractors)

Department of Labor/Industries

4. Certificates of Release - State Excise Tax by Public Works Contractor (Letters from State to City)

- a. Department of Revenue
- b. Department of Labor and Industries
- c. Employment Security Department

5. Resolution of all potential claims, evidenced by either:

- a. Receipt for Payment in Full or Release of Lien signed by Lien Claimant and filed with City (Responsibility of Contractor to Obtain).
- b. Claims against Retainage and/or Payment Bond filed with City by any such subcontractor, workman, or material supplier.

6. Current insurance certificate through retainage release (Contractor generates)

7. Produce final invoice for retainage if bond is not selected (Contractor generates)

Retainage is normally released within 30 days of receipt of all documents listed above.

CONTRACTOR:

Signature: _____

Print or Type Name: _____

Title: _____

Date: _____

THIS FORM TO BE EXECUTED AFTER CONTRACT IS AWARDED

END OF SECTION

AGREEMENT FORM

THIS AGREEMENT is made and entered into this _____ day of _____, 20__ by and between the City of Kirkland, Washington, a municipal corporation of the State of Washington, hereinafter referred to as "City" and _____, hereinafter referred to as "Contractor" effective as of the date of the first signature on the agreement so long as all other parties' authorized signatories have also executed the Agreement.

In consideration of the mutual covenants and obligations contained herein, the City and Contractor agree as follows:

- 1. Agreement.** The "Contract Documents" form the "Contract." The Contract Documents consist of this Agreement, any attached Exhibits, the Project Manual, including the General Conditions; Supplemental Conditions, if any, Special Provisions, if any, the Specifications, Contract Plans, and Amendments to the Specifications; and written modifications, amendments and Change Orders to the Contract issued after execution of this Agreement, the City's Contract Bid Documents for the Project, including but not limited to the Bid package, Instructions to Bidder, Addenda, Proposal Form, Contractor's Proposal and all documents submitted therewith in response to the City's Invitation to Bid, and any additional documents referenced as comprising the Contract and Contract Documents, which are hereby fully incorporated as part of the Contract as if set forth herein.
- 2. Project.** Contractor shall fully complete all Work and furnish all labor, tools, materials, and equipment for the project entitled _____, Project No. _____, including all changes to the Work, timely and in strict accordance with the Contract Documents.
- 3. Payments.** In consideration of full and faithful compliance with the terms and conditions of this agreement and the Contract Documents, the City shall pay Contractor, at the times and in the manner provided in the Contract Documents, the total sum of _____ Dollars (\$ _____), which sum is subject, however, to increase or decrease in such proportion as the quantities for unit price items set forth in the Bid Proposal Form are so changed as set forth in the Contract Documents or as modified by an approved Change Order or addendum as permitted by the Contract Documents. The payments to Contractor include the costs for all labor, tools, materials, equipment, and subcontracts for the Work.
- 4. Contract Sum.** The Contract Sum shall be the Total for Base Bid amount plus anticipated Washington State Sales Tax, subject to addition and deductions as provided in the Contract Documents.
- 5. Completion Date.** The Contract Time shall be measured from the Notice to Proceed date to the date of Substantial Completion, subject to adjustments of the Contract Time as provided in the Contract Documents. Time is of the essence in completion of the Work. Contractor shall achieve Substantial Completion of the Work by 70 consecutive calendar Days after receipt of the notice to proceed, which shall be sent via e-mail, subject to adjustments of this Contract Time as provided in the Contract Documents, and shall achieve Final Completion not later than twenty-eight (28) consecutive calendar Days thereafter. Contractor represents to the City that the Contract Time is adequate for full performance of the Work. Contractor shall also achieve any interim milestones and phasing requirements set forth in the Contract Documents. If the physical Work under this Agreement is not

completed within the time specified, Contractor shall pay liquidated damages and all engineering inspection and supervisions costs to the City as specified in the Contract Documents.

1. **Liquidated damages.** The City will assess, and Contractor will be responsible for, liquidated damages in the amount of \$211.60 per Day for each Day beyond the Contract Time that Substantial Completion is not timely achieved and \$105.80 per Day beyond the Contract Time that Final Completion is not timely achieved. Contractor and the City agree that any liquidated damages established by this Agreement are not penalties and are a reasonable estimation of actual damages to the City, as of this date of Agreement, based on the inherent uncertainty and difficulty in calculating and quantifying damages caused by delays in the construction of the Project. This provision is intended to be in lieu of Contractor's liability for delay damages sustained by Owner by reason of Contractor's delay in reaching Substantial Completion by the date set for Substantial Completion. This provision shall not relieve or release Contractor from liability occasioned by other breaches or defaults under this Contract, nor shall it limit Owner's rights to terminate the Contract for cause pursuant to the General Conditions or to pursue any other remedy under the Contract or otherwise. In addition, Owner may recover its actual damages (including direct architectural, administrative, and other related costs attributable to the Project) as a result of any delay by Contractor in reaching Final Completion within the time required in Paragraph 4 above.
2. **Independent Contractor.** Contractor's employees, while engaged in the performance of any of Contractor's services under this Agreement, shall be considered employees of the Contractor and not employees, agents, representatives of the City and as a result, shall not be entitled to any coverage or benefits from the City. Contractor's relation to the City shall be at all times as an independent contractor. Any and all Workman's Compensation Act claims on behalf of Contractor employees, and any and all claims by third-party as a consequence of any negligent act or omission on the part of Contractor's employees, while engaged in services provided to be rendered under this Agreement, shall be solely Contractor's obligation and responsibility.
7. **Jurisdiction and Venue.** Any lawsuit or legal action brought by any party to enforce or interpret this Agreement or any of its terms or covenants shall be brought in King County Superior Court for the State of Washington.
8. **Contract is complete and integrated agreement.** The Contract represents the entire, complete, and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. No oral representations or other agreements have been made by the parties except as specifically established in the Contract.
9. **Severability.** A court of competent jurisdiction's determination that any provision or part of this Agreement is illegal or unenforceable shall not cancel or invalidate the remainder of this Agreement, which shall remain in full force and effect. In such event a provision is determined void or unenforceable, the parties agree to negotiate a replacement provision to enable that party to receive the benefit as nearly as possible as to what it would have received but for the determination that a provision was illegal or unenforceable.
10. **Disclaimer.** No liability of Contractor shall attach to the City by reason of entering into this Agreement, except as expressly provided in this Agreement.

In witness whereof, the City, as approved by the City Council, and Contractor have executed this agreement by their proper officers or duly authorized agents

Dated: _____ Dated: _____

City of Kirkland

[Contractor Name] (Contractor)

By: _____

By: _____

Its: _____

Its: _____

Attention: If Contractor is a corporation, the name of the corporation should be listed in full and both the President and Secretary must sign the contract. OR, if one signature is permitted by corporation by-laws, a copy of the by-laws shall be furnished to the City and made part of the Contract Documents.

If the business is a partnership, the full name of each partner should be listed followed by d/b/a and the firm or trade name. Any one partner may sign the Contract.

If the business is a limited liability company, an authorized management member or manager must sign followed by his/her title.

(For corporations, LLC's and other legal entities)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____, to me known to be the _____ of _____, the legal entity that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said legal entity, for the uses and purposes therein set forth, and on oath stated that he/she was authorized to sign said instrument.

Given under my hand and official seal this _____ day of _____, 20____.

Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

(For individuals and d/b/a's)

STATE OF WASHINGTON)
) SS
COUNTY OF _____)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____ and _____ to me known to be the individual(s) described herein and who executed the foregoing instrument, and acknowledged that he/she/they signed the same as his/her/their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, 20__.

Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

END OF SECTION

BONDS AND CERTIFICATES

The bond and insurance requirements set forth on the following pages are required of the successful bidder.

- 1.01 GENERAL: In addition to the Bid Security, the Owner requires the Contractor to furnish the following bonds and insurance. The insurance coverage shall be maintained during the life of the Contract and for not less than one year thereafter, unless otherwise indicated herein.
- 1.02 BOND REQUIREMENTS:
- A. Evidence of Bonds Compliance
- a. Performance Bond: Submitted at time of execution of the Contract and attached thereto.
 - b. Labor, Materials, and Taxes (Payment) Bond: Submitted at time of execution of the Contract and attached thereto.
- B. Performance and Payment Bonds: The Contractor shall procure and maintain insurance, as required in this Section, without interruption from commencement of the Contractor's Work through the term of the Contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated herein. See Section 00 70 00 Paragraph 2.4.
- 1.03 INSURANCE & INDEMNITY REQUIREMENTS:

Indemnification / Hold Harmless:

The Contractor shall defend, indemnify and hold the City of Kirkland (Owner), its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or in connection with the performance of this Agreement, except for injuries and damages caused by the sole negligence of the City of Kirkland.

However, should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Contractor and the Owner, its officers, officials, employees, and volunteers, the Contractor's liability hereunder shall be only to the extent of the Contractor's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the Contractor's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Agreement.

- C. Insurance Term: The Contractor shall procure and maintain insurance, as required in this Section, without interruption from commencement of the Contractor's Work through the term of the Contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated herein.

- D. No Limitation: The Contractor's maintenance of insurance, its scope of coverage and limits as required herein shall not be construed to limit the liability of the Contractor to the coverage provided by such insurance, or otherwise limit the Owner's recourse to any remedy available at law or in equity.
- E. Minimum Scope of Insurance: The Contractor's required insurance shall be of the types and coverage as stated below:
- a. **Automobile Liability** insurance covering all owned, non-owned, hired, borrowed, and leased vehicles. Coverage shall be at least as broad as Insurance Services Office (ISO) form CA 00 01.
 - b. **Commercial General Liability** insurance shall be at least as broad as ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, stop gap liability, independent contractors, products-completed operations for a period of not less than three years following final acceptance of the Work for the benefit of the Owner, personal injury and advertising injury, and liability assumed under an insured contract. The Commercial General Liability insurance shall be endorsed to provide a per project general aggregate limit, using ISO form CG 25 03 05 09 or an endorsement providing at least as broad coverage. There shall be no exclusion for liability arising from explosion, collapse or underground property damage. The Owner shall be named as an additional insured under the Contractor's Commercial General Liability insurance policy with respect to the Work performed for the Owner using ISO Additional Insured endorsement CG 20 10 10 01 and Additional Insured-Completed Operations endorsement CG 20 37 10 01 or substitute endorsements providing at least as broad coverage.
 - c. **Workers' Compensation and Employer's Liability Insurance**: All employees of the Contractor and subcontractors shall be insured under Washington State Industrial Insurance. Employees not subject to the State Act shall be insured under Employer's Liability "Stop-Gap" coverage. A separate Certificate of Insurance shall be furnished to the Owner if any of the Contractor's payroll is not reported to the Washington State Industrial Insurance. The contractor shall be responsible for confirming compliance of all subcontractors with the above requirements.
 - d. **Builders Risk**: Contractor shall purchase and maintain Builders Risk insurance covering the interests of the Owner, the Contractor, Subcontractors, and Sub-subcontractors in the Work. Builders Risk insurance shall be on a special perils policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including flood, earthquake, falsework, flood, wind, theft, vandalism, malicious mischief, and collapse, and shall cover reasonable compensation for A/E's services and expenses required as a result of an insured loss. The Builders Risk insurance shall include coverage for temporary buildings, debris removal, and damage to materials in transit or stored off-site. The Builders Risk insurance shall be maintained until the Owner has granted substantial completion of the project.
 - e. If applicable, **Excess or Umbrella Liability** insurance shall be excess over and at least as broad in coverage as the Contractor's Commercial General Liability and Automobile Liability insurance. The Owner shall be named as an additional insured on the Contractor's Excess or Umbrella Liability insurance policy. The Excess or Umbrella insurance coverage will drop down when underlying policy aggregate limits are exhausted.

- F. Minimum Amount of Insurance: The Contractor shall maintain the following insurance limits:
- a. Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of \$2,000,000 per accident.
 - b. Commercial General Liability insurance shall be written with limits no less than \$2,000,000 each occurrence, \$2,000,000 general aggregate and a \$2,000,000 products-completed operations aggregate limit.
 - c. Employer's Liability Insurance: Employees not subject to the State Act shall be insured under Employer's Liability with a \$2,000,000 limit of liability.
 - d. Builders Risk insurance shall be written in the amount of the Contract Sum, including all Change Orders, for the Work on a replacement cost basis until Substantial Completion. Builders Risk insurance covering the Work shall have a deductible of \$5,000 for each occurrence, of which will be the responsibility of the Contractor. Higher deductibles for flood and earthquake perils may be accepted by the City upon written request by the Contractor and written acceptance by the Owner. Any increased deductibles accepted by the Owner will remain the responsibility of the Contractor.
- G. Full Availability of Contractor Limits: If the Contractor maintains higher insurance limits than the minimums shown above, the Owner shall be insured for the full available limits of Commercial General and Excess or Umbrella liability maintained by the Contractor, irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract or whether any certificate of insurance furnished to the Owner evidences limits of liability lower than those maintained by the Contractor
- H. Other Insurance Provision: The Contractor's Automobile Liability, Commercial General Liability and Builders Risk insurance policies are to contain, or be endorsed to contain, that they shall be primary insurance as respect the Owner. Any insurance, self-insurance, or self-insured pool coverage maintained by the Owner shall be excess of the Contractor's insurance and shall not contribute with it.
- I. Contractor's Insurance for Other Losses: The Contractor shall assume full responsibility for all loss or damage from any cause whatsoever to any tools, Contractor's employee-owned tools, machinery, equipment, or motor vehicles owned or rented by the Contractor, or the Contractor's agents, suppliers, contractors or subcontractors as well as to any temporary structures, scaffolding and protective fences. Insurance for such losses is the responsibility of the Contractor and the cost of such insurance shall not be included in the cost of insurance required herein before.
- J. Waiver of Subrogation: The Contractor and the Owner waive all rights against each other, any of their Subcontractors, Sub-subcontractors, agents and employees, each of the other, for damages caused by fire or other perils to the extent covered by Builders Risk insurance or other property insurance obtained pursuant to Section 00 60 00 of this Contract or other property insurance applicable to the Work. The policies shall provide such waivers by endorsement or otherwise.

- K. Acceptability of Insurers: Insurance is to be placed with insurers with a current A.M. Best rating of not less than A: VII.
- L. Verification of Coverage: The Contractor shall furnish the Owner with original certificates and a copy of the amendatory endorsements reflective of all insurance requirements in the City's contract documents, including but not necessarily limited to the additional insured endorsements, evidencing the Automobile Liability and Commercial General Liability insurance of the Contractor before commencement of the Work. Before any exposure to loss may occur, the Contractor shall file with the Owner a copy of the Builders Risk insurance policy that includes all applicable conditions, exclusions, definitions, terms and endorsements related to this project.

Certificate shall be issued on an ACORD Form, or a form that meets with the Owner's approval. Any Certificate filed with the Owner found to be incomplete or not compliant with the Contract Documents, will be returned as not satisfactory. Rejected certificates shall be corrected as necessary and resubmitted to the Owner.

The Certificate should contain the Contract Number and a "concise verbal definition" of the Contract to which the Certificate applies.

Certificates of Insurance shall indicate the following to be Additional Named Insureds:

- a. City of Kirkland; It's officers, elected officials, employees, agents, and volunteers
- b. Consultants hired by the Owner to administer the construction
- c. The Architect and Engineer of Record

The "Cancellation" Block shall be altered to include the wording "Should any of the above-described policies be canceled or materially reduced before expiration date thereof, the issuing company will mail 30 days written notice to the certificate holder named to the left."

Upon request by the Owner, the Contractor shall furnish certified copies of all required insurance policies, including endorsements, required in this Contract and evidence of all subcontractors' coverage.

- M. Subcontractors: The Contractor shall cause each and every Subcontractor to provide insurance coverage that complies with all applicable requirements of the Contractor-provided insurance as set forth herein, except the Contractor shall have sole responsibility for determining the limits of coverage required to be obtained by Subcontractors. The Contractor shall ensure that the Owner is an additional insured on each Subcontractor's Commercial General liability insurance policy using an endorsement as least as broad as ISO CG 20 10 10 01 for ongoing operations and CG 20 37 10 01 for completed operations.
- N. Notice of Cancellation: The Contractor shall provide the Owner and all Additional Insureds for this Work with written notice of any policy cancellation within two business days of their receipt of such notice. Each policy shall contain an endorsement stating that the insurance company will not, prior to the completion of the Work or any expiration date shown on the policy and certificate, whichever occurs first, terminate the policy, make any material change, or change any coverage therein

without first mailing, by registered mail, written notice of such action at least thirty (30) days prior to the termination or change, to the Owner.

- O. Failure to Maintain Insurance: Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the Owner may, after giving five business days' notice to the Contractor to correct the breach, immediately terminate the Contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Owner on demand, or at the sole discretion of the Owner, offset against funds due the Contractor from the Owner.

END OF SECTION

PERFORMANCE BOND

SURETY TO HAVE AN A.M. BEST RATING OF A:VII OR BETTER.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that _____ (Contractor), as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____, (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) in the sum of _____ dollars (\$_____), lawful money of the United States of America, plus the total amount of extra orders issued by the City to the Principal pursuant to the terms of the Contract referred to in the next succeeding paragraph hereof, for the payment whereof Principal and Surety bind ourselves, and our heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded, and is about to enter into, a written Contract with the City for **PROJECT NAME: KJC TI - JAIL BOOKING AREA**, which is hereby made a part of this bond as if fully set forth herein;

NOW, THEREFORE, the condition of this bond is such that:

1. If the Principal shall completely and faithfully perform all of its obligations under the Contract, including any warranties required thereunder, and all modifications, amendments, additions, and alterations thereto, including modifications which increase the contract price or time for completion, with or without notice to the surety;
2. If the Principal shall indemnify and hold the City harmless from any and all losses, liability, damages, claims, judgments, liens, costs, and fees of any type that the City may be subject to because of the failure or default of the Principal (a) in performance of any of the terms, conditions, or obligations of the Contract, including all modifications, amendments, additions, and alterations thereto, and any warranties required thereunder, and/or (b) in the payment for labor, equipment, and materials by satisfying all claims and demands incurred under the Contract, and reimbursing and paying Owner all expenses that Owner may incur in making good any default by the Principal; and
3. If the Principal shall indemnify and hold the City harmless from all claims, liabilities, causes of action, damages and costs, including property damages and personal injuries, resulting from any defect appearing or developing in the material provided or workmanship performed under the Contract;

THEN THIS obligation shall be null and void; otherwise to remain in full force and effect. If the City shall declare Principal to be in default of the Contract, and shall so notify Surety, Surety shall, within a reasonable time which shall not exceed 14 days, except for good cause shown, notify the City in writing of the manner in which surety will satisfy its obligations under this Bond.

Nonpayment of the Bond premium will not invalidate this Bond nor shall the City be obligated for the payment thereof. The Surety hereby waives notice of any modification of the Contract or extension of time made by the City.

Signed this _____ day of _____, 20__.

Principal: _____ Surety: _____

By: _____ By: _____

Title: _____ Title: _____

Address: _____ Address: _____

City/Zip: _____ City/Zip: _____

Telephone: () _____ Telephone: () _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.



LABOR, MATERIAL, AND TAXES BOND (PAYMENT BOND)

Surety to have an A.M. Best rating of A:VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that, _____ (**Contractor**), as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____ (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) for the use and benefit of claimants as hereinafter defined, in the sum of _____ **Dollars (\$_____)**, lawful money of the United States of America, plus the total amount of any extra orders issued by the City, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has been awarded, and is about to enter into, a Contract with City of Kirkland for **PROJECT NAME: KJC TI - JAIL BOOKING AREA**, which contract is by this reference made a part hereof;

WHEREAS, the contract is a public works contract, subject to the provisions of RCW Titles 39 and 60;

NOW, THEREFORE, the conditions of this obligation are such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for (a) all labor and material used or reasonably required for use in the performance of the contract and (b) all taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions: A claimant is defined as and includes (a) a person claiming to have supplied labor or materials for the prosecution of the work provided for in the contract, including any person having direct contractual relationship with the contractor furnishing the bond or direct contractual relationship with any subcontractor, or an assignee of such person, (b) the state with respect to taxes incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due and (c) any other person or entity as allowed or required by law.

1. The Principal and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full prior to Final Acceptance of the project, or materials were furnished by such claimant, has an action on this bond for such sum or sums as may be justly due claimant, and may have execution thereon. The City shall not be liable for the payment of any costs or expenses of any such suit or action.

(Form continues on next page)

2. No suit or action shall be commenced hereunder by any claimant (except the state with respect to taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due) unless the claimant has sent the written notice required under RCW Title 39 to the Principal and to the City's Purchasing Agent by registered or certified mail, or by hand delivery, no later than 30 days after Final Acceptance of the Project.

The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against the improvement, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety hereby waives notice of any modification of the contract or extension of time made by the City.

Signed this _____ day of _____, 20____	
Principal: _____	Surety: _____
By: _____	By: _____
Title: _____	Title: _____
Address: _____	Address: _____
City/Zip: _____	City/Zip: _____
Telephone: () _____	Telephone: () _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

END OF LABOR, MATERIAL AND TAXES (PAYMENT) BOND FORM

GENERAL CONDITIONS

PART 1 – GENERAL TERMS

1.1 DEFINITIONS

- A. “Application for Payment” means a written request submitted by Contractor to Owner for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner may require.
- B. “Architect,” “Engineer,” or “A/E” means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.
- C. “Award of Contract” refers to City of Kirkland Council’s acceptance of the Contractor’s Bid. Council Award, or Bid Rejection, will occur within 60 calendar days after Bid opening. If the lowest responsible Bidder and the City of Kirkland agree, this deadline may be extended. If they cannot agree on an extension by the sixty (60) calendar day deadline, the City of Kirkland reserves the right to Award the Contract to the next lowest responsible Bidder or reject all Bids. The City of Kirkland will notify the successful Bidder of the Contract Award in writing.
- D. “Change Order” means a written instrument signed by Owner and Contractor stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any, and (3) the extent of the adjustment in the Contract Time, if any.
- E. “Claim” means Contractor’s exclusive remedy for resolving disputes with Owner arising out of or relating to the Contract Documents or the breach thereof or requesting an adjustment in the Contract Sum or Contract Time. As used in the Contract Documents, the exclusive meaning of “equitable adjustment” is the ability of Contractor to follow the contractual dispute resolution process as set forth herein, including the requirement for submitting a timely Notice, substantiation, and Claim.
- F. “Construction Change Directive” (“CCD”) is a written order prepared by Owner that directs Work prior to total agreement on adjustment, if any, in the Contract Sum or Contract Time, or both.
- G. The “Contract” is the agreement between Owner and Contractor and is formed by the Contract Documents. The Contract represents the entire and integrated agreement between Owner and Contractor and supersedes prior negotiations, representations or agreements, either written or oral.
- H. “Contract Award Amount” is the sum of the Base Bid and any City accepted Alternates, including applicable sales tax at the current rate where the project resides.

- I. "Contract Documents" includes the Executed Agreement, General Conditions, modifications to the General Conditions, Supplementary and Special Conditions, Drawings and Specifications, the Project Manual, the Bonds and Insurance Certificate Requirements provided in the Bid Documents, and all addenda and modifications thereof.
- J. "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, including applicable sales tax at the current rate where the project resides.
- K. "Contract Time" is the number of calendar days allotted in the Contract Documents from the Notice to Proceed for achieving Substantial Completion of the Work.
- L. "Contractor" means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.
- M. "Day(s)" means calendar day(s) unless otherwise specified.
- N. "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.
- O. "Final Acceptance" means the written acceptance of the Work by Owner, as more fully set forth in Section 6.
- P. "Final Completion" means that the Work is fully and finally complete in accordance with the Contract Documents and Contractor has submitted its final Application for Payment, as more fully set forth in Section 6.
- Q. "Force Majeure" means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in Section 3.
- R. "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.
- S. "Notice to Proceed" means a written Notice from Owner to Contractor that permits pre-construction and construction activities to commence upon specified terms and defines the date on which the Contract Time begins to run.
- T. "Owner" means the City of Kirkland, a municipal corporation, which has the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents. Owner shall designate in writing a Representative who shall have authority to bind Owner with respect to all matters requiring Owner's approval or authorization. A/E does not have such authority.

- U. "Person" means a corporation, partnership, business association of any kind, trust, company, or individual.
- V. "Prior Occupancy" means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.
- W. "Project Manual" means all Bid Documents, Contract Documents, General Conditions, Supplementary Conditions, if any, Specifications, Special Provisions, if any, and Addenda, if any.
- X. "Progress Schedule" means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.
- Y. "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.
- Z. "Schedule of Values" means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail and format as requested by Owner.
- AA. "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. 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.
- BB. "Subcontract" means a contract between Contractor and a Subcontractor for the purpose of obtaining supplies, materials, equipment, work or services of any kind for or in connection with the Work.
- CC. "Subcontractor" means any Person of any tier, other than Contractor, who agrees to furnish or furnishes by contract with, or through Contractor, any supplies, materials, equipment, or services of any kind in connection with the Work.
- DD. "Substantial Completion" means that stage in the progress of the Work (or portion of the Work designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so that Owner can fully occupy or utilize the Work (or portion designated by Owner) for its intended use, as more fully set forth in Section 6. There may be separate dates of Substantial Completion specified in the Contract Documents for various phases or portions of the Work.
- EE. "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.

- FF. "Work Site" means the space identified and circumscribed on construction documents. The work site is controlled by the Contractor and the Contractor is responsible for compliance to regulatory requirements within the circumscribed area. Changes to the work site shall be submitted by Contractor and approved by Owner.

1.2 ORDER OF PRECEDENCE

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

1. Executed Agreement, including any Change Orders.
2. Supplementary Conditions.
3. Special Conditions or Modifications to the General Conditions.
4. General Conditions
5. Specifications and Drawings. The Specifications and Drawings are complementary and shall have equal precedence. Thus, anything mentioned in the Specifications but not shown on the Drawings, or shown on the Drawings but not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both. If there is any inconsistency between the Specifications and Drawings, Contractor will make an inquiry to Owner to determine how to proceed. Unless otherwise directed, Contractor will provide the better quality or greater quantity of any Work or materials, as reasonably interpreted by Owner, at no change in the Contract Sum or Contract Time. In case of conflict within the Specifications, provisions in Division 1 shall take precedence over provisions of any other Division. In case of conflict within the Drawings, large scale Drawings shall take precedence over small scale Drawings.
6. Signed and Completed Bid Form
7. Instructions to Bidders
8. Advertisement for Bids

1.3 EXECUTION AND INTENT

Contractor Representations: Contractor makes the following representations to Owner:

1. Contract Sum and Contract Time reasonable: The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;
2. Contractor familiar with Project: Execution of the Contract by Contractor is a representation that 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, weather, 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; No allowance shall subsequently be made on behalf of Contractor on account of error or negligence on its part or its failure to acquaint itself with the conditions of the site;

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 the 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

2.1 CONTRACTOR'S LIABILITY INSURANCE

General insurance requirements: Prior to commencement of the Work, Contractor shall obtain all the insurance required by the Contract Documents and provide evidence satisfactory to Owner that such insurance has been procured, including but not limited to (1) Certificates of Insurance, on ACORD Form 27 and/or ACORD Form 25-S, or other forms that are similarly binding on insurers, (2) the actual costs (expressed as a percentage) of Contractor's liability insurance under Section 2.1A.1 below, (3) endorsements, including endorsements for additional insureds as listed in Section 2.1D below, (4) evidence of State Workers' Compensation coverage, and (5) a copy of any builder's risk policy required by the Contract Documents. All policies, endorsements and certificates must be signed copies and shall contain a provision that coverages afforded under the policies cannot be materially altered (i.e. the coverages reduced, the limits decreased or the additional insured removed) allowed to expire, or cancelled without first giving forty-five (45) days prior written Notice by certified mail to Owner. Contractor shall furnish to Owner copies of any subsequently issued endorsements amending, modifying, altering or restricting coverage limits. Review of Contractor's insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained shall be licensed to do business under Chapter 48 RCW or comply with the Surplus Lines Law of the State of Washington, and shall be acceptable to Owner.

Contractor shall include in the Contract Sum the cost of all insurance and bond costs required for the Work. Insurance carriers providing insurance shall be acceptable to Owner, and its A. M. Best rating shall be indicated on the insurance certificates.

- A. Term of insurance coverage: Contractor shall maintain the following insurance coverage during the Work and for three years after Final Acceptance, with the exception of Professional Liability insurance, when required, which shall be maintained for a minimum of three years. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by Section 5.

1. General Liability Insurance: Commercial General Liability (CGL) on an Occurrence Form, including personal injury, bodily injury and property damage liability on Contractor's operations, including Subcontractors; on Work Contractor may subcontract or sublet to others; and on the indemnity provisions of this Contract. Coverage shall include, but not be limited to:
 - a. Personal injury
 - b. Blanket contractual liability;
 - c. Completed operations/products liability;
 - d. Explosion, collapse, and underground, which applicable to the work being performed; and
 - e. Employer's liability coverage.

Contractor's policy shall be designated primary coverage for both defense and indemnity, and any Owner's policies excess and non-contributory.

2. Automobile Liability Insurance: Automobile liability on an Occurrence Form for owned, non-owned, and hired vehicles.
 3. Professional Liability: Required if professional services (e.g., architect, engineering, surveying, legal or medical) are being provided to the Owner and if those professional services are excluded from the General Liability Insurance provided. Coverage may be on a Claims Made basis, if coverage is maintained at least 3-years beyond Final Acceptance.
- B. Industrial Insurance compliance: Contractor shall comply with the Washington State Industrial Insurance Act and, if applicable, the Federal Longshoremen's and Harbor Workers' Act and the Jones Act.
 - C. Insurance to protect for the following: All insurance coverages shall protect against claims for damages for personal and bodily injury or death, as well as claims for property damage, which may arise from operations in connection with the Work whether such operations are by Contractor or any Subcontractor.
 - D. Owner as Additional Insured: All insurance coverages shall be endorsed to include Owner, its officers, and employees, and any required governmental agencies as additional named insureds for Work performed in accordance with the Contract Documents, and all insurance certificates and endorsements shall evidence such additional insureds.
 - E. Subcontractor Coverage: Contractor shall ensure and require that Subcontractors have insurance coverage to cover bodily injury and property damage on all operations and all vehicles owned or operated by Subcontractors. Subcontractors shall name Contractor and Owner, any required governmental agencies, and others designated in the Contract Documents as well as their officers and employees, as additional insureds and give at least 30 Days' Notice of cancellation.

2.2 COVERAGE LIMITS

Insurance amounts: The minimum coverage limits shall be as follows for applicable required insurance are specified in the Bonds and Insurance Certificates Section (Section 00 60 00) included with the Bid Documents. To the extent not set forth in the Bonds and Certificates Section or otherwise in the Contract Documents, they are as set forth below:

- A. Limits of Liability shall not be less than \$2,000,000 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. \$2,000,000 Combined Single Limit for Automobile Bodily Injury and Property Damage Liability, Each Accident or Loss.
- E. \$1,000,000 for Professional Liability, if applicable.
- F. Coverages and Minimums: The Owner does not represent that the minimum required insurance coverage or limits are adequate to protect Contractor from all liabilities.

2.3 INSURANCE COVERAGE CERTIFICATES

- A. Certificate required: Prior to commencement of the Work, Contractor shall furnish to Owner a completed certificate of insurance coverage and additional insured endorsements.
- 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.

2.4 PAYMENT AND PERFORMANCE BONDS

Conditions for bonds: Payment and performance bonds for 100% of the Contract Award Amount, including Washington state sales tax, shall be furnished for the Work, using the City of Kirkland Contract Bond Form provided. 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.

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

2.6 BUILDER'S RISK

- A. See Section 00 60 00.

PART 3 – TIME AND SCHEDULE

3.1 PROGRESS AND COMPLETION

- A. Contractor to meet schedule: Contractor shall diligently prosecute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion within the time period specified in the Contract Documents. If Contractor fails to perform in a timely manner in accordance with the Contract Documents and, through the fault of Contractor or Subcontractor(s), fails to meet the Progress Schedule, Contractor shall be in default and shall take such steps as may be necessary to immediately improve its progress without change in the Contract Sum or Contract Time.
- B. Progress Schedule: Promptly, but in no event later than fourteen (14) days after issuance of the Notice to Proceed, Contractor shall prepare and submit a preliminary network diagram in the form of a critical path method analysis ("Progress Schedule"). See Section 01 32 00 for specific requirements for the Contractor's Construction Schedule ("Progress Schedule"). The Progress Schedule shall be related to the entire Project and fully consistent with the Contract Documents. The Progress Schedule shall not exceed time limits specified by the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work, and shall show the sequence in which Contractor and the dates on which Contractor plans to start and finish major portions of the Work, including dates for submission of Submittals, which shall be coordinated with the Progress Schedule and identify dates for Owner review, and for acquiring materials and equipment. The Owner shall not be obligated to accept any Early Completion Schedule suggested by the Contractor. If the Contractor feels that the Work can be completed in less than the specified Contract Time, then the Surplus Time shall be considered Project Float. This Float shall be shown on the Project Schedule. It shall be available to accommodate changes in the work and unforeseen conditions. Neither the Contractor nor the Owner have exclusive right to this Float Time. It belongs to the Project.
- C. Monthly Updates: With each Application for payment submitted by Contractor other than the final Application for Payment, Contractor shall submit to the Owner a current Progress Schedule revised to indicate the portion of the Work executed during the time period covered by the Application for Payment, all progress slippages occurring during the previously covered time period, and the corrective actions taken for the slippage carryover into the time period covered by the Application for Payment, the anticipated delays or difficulties, and all other information required to adequately present the actual

status of the progress of the Work as of the date of the Application for Payment as may be further required by the Owner.

- D. Compliance with Progress Schedule: In the event the Contractor falls behind the Progress Schedule to such an extent that the Owner in good faith determines that the Contractor will be unable to achieve Substantial Completion by the date set forth in the Progress Schedule, as such date may be extended as provided in the Contract Documents, the Contractor shall within two (2) working days following the Owner's demand therefor, provide to the Owner, in writing, a detailed explanation of the measures the Contractor will take in order to recover from the delays so that the progress of the Work complies with the Progress Schedule. If, in the Owner's good faith business judgment, the Contractor's intended recovery measures will not cause the Contractor to recover from the delay (provided such delay arises from a cause which is the Contractor's or its Subcontractor's responsibility) so as to achieve Substantial Completion on schedule, the Owner may direct the Contractor to accelerate the progress of the Work, at the Contractor's sole cost, which acceleration costs shall not cause an adjustment to the Contract Sum.
- E. Contractor to notify Owner of delays: Contractor shall perform the Work in accordance with the most recent Progress Schedule submitted to Owner. Contractor shall promptly notify Owner in writing of any actual or anticipated event, interference, or that is delaying or could delay achievement of any milestone, performance of any critical path activity of the Work, or delay in the Substantial Completion date. 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.

3.2 DELAY

- A. Force Majeure Events: Acts of Force Majeure include, but are not limited to: acts of God or the public enemy; acts or omissions of any government entity not the fault of Owner or Contractor; fire or other casualty for which Contractor is not responsible; quarantine or epidemic; industry-wide strike or defensive lockout; unusually severe weather conditions which could not have been reasonably anticipated; and unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available. "Unusually severe weather" shall mean weather conditions that are abnormal for the period of time for which Force Majeure is claimed, that could not reasonably have been anticipated or avoided, and that had an adverse effect on the Progress Schedule.
- 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 submits Notice and a Claim in strict compliance with the requirements of Section 8. 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 submits Notice and a Claim in strict compliance with the requirements of Section 8.

- 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 may be entitled to an adjustment in the Contract Time only for that portion of the delay or failure of performance that was concurrently caused, provided it submits Notice and a Claim in strict compliance with the requirements of Section 8, but shall not be entitled to an adjustment in Contract Sum.
- F. Contractor to mitigate delay impacts: Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise. Contractor shall not recover damages, an equitable adjustment or an increase in the Contract Sum or Contract Time from Owner where Contractor could have reasonably avoided the delay by the exercise of due diligence.
- G. Types of damages permitted: If Contractor and its Subcontractors are entitled to a change in the Contract Sum, the amount of the change shall be the actual costs incurred by the Contractor and Subcontractors directly related to the change calculated in accordance with Section 7 and provided Contractor has complied with Section 8. Failure of Contractor to comply with Section 8 shall result in waiver of Contractor's Claim. Contractor and its Subcontractors shall not be entitled to damages arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant underrun; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended overhead; profit upon damages for delay; impact damages including cumulative impacts; or similar damages.
- H. 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.
- I. 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.

3.3 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 obligations or liabilities pursuant to the Contract Documents. If Contractor substantially fails to perform in a timely manner in accordance with the Contract Documents and, through the fault of Contractor or Subcontractor(s), fails to achieve Substantial Completion within the Contract Time, Contractor shall be in default.

- B. Actual Damages: If no liquidated damages are set forth in the Contract Documents, actual damages may be assessed for failure to achieve both Substantial Completion and Final Completion within the time provided. Actual damages will be calculated on the basis of direct, architectural, administrative, and any other related costs attributable to the Project from the date when Substantial and/or Final Completion should have been achieved, as applicable. Owner may offset these costs against any payment due Contractor.

PART 4 – SPECIFICATIONS AND CONTRACT DOCUMENT REVIEW

4.1 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

- A. Specifications and Drawings are basis of the Work: The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Drawings, Specifications, and other provisions of the Contract Documents.
- B. Parts of the Contract Documents are complementary: The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the

Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

- C. Contractor to report discrepancies in Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency, or omission in the Contract Documents, it shall promptly and before proceeding with the Work affected thereby, report such conflict, error, inconsistency, or omission to A/E in writing.
- D. Contractor knowledge of discrepancy in documents – responsibility: Contractor shall do no Work without applicable Drawings, Specifications, and, where required, accepted shop drawings and other Submittals, unless instructed to do so in writing by Owner. If Contractor performs any construction activity, and it knows or reasonably should have known that any of the Contract 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.

4.2 SUBMITTALS

- A. Definition of Submittals: “Submittals” means documents and other information required to be submitted to A/E by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural elements; and the installation (i.e. form, fit, and attachment details) of materials and equipment. Submittals can include, but are not limited to, shop drawings, product data, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples, and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use, and disclose Submittals provided in accordance with the Contract Documents. Submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require Submittals.
- B. Approval of Submittals by Contractor and A/E: Contractor shall coordinate all Submittals with the Progress Schedule, shall review them for accuracy, completeness, and compliance with the Contract Documents, and shall indicate its approval thereon as evidence of such coordination and review. Where required by law, Submittals shall be stamped by an appropriate professional licensed by the state of Washington. Submittals

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

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

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

- A. The City/Owner not Contractor, owns Copyright of Drawings and Specifications: The Drawings, Specifications, and other documents prepared by A/E are instruments of A/E's contracted service to the City 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. License granted to Owner: Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional cost or royalty, to use for its own purposes (including reproduction) all Submittals, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Submittals, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Submittals, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in Section 5 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Submittals hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this Section.

PART 5 – PERFORMANCE

5.1 CONTRACTOR CONTROL AND SUPERVISION

- A. Contractor responsible for Means and Methods of construction: Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, unless the Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner. The Contractor shall be responsible to the Owner for acts and omissions of Contractor, Contractor's employees, Subcontractors, and their agents and employees, and other person or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.
- B. Competent project manager required: Contractor shall employ a competent project manager and necessary assistants. The project manager shall, at a minimum, maintain all records and documentation of the Project per the contract. The project manager shall represent the Contractor. Contractor, as soon as practicable after award of the Contract, shall furnish in writing to Owner the name and qualifications of its proposed project manager. Within 14 days of receipt of the information, Owner may reply to Contractor in writing stating (1) whether Owner has reasonable objection to the proposed project manager or (2) that Owner requires additional time to review. The project manager must be satisfactory to Owner and shall not be changed without the prior written consent of Owner. Owner may require Contractor to remove the project manager from the Project, if Owner reasonably deems the project manager incompetent, careless, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.
- C. Competent superintendent required: Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The Contractor shall notify the Owner of any absence by the superintendent and shall appoint another qualified person of the Contractor's team, including the project manager, project engineer or general foreman to be on site

during the superintendent's absence. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Contractor, as soon as practicable after award of the Contract, shall furnish in writing to Owner the name and qualifications of its proposed superintendent. Within 14 days of receipt of the information, Owner may reply to Contractor in writing stating (1) whether Owner has reasonable objection to the proposed superintendent or (2) that Owner requires additional time to review. The superintendent must be satisfactory to 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.

- D. Contractor to employ competent and disciplined workforce: Contractor shall enforce strict discipline and good order among all of the Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor's employees shall at all times conduct business in a manner which assures fair, equal, and nondiscriminatory treatment of all persons. Owner may, by written notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.
- E. Contractor to keep Project documents on site: Contractor shall keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Submittals, and permits and permit drawings.
- F. Contractor to comply with ethical standards: Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors' employees, if they are in violation of this act.
- G. Daily Reports: Contractor shall provide a Daily Report to the Owner for each work day during the Contract Time. The Daily Report shall be completed on a form subject to the approval of the Owner and Architect. The Daily Report shall include names of subcontractors, work performed, equipment used, number of workers and hours worked on site each day. The Daily Report shall include any disputed, delayed, or disrupted Work as well as any changed or additional Work requested or identified. The Daily Report shall not serve as a substitute for, or relieve Contractor of its obligations to provide formal written notice to Contractor as required by the Contract Documents, including but not limited to Section 7 and Section 8.

5.2 PERMITS, TAXES, PATENTS AND ROYALTIES

- A. Permits: Owner will obtain and pay for the General Building Permit. The contractor is required to meet the requirements and conditions of any owner-procured permits, to post the permits, and for the scheduling and inspections related to these permits. The Contractor is responsible for all other required permits for the project in their entirety: including, but not limited to, the plumbing, electrical and electrical low voltage, temporary

power, mechanical, irrigation, trade, and utility permits. Prior to Final Acceptance, the approved, finalized permits shall be delivered to the Owner.

- B. 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. No person shall, on the grounds, of age, race, creed, color, sex, sexual orientation, religion, national origin, marital status, honorably discharged veteran or military status, or disability (physical, mental, or sensory) be denied the benefits of, or otherwise be subjected to discrimination under any project, program, or activity funded in whole or in part under this Agreement.
- C. Taxes: Contractor shall pay sales, consumer, use, business and occupation, income and similar taxes for the Work that are legally enacted when the initial Contract Sum is agreed.
- D. Patents and Royalties: Contractor is responsible for, and shall pay, all royalties and license fees. Contractor shall defend, indemnify, and hold Owner harmless from any costs, expenses, and liabilities arising out of the infringement by Contractor of any patent, copyright, or other intellectual property right used in the Work; however, provided that Contractor gives prompt notice, Contractor shall not be responsible for such defense or indemnity when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents. If Contractor has reason to believe that use of the required design, process, or product constitutes an infringement of a patent or copyright, it shall promptly notify Owner of such potential infringement.

5.3 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, certified by the Department of Labor and Industries, for the Contractor and each and every Subcontractor that performed work on the Project.

Contractor's compliance with this paragraph and RCW 60.28 is a condition precedent to the release of retainage to Contractor.

- 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 prefiled 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.

5.4 SAFETY AND CLEAN-UP

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

occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report 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. At a minimum, Contractor shall inform persons working on the Project site of the requirements of chapter 296-62 WAC, General Occupational Health Standards, any operations in their work area where hazardous chemicals are present; and 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. Contractor shall also provide training for persons working on the Project site which includes Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area, the physical and health hazards of the chemicals in the work area; the measures such persons can take to protect themselves from these hazards, 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 and Notice: 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. 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 relieve Contractor of sole and complete responsibility for safety at the Project site, for sole and complete responsibility for any violation of safety or property protection requirements or the correction thereof, or impose any duty upon Owner or A/E with regard to, or as

constituting any express or implied assumption of control or responsibility over, any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public. Any Notice Owner or A/E gives to Contractor of a safety or property protection violation will not: (1) relieve Contractor of sole and complete responsibility for the violation and the correction thereof, or for sole liability for the consequences of said violation; (2) impose any obligation upon Owner or A/E to inspect or review Contractor's safety program or precautions or to enforce Contractor's compliance with the requirements of this Section; or (3) impose any continuing obligation upon Owner or A/E to provide such Notice to Contractor or any other persons or entity.

- I. 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.

5.5 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.

5.6 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 Section 7 and Section 8. Failure to provide notice as required by this Section, Section 7 and Section 8 shall result in waiver of Contractor's right to any adjustment in the Contract Time and Contract Sum.

5.7 MATERIAL, EQUIPMENT, TESTS, AND INSPECTION

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

condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

- C. Owner may reject defective Work and non-conforming materials: Should any of the Work and/or materials 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. However, neither this authority of Owner nor a decision made either to exercise or not to exercise such authority shall give rise to a duty or responsibility of Owner or its representatives to Contractor, Subcontractors, their agents or employees, or other persons or entities performing portions of the Work. Work or materials condemned by the Owner or Architect/Engineer as failing to conform to Contract Documents, including but not limited to the quality of such materials, shall, upon notice from Owner or Architect/Engineer, be immediately removed by Subcontractor. Failure of Owner to immediately condemn any Work or materials as installed shall not in any way waive Owner's right to object thereto at any subsequent time.
- D. 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.
- E. 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: constitute or imply acceptance; relieve Contractor of responsibility for providing adequate quality control measures; relieve Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair Owner's right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.
- F. 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.
- G. 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.

5.8 CORRECTION OF NONCONFORMING WORK

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

5.9 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: Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW; a Washington Employment Security Department number, as required in Title 50 RCW; a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW; An electrical contractor license, if required by Chapter 19.28 RCW; an elevator contractor license, if required by Chapter 70.87 RCW, not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3), 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, and meet all supplemental responsibility criteria set forth in the Contract Documents.

- B. Provide names of Subcontractors and use qualified firms: Before submitting the first Application for Payment, Contractor shall furnish in writing to Owner the names, addresses, and telephone numbers of all Subcontractors, as well as suppliers providing materials in excess of \$2,500. Contractor shall utilize Subcontractors and suppliers which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any Subcontractor or supplier to whom Owner has a reasonable objection, and shall obtain Owner's written consent before making any substitutions or additions.
- C. 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.
- D. Automatic assignment of subcontracts: Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that (1) the assignment is effective only after termination by Owner for cause pursuant to Section 9 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; (2) after the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract; and (3) the assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.
- E. Owner may award other contracts; Contractor to cooperate: Owner may undertake or award other contracts for additional work at or near the Project site. Owner shall help coordinate the activities of Owner's own forces and of each separate contractor engaged by Owner with the Work of Contractor, who shall reasonably cooperate and coordinate 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.

5.10 WARRANTY

- A. Contractor warranty of Work: In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed by Contractor.
- B. Contractor responsibilities: With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:

1. Obtain warranties: Obtain, assign if requested, and furnish directly to Owner, all warranties that would be given in normal commercial practice or that are required by the Contract Documents, first executed by the applicable Subcontractor and those suppliers and manufacturers furnishing materials for the Work, and subsequently countersigned by Contractor, which shall extend to Owner all rights, claims, benefits and interests that Contractor may have under express or implied warranties or guarantees against the Subcontractor, supplier or manufacturer for defective or non-conforming Work;
 2. Warranties for benefit of Owner: Require all warranties to be executed, in writing, for the benefit of Owner;
 3. Enforcement of warranties: Enforce all warranties for the benefit of Owner, if directed by Owner; and
 4. Contractor responsibility for Subcontractor warranties: Be responsible to enforce any Subcontractor's, manufacturer's, or supplier's warranties should they extend beyond the period specified in the Contract Documents.
- C. Warranties beyond Final Acceptance: The obligations under this Section shall survive Final Acceptance.

5.11 INDEMNIFICATION

- A. Contractor to indemnify Owner: To the fullest extent permitted by law, Contractor shall defend, indemnify, and hold Owner and A/E, their consultants, and agents and employees, directors, elected officials, officers, lenders, successors and assigns of any of them (collectively, the "Indemnified Parties"), 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, direct and indirect, or consequential (including but not limited to costs and attorneys' fees incurred on such claims or in proving the right to indemnification), arising out of, caused by or resulting from performance of the Work. Contractor's indemnity and defense obligations do not extend to liability resulting from: the sole negligence or willful misconduct of the Indemnified Parties. Contractor's duty to indemnify and defend Owner for liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the concurrent negligence of (a) the Indemnified Parties; and (b) Contractor or its agents, employees, and Subcontractors and suppliers of any tier, shall apply only to the extent of the negligence of Contractor, its agents, employees, and Subcontractors and suppliers of any tier. This indemnification obligation shall include, but is not limited to, all Claims against the Owner by an employee or former employee of the Contractor or any Subcontractor.
- B. Obligations: The obligations of Contractor under this Section shall survive completion, acceptance, final payment and termination of the Contract and shall not be construed to negate, abridge, or otherwise reduce any other right or obligations of indemnity that would otherwise exist as to any party or person described in this Section. To the extent the wording of this Section would reduce or eliminate the insurance coverage of Owner or Contractor, this Section shall be considered modified to the extent that such insurance

coverage is not affected. To the extent that any portion of this Section is stricken by a court or arbitrator for any reason, all remaining provisions shall retain their vitality and effect.

- C. RCW Title 51: 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.**
- D. Defense Costs. Defense cost recovery shall include all fees (of attorneys and experts), in costs and expenses incurred in good faith. In addition, Owner shall be entitled to recover compensation for all of its expenses (including materials and labor) consumed in its defense.

PART 6 – PAYMENTS AND COMPLETION

6.1 CONTRACT SUM AND APPLICATION FOR PAYMENTS

- A. Owner shall pay Contract Sum: Owner shall pay Contractor the Contract Sum for performance of the Work, in accordance with the Contract Documents.
- B. Contractor to submit Schedule of Values: At least 7 Days prior to 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”), but including a minimum of 30 line items. The approved Schedule of Values shall allocate appropriate amounts, not less than 5% of the total bid, to that portion of the Work between Substantial Completion and Final Completion to recognize not-yet-earned costs for demobilization, O&M manuals, and any other requirements for Project closeout and in advancing the Work from Substantial Completion to Final Completion. The approved Schedule of Values shall be used by Owner as a basis for reviewing progress payments. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.
- C. 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.
- D. Contractor certifies Subcontractors paid: By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.011, as their interests appeared in the last preceding Application for Payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in Section 1.3 are true and correct, to the best of Contractor’s knowledge, as of the date of the Application for Payment. Owner has

the right to request written evidence from Contractor that Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by Owner to Contractor for subcontracted Work. Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Owner shall not have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

- E. Reconciliation of Work with Progress Schedule: At the time it submits an Application for Payment, Contractor shall analyze and reconcile, to the satisfaction of Owner, the actual progress of the Work with the Progress Schedule. The submission of an Application for Payment constitutes a certification that the Work is current on the Progress Schedule.
- F. 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 within 10 miles of the Project: The material will be placed in a facility or location that is within a 10-mile radius of the Project, structurally sound, secure (continuously under lock and key), dry, lighted and suitable for the materials to be stored or otherwise approved by Owner;
 2. 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;
 3. Owner right of access to facility or location: Owner shall at all times have the right of access to the Project site;
 4. Contractor assumes total responsibility for stored materials: Contractor and its surety assume total responsibility for the stored materials; and
 5. 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.

6.2 PROGRESS PAYMENTS

- A. Owner to pay within 30 Days: Owner shall make progress payments, in such amounts as Owner determines are properly due, within 30 Days after receipt of a properly executed Application for Payment. Owner shall notify Contractor in accordance with chapter 39.76 RCW if the Application for Payment does not comply with the requirements of the Contract Documents.
- B. Withholding retainage; Options for retainage: Owner shall retain 5% of the amount of each progress payment until 45 Days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including, at Owner's request, consent of

surety to release of the retainage. In accordance with chapter 60.28 RCW, Contractor may request that monies reserved be retained in a fund by Owner, deposited by Owner in a bank or savings and loan, or placed in escrow with a bank or trust company to be converted into bonds and securities to be held in escrow with interest to be paid to Contractor. Owner may permit Contractor to provide an appropriate bond in lieu of the retained funds.

- C. Title passes to Owner upon payment: Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not, however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents. A progress payment, or partial or entire use or occupancy of the Project by Owner, shall not constitute acceptance of Work.

6.3 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) Work not in accordance with the Contract Documents; (2) Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum; (3) Work by Owner to correct defective Work or complete the Work in accordance with Section 5; (4) Claims (except where an insurer has unconditionally accepted coverage) filed or reasonable evidence indicating probable filing of such claims unless Contractor provides security acceptable to Owner; (5) The failure of Contractor to make payments to Subcontractors for labor, materials or equipment; (6) Damage to Owner or a separate contractor (except where an insurer has unconditionally accepted coverage); (7) Failure to submit affidavits pertaining to wages paid or certified payrolls as requested or otherwise required by statute; (8) Contractor's failure otherwise to perform in accordance with the Contract Documents; or (9) 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.

6.4 RETAINAGE, BOND CLAIM RIGHTS, AND LIENS

- A. Chapters 39.08 RCW and 60.28 RCW incorporated by reference: Chapters 39.08 RCW and 60.28 RCW, concerning the rights and responsibilities of Contractor and Owner with regard to the performance and payment bonds and retainage, are made a part of the Contract Documents by reference as though fully set forth herein.
- B. Liens: Contractor shall promptly pay (and secure the discharge of any liens asserted by) all persons properly furnishing labor, equipment, materials or other items in connection with the performance of the Work (including, but not limited to, any Subcontractors) to the extent that Owner has paid Contractor for this Work. Owner may, at its option,

withhold payment, in whole or in part, to Contractor until lien and claim releases are furnished. Contractor may provide other security acceptable to Owner, such as a bond, in lieu of paying disputed liens or claims. Contractor shall defend, indemnify, and hold harmless Owner from any liens, including all expenses and attorneys' fees, except to the extent a lien has been recorded because of a failure of payment by Owner for the Work implicated in any such lien.

6.5 SUBSTANTIAL COMPLETION

- A. Substantial Completion defined: Substantial Completion is the stage in the progress of the Work (or portion thereof designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so Owner has full and unrestricted use and benefit of the facilities (or portion thereof designated and approved by Owner) for the use for which it is intended. All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if the Work cannot achieve Final Completion within the time specified in the Agreement, 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.
- B. Owner to determine if Work is complete: Upon receipt of Contractor's list, Owner will make an inspection to determine whether the Work or designated portion thereof has achieved Substantial Completion. If Owner's inspection discloses any item, whether or not included on Contractor's list, that is not sufficiently complete in accordance with the Contract Documents so that Owner can occupy or utilize the Work or designated portion thereof for its intended use, Contractor shall, before the occurrence of Substantial Completion, complete or correct the item upon notification by Owner, and Contractor shall then submit a request for another inspection by Owner to determine Substantial Completion. If Owner determines that the Work or designated portion has not achieved Substantial Completion, Contractor shall expeditiously complete the Work or designated portion, again request an inspection, and pay the costs associated with the re-inspection.
- C. Contractor to complete punch list in timely manner: Contractor shall prepare, continue to monitor, and cause to be completed, all punch lists with respect to the activity of each Subcontractor and report weekly to Owner on outstanding punch list items.

6.6 PRIOR OCCUPANCY

- A. Prior Occupancy defined; Restrictions: Owner may, when legally permissible to do so and upon written Notice to Contractor, take possession of or use any completed or partially completed portion of the Work ("Prior Occupancy") at any time prior to Substantial Completion, and Contractor shall cooperate with such occupancy and use and the establishment of a punch list. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the Work; accelerate

the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date of Substantial or Final Completion; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.

- B. Damage; Duty to repair and warranties: Notwithstanding anything in the preceding paragraph, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor's one year duty to repair any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.7 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

- A. Final Completion defined: Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing, but in no case shall it constitute Final Acceptance, which is a subsequent, separate, and distinct action.
- B. Final Acceptance defined: Unless otherwise determined by Owner, Final Acceptance shall be achieved after Contractor has completed all the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Pursuant to RCW 60.28, "Lien for Labor, Materials, Taxes on Public Works," completion of the Contract Work shall occur upon Final Acceptance. Neither Final Acceptance nor final payment shall release Contractor or its sureties from any obligations of these Contract Documents or the payment and performance bonds, or constitute a waiver of any claims by Owner arising from Contractor's failure to perform the Work in accordance with the Contract Documents.
- 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 Section 8.

PART 7 – CHANGES

7.1 CHANGE IN THE WORK

- A. Changes in the Work: Changes in the Work may be accomplished after execution of the Contract without invalidating the Contract. Changes in the Work are recognized and incorporated into the Contract solely by Change Order and are subject to the limitations stated in this Part 7 and elsewhere in the Contract Documents. A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone. Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the

Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

- B. Change Order: A Change Order is a written instrument signed by the Owner, Contractor, and Architect that modifies or amends the Contract Documents by setting forth: (1) a change in the Work, (2) the amount of any adjustment in the Contract Sum, and (3) the extent of any adjustment in the Contract Time. The Change Order shall constitute full payment and final settlement of all claims for time and 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 Change Order.
- C. Change Order Proposal from Contractor: If Contractor at any time believes that a change in the Work has occurred that involves a change in the Contract Sum and/or Contract Time, Contractor shall provide written Notice to Owner in accordance with Section 8. Contractor's failure strictly to follow the procedure set forth in the Contract Documents shall waive any right of Contractor to a change in the Contract Sum or Contract Time on account of any such change in the Work.
- D. Owner-Initiated Changes: For an Owner-initiated change or directive, Owner may
1. Request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a COP within 14 Days of the request from Owner, or within such other period as mutually agreed. Contractor's COP shall reflect 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. Upon receipt of the COP, Owner may accept the proposal and incorporate it into a Change Order, reject the proposal, request further documentation, or negotiate acceptable terms with Contractor. If Contractor does not submit the COP within the required time, Contractor waives Contractor's rights to reject a Construction Change Directive issued for the same change in Work. If Owner does not issue a CCD for the same change in Work, Owner is entitled to impose a penalty of \$500 per day for each day the COP is late.
 2. Issue a Construction Change Directive (CCD). Pending execution of a Change Order, Owner may issue a CCD directing Contractor to proceed immediately with the Work. A CCD is a written order prepared by Owner that directs Contractor to perform Work prior to total agreement on an adjustment, if any, in the Contract Sum and/or Contract Time. Owner may direct Contractor through a CCD, at any time and without invalidating the Contract, to proceed with a change in the Work or to perform Work that Contractor contends to be a change in the Work, with or without the agreement of Contractor and prior to agreement of the basis for adjustment, if any, to the Contract. Owner's use of a CCD does not constitute agreement that the directive constitutes a change in the Work, the Contract Sum or the Contract Time. All Work done pursuant to an Owner-directed change in the Work shall be executed in accordance with the Contract Documents. Upon receipt of a CCD, Contractor shall promptly commence and proceed diligently with performance of the directed

Work. Within 7 Days of its receipt of a CCD, Contractor shall notify Owner in writing either (a) of its acceptance of its terms, in which case the terms will become effective, and the CCD will be incorporated into a Change Order, or (b) of Contractor's rejection of the terms, in which case Contractor must submit a written Rejection within 14 Days after Contractor delivered written Notice to Owner as noted above. The written Rejection must fully explain the reasons for rejecting the CCD and include all necessary supporting documentation. Failure to submit written Notice within 7 Days of Contractor's receipt of a CCD or a written Rejection with 14 Days after delivery of written Notice shall constitute Contractor's acceptance of the terms of the CCD. Contractor's Rejection of a CCD shall not relieve Contractor of its obligation to comply promptly with the CCD.

- E. Contractor fault or negligence alleged as basis for change in Contract Sum: No change in the Contract Sum shall be allowed to the extent Contractor's changed cost of performance is due to the fault or negligence of Contractor or anyone for whose acts Contractor is responsible; or to the extent Contractor is responsible for change concurrently caused by Contractor and Owner; or to the extent the change is caused by an act of Force Majeure as defined in this Agreement.

7.2 CHANGE IN THE CONTRACT SUM

- A. 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 COP.
- B. Allowances: Any Allowances stated in the Contract Documents shall be included in the Contract Sum. Items covered by Allowances shall be supplied for such amounts and by such persons or entities as Owner may direct, but Contractor shall not be required to employ persons or entities to whom Contractor has made reasonable and timely objection. Owner shall select materials and equipment under an Allowance with reasonable promptness. Allowances shall cover the net cost to Contractor of materials and equipment delivered and/or installed at the site, as identified in the Allowance, and all required taxes, less applicable trade discounts. Whenever actual costs are more than or less than Allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual, reasonable costs and the Allowances.
- C. Methods for Calculating Change Order Pricing: The value of any Work covered by a Change Order or any adjustment to the Contract Sum shall be determined by fixed price, unless otherwise agreed to by Owner. The following procedures shall apply with respect to pricing:
- a. Breakdown and itemization of details on COP: Contractor's COP 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. If the total cost of the change in the Work does not exceed \$2,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work is sufficiently definitive for Owner to determine fair value.

- b. 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 such as R.S. Means or other standards acceptable to the Owner and Contractor.
- c. Markups on additive and deductive Work: The cost of any additive or deductive changes in the Work shall be calculated as set forth below. 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.
- d. Components of Increased Costs: Any request for an adjustment of the Contract Sum shall include only the following
 - i. 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 craft labor. No supervision markup shall be allowed for a working supervisor's hours.
 - 2. Federal insurance: Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation.
 - 3. 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.
 - 4. 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.
 - ii. 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.
 - iii. 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:

1. The Equipment Watch Fleet Manager Estimator Package (digital). The maximum rate for standby equipment shall not exceed that shown in the Associated General Contractors Washington State Department of Transportation (AGC WSDOT) Equipment Rental Agreement, current edition on the Contract execution date.
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 Equipment Watch 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.

- iv. 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.

- v. Allowance for overhead and profit: 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. This allowance shall compensate Contractor for all non-craft 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, profit, 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, not to exceed the rates below:
1. Additive or Deductive Change Orders Performed by Contractor: 7% overhead and profit
 2. Additive or Deductive Change Order for Work performed by Subcontractor(s): 5 percent overhead and profit for Contractor and 10% overhead and profit for Subcontractor(s).
- vi. Insurance and bond premiums: Cost of change in insurance or bond premium, which shall be added after overhead and profit are calculated in accordance with paragraph (v) above. 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.
- D. Deductive Change or Credit: The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

7.3 CHANGE IN THE CONTRACT TIME

- A. Changes in Contract Time: The Contract Time shall only be changed by a Change Order. Claims relating to time shall be made in accordance with Section 8.
- B. Time extension permitted only if delay is not Contractor's fault: If Contractor is delayed at any time in the commencement or progress of the Work (1) by an act or neglect of Owner or anyone for whose acts Owner is responsible; or (2) by changes ordered by Owner in the Work; or (3) by Force Majeure; or (4) by delay authorized by Owner pending dispute resolution; or (5) by other causes that Owner determines may justify delay, then Contractor shall reasonably attempt to mitigate the delay, and the Contract Time shall be extended by Change Order for such reasonable time as Owner may reasonably determine consistent with the provisions of the Contract Documents. No adjustment in the Contract Time shall be allowed to the extent Contractor's changed time of performance is due to the fault or negligence of Contractor or anyone for whose acts Contractor is responsible.
- C. Contractor must demonstrate impact on critical path of schedule: Any change in the Contract Time covered by a Change Order or Claim shall be limited to the change in the critical path of the Work attributable to the change or event(s) giving rise to the Change Order or Claim. Contractor shall be responsible for showing clearly on the Progress Schedule that the change or event had a specific impact on the critical path and, except in case of concurrent delay, was the sole cause of such impact, and could not have been avoided by resequencing of the Work or other reasonable alternatives.
- D. Cost arising from change in Contract Time: Provided Contractor has strictly complied with the procedures set forth in Section 7 and Section 8, Contractor is entitled to compensation for the cost of a change in Contract Time only if all the following conditions are met:
1. Must be solely fault of Owner: The change in Contract Time must solely be caused by the fault or negligence of Owner or others for whom Owner is responsible;

2. Demonstrate impact on critical path: Contractor must establish the extent of the change in Contract Time in accordance with Section 7.3C. Owner is not obligated directly or indirectly for damages or an increase in the Contract Sum for any delay suffered by a Subcontractor that does not increase the Contract Time; and
3. Limitations on Costs: Neither Contractor nor a Subcontractor of any tier is entitled to payment for costs arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; home office overhead; expectant underrun; trade stacking; reassignment of workers; rescheduling of work; concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended overhead; profit upon damages for delay; impact damages, including cumulative impact; or similar damages.

PART 8 – CLAIMS AND DISPUTE RESOLUTION

8.1 CLAIMS

- A. Definition: A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of the Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract Documents. The term “Claim” also includes other disputes and matters in question between Owner and Contractor arising out of or relating to the Contract Documents. Claims must be initiated in writing and be made in accordance with the Contract Documents.
- B. Continuing Contract performance: Pending final resolution of a Claim, including the dispute resolution process, and except as otherwise agreed in writing or in the Contract Documents, Contractor shall proceed diligently with performance of the Work and maintain the Progress Schedule, and Owner shall continue to make payments of undisputed amounts in accordance with the Contract Documents.
- C. Claims for additional cost: If Contractor wishes to make a Claim for an increase in the Contract Sum, written Notice as provided herein shall be given before proceeding to execute the Work, and written Notice and a written Claim must be made in accordance with this Part 8, or it will be waived.
- D. Claims for additional time: If Contractor wishes to make a Claim for an increase in the Contract Time, written Notice as provided herein shall be given, and a written Claim must be made in accordance with this Part 8, or it will be waived.
- E. Claims for consequential damages: Contractor and Owner waive certain Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes damages incurred by Owner for income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and damages incurred by Contractor for principal and home office overhead and expenses including but not limited to the compensation of personnel stationed there, for loss of financing, business and/or reputation, for losses on other projects, for loss of profit, and for interest or financing costs. This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination. Nothing contained in this subparagraph, however, shall be deemed to

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

8.2 CLAIMS PROCESS

- A. Notice and Claims: Contractor shall provide Notice of any Claim within 14 Days of the event giving rise to the Claim. Contractor shall then provide its Claim, with substantiation as required in Paragraph B herein, no later than 20 Days after Contractor's submittal of its Notice of Claim. Any Notice and any Claim of Contractor, whether under the Contract or otherwise, must be made pursuant to and in strict accordance with the applicable provisions of the Contract Documents. No act, omission, or knowledge, actual or constructive, of Owner or anyone for whose acts Owner is responsible shall in any way be deemed to be a waiver of the requirement for timely written Notice and a timely written Claim unless Owner and Contractor sign an explicit, unequivocal written waiver. The fact that Owner and Contractor may consider, discuss, or negotiate a Claim that has or may have been procedurally or substantively defective or untimely under the Contract shall not constitute a waiver of the provisions of the Contract Documents unless Owner and Contractor sign an explicit, unequivocal written waiver. Contractor acknowledges and agrees that Contractor's failure to timely submit required Notices and/or timely submit Claims has a substantial impact upon and prejudices Owner, including but not limited to its inability to fully investigate or verify the Claim, mitigate damages, choose alternative options, adjust the budget, delete or modify the impacted Work, and/or monitor time, cost and quantities, and shall result in waiver of Contractor's Claim.
- B. Claim must cover all costs and be documented: A Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor (and Subcontractors) may be entitled and may not contain reservations of rights without Owner's written approval; any such unapproved reservations of rights shall be without effect. At a minimum, a Claim shall contain the following information:
1. Factual statement of Claim: A detailed factual statement of the Claim for additional compensation and/or time, if any, providing all necessary dates, locations, and items of Work affected by the Claim and confirming the damages asserted (time and cost) are actually caused by and/or a result of the act, event, or condition complained of;
 2. Dates: The date on which event(s) arose which gave rise to the Claim;
 3. Individuals knowledgeable about Claim: The name of each individual, including but not limited to employees of Contractor, Subcontractors, Owner and/or A/E believed to be knowledgeable about the Claim;
 4. Support from Contract Documents: The specific provisions of the Contract Documents that support the Claim;
 5. Identification of other supporting information: The identification of any documents and the substance of any oral communications that support the Claim;

6. Copies of supporting documentation: Data and copies of any identified documents, other than the Contract Documents, that support the Claim;
 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 and with the detail required by Section 7; 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.
- C. Waiver of rights: Any Claim of Contractor against Owner shall be conclusively deemed to have been waived by Contractor unless made in accordance with the requirements of Part 8.
- D. Owner may investigate: To assist in the review of a Claim, Owner may at any time visit the Project site, communicate directly with Subcontractors, or request additional information (including requesting an audit as authorized below) in order to fully evaluate the issues raised by the Claim.
- E. Owner may audit Claims: All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor or Subcontractors of any tier to permit Owner access to the books and records of Contractor or Subcontractors of any tier, or to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim, shall constitute a waiver of the Claim and shall bar any recovery. The audit may be performed by employees or representatives of Owner. Contractor and its Subcontractors shall provide adequate facilities acceptable to Owner for the audit during normal business hours. Contractor and all Subcontractors shall make a good faith effort to cooperate with Owner's auditors.
- F. Reciprocal RCW 42.56 rights: Contractor agrees, on behalf of itself and Subcontractors, that any invocation of RCW 42.56 at any time by Contractor or a Subcontractor, or their respective representatives, shall initiate an equivalent right to disclosures from Contractor and Subcontractors for the benefit of Owner. Failure to fully comply with these requirements shall constitute a material breach of the Contract and shall constitute a waiver of all Claims by Contractor and any Subcontractor that does not fully comply.

8.3 FORMAL RESOLUTION OF CLAIMS

- A. Mediation Required: To the extent a Claim is not resolved by Owner and Contractor, Claims, disputes, or other matters in controversy arising out of or related to the Contract shall be subject to mediation as a condition precedent to the initiation of binding dispute resolution. This requirement cannot be waived except by an explicit written waiver signed by both Owner and Contractor. Unless Owner and Contractor mutually agree in writing otherwise, all unresolved Claims shall be considered at a single mediation session that shall occur after Substantial Completion and prior to Final Acceptance by Owner. A request for mediation shall be delivered in writing to the other party to the Contract, and the parties shall promptly attempt to mutually agree on a mediator. If the parties do not agree on a mediator within 30 Days of a party's demand, the mediation, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. Mediation shall proceed in advance of binding dispute resolution proceedings. The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction.
- B. Litigation: Contractor may not commence litigation on a Claim unless the Claim has been raised and considered in accordance with the procedures of this Part 8, including mandatory mediation. Contractor shall have the burden to demonstrate in any litigation that it has complied with all requirements of this Part 8. All unresolved Claims of Contractor shall be waived and released unless Contractor has complied with the time limits of the Contract Documents, and litigation is served and filed within 180 Days after the Date of Substantial Completion approved in writing by Owner. This requirement cannot be waived except by an explicit, written waiver signed by Owner and Contractor. The pendency of a mediation, which shall mean the time period between a party's receipt of a written mediation demand and the date of the initial mediation session, shall stay this deadline for serving and filing a lawsuit. The deadline may also be stayed for an additional period by agreement of the parties or court order. Neither Contractor nor a Subcontractor, whether claiming under a bond or lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from Owner (but may recover attorneys' fees from the bond or statutory retainage fund itself to the extent allowable under law).

PART 9 – TERMINATION OF THE WORK

9.1 TERMINATION BY OWNER FOR CAUSE

- A. 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 repeatedly refuses or 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 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 repeatedly refuses or fails in a material way to replace or correct Work not in conformance with the Contract Documents;
 4. Contractor repeatedly refuses or fails to supply skilled workers or proper materials or equipment;
 5. Contractor repeatedly refuses or fails to make prompt payment due to Subcontractors or for labor;
 6. Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
 7. 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. Exclude the Contractor from the Site and/or 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 pursuant to Section 5; and
 3. Finish the Work by whatever other reasonable method it deems expedient.
- C. Payment upon Termination: If the unpaid balance of the Contract Sum exceeds costs 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, or any other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall survive termination of the Contract.
- D. 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.
- E. 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.

9.2 SUSPENSION OR TERMINATION BY OWNER FOR CONVENIENCE

- A. Owner Notice of Suspension or Termination for Convenience: Owner may, upon written notice, suspend or 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 suspension or termination for either cause or convenience, Contractor shall promptly:
1. Stop performing Work on the date and as specified in the notice of suspension or termination;
 2. 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 suspended or terminated;
 3. For Work terminated, cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;
 4. For Work terminated, assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts to the extent that they relate to the performance of Work terminated;
 5. 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 only to the extent not terminated or suspended.
- C. Terms of adjustment in Contract Sum if Contract terminated or suspended: If Owner terminates or suspends 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 during the period of suspension or 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. Failure of Contractor to comply with the requirements of Part 7 shall result in waiver of Contractor's claim.
- 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.

9.3 TERMINATION BY CONTRACTOR FOR CAUSE

- A. Contractor termination: Except as provided by RCW 60.28.080, Contractor may terminate the Contract for any of the following reasons:
1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped permanently;

2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped permanently; or
 3. The Work is stopped for a period of 60 consecutive Days through no act or fault of Contractor, a Subcontractor, or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor.
- B. Contractor termination procedure: If one of the above reasons exists, Contractor may, upon seven (7) Days' written Notice to Owner (during which period Owner has the opportunity to cure), terminate the Contract and recover from Owner payment for Work executed in accordance with the Contract Documents, including reasonable overhead and profit on Work executed and costs incurred by reason of such termination. The total recovery of Contractor shall not exceed the unpaid balance of the Contract Sum.

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

- A. Owner may stop Work for Contractor's failure to perform: If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until Owner has accepted satisfactory corrective action.
- B. Owner may carry out the Work after Contractor's failure to perform: If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a 14- Day period after receipt of written Notice from Owner to commence and continue to make reasonable progress toward the correction of such default or neglect with diligence and promptness, Owner may, without prejudice to other remedies Owner may have, correct such deficiencies, and an appropriate Change Order shall be issued deducting from payments then or thereafter due Contractor the reasonable cost of correcting the deficiencies, including Owner's expenses and compensation for A/E's additional services made necessary by the default, neglect or failure. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Owner.
- C. No equitable adjustment for Contractor's failure to perform: Contractor shall not be entitled to an equitable adjustment in the Contract Time or Contract Sum for any increased cost or time of performance attributable to Contractor's failure or refusal to perform or from any reasonable remedial action taken by Owner based upon such failure.

PART 10 – MISCELLANEOUS PROVISIONS

10.1 MISCELLANEOUS PROVISIONS

- A. 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 and the City of Kirkland, without regard to its choice-of-law provisions. Venue shall be in King County.
- B. Bound to successors; Assignment of Contract: Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other

party hereto and to the partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party shall assign the Contract without written consent of the other, except that Contractor may assign the Work for security purposes to a bank or lending institution authorized to do business in the state of Washington and City of Kirkland. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

- C. Meaning of words used in Contract Documents: Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard Specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority, whether such reference is specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in the Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such items as are shown on the Drawings, or required to complete the installation.
- D. No waiver of rights: Waiver of any provisions of the Contract Documents must be in writing and authorized by Owner. No other waiver is valid on behalf of Owner. No action, delay in acting, or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded under the Contract Documents, nor shall action, delay in acting, or failure to act constitute approval or an acquiescence in a breach therein, or otherwise prejudice the right of Owner to enforce a right or remedy at any subsequent time, except as may be specifically agreed in writing.
- E. Rights under Contract do not limit other rights: Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.
- F. Severability: If any portion of this Contract is held to be void or unenforceable, the remainder of the Contract shall be enforceable without such portion.
- G. Contractor must be registered and licensed: Pursuant to RCW 39.06, Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27. Contractor shall also have a current state unified business identifier number; have industrial insurance coverage for Contractor's employees working in Washington as required in Title 51 RCW; have an employment security department number as required in Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
- H. Employer contributions: Pursuant to RCW 50.24, "Contributions by Employers," in general and RCW 50.24.130 in particular, Contractor shall pay contributions for wages

for personal services performed under this Contract or arrange for a bond acceptable to the Commissioner.

- I. Apprenticeship requirements: If the Contract Sum for the Project exceeds one million dollars, Contractor shall comply with all applicable apprenticeship requirements, including but not limited to RCW 39.04.320. For each Project that has apprenticeship requirements, the Contractor shall submit a "Statement of Apprentice and Journeyman Participation" in a format approved by the City with every request for progress payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor.
- J. 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.
- K. Six year records retention period: The wage, payroll, and cost records of Contractor, and its Subcontractors, and all records subject to audit, shall be retained for a period of not less than 6 years after the date of Final Acceptance. The Contractor agrees to provide access to and copies of any records related to this Agreement as required by the City to audit expenditures and charges and/or to comply with the Washington State Public Records Act.
- L. 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.
- M. 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.
- N. 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.
- O. Contractor is independent contractor: Contractor shall be and operate as an independent contractor in the performance of the Work and shall have complete control over and responsibility for all personnel performing the Work. Contractor is not authorized to enter

into any agreements or undertakings for or on behalf of Owner or to act as or be an agent or employee of Owner.

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

END OF SECTION

SUPPLEMENTAL CONDITIONS

UNLESS EXPRESSLY OTHERWISE INDICATED, THE FOLLOWING REQUIREMENTS SUPPLEMENT THE REFERENCED ARTICLES OF THE "GENERAL CONDITIONS" SECTION 00 70 00 AND SUPERCEDE THEM WHERE THEY CONTRADICT THE SAME.

1.1 APPROVAL OF PERSONNEL TO WORK IN AN OCCUPIED DETENTION FACILITY

All personnel working onsite or who visit the work area, including the contractor and all sub-contractors, must be approved for access by the Kirkland Police Department (KPD).

To be approved for access, personnel complete KPD's application for a background check, which will require, at a minimum, the following information: name, e-mail address, address, birthdate, social security number, and a copy of their driver's license. After passing the background check, personnel must then successfully complete and pass online Criminal Justice Information Services (CJIS) training and agree to fingerprinting. KPD will have sole discretion on who may work onsite, based on the results of the background check, CJIS training, and fingerprinting. All personnel approved to work on site will be issued an identification badge, and must wear the badge, plainly visible to all, at all times while onsite. If KPD rejects personnel from working onsite, the contractor must find a suitable replacement. The City of Kirkland is not responsible for additional project cost or delay in the contractor finding suitable personnel.

1.2 WORK IN OCCUPIED DETENTION FACILITY

The Work shall be performed within an active and continuously occupied detention facility. The Contractor shall coordinate all activities with KPD and shall comply with all applicable security procedures, restrictions, and directives issued by KPD at all times. Access to and egress from the facility shall be controlled by KPD, and the Contractor shall allow for sufficient time for security screening, escort, and related procedures; no additional compensation or time extension will be granted for delays associated with such requirements.

The Contractor shall maintain strict accountability of all tools, equipment, and materials brought into the facility. Tool and equipment inventories shall be performed at the beginning and end of each work shift, or more frequently if required by KPD. Missing items shall be immediately reported to KPD. At the conclusion of each workday, the Contractor shall remove or secure all materials and equipment, clean the work area, and leave the site in a safe, secure, and orderly condition, subject to inspection and approval by KPD.

The Contractor acknowledges that facility operations take precedence over construction activities. The Contractor shall, upon direction from KPD, immediately suspend or modify Work to accommodate inmate movement, intake, release, emergencies, or other operational needs. Such suspensions may occur without prior notice and may be of indeterminate duration. No additional compensation or adjustment to the Contract Time will be allowed for interruptions, delays, or inefficiencies resulting from these conditions.

CONTRACTOR'S AFFIDAVIT OF RELEASE OF CLAIMS AND LIENS

To OWNER: City of Kirkland
123 5th Avenue
Kirkland, WA 98033
Project Name: _____
Project Number: _____

From CONTRACTOR: [Contractor Name]
[Address]
[City, State, Zip Code]

CONDITIONAL RELEASE	UNCONDITIONAL RELEASE
<p>The undersigned does hereby acknowledge and certify that upon receipt by the undersigned of a check from _____, in the sum of \$_____ and when the check has been properly endorsed and has been paid by the bank upon which it was drawn, this document shall become effective to release any and all claims for compensation, impacts, additional time, costs, and rights of Claim or lien which the undersigned has on the above referenced Project for labor, services, equipment, materials furnished and/or claims through (Date:) _____ except it does not cover any retention or items furnished thereafter. Before any recipient of this document relies on it, said party should verify evidence of payment to the undersigned. Items and Claims not waived and released by this Instrument:</p>	<p>The undersigned does hereby acknowledge and certify that the undersigned has been paid and has received progress payments in the sum of \$_____ for labor, services, equipment or materials furnished to the above referenced Project and does hereby release any and all claims for compensation, impacts, additional time, costs and rights of Claim or lien which the undersigned has on the above referenced Project, any state or federal statutory bond right and private bond right, any claim for payment. This release covers all payment for labor services, equipment, materials furnished and/or claims on the above referenced Project through (Date:) _____ only and does not cover any retention or items furnished after that date. Items and Claims not waived and released by this Instrument:</p>
<p>I CERTIFY UNDER PENALTY OF PERJURY UNDER LAWS OF THE STATE OF WASHINGTON THAT THE ABOVE IS A TRUE AND CORRECT STATEMENT.</p>	<p>I CERTIFY UNDER PENALTY OF PERJURY UNDER LAWS OF THE STATE OF WASHINGTON THAT THE ABOVE IS A TRUE AND CORRECT STATEMENT.</p>
<p>Signature: _____ (Authorized Corporate Officer/Partner/Owner)</p>	<p>Signature: _____ (Authorized Corporate Officer/Partner/Owner)</p>
<p>Printed Name: _____</p>	<p>Printed Name: _____</p>
<p>Title: _____</p>	<p>Title: _____</p>
<p>DATED: _____ 20__ at _____</p>	<p>DATED: _____ 20__ at _____</p>
<p>_____ (City, State)</p>	<p>_____ (City, State)</p>

END OF SECTION

DEPARTMENT OF LABOR WAGE RATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Prevailing wage rates for the locality or localities of the Work, as described by the Industrial Statistician of the Department of Labor and Industries, are required for this contract. Contractor remains solely responsible for verifying that the rates are accurate, current, and inclusive for all parts of this Work. Any off-site prefabrication may also require prevailing wages and the Contractor should contact the Department of Labor and Industries to ascertain those rates.

- B. Contractor to provide the "Notice of Intent to Pay Prevailing Wage Rates", as required by RCW 39.04, 39.12, 43.19, and 49.28 as amended. All paperwork regarding "Notice of Intent to Pay Prevailing Wage Rates" shall be sent directly to the Owner. The rules and regulations of the Department of Labor and Industries and the schedule of prevailing wage rates for the locality or localities where this Contract will be performed as determined by the Industrial Statistician of the Department of Labor and Industries, are by reference made a part of this Contract as though fully set forth herein.

Current prevailing wage rates for King County will apply to this project.
Current prevailing wage data are available online or at the following:

ADDRESS: Department of Labor and Industries
Prevailing Wage Section
P.O. Box 44540
Olympia, Washington 98504-4540

<http://www.lni.wa.gov/TradesLicensing/PrevailingWage/RateDatabase/default.asp>

The General Contractor and his sub-contractors are to pay for all filing fees for Statements of Intent to Pay Prevailing Wages and Affidavits. Pay for any change in rate during the course of construction.

Submit forms to: Department of Labor and Industries
Prevailing Wage Section
P.O. Box 44540
Olympia, Washington 98504-4540

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Use of premises.
 - 2. Specification formats and conventions.

1.3 USE OF PREMISES

- A. Contractor's use of premises for Work and storage is limited to the area of work
- B. Hours of Work: The contractor shall limit their work to those hours allowed by the building permit. Typically, the City of Kirkland allows construction only between the hours of 7 am and 8 pm, Monday through Friday, and between the hours of 9 am and 6 pm on Saturdays. Provide notification to the Owner for work on Saturdays. No construction on Sundays or observed holidays. Any other times of work shall be subject to approval of the Owner.
- C. Parking: The Owner shall not provide any off-site parking for the Contractor.
- D. Staging: The Owner shall not designate an off-site construction staging area.
- E. Miscellaneous: The Contractor shall:
 - 1. Assume full responsibility for protection and safekeeping of products stored on premises

1.4 EXISTING UTILITIES

- A. The Engineer assumes no responsibility for the completeness or accuracy of existing utility line information provided by the serving utilities and shown on the Drawings. Utility information shall be verified by the Contractor.
- B. Unless otherwise required, maintain all existing water, gas, and irrigation lines, lighting, power, and telephone wires or conduits, plus any other surface or subsurface utilities, and their connections to structures, undisturbed during progress of work unless noted.

- C. Should the Contractor, in the performance of the work, disturb, disconnect or damage any existing utilities required to remain in service, all expense arising from such disturbance, replacing or repair thereof shall be borne by the Contractor.
- D. Maintain and operate utilities systems to assure continuous service, except as otherwise approved by the Owner and the Developer. Give not less than 14 days notice of proposed utility shutdowns.
- E. Obtain approval from the Owner and all utility companies prior to cutting any utility lines.

1.5 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 33-division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 - 2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Related Sections include:
 - 1. Division 01 Section "Product Requirements."

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.3 INITIAL REQUIREMENTS

- A. Designate in writing the names of authorized members of Contractor's organizations who accept changes in the work and are responsible for informing other workers of the authorized changes.
 - 1. At the beginning of the Project, the Contractor shall submit a breakdown of all applicable trade and class wage rates intended to be incorporated into this Project using form provided by the Owner.
- B. Submit verification of the above rates if requested by the Owner.

1.4 DEFINITIONS

- A. Change Order: See General Conditions, Section 00 70 00.
- B. Architect's Supplemental Instructions: Work order, instructions, or interpretations, signed by Architect making minor changes in the work not involving a change in Contract Sum or Contract Time.
- C. Construction Change Directive: See General Conditions, Section 00 70 00.

1.5 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's standard form "Architect's Supplemental Instructions" or similar document as determined by the Owner.

1.6 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 2. Within 14 days after receipt of Proposal Request, submit Change Order Proposal with a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a Change Order Proposal, request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Change Order Proposal Form: Use Change Order Proposal form, approved by Architect.

1.7 CHANGE ORDERS

- A. On Owner's approval of a Change Order Proposal (COP), Architect will issue a Change Order for signatures of Owner and Contractor on Architect's standard form, or similar document as determined by the Owner.
- B. Owner-approved Change Order Proposals may be grouped together for processing in a Change Order, as agreed upon by both Owner and Contractor.
- C. Change Order Form: AIA Document G701 or similar form.
- D. All agreed-upon Change Orders shall be deemed full and final settlement of any and all claims of any kind, including without limitation those for direct or indirect costs or damages or for extension of time, relating to the subject matter of such Change Order.
- E. Contractor shall not undertake any work or incur any expense that Contractor does not believe is included in the work required by the existing project contract documents, unless and until it brings such matter to Owner's attention and such work is authorized by a Construction Change Directive or agreed Change Order. Contractor shall be deemed to have waived any and all claims of any kind with respect to any work undertaken or expense incurred in violation of this provision

1.8 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive (CCD) on Architect's standard form, or similar document as determined by the Owner. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. As the Work progresses, the Contractor shall monitor its costs and provide an update to the Owner and on a regular basis of accrued costs.
 - 2. If the CCD includes a Not to Exceed and if the accrued costs indicate they will exceed the NTE prior to being able to complete the work, the Contractor shall immediately notify the Owner and Architect. A decision will be made at that time to either stop the CCD Work, or authorize an increase in the NTE amount.

1.9 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each lump sum proposal quotation and each unit price (not previously established) with sufficient substantiating data.
- B. On request provide additional data to support time and cost computations:
 - 1. Labor required; hours, hourly rate.
 - 2. Equipment required.
 - 3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required of each material.
 - c. Material unit costs and extended price.
 - 4. Taxes, insurance, and bonds.
 - 5. Documented credit for work deleted from Contract.
 - 6. Overhead and profit. (See General Conditions.)
 - 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and time and material/force account work with documentation, as required for lump sum proposal. Include additional information:
 - 1. Name of Owner's authorized agent who ordered work, and date of order.
 - 2. Dates and times work was performed, and by whom.
 - 3. Time record, summary of hours worked, and hourly rates paid.
 - 4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts.
- D. Document requests for substitutions for Products as specified.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. 00 72 00 General Conditions
 - 2. Division 01 Section "Allowances" for procedural requirements governing handling and processing of allowances.
 - 3. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 4. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittal Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than thirty (30) days after the issuance of the Notice to Proceed, and not less than ten (10) days prior to the date scheduled for submittal of initial Application for Payment.
 - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:

- a. Project name and location.
- b. Name of Architect.
- c. Contractor's name and address.
- d. Application number
- e. Date of application for payment.
2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Identify bond cost as separate line item.
8. Identify overhead and profit as a separate line item. For each application through final completion, the amount of overhead and profit billed to date shall equal the percent of Work completed.
9. Provide a separate line item for schedule preparation and updates in accordance with Division 01 Section "Construction Progress Documentation" which shall not be less than 1% of the Contract Sum.
10. The Architect may request additional items to be identified on the schedule of values.
11. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
12. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Order(s) result in a change in the Contract Sum.
13. Report recycling costs. Refer to Section 01 7419, Construction Waste Management and Disposal.
14. The Contractor shall assign 5% of the total contract bid between Substantial Completion and Final Completion.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: At regular intervals but no more than once per month to be set in conjunction with the Architect and the Owner.
- C. Payment Application Forms: Provide draft payment application form to Architect not less than ten (10) days prior the date of the initial application for payment for approval by the Owner. If using AIA Document G702 and AIA Document G703 Continuation Sheets, or similar, the forms must be modified to incorporate sales tax.
- D. Draft Payment Application: Draft copies shall be provided to Architect and Owner prior to a final, notarized copy for their review. Once the amounts are reviewed and agreed to by the Architect and Owner, the Contractor shall prepare the actual payment application as required in this section based upon the amounts agreed to.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders issued before last day of construction period covered by application.
- F. Provide updated recycling costs breakdown with each application for payment.
- G. Transmittal: Submit one (1) signed and notarized original copy of each Application for Payment to Architect by a method ensuring receipt within 48 hours. The application shall include intent to pay prevailing wages and a running spreadsheet that itemizes both the intent and affidavit of wages paid to date for each subcontractor.
 - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment (conditional and unconditional).
 - 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application that is lawfully entitled to a lien.

5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
 - I. Initial Application for Payment: Administrative actions and submittals that must precede the first Application for Payment include the following:
 1. List of subcontractors (required at pre-construction conference).
 2. List of suppliers and fabricators
 3. Schedule of Values. (at least 14 days prior to initial submittal)
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants (required at pre-construction conference).
 9. Copies of permits (required at pre-construction conference).
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work (required at pre-construction conference).
 11. Report of pre-construction conference.
 12. Certificates of insurance and insurance policies (required prior to contract award).
 13. Performance and payment bonds (required prior to contract award).
 14. Waste Management Plan
 - J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
 1. Completion of Project closeout requirements per section 01 77 00 Closeout Procedures".
 2. Ensure that unsettled claims will be settled.
 3. Ensure that incomplete Work not accepted, will be completed without undue delay.
 4. Transmittal of required Project construction records to the Owner.
 5. Proof that fees and similar obligations were paid.
 6. Removal of temporary facilities and services.
 7. Removal of surplus materials, rubbish, and similar elements.
- 1.6 SPECIAL PAYMENT REQUIREMENTS
- A. Payment for completed work will be made in accordance with the applicable sections of the contract documents.
 - B. Payment for completed work will include all costs relating to:
 1. Furnishing all materials and performing all work under the Contract (including changes in the work, materials, or plans) in a complete and acceptable manner.
 2. All risks, losses, damages, or expense, with the exception of negligence of the contractor, of whatever character arising out of the nature or prosecution of the work.
 3. All expenses incurred in consequence of the suspension or discontinuance of the work.
 - C. No payment will be made for:
 1. Work that was deleted from the Contract.
 2. Work which was not performed.
 3. Anticipated profit or overhead on work not performed or on work deleted from the Contract.

4. Extended overhead costs resulting from any authorized extension of contract time.
- D. No separate or special payment will be made for:
1. Samples of materials or equipment submitted for testing by the Architect or by an authorized agent of the Architect.
 2. Tests carried out by the Contractor, any Subcontractor, supplier, or manufacturer unless specifically identified as an item for payment in the Bid Form or the project documents.
 3. The cost of any permits or fees unless specifically identified as an item for payment in the Bid Form or the project documents.
 4. Supervision by General Superintendents, Project Managers or General Foreman for force account work if required.
- E. Adjustments: Adjustments in the amount to be paid by the Owner under the terms and conditions of the Contract will not be made as a result of any change in laws, ordinances or regulations except as specifically provided by the following:
1. Changes in laws: The Owner will not adjust payment to compensate the Contractor for changes in legal requirements unless those changes are specifically within the scope of RCW 39.04.120, Pollution and Preservation of Natural Resources. For changes under RCW 39.04.120 the Owner will compensate the Contractor by negotiated Change Order or by force account.
 2. Changes in taxes: The Owner will adjust to compensate for tax changes under the following conditions.
 - a. The changes involve Federal or State taxes on materials used in or consumed for the work.
 - b. The changes increase Contractor paid taxes by more than \$100.00.
 - c. For items in the original contract, the tax change must occur after the bid opening date.
 - d. The Contractor, if requested by the Architect, certifies in writing that the awarded contract price does not include an extra amount to cover a possible change in taxes.
 - e. The Contractor permits the Owner to audit the Contractor's records to the extent necessary to substantiate and claim for compensation under the provisions of this section. Within the above conditions, the Owner will adjust compensation by the actual dollar amounts of increase caused by the tax changes.
- F. The prices in the Bid Form will be full and just compensation for all direct and indirect costs associated with the provision of labor, materials, supplies, equipment, tools and all things of whatever nature are required for complete removal of the items from the work site, the same as though the items were to read "disposed of". The limits are generally as follows:
1. Item No 1 – Mobilization: Mobilization shall consist of pre-construction expenses and costs of preparatory work and operation performed by the Contractor which occurs before 10% of the awarded contract price is earned for work from other bid items.
 - a. Items that are not to be included in the item of mobilization are:
 - 1) Any portion of the work covered by a specific bid item or incidental work that is to be included in a bid item or items.
 - 2) Profit, interest on bond money, overhead or management costs.
 - b. Progress payments for "Mobilization" will be made in accordance with the following schedule:
 - 1) When 5% of the awarded contract price (excluding mobilization and amounts paid for material on hand) is earned, 50% of the amount bid for mobilization will be included in the progress estimate.
 - 2) When 10% of the awarded contract price (excluding mobilization and amounts paid for material on hand) is earned 100% of the amount bid for mobilization will be included in the progress estimate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General project coordination procedures.
2. Conservation.
3. Coordination Drawings.
4. Administrative and supervisory personnel.
5. Project meetings.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

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

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.

- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.

3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Pre-installation conferences.
 7. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Refer to Divisions 21, 22, 23 and 26 for specific Coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within 15 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities, list addresses and telephone numbers.

1.5 REQUEST FOR INFORMATION (RFI)

- A. It is the Contractor's responsibility to review Contract Documents in a timely manner so that the Architect shall have sufficient time to respond to an RFI prior to the start of actual construction of that part of the Work.
- B. When field conditions or Contract Document contents require clarification or verification by the Architect, a written RFI on the Architect's provided form via the Project Management Software Program is to be submitted as follows:
1. Identify the nature and location of each clarification/verification using a RFI form; provide as a minimum the following information:
 - a. Project name and number.
 - b. Date.
 - c. Date response desired.
 - d. RFI number.
 - e. Subject.
 - f. Initiator of the question.
 - g. Indication of cost and schedule impacts, if known.
 - h. Location on site.
 - i. Contract drawing reference.
 - j. Contract specification section and paragraph reference.
 - k. Descriptive text.
 - l. Space for reply on same page as questions.
 - m. Single subject matter, one (1) item each - Civil, structural, mechanical, electrical.

2. Number each RFI sequentially beginning with number 001 (RFI-001). Only one (1) question per RFI.

C. Uses

1. The RFI form shall be used for interpretation or clarification of the Contract Documents only. Submit an RFI if one of the following occurs:
 - a. The Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.
 - b. The Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or cannot be reasonably inferred from the intent of the Contract Documents.
 - c. The Contractor discovers what appears to be an omission from the Contract Documents that cannot be reasonably inferred from the intent of the Contract Documents.
2. Do not use the RFI form for the following, the Architect will not reply and the RFI will be returned without action:
 - a. Product or material substitution.
 - b. Questions relating to construction means, methods, techniques, sequences, procedures, or safety precautions. These are the Contractor's responsibilities exclusively.
 - c. Questions relating to construction schedule, coordination between trades, or division of work among subcontractors. These are Contractor's responsibilities exclusively.
 - d. Questions on contract administration procedural matters, unless they require interpretation or clarifications of the Contract Documents.
 - e. Dimensions or quantities which are shown on the Contract Documents, which can be measured or calculated from the information contained in the Contract Documents where such measurement or calculation is standard construction industry practice.
 - f. Confirmation of interpretations or clarifications previously provided by the Architect.
 - g. The Contractor shall not initiate requests for interpretations or clarifications of the Contract Documents which can be reasonably derived from a review of the Contract Documents.
 - h. The Contractor shall not submit an RFI that suggests specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.

D. Route: RFI's in same manner as correspondence.

E. Clarifications may be discussed on-site or by telephone with Architect. The essence of these discussions are to be incorporated into a RFI form and submitted for normal RFI processing.

F. Reply

1. Architect will endeavor to reply to all RFIs promptly as their work schedule allows and generally no later than fourteen (14) calendar days from the day received. Architect will expedite those RFIs indicated by the Contractor as being critical to the construction process.

2. When an RFI involves a complex subject, extensive research or governmental agency contact, the Architect will inform the Contractor that additional time is required to prepare a reply. The Contractor shall cooperate and agree to reasonable additional time.
3. The reply shall be a clarification or an interpretation of the Contract Documents; the reply is not an authorization of change in the Contract Sum or Time.
4. Should the Contractor proceed with the work affected before receipt of a response from the Architect, within the response times specified above, Contractor will be proceeding at their own risk.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site weekly, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda & Minutes will be prepared by the Architect, reviewed and approved by the Owner.
 - a. As an option, the Owner may have their own project manager prepare the agenda and minutes.
- B. Pre-construction Conference: The Architect will schedule a pre-construction conference before starting construction no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing.
 - c. Designation of responsible personnel.
 - d. Procedures for processing field decisions and Change Orders.
 - e. Procedures for processing Applications for Payment.
 - f. Procedures for processing Requests for Information (RFI)
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures, and submittal schedule.
 - i. Preparation of Record Documents.
 - j. Project Management Software, access, use, and file share processes.
 - k. Use of the premises.
 - l. Responsibility for temporary facilities and controls.
 - m. Parking availability.
 - n. Office, work, and storage areas.
 - o. Equipment deliveries and priorities.
 - p. Contractor's Safety Plan.
 - q. Contractor's Quality Control system or plan.
 - r. First aid.
 - s. Security.

- t. Progress cleaning.
 - u. Working hours.
3. Contractor shall arrange and conduct pre-construction conference as required by all authorities having jurisdiction.
- C. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to representatives of Owner and Architect, contractor and active subcontractor, concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule:
 - 1) Review progress since the last meeting and review 3-week look ahead schedule
 - a) Determine whether each activity is on time, ahead of schedule, or behind schedule
 - b) Determine how construction behind schedule will be expedited. Secure commitments from parties involved to do so
 - c) Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
 - 14) Documentation of information for payment requests.
 - 15) Request for information.
 - 16) Neighborhood issues.
 - 3. Reporting: Contractor shall distribute minutes of the meeting to each party present and to parties who should have been present.
 - 4. Schedule Updating:

- a. The contractor shall update the Construction schedule after each progress meeting where revisions to the schedule have been made or recognized.
- b. The contractor shall update the 3-week look ahead schedule for each weekly meeting.
- c. The contractor shall issue a revised schedule at the next weekly meeting.

D. Project Closeout Meetings

1. For the purpose of attaining project closeout, commencing immediately following established date of Substantial Completion, Contractor's project manager and superintendent and all subcontractors who have outstanding punch list items associated with their work, or as otherwise requested and including all subcontractors involved in the building systems commissioning process, shall attend weekly closeout meetings which shall be held at the jobsite.
2. Such meetings shall be held to review and discuss the resolution of all punch list items in order to attain Final Completion. Closeout meetings shall continue on a weekly basis until all punch list items have been resolved and Final Completion is attained.

E. Additional Meetings

1. Coordinate weekly site visits for the Architect and Owner. Provide staff knowledgeable about current progress of the Work during the site visits as needed.
2. As the construction progresses, additional meetings may be required. These may be called at the direction of or by the Architect.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Preliminary Construction Schedule.
 2. Contractor's Construction Schedule.
 3. Submittals Schedule.
 4. Daily construction reports.
 5. Field condition reports.
- B. Related Sections include the following:
1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections
 5. Division 01 Section "Closeout Procedures" for coordinating Contract closeout and record documents.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.

- E. Float: The measure of leeway in starting and completing an activity.
- F. Milestone: A key or critical point in time for reference or measurement.

1.4 SUBMITTALS

- A. Submittals Schedule: Submit two copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. A Preliminary Progress Schedule shall be submitted by the Contractor no later than ten (10) days after the issuance of the Notice to Proceed for construction, may be in bar chart format, and shall represent the sequence in which Contractor proposes to perform major portions of work, and shall include all milestones indicated in the Contract Documents. The Preliminary Construction Schedule shall be replaced by the Baseline Construction Schedule, as described in this Section.
- C. Preliminary Construction Schedule: Submit two printed copies and electronic file including a ".PDF" formatted file.
- D. Contractor's Construction Schedule: Submit two printed copies of initial schedule large enough to show entire schedule for entire construction period. Submit additional electronic files in project scheduling program file format and include a ".PDF" formatted file.
- E. Daily Construction Reports: Submit copies at weekly intervals.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting.
- B. Pre-scheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Review delivery dates for Owner-furnished products.
 - 3. Review time required for review of submittals and re-submittals.
 - 4. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 5. Review time required for completion and startup procedures.
 - 6. Review and finalize list of construction activities to be included in schedule.
 - 7. Review submittal requirements and procedures.
 - 8. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, shop drawings, ordering, manufacturing, fabrication and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the "Notice to Proceed" to date of Final Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than 14 days, unless specifically allowed by Architect.
 - 2. Submittal Review Time: Include review and re-submittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
 - 1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 - 2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date. Delivery dates indicated stipulate the earliest possible delivery date.

- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, 25% Completion, 50% Completion, 75% Completion Substantial Completion and Final Completion.
- F. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules. Acceptable software are:
 - 1. Microsoft Project
 - 2. Primavera Systems, Inc.; Sur Trak

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. Preliminary Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- B. CPM Schedule: Prepare Contractor's Construction Schedule using a CPM network analysis diagram.
 - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established the Notice to Proceed.
 - 2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
 - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Purchase of materials.
 - c. Delivery.
 - d. Fabrication.
 - e. Mockups and pre-installation meetings as specified in the various technical specification sections.
 - f. Installation.
 - g. Testing and start up activities.
 - h. All activities for project close-out as specified in Division 01 Section "Closeout Procedures".
 - i. Approvals, coordination and inspections required by inspection agencies, regulatory agencies, commissioning agents, or other third parties.
 - 2. Processing: Process data to produce output data or a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 - 3. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - 4. Software attributes and switches:
 - a. Use retained logic.
 - b. Calculate start-to-start lag from early start.
 - c. Durations are to be calculated as contiguous versus interruptible.
 - d. Calculate total float as finish float.
- D. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Principal events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.

E. Schedule Updating:

1. Schedule to be saved and issued as a tracking schedule. Baseline to be based on notice to proceed date.
2. Contractor to submit electronically updated schedule in PDF and native file formats (such as .xer, .mpp) to Architect and Owner's Project Manager at minimum once per month.
3. Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 - a. Identification of activities that have changed.
 - b. Changes in early and late start dates.
 - c. Changes in early and late finish dates.
 - d. Changes in activity durations in workdays.
 - e. Changes in the critical path.
 - f. Changes in total float or slack time.
 - g. Changes in the Contract Time.
 - h. Include activities that represent work resulting from an Owner Approved Change Order Proposal. Include the Change Order Proposal Number as part of the activity ID or description.

2.4 DELAYS AND EXTENSIONS

- A. When the Contractor experiences change orders or delays and the Contractor requests an extension of time, the Contractor shall submit to the Owner's Project Manager a Time Impact Analysis illustrating the impact of each change or delay on the current contract schedule completion date.
- B. Extensions of time for performance as allowed under the Contract will be granted only to the extent that such revisions cause the time for the changed activity and related activities to exceed the total float along the affected path of activities at the time of Notice to Proceed of a Change Order or the commencement of any delay or condition for which an adjustment is warranted under the Contract Documents. Time extensions shall be properly apportioned into compensable and non-compensable delays when the Contractor and the Owner concurrently cause the delay. Time extension will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float along the most critical path of the activities at the time of actual delay.
- C. Each Time Impact Analysis shall be submitted within ten (10) working days after a delay occurs or notice of direction for proceeding with a Change is given to the Contractor. If the Contractor does not submit a Time Impact Analysis within the specified time period, the Contractor's rights to any additional time and cost are waived.
- D. Approval or rejection of each Time Impact Analysis shall be made within ten (10) working days after receipt, unless subsequent meetings and negotiations are necessary. If the Owner fails to respond within the ten (10) working day period, the Time Impact Analysis shall be considered to be rejected. A copy of the approved Time Impact Analysis shall be incorporated into a Change Order signed by the Architect and Owner. The changes to the schedule will be incorporated into

the Progress Schedule during the first update after an agreement is reached on the time extension.

- E. A Time Impact Analysis is an evaluation of the effects of changes in the construction sequence, contract, plans, or site conditions on the Contractor's plan for constructing the project, as represented by the schedule. Time Impact Analysis shall consist of all the steps listed below:
1. A descriptive summary of the changes
 2. Establish the status of the project before the impact using the most recent project schedule update prior to the impact occurrence. Based on the current adjusted schedule, excusable delays for which time extensions may still be pending, job conditions encountered, and the progress achieved up to the point in time when the present delay occurs.
 3. Identify all contracting parties who are affected by direct or indirect delay.
 4. Predict the effect of the impact on the most recent project schedule update prior to the impact occurrence. This requires estimating the duration of the impact and inserting the impact into the schedule update. The Contractor shall demonstrate how the impact was inserted into the schedule using the fragment. This is the presentation of a fragmentary portion of the schedule network showing the added or modified activities and the added or modified relationships. Any other changes made to the schedule including modifications to the calendars or constraints shall be noted.
 5. Track the effects of the impact on the schedule during its occurrence. Note any changes in sequencing and mitigation efforts.
 6. Compare the status of the work prior to the impact to the prediction of the effect to the impact, and to the status of the work during and after the effects of the impact are over.

2.5 REPORTS

- A. Daily Construction Reports: Submit form and format for review.
1. Distribute daily construction reports to the Architect on a weekly basis.
 2. Prepare a daily construction report recording the following information concerning events at Project site:
 - (i) List of subcontractors at Project site.
 - (i) List of separate contractors at Project site.
 - (ii) Approximate count of personnel at Project site.
 - (iii) High and low temperatures and general weather conditions.
 - (iv) Accidents.
 - (v) Meetings and significant decisions.
 - (vi) Unusual events (refer to special reports).
 - (vii) Stoppages, delays, shortages, and losses.
 - (viii) Emergency procedures.
 - (ix) Orders and requests of authorities having jurisdiction.
 - (x) Change Orders received and implemented.
 - (xi) Construction Change Directives received.
 - (xii) Services connected and disconnected.
 - (xiii) Equipment or system tests and startups.
 - (xiv) Partial Completions.
 - (xv) Completions authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update baseline schedule to reflect actual construction progress and activities.
1. Save monthly updated schedule as PDF and send electronically to Architect and Owner's Project Manager. Include a copy of the native file format (such as .xer, .mpp).
 2. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 3. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 4. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

3.2 SCHEDULE REVIEW MEETINGS

- A. CPM PROJECT SCHEDULE REVIEW MEETING
1. A monthly meeting shall be held with the Contractor, Architect, and Owner's Project Manager to reconcile status of the Work and to determine ownership of any negative total float. The Owner's Project Manager shall facilitate the meeting, provide an agenda and shall take and issue meeting minutes. The meeting will be held within seven calendar days after receipt of the Contractor's monthly CPM Schedule update, including the schedule narrative. The purpose of the meeting is to review the following:
 - a. Analysis of the CPM Schedule progress reported
 - b. Present the findings of the Owner's analysis
 - c. Status of work in progress
 - d. Identify any out of sequence work activities
 - e. Evaluate impacts of changes to the schedule as presented by the Contractor
 - f. Evaluate and discuss time impact analysis occurring during the month
 - g. Evaluate and discuss any delays, or potential delays
 - h. Evaluate and discuss mitigation efforts to Owner caused delays
 - i. Evaluate and discuss actions the Contractor could have taken to avoid delays.
 - j. This meeting does not supersede the contract requirements for the Contractor from submitting Time Impact Analysis.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
1. Preconstruction photographs.
 2. Periodic construction photographs.
 3. Video Construction Monitoring
 4. Final Completion construction photographs.
- B. Related Sections include the following:
1. Division 01 Section "Submittal Procedures" for submitting photographic documentation.
 2. Division 01 Section "Closeout Procedures" for submitting digital media as Project Record Documents at Project closeout.

1.3 SUBMITTALS

- A. Contractor to provide Key Plan and photographs of work progress as described below:
1. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation of construction. Include same label information as corresponding set of photographs.
 2. Construction Photographs: Submit weekly electronic file of each photographic view within seven days of taking photographs.
 3. Format: Digital image ".JPEG" file format with date stamp sent electronically to architect and owner. Submit images that have same aspect ratio as the sensor, uncropped
 4. Identification: Identify each file with the following naming:
 - (i) Name of Project. (NAME OF PROJECT)
 - (ii) Photo date (date taken YYYYMMDD).
 - (iii) Name of Contractor (Acronym).
 - (iv) Description of vantage point, (number from key plan, compass point and elevation).
 - (v) Description of work if not on key plan.
 5. Final Submittal of Digital Images: Submit a complete set of digital image electronic files of construction by method approved by Architect. Identify electronic media with project name and date of substantial completion.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in uncompressed ".JPEG" format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels.

- B. Photographic quality: Contractor to provide clear and recognizable photographs of a file size noted above to allow viewing of images both in printed form and digitally.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
- B. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date in filename for each image.
- D. Field Office Images: Maintain one set of images in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.
- E. Preconstruction Photographs: Before commencement of Work or other site work, take digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take as many photographs of existing conditions on or adjoining property to accurately record physical conditions at start of construction as required.
- F. Periodic Construction Photographs: Take at least 12, digital photographs weekly, coinciding with the cutoff date associated with each Application for Payment. Vantage points indicated on Key plan to show status of construction and progress since last photographs were taken.
- G. Take photos of unusual conditions or areas requiring additional information associated with Contractor's Request for Information, Architects Supplemental Information, Architect's Proposal Requests, and Change Orders.
- H. Final Completion Construction Photographs: Take at least 12 digital photographs after date of Substantial Completion for submission as Project Record Documents.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.
 - 2. See Division 01 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
 - 3. See Division 01 Section "Closeout Procedures" for submitting warranties; for submitting Record Drawings, Record Specifications, and Record Product Data; and for submitting operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Issue complete Submittals at the earliest possible date.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 21 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be withheld for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 14 days for review of each resubmittal.
- E. Electronic Submittals: Identify and incorporate information as follows:
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., Project Name-09 10 00.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., Project Name-09 10 00.01.A).
 3. Provide a means for insertion to record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use software-generated form from the Project Management Software Program or electronic form acceptable to Architect, containing the following information::
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using its own transmittal form. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item. Architect will return submittals, without review, received from sources other than Contractor.
1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Note on the transmittal the page numbers of the submittal that were modified in any way from the previous submittal or those pages that have been added.
 4. Resubmit submittals until they are marked "Approved as noted."
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating "Reviewed as noted" or "Reviewed" taken by Architect.
- 1.5 CONTRACTOR'S USE OF ARCHITECT'S ELECTRONIC DRAWING FILES
- A. General: At Contractor's written request, copies of Architect's electronic drawing files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
1. Release of electronic drawing files will be restricted to the following categories:
 - a. Site plan.
 - b. Reflected ceiling plans.
 - c. Exterior elevations.
 - d. Requests for additional files will be considered by the Architect.
 2. Request documents by submitting an executed copy of the Electronic Transfer Form, as provided by the Architect. Use of such documents implies Contractor's and subcontractors' agreement to the terms described on the form. Fully describe requirements for each request.
 3. The Architect's Stamp will not be included with the transferred electronic files.
 4. The Owner nor Architect shall make no warranties regarding the accuracy transferred electronic file data. The electronic files are not Contract Documents. Where

discrepancies exist between the electronic files and the Contract Documents, the Contract Documents shall solely be relied upon.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with specified referenced standards.
 - i. Testing by recognized testing agency.
 - 4. Number of Copies: Submit at least four copies of Product Data, unless otherwise indicated. Architect will return three copies, Contractor to retain one returned mark up copy as a Project Record Document to be included with final closeout documents.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Architect's CAD Drawings is otherwise permitted.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.
 - k. Relationship to adjoining construction clearly indicated.
 - l. Seal and signature of professional engineer if specified.
 - m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 3. Number of Copies: Submit one (1) electronic copy.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Submit samples for color selection concurrent with all other product submittals requiring color submittals for comparison and selection. Architect maintains the right to hold on to color sample submittals until all color submittals are received.
 2. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 3. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit two (2) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.
- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
1. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return two copies.
- F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

- I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
 1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- K. **Product Test Reports:** Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. **Research/Evaluation Reports:** Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- M. **Preconstruction Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. **Compatibility Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. **Field Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. **Maintenance Data:** Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."
- Q. **Design Data:** Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. **Certificates:** Written certification, signed by the manufacturer's representative, supplier or contractor. Indicate that the material or product conforms to or exceeds specific requirements including LEED criteria.
- S. **Manufacturer's Instructions:** Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- T. **Manufacturer's Field Reports:** Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Statement on condition of substrates and their acceptability for installation of product.
 - 2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

- U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- V. Safety Data Sheets (SDSs): Submit information directly to Owner; do not submit to Architect.
 - 1. Architect will not review submittals that include SDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - 1. Contractor's shall sign and stamp each submittal utilizing the following stamp language to certify review and compliance with the Contract Documents:
 - a. "Contractor has reviewed and certified this submittal for compliance with the requirements of the Work and Contract Documents, including product verification, related Work and information coordination. Contractor shall field verify related dimensions prior to fabrication"
 - 2. Deviations: Highlight, encircle or otherwise identify deviations from the Contract Documents on submittals.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. **Partial submittals are not acceptable**, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality control services include monitoring, inspections, tests and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services DO NOT relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 01 Section "Submittal Procedures" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Owner Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, the owner will employ and pay a qualified independent testing agency to perform inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are not included in the Contract Sum.
 - 1. Owner Testing Laboratory inspection, sampling and testing is required, per International Building Code and/or Washington State Building and Energy Codes, in the following sections, and as noted on the Engineering, Structural and Civil Drawings:

- a. Division 03 - Concrete.
 - b. Division 05 – Metals: Structural steel, and metal fabrications.
 - c. Section 31 - Earthwork.
 - d. Section 32 - Paving
2. Limitations of Inspection Agency: Agencies are not authorized to:
- a. Add, alter, revise or revoke requirements of Contract Documents.
 - b. Approve or accept any portion of the work.
 - c. Perform any duties of the Contractor.
- B. Contractor Responsibilities: The contractor shall cooperate with agencies performing required inspections, tests and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
1. Provide access to the Work, including to the shops where work is in preparation as needed for inspections which require such access..
 2. Conduct preconstruction meetings with each agency with the Owner and A/E present.
 3. Conduct preinstallation meetings as required by specification sections. Agencies shall attend when work is related to the agency's services.
 4. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
 5. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.
 6. Provide facilities for storage and curing of test samples.
 7. Deliver samples to testing laboratories.
 8. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 9. Provide security and protection of samples and test equipment at the Project Site.
 10. At Contractor's expense, uncover any portion of the Work that was covered prior to inspection for which an inspection or other testing is required by the Contract Documents.
- C. Material Safety Data: The Contractor is responsible for the provision of adequate written substantiation of the physical properties and proper handling of specified materials and products prior to use. Such written substantiation shall be maintained on site in an orderly manner. The cost of providing such substantiation shall be paid by the Contractor.
- D. Coordination: The contractor shall coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities. Testing requirements shall be determined by the Engineer in accordance with the International Building Code – 2015, and all Authorities Having Jurisdiction.

2. Contractor shall include a schedule of required inspections on the project schedule
3. Re-inspections shall be documented and will be billed back to the Contractor by change order

1.4 SUBMITTALS

- A. The independent testing agency shall submit a certified written report of each inspection, test or similar service to the Engineer, Project Manager, Owner, Building Official, Contractor and Structural Engineer.
 1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
 2. Report Data: Written reports of each inspection, test or similar service include, but are not limited to, the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretation of test results.
 - j. Ambient conditions at the time of sample taking and testing.
 - k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on re-testing.

1.5 QUALITY ASSURANCE

- A. Qualifications for Service Agencies: The Owner shall engage inspection and testing service agencies, including independent testing laboratories, that are pre-qualified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.
 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

1.6 CONTRACTOR QUALITY CONTROL PLAN

- A. Quality Control Plan: The Contractor shall submit its quality control plan to the Engineer and Owner for review prior to the Preconstruction Meeting as described in Division 01 Section "Project Management and Coordination." Allow fifteen (15) working days after receipt for Owner review and comments. The plan shall include the following elements:

1. A statement of how the plan will operate and a supporting organization chart to show the individual on the Contractor's staff responsible for implementing and controlling the plan and staffing of the testing and inspection activities.
2. A coordination plan showing how the efforts of the Contractor's quality control staff will be coordinated with the Owner's retained special inspectors, and engineers.
3. Procedures for tracking Contractor identified construction deficiencies, from identification through corrective action and establishing verification that deficiencies have been corrected.
4. Draft copy of Contractor's Quality Control Daily Report: Report shall include entries for identifying weather conditions (temperature, dry, wet, amount of rain), trade activities (classification of workers within the trade, staffing number for each trade, what work trade was performing on the project), equipment on site (rented and Contractor owned, what equipment was being used for each day), important communications with Owner, A/E, Inspectors, Supplier or specific Trade, factual record containing specification reference for the Work being performed, and quality control activities.
5. Procedure for tracking and inspecting "As-Built" plans.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 01 Section "Cutting and Patching".
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.
- D. Repairs or corrective work due to a failing test is the responsibility of the Contractor at no additional cost to the owner.
- E. Additional testing for failed tests is the responsibility of the Contractor at no additional cost to the Owner until all tests are completed successfully.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Comply with and give notices as required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.
- B. Regulatory requirements include modifications, amendments, additions, and the like, current as of the date of these documents.
- C. Referenced codes establish minimum requirement levels. Where provisions of various codes or standards conflict, more stringent provisions govern. Promptly submit to Engineer written notice of observed variations from legal requirements in Contract Documents.
- D. Compliance requirements include, but are not necessarily limited to:
 - 1. International Building Code (IBC) and related Standards, 2015 Edition, published by International Conference of Building Officials, and amended by the local Authorities Having Jurisdiction (AHJ).
 - a. Washington state amendments (WAC 51-50)
 - 2. Mechanical Work:
 - a. International Mechanical Code (IMC), 2015 Edition and state amendments (WAC 51-52).
 - b. Uniform Plumbing Code, 2015 Edition and state amendments (WAC 51-56).
 - 1) Uniform Plumbing Code Appendix A, B, and Appendix I, 2015 Edition state amendments (WAC 51-57)
 - c. International Fuel & Gas Code (IFGC), 2015 Edition and state amendments (WAC 51-52).
 - 3. Electrical Work:
 - a. Underwriters' Laboratories (UL).
 - b. National Electrical Manufacturers Association (NEMA).
 - c. NFPA 70, 2017 National Electrical Code (NEC), National Electrical Safety Code, and above listings as applicable.
 - d. State Electrical Construction Code (WAC 296-46B).
 - 4. International Fire Code (IFC), 2015 Edition and state amendments (WAC 51-54).
 - 5. Life Safety Code, NFPA 101-2015.

6. Local County Ordinances and Codes
 7. Energy Requirements: Washington State Energy Code (WSEC), 2015 Edition. Comply with insulation and energy conservation requirements of local State and City Authorities Having Jurisdiction.
 - a. Washington state amendments (WAC 51-11)
 8. National Fire Protection Association (NFPA) Codes.
 9. ICC/ANSI 117.1-2009 (Accessible Standards + Chapter 10&11 of the 2015 IBC)
 10. Americans with Disabilities Act of 1994.
 11. Fire Doors/Windows, NFPA 80-2013.
 12. Rules and Regulations for the Washington State Department of Health.
 13. Department of Labor and Industries Regulations, (WAC 296) including General Safety and Health Standards, (WAC 296-24).
 14. OSHA regulations and standards.
 15. Washington Survey and Rating Board.
 16. Environmental Requirements: Work to be performed in compliance with relevant statutes and regulations dealing with prevention of environmental pollution and preservation of public natural resources.
 17. Washington State Department of Ecology. (DOE)
 18. Applicable State Department of Transportation Codes and Specifications.
 19. American Society for Testing and Materials (ASTM).
 20. Factory Mutual (FM).
- E. Drawings and Specifications govern whenever Drawings and Specifications require higher standards than are required by governing codes, regulations, and ordinances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless 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 standards in effect as of date of the Contract Documents unless otherwise indicated.

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)

AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	APA - The Engineered Wood Association
APA	Architectural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)
AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)

BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
CCC	Carpet Cushion Council
CDA	Copper Development Association
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Construction Specifications Institute (The)
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
FMG	FM Global (Formerly: FM - Factory Mutual System)
FMRC	Factory Mutual Research (Now FMG)
FSA	Fluid Sealing Association
GA	Gypsum Association
GANA	Glass Association of North America
HI	Hydraulic Institute
HI	Hydronics Institute

HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
IAS	International Approval Services (Now CSA International)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek
ITU	International Telecommunication Union
LEED	Leadership in Energy & Environmental Design
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MFMA	Metal Framing Manufacturers Association
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association

NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections

RFCl	Resilient Floor Covering Institute
SDI	Steel Deck Institute
SDI	Steel Door Institute
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SSINA	Specialty Steel Industry of North America
SSPC	The Society for Protective Coatings
STI	Steel Tank Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TRI	Tile Roofing Institute (Formerly: RTI - Roof Tile Institute)
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
WAC	Washington Administrative Code
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WHI	Warnock – Hersey (now ETL Semco or InterTek)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)

WIC Woodwork Institute of California (Now WI)
WMMPA Wood Moulding & Millwork Producers Association
WSRCA Western States Roofing Contractors Association
WWPA Western Wood Products Association
IAPMO International Association of Plumbing and Mechanical Officials
ICBO International Conference of Building Officials (See ICC)
ICBO ES ICBO Evaluation Service, Inc. (See ICC-ES)
ICC International Code Council
ICC-ES ICC Evaluation Service, Inc.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "Allowances" for products selected under an alternate.
 - 2. Division 01 Section "References" for applicable industry standards for products specified.
 - 3. Division 01 Section "Closeout Procedures" for submitting warranties for contract closeout.
 - 4. Division 02-33 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.4 SUBMITTALS

- A. Substitution Requests: Submit one (1) copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- B. It is the contractor's responsibility to show and prove to the Architect that the product substitution being requested is equal or better than that specified. Sending product brochures and product data by itself is not acceptable. Contractor to show a clear side by side comparison of specified products with proposed substituted products.
 - 1. Substitution requests received that do not clearly show the comparisons referenced above will be rejected.
 - 2. Substitution Request Form: Use form provided at end of Section.
 - 3. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

- h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of credit, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
4. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 21 days of receipt of request, or 15 days of receipt of additional information or documentation, whichever is later.
- a. Form of Acceptance: Architect's Acceptance.
 - b. Use product specified if Architect is unable to make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures". Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
- 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration and loss, including theft. Comply with manufacturer's written instructions.
- 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 5. Store products to allow for inspection and measurement of quantity or counting of units.
 6. Store materials in a manner that will not endanger Project structure.
 7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation and weather-protection requirements for storage.
 9. Protect stored products from damage.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
 3. Refer to Division 01 Section "Closeout Procedures" for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
 - a. Substitutions may be considered, unless otherwise indicated.
 2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
 3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
 4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

- a. Substitutions may be considered, unless otherwise indicated.
5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product, by a named manufacturer. For a product by an unnamed manufacturer, submit a "substitution request" complying with the contract documents.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in "Product Substitutions" Article.
8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product[s]" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product by a named manufacturer.
 - a. Substitutions may be considered, unless otherwise indicated.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern or texture from manufacturer's product line that includes both standard and premium items.

11. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 01 for allowances that control product selection and for procedures required for processing such selections.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within 45 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, sustainability, compliance with intent and requirements, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.
 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 4. Substitution request is fully documented and properly submitted.
 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 7. Requested substitution is compatible with other portions of the Work.
 8. Requested substitution has been coordinated with other portions of the Work.
 9. Requested substitution provides specified warranty.
 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product (where a manufacturer is not named, the product substitution process is required):

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, sustainability, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SUBSTITUTION REQUEST

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: __ New product __ 2-5 years old __ 5-10 years old __ More than 10 years old

Differences between proposed substitution and specified product: _____

Point-by-point comparative data attached – REQUIRED BY A/E

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: __ No __ Yes; explain _____

Savings to Owner for accepting substitution: _____ (\$ _____)

Proposed substitution changes Contract Time: __No __Yes (Add) (Deduct) _____ days.

Supporting Data Attached: __Drawings __Product Data __Tests __Reports __Other _____

The undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E, detailing, and construction costs caused by the substitution.
- Coordination, installation and changes in the work as necessary for accepted substitution will be complete in all respects.
- The undersigned agrees to pay costs associated with acceptance of proposed substitution necessitating changes to design, details, and construction, including associated architectural, engineering and consultant fees.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

A/E – REVIEW AND ACTION

- Substitution approved – Make submittals in accordance with Specification Section 01 3300.
- Substitution approved as noted – Make submittals in accordance with Specification Section 01 3300.
- Substitution rejected – Use specified materials.
- Substitution Request received too late – Use specified materials.

Signed by: _____ Date: _____

Additional Comments: __Contractor __Subcontractor __Supplier __Manufacturer __A/E _____

END OF SUBSTITUTION REQUEST FORM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

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

- B. Related Sections include the following:

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

1.3 QUALITY ASSURANCE

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.

- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, infiltration system, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer and Owner not less than fourteen (14) days in advance of proposed utility interruptions.

- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

- F. It is the contractor's responsibility to pre-plan for construction staging, access, site maintenance and compliance with applicable codes, laws and local governing jurisdictions for working at an on the site.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project. Maintain benchmarks throughout construction.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including but not limited to temporary and permanent access, pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework. Include with record documents.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise directed in writing by Engineer.

- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.
2. Allow for building movement, including thermal expansion and contraction.

- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.

- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
 - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
 - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective or poorly installed work as it occurs. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, properly adjusting operating equipment and poorly installed work per the Engineers discretion.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 21, 22, 23, 26, 27 and 28 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
 - 1. Primary operational systems and equipment.
 - 2. Air or smoke barriers.
 - 3. Fire-protection systems.

4. Control systems.
 5. Communication systems.
 6. Electrical wiring systems.
- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, which results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.
1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Equipment supports.
 4. Piping, ductwork, vessels, and equipment.
 5. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced and specialized firm.
 - a. Processed concrete finishes.
 - b. Ornamental metal.
 - c. Matched-veneer woodwork.
 - d. Roofing.
 - e. Firestopping.
 - f. HVAC enclosures, cabinets, or covers.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- 1.5 WARRANTY
- A. Existing Warranties: Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete: Cut using a cutting machine, such as a diamond blade saw or a diamond-core drill. Make concrete repair cuts at locations that blend with concrete joint design.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface

containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.
- G. Material Waste Stream: A flow of materials coming from a job site into markets for building materials. Including either 1) a specific material category that is diverted in a specific way or 2) a mixture of several material categories that are diverted in a specific way. A waste stream must constitute a minimum of 5% (by weight or volume) of total diverted materials.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total non-hazardous solid waste generated by the Work using the calculation standard defined by LEED NC v4 MRc5. Materials salvaged or recycled from demolition and construction waste must come from a minimum of 4 (four) different material waste streams. Facilitate recycling and salvage of materials including the following:
 - 1. Demolition Waste:

- a. Asphalt paving.
 - b. Concrete.
 - c. Concrete reinforcing steel.
 - d. Brick.
 - e. Concrete masonry units.
 - f. Wood studs.
 - g. Wood joists.
 - h. Plywood and oriented strand board.
 - i. Wood paneling.
 - j. Wood trim.
 - k. Structural and miscellaneous steel.
 - l. Rough hardware.
 - m. Roofing.
 - n. Insulation.
 - o. Doors and frames.
 - p. Door hardware.
 - q. Windows.
 - r. Glazing.
 - s. Metal studs.
 - t. Gypsum board.
 - u. Acoustical tile and panels.
 - v. Carpet.
 - w. Carpet pad.
 - x. Demountable partitions.
 - y. Equipment.
 - z. Cabinets.
 - aa. Plumbing fixtures.
 - bb. Piping.
 - cc. Supports and hangers.
 - dd. Valves.
 - ee. Sprinklers.
 - ff. Mechanical equipment.
 - gg. Refrigerants.
 - hh. Electrical conduit.
 - ii. Copper wiring.
 - jj. Lighting fixtures.
 - kk. Lamps.
 - ll. Ballasts.
 - mm. Electrical devices.
 - nn. Switchgear and panelboards.
 - oo. Transformers.
2. Construction Waste:
- a. Masonry and CMU.
 - b. Lumber.
 - c. Wood sheet materials.
 - d. Wood trim.
 - e. Metals.
 - f. Roofing.
 - g. Insulation.
 - h. Carpet and pad.
 - i. Gypsum board.
 - j. Piping.

- k. Electrical conduit.
- l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed. Waste Management Plan calculation methods to comply with standards as defined by LEED NC v4 MRc5.

1.6 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons (tonnes).
 - 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
 - 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
 - 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work using the calculation standard designed by LEED NC v4 MRc5.
- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. LEED Submittal: Submit documentation to USGBC, signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met. Respond to questions and requests from USGBC regarding construction waste

management and disposal until the USGBC has made its determination on the Project's LEED certification application. Document correspondence with USGBC as informational submittals.

- H. Qualification Data: For waste management coordinator and refrigerant recovery technician.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.7 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements.
 - 1. Firm employs a LEED-Accredited Professional, certified by the USGBC, as waste management coordinator.
 - 2. Waste management coordinator may also serve as LEED coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 1. Comply with operation, termination, and removal requirements in Section 01 50 00 "Temporary Facilities and Controls."
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Section 01 50 00 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.

- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:
 - 1. <https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition.aspx>
 - 2. "Seattle/King County Construction Recycling Directory."
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements and LEED MRc5 requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.
- G. Materials salvaged or recycled from demolition and construction waste must come from a minimum of 4 (four) different material waste streams

3.3 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 - 1. Break up and transport paving to asphalt-recycling facility.
- C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 - 1. Clean and stack undamaged, whole masonry units on wood pallets.
 - 2. Break up and transport paving to asphalt-recycling facility.
- D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- E. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- F. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
- G. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- H. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
- I. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.
- J. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- K. Carpet Tile: Remove debris, trash, and adhesive.
1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- L. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- M. Conduit: Reduce conduit to straight lengths and store by type and size.

3.4 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.
1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.5 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial and Final Completion Inspection Procedures.
2. Project Record Documents.
3. Operation and maintenance Manuals.
4. Warranties.
5. Instruction of Owner's personnel.
6. Final cleaning.

- B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 01 Section "Execution" for progress cleaning of Project site.
3. Divisions 03 through 33 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection to determine the date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Have requested and received final certificate of occupancy from local authority.
2. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
3. Advise Owner of pending insurance changeover requirements and submit evidence of final continuing insurance coverage.
4. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications and similar documents for Engineers review.
5. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates and similar releases.
6. Prepare and submit operation and maintenance manuals, damage or settlement surveys and similar final record information.
7. Deliver tools, spare parts, extra materials and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - a. Submit a receipt to the Owner identifying the product and quantity that is being provided.

- b. Obtain Owner's signature on the receipt.
 - c. Send original receipt to Owner and include a copy of the signed receipt in the Operations and Maintenance manuals.
 - d. Maintenance materials transferred to the Owner shall not be used either to remedy punch list items or be incorporated into Work not completed at the time of Substantial Completion.
8. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools and similar elements.
 10. Advise Owner of changeover in utilities.
 11. Submit changeover information related to Owner's occupancy, use, operation and maintenance.
 12. Complete final cleaning requirements, including touchup painting.
 13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Owner and Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner/Engineer, that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. The Owner and Engineer will repeat inspection one time when requested and assured that the Work is substantially complete.
 3. Time spent reviewing items not completed will be billed and paid to the Engineer or Consultant at their customarily hourly rates by the Contractor through the Owner. Any additional site visits for reviewing uncompleted items will be subject to the same conditions above.
 4. Results of the completed inspection(s) will form the basis of requirements for final acceptance.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection to determine the date of Final Completion, complete the following:
1. All requirements of Substantial Completion must have been met.
 2. Submit Final Change Order.
 3. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 4. Submit certified copy of the Substantial Completion inspection list of items to be completed or corrected (punchlist). The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 5. Obtain permanent occupancy permits and submit a copy of all closed or signed off permits required for the project.
 6. Submit "Affidavit of Payments of Debts and Claims" from the contractor. AIA form G706 or equivalent.
 7. Submit "Affidavit of Release of Liens" AIA form G706A or equivalent.

8. Submit evidence of final, continuing insurance coverage complying with insurance requirements will remain in force after final payment, is currently in effect and will not be cancelled or allowed to expire at least 30 days after written cancellation notice has been given to the owner.
9. Submit a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the contract documents.
10. Submit a "Consent of Surety to Final Payment". AIA form G707 or equivalent form
11. Submit affidavits of wages paid pursuant with RCW 39.12.040.
12. Submit certification that all materials used are Lead and Asbestos free.
13. Complete final cleaning
14. All Warranties, Guarantees, training, manuals, operation instructions, certificates, as-built drawings and other Project Record Documents, maintenance manuals, training or items required by the Contract Documents or local governmental entities have been provided.
15. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
16. Submit final meter readings for utilities, a measured record of stored fuel and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the Work.

B. Final Inspection: Contractor shall submit a written request for final inspection for acceptance. On receipt of request, Owner and Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. After inspection the Owner will either prepare a final letter of acceptance or will notify Contractor of construction that must be completed or corrected before acceptance will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspection(s) as incomplete is completed or corrected.

C. Final Letter of Acceptance: After final inspection is approved, Engineer will prepare a letter stating that the work is complete and recommends final acceptance and will certify the final application for payment may be issued.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
- B. Submit the approved permit set of plans with Project Record Documents.
- C. Record Drawings (As-built Drawings): Maintain one set of Contract Drawings and Shop Drawings through the Project Management Software System. Submit one set of (24" x 36") black and white Contract Drawings .
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity that obtained record data, whether individual or entity is Installer, subcontractor or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique, clearly and legibly.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 - 2. Mark electronic record sets a clear, legible manner according to the Project Management Software Program's functionality, in red. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 4. Mark Record prints with information regarding location of all existing or new underground piping, valves, conduit, cabling and utilities, as located during the course of construction activity. Identify any electrical or mechanical deviations from original drawings.
 - 5. Include subcontractor reproducible shop drawings for all special equipment including as a minimum where applicable to the project, ductwork layout, fire sprinkler system layout, temperature control system, fire alarm system, intrusion alarm system, communications systems, data systems, and others as deemed appropriate. Record Drawing shop drawings shall be easily reproducible, i.e., in common digital format such as CAD or PDF, or when printed in standard copy machine size, as appropriate and approved.
 - 6. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 - 7. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 8. Record Digital Data Files: Before inspection for Certificate of Substantial Completion, review marked-up record prints with Engineer. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 - a. Format: Annotated, bookmarked PDF electronic file with comment function enabled.
 - b. Incorporate changes and additional information previously marked on record prints. Delete, redraw and add details and notations where applicable.

- c. Refer instances of uncertainty to Engineer for resolution.
 - d. Record markups in separate layers.
 - e. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - D. Record Specifications: Submit one paper copy and one scanned electronic copy submitted electronically of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials and equipment furnished, including substitutions and product options selected.
 3. Note related Change Orders and Record Drawings where applicable.
 - E. Record Product Data: Submit one paper copy and one electronic copy submitted electronically of each Product Data submittal. For each substitution mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders and Record Drawings where applicable.
 - F. Record Survey: Provide final "Certified Survey" documentation per Section 01 73 00 and verify the actual property corners, Building corner locations and elevations, slope of handicap stalls and location of other major site elements. Provide information on survey plan dated and signed by surveyor including one scanned electronic copy.
 - G. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Provide one scanned electronic copy.
- 1.7 MECHANICAL SYSTEM COMMISSIONING, BALANCING AND DOCUMENTATION
- A. Not Used
- 1.8 OPERATION AND MAINTENANCE MANUALS
- A. Assemble two complete printed sets and one set submitted electronically, of operation and maintenance data indicating the operation and maintenance of each system, subsystem and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
 1. Operation Data:
 - a. Emergency instructions and procedures.

- b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Detailed operating procedures, including startup, shutdown, seasonal and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Test data and performance curves.
 - f. Piping diagrams.
 - g. Mechanical systems Testing and balancing report
 - h. Commissioning report
2. Maintenance Data:
- a. Manufacturer's information, product information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - e. Maintenance and service schedules for preventive and routine maintenance.
 - f. Maintenance record forms.
 - g. Routine procedures and guide for preventative maintenance and troubleshooting, including a schedule of recommended checks, disassembly, repair, and reassembly instructions.
 - h. Safety precautions and safety features.
 - i. Sources of spare parts and maintenance materials. Include complete nomenclature and model number of replaceable parts.
 - j. Copies of maintenance service agreements.
 - k. Copies of warranties and bonds.
 - l. Safety Data Sheets (SDS) for each product used on the Project.
 - m. Color and paint selections with associated product numbers and manufacturers.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.
- C. Prepare an electronic version of the Operation and Maintenance Manuals. Assemble complete manual into a single indexed file incorporating the requirements for the printed binders and additionally include a Table of Contents with links enabling navigation to each section.
- 1.9 WARRANTIES
- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, and thicknesses as necessary to accommodate contents and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.
- E. Prepare an electronic version of the Warranty Manual(s). Assemble complete manual into a single indexed file incorporating the requirements for the printed binders and additionally include a Table of Contents with links enabling navigation to each section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate and maintain systems, subsystems and equipment not part of a system.
1. Provide instructors experienced in operation and maintenance procedures.
 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 3. Schedule training with Owner, with at least fourteen (14) days' advance notice.
 4. Coordinate instructors, including providing notification of dates, times, length of instruction and course content.
 5. Digitally record all training sessions and provide copy of the recorded information electronically to owner.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
1. System design and operational philosophy.
 2. Review of documentation.

3. Operations.
4. Adjustments.
5. Troubleshooting.
6. Maintenance.
7. Repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and anti-pollution regulations. Adhere to ASTM E1971 – 05 Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings for final cleaning.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Remove labels that are not permanent.
 - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - k. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
 - l. Replace parts subject to unusual operating conditions.
 - m. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use and

- defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
- n. Leave Project clean and ready for occupancy.

 - C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

 - D. Repeat cleaning operations as required resulting from repairs and continued work performed prior to requesting final inspection

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

- 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

- 1. Division 01 Section "Submittal Procedures" specifies procedures for submitting warranties.
 - 2. Division 01 Section "Closeout Procedures" specifies contract closeout procedures.
 - 3. Divisions 03 – 33 for specific requirements for warranties on products and installations specified to be warranted.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

- C. 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. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.

1.3 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.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. 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 the 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 selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date of Completion.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
- C. Form of Submittal: At Final Completion compile copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual. Provide an additional electronic copy.
- D. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
 - 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.

3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SUMMARY

1.1 SECTION INCLUDES:

- A. Demolition and removal from the site of existing construction to accommodate the new construction.
- B. Removal of existing components for reinstallation.
- C. Salvaging of existing materials.
- D. Capping and identification of utility lines.
- E. Contractor design of shoring and bracing.
- F. Patching of existing construction to remain.

1.2 RELATED SECTIONS:

- A. 011000 - Summary: Contractor's use of the site.
- B. 015000 - Temporary Facilities and Controls: Temporary enclosures, guardrails, barriers, barricades, lighting and dust control.
- C. 017329 - Cutting and Patching.
- D. 017419 - Construction Waste Management and Disposal.
- E. 017700 - Closeout Procedures: Project record documents.
- F. 312000 - Earth Moving: Backfilling and grading of site.

1.3 SUBMITTALS

- A. Make submittals in accordance with Section 013300, unless specified otherwise.
- B. Submit certification that temporary shoring, support, and restraining systems have been designed by a structural engineer licensed to practice in the State of the Project.

1.4 QUALITY ASSURANCE

- A. Comply with the applicable health and safety regulations of the jurisdictional authorities.
- B. Obtain and pay for all permits required for the demolition work.
- C. Obtain approval of demolition procedures which affect the normal operation of Owner occupied spaces.
- D. The design of shorings, temporary supports, and restraining systems shall be the responsibility of the Contractor. Such elements shall be designed and stamped by a Structural Engineer licensed to practice in the State of the Project.
- E. Pre-bid Inspection: Visit the Site to determine existing conditions, and as much as possible to determine the extent of demolition required.

PART 2 PRODUCTS

2.1 MATERIALS

- A. NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to starting work, carefully inspect existing conditions and verify that the work of this Section may properly commence. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin demolition until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective demolition caused by prior observable conditions.

- C. When unanticipated mechanical, electrical, structural or other elements that conflict with intended function or design are encountered, investigate and ascertain the nature and extent of conflict. Promptly submit a written report to Architect. Perform no further demolition in such areas, unless approved by the Architect.

3.2 PREPARATION

- A. Provide and maintain all temporary barriers and security devices necessary for the demolition work. Conform to requirements of Section 015000.
- B. Provide protection to all surrounding public spaces. Perform work and provide temporary construction as approved by the local jurisdictional code authorities.
- C. Protect existing construction which will not be subject to demolition.

3.3 DEMOLITION

- A. Perform demolition [as indicated and]as required to accommodate the new work.
- B. Demolish in an orderly and careful manner. Where demolition exceeds that indicated, verify such demolition with the Architect prior to proceeding.
- C. Protect existing structural members to remain. Contact the Architect prior to modifying structural members beyond the extent indicated. Cease operations and notify the Architect immediately if continued demolition operations might endanger the existing structure.
- D. During demolition operations, notify the Architect of all conditions which differ substantially from those indicated, specified, or expected. Notify the Architect if previously unknown operational, or potentially operational elements, are uncovered during demolition operations. Perform no demolition in such areas, unless approved by the Architect.
- E. Hazardous Materials:
 - 1. It is unknown whether hazardous materials will be encountered in the Work.
 - 2. If materials suspected of containing hazardous materials are encountered, do not disturb. Immediately notify the Architect and the Owner.
 - 3. The Owner will remove hazardous materials under a separate contract.
- F. Provide Contractor designed temporary shoring as required to support existing construction against movement or overload during demolition operations, until permanent supports are in place.
- G. Except where noted or specified otherwise, take possession of materials being demolished, and remove from site as work progresses. Do not overload existing construction to remain with demolished materials.
- H. Demolished materials which cannot be recycled or reused shall be disposed of at a legal dump site.
- I. Carefully remove, store, and protect all materials and components to be reused.
- J. Where removal of materials indicated to remain is necessary to facilitate new construction, carefully remove, store, and protect such materials for future reinstallation.
- K. Where removal of components will leave voids in existing construction to remain exposed in the finished work, perform removal operations in a manner such that the voids created are as small as possible and the perimeter edges remain uniform and undamaged. Leave ready to receive patching and repair.
- L. Carefully remove, protect, and turn over as directed, materials and components claimed by the Owner for salvage. Prior to demolition, contact the Owner to determine which items will be claimed.

- M. Where cut edges of the existing construction will be visible in the completed work, cut in uniform straight lines. Bore holes shall be uniformly circular. Concrete and masonry shall be sawcut or core drilled.
- N. Repair all demolition performed in excess of that required, at no additional cost to the Owner.
- O. Dust producing demolition operations shall be sprinkled in areas not subject to water damage. Provide other approved means of controlling dusting in areas subject to water damage.
- P. Electrical Demolition Requirements:
1. Remove electrical system components as indicated on the electrical drawings. [In addition, remove the following items:
 - a. Sound system.
 - b. Security and fire alarm systems.
 - c. Energy Management and control conduit, wiring, and hardware.
 - d. Telephone conduit and cable.
 - e. Point of sales data cables from each register to terminal backboards.]
 2. Abandoned underslab conduit shall be removed and cut off below the finished surface line, and all conductors shall be removed. Patch and fill the opening flush with the finish.
 3. Abandoned electrical conductors shall be removed back to the branch circuit panel, unless indicated otherwise. Abandoned conduit which is exposed and readily accessible shall be removed. Leave abandoned conduit which is concealed in existing construction to remain.
 4. Existing electrical equipment that is not shown on the Drawings shall be brought to the immediate attention of the Architect. Such equipment shall remain unless required to be removed or relocated to accommodate the remodel work.
 5. All existing low voltage cabling disconnected and abandoned shall be fully removed from the project.
 6. Electrical demolition drawings are generally diagrammatic. Complete extent of required electrical demolition which effects completion of work is not shown. In addition to verification of existing site conditions, coordinate with new and existing Architectural, Structural, Mechanical, Fire Protection, Stock Shelving, and Casework Drawings.
 7. All electrical services to equipment which is indicated to be removed shall be fully removed.
 8. Retain removed light fixtures for relocation and reuse as indicated. All light fixtures not to be reused shall be delivered to the Owner.
- Q. Plumbing Demolition Requirements:
1. Abandoned underslab piping shall be cut off flush with the floor line and sealed. Patch flush with the floor.
 2. Abandoned piping which is exposed and readily accessible shall be removed.
 3. Leave abandoned piping which is concealed in existing construction to remain.
- R. Removal of Bonded Floor Finishes:
1. Scrape, grind and otherwise remove existing floor finish and bonding materials as necessary to receive new floor finishes.
 2. Prepared surface shall present a uniform flat surface ready to receive the new floor finishes free of telegraphing and other surface irregularities.
 3. New floor finishes shall not be installed over existing floor finish materials unless approved otherwise.

3.4 CLEANUP

- A. After each demolition phase, leave the area broom clean and ready for the work of other Sections.
- B. Occupied spaces which receive demolition work shall be thoroughly and completely cleaned prior to Owner's daily operations. Cleaning shall include: vacuuming, dusting, stain and dirt removal, and cleaning of glass and countertops.

END OF SECTION

PART 1 GENERAL

1.1 REFERENCE STANDARDS

- A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- B. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cleaning and preparation of joint surfaces.
 - 2. Flexible Sealant and backing materials.
 - 3. Epoxy security filler.
- B. Related Sections:
 - 1. 088000 - Glazing: Glazing sealants.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. C1193 - Guide for Use of Joint Sealants.

1.4 SUBMITTALS

- A. Make submittals in accordance with Section 013300.
- B. Product Data: Submit for each sealant material used. Include manufacturer's surface preparation, priming, and installation instructions for each proposed sealant. For interior sealants, include evidence that the sealants meet the specified VOC requirements.
- C. Quality Control Submittals:
 - 1. Schedule of sealant types, colors and respective locations.
 - 2. Résumé: Submit résumé from proposed exterior sealant installer verifying qualifications.

1.5 QUALITY ASSURANCE

- A. Installers:
 - 1. Use only skilled workmen specially trained in the techniques of sealing, and familiar with the published recommendations of the manufacturers of the sealants being used.
 - 2. Installers shall be capable of demonstrating successful completion of a minimum of three projects similar in type and scope to that of this project, within the Seattle area within the past 2 years.
- B. Verify that sealants are compatible and non-staining with the substrates and accessory materials provided under other Sections. Send examples of adjacent materials to the Type S sealant manufacturer for compatibility and staining testing. Notify Architect of evidence of incompatibility or staining.

1.6 ENVIRONMENTAL CONDITIONS

- A. Unless recommended otherwise by the manufacturer, install sealant systems as follows:
 - 1. Do not apply sealant when ambient temperatures are below 40 degrees Fahrenheit, or expected to fall below 40 degrees F before sealant cure is complete.
 - 2. Do not apply sealant to substrates or accessories that are moist.

1.7 GUARANTEE

- A. Furnish guarantees in accordance with Section 017700.

PART 2 PRODUCTS

2.1 EPOXY SECURITY FILLER

- A. Basis of Design Product: Pecora Dynapoxy™ EP-1200, or approved equal.

- B. Provide accessory materials as recommended by the manufacturer to provide filler material which is non-sag and suitable for the application.
- C. Colors: Provide colors as selected by the Architect from the manufacturer's complete line for each application.

2.2 ACCESSORY MATERIALS

- A. Primer:
 - 1. Non-staining type, recommended by sealant manufacturer to suit application.
 - 2. Primers for interior sealants shall meet the requirements of the Southern California South Coast Air Quality Management District (SCAQMD) Rule 1168. (maximum VOC content of 250 grams/liter for non-porous surfaces; 750 grams/liter for other surfaces)
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Backer Rod: Closed or open cell foam as recommended by the sealant manufacturer for the application; round profile; thickness approximately 130 percent of joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.
- C. Verify joint dimensions and conditions are acceptable to receive the work of this Section.

3.2 PREPARATION

- A. Clean and prepare joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.
- B. Apply masking tightly around joints to protect adjacent surfaces from excess sealant.
- C. Prime as required for proper bond to substrate materials.
- D. Backing Materials:
 - 1. Place backer rod to achieve proper sealant width/depth ratios and to prevent sealant sag.
 - 2. Use bond breaker where there is insufficient depth to use joint filler.
 - 3. Do not use backer rod and bond breaker at joints to receive Type PTNS sealant.

3.3 INSTALLATION

- A. Perform work in accordance with ASTM C1193, unless specified otherwise or recommended otherwise by the sealant manufacturer.
- B. Apply sealant within recommended temperature ranges.
- C. Joint Profile:
 - 1. Sealant beads shall have a sectional width to depth ratio of 2 to 1, unless specified otherwise or recommended otherwise by the sealant manufacturer.
 - 2. Install Type PTNS sealant full depth in tile expansion joints with no backer rod.
- D. Tooling:

1. Tool joints concave, unless indicated or specified otherwise. Finish to uniform profile and depth, free of air pockets, embedded matter, ridges, and sags.
2. Tool type PTNS sealant to match grout joint profile.

3.4 EPOXY SECURITY FILLER

- A. Provide epoxy security filler at all open joints in detention areas as indicated and scheduled at the end of the Section.
- B. Use security filler to fill all joints, and voids within detention areas where inmates could store contraband materials. Fill all joints and voids within the detention area, including floors, walls, and overhead structure.
- C. Provide manufacturer's recommended formulation as required to fit the joint configuration encountered.
 1. Provide non-sag gunnable formulation at small dimension joints. Mask adjacent surfaces and tool to a smooth uniform profile.
 2. Provide trowelable formulation to fill large joints and voids. Mask adjacent surfaces and fill large joints and voids fully. Trowel to a smooth even surface flush with adjacent construction.
- D. Provide containment backing as approved by the Architect for the installation.
- E. Install epoxy security filler to match the approved mock-up conditions.

3.5 CLEANUP

- A. Clean adjacent surfaces free of excess sealant as the work progresses. Use cleaning agents recommended by the sealant manufacturer.
- B. Upon completion, remove and dispose of masking.

3.6 PROTECTION

- A. Protect sealant in joints subject to dirt, moisture, and traffic during the sealant curing process. Protection shall be able to resist traffic while remaining securely in position.

3.7 SCHEDULE

- A. Epoxy Security Filler: Provide where epoxy security filler and epoxy grout is indicated and specified in Detention areas as follows:
 1. Rooms: J110, J113, J114.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Corrections, and Security grade rolled steel doors and frames and window frames.
 - 2. Interior rolled steel sidelite frames.
 - 3. Accessories.
- B. Related Sections:
 - 1. 08 71 63 - Detention Hardware.
 - 2. 08 80 00 - Glazing: Requirements for glass.
 - 3. 09 90 00 - Painting and Coating: Field painting of doors and frames.

1.2 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. A250.6 – Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
 - 2. A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
 - 3. A250.10 – Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- B. American Society for Testing and Materials (ASTM)
 - 1. A653 - Specification for Steel Sheet, Zinc-coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
 - 2. A1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- C. Steel Door Institute (SDI)
 - 1. 105 – Recommended Erection Instructions for Steel Frames
 - 2. 122 - Installation & Troubleshooting. for Standard Steel Doors and Frames

1.3 SUBMITTALS

- A. Make submittals in accordance with Section 01 33 00.
- B. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.
- C. Shop Drawings:
 - 1. Frames: Indicate configuration, anchor types and spacings, location of cutouts for hardware, reinforcement, and finish.
 - 2. Doors: Indicate elevations, internal reinforcement, closure method, and cutouts for hardware.
- D. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.4 QUALITY ASSURANCE

- A. Conform to requirements of ANSI A250.8.
- B. Acceptable Manufacturers:
 - 1. Members of the Steel Door Institute and of the National Association of Architectural Metal Manufacturer's, subject to compliance with the specified requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- A. In accordance with Section 01 60 00.
- B. Protect doors and frames with factory installed protective packaging. Maintain protective packaging until installation commences.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Amweld Building Products, LLC.
 - 2. Benchmark Doors; a division of General Products Co., Inc.
 - 3. Ceco Door Products; an ASSA ABLOY Group Company.
 - 4. Curries Company; an ASSA ABLOY Group Company.
 - 5. Deansteel Manufacturing, Inc.
 - 6. Door Components, Inc.
 - 7. Fleming Door Products Ltd.; an ASSA ABLOY Group Company.
 - 8. Kewanee Corporation.
 - 9. Mesker Door Inc.
 - 10. Pioneer Industries, Inc.
 - 11. Republic Builders Products Company.
 - 12. Steelcraft; an Ingersoll-Rand Company.
 - 13. Trussbilt.

2.2 INSTALLERS

- A. Approved Installers: Subject to compliance with requirements, installers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. CML Security
 - Contact: Rob Henderson | Preconstruction Manager
 - Email: RHenderson@cmlsecurity.us
 - Broomfield Headquarters
 - 1785 W. 160th Ave., Suite 700
 - Broomfield, CO 80023
 - Cell: 651.249.7462
 - PH: 720.466.3650
 - www.cmlsecurity.us
 - 2. Corrections Technology Group (CTG)
 - Contact: Kirk Hansen | Director of Sales
 - Email: kirk@corrtechgroup.com
 - Spokane Branch
 - 2702 N Perry St.,
 - Spokane, WA 99207
 - Cell: 509.981.2847
 - PH: 509.436.9060
 - Website: www.Corrtechgroup.com

2.3 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

- B. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum A60 (ZF180) metallic coating.

2.4 ACCESSORIES:

- A. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.
- B. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A153/A153M, Class C or D as applicable.
- C. Jamb Anchors:
 - 1. Masonry Wall Anchors: Manufacturer's standard adjustable wire or T-shaped metal anchors for embedment into mortar joint.
- D. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
- E. Mortar/Plaster Guards: Provide steel sheet mortar/plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operation.
- F. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with mitered hairline joints.
 - 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work. At detention areas removeable stops shall be provided on the Corridor side.
 - 2. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 - 3. Provide loose stops and moldings on inside of hollow-metal work.
 - 4. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.
- G. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

2.5 FABRICATION

- A. Fabricate hollow metal door and frame assemblies to comply with ANSI A250.8. Assemblies shall be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant.
- B. Fabricate doors and frames from cold rolled steel, except exterior doors and frames shall be fabricated from metallic-coated steel.
- C. Doors:
 - 1. ANSI A250.8; Seamless.
 - 2. Gages:
 - a. Corrections Doors: 12 gage.
 - b. Security Doors: 12 gage.
 - 3. Core:
 - a. Interior Doors:
 - 1) Corrections, and Security Doors: Vertical steel stiffeners with sound deadening fill between stiffeners.
 - 4. Vertical Edges:
 - a. Vertical Edges for Single-Acting Doors: Beveled edge; 1/8 inch in 2 inches.
 - b. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch radius.

5. Provide continuously welded seamless edges. No plastic fillers will be accepted.
 6. Cut mortises for butts using appropriate templates; universal non-handed preparation of doors is not acceptable.
- D. Frames:
1. Design: Double equal rabbet, unless indicated otherwise; fully welded.
 2. Gages:
 - a. Corrections Frames: 10 gage.
 - b. Security Frames: 12 gage frames.
- E. Clearances:
1. Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.
 2. Fire-Rated Doors: As required by NFPA 80.
- F. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- G. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold- or hot-rolled steel sheet.
- H. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
- J. Finish:
1. Interior Units: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.
 2. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the CMA in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 INSTALLATION

- A. Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames:
 1. Comply with provisions in SDI 105, unless otherwise indicated.
 2. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
 3. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.

4. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
 5. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames. Mix grout to 4 inches (102mm) maximum slump per ASTM C476-20 – Standard Specification for Grout for Masonry. Pumping of grout is not allowed.
 6. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 7. Installation Tolerances; Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.
- C. Door Installation:
1. Comply with ANSI A250.8.
 2. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

3.3 ADJUSTING AND CLEANING

- A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

END OF SECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Work under this section includes the complete detention hardware requirements for the project. Quantities listed are for the Contractor's convenience only and are not guaranteed. Items not specifically mentioned, but necessary to complete the work shall be furnished, matching the items specified in quality and finish.
- B. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames"
 - 2. Division 26 – Electrical
 - 3. Division 28 – Electronic Safety and Security
- C. Electronic Hardware Coordination: Coordinate Work of this Section with the requirements of systems specified under Divisions 26 and 28, as required to provide materials, fabrication, and installation for complete and operating system meeting the operational requirements stated.

1.3 REFERENCES

- A. Standards: Current edition at date of bid.
 - 1. ADAAG - Americans with Disabilities Act, "Accessibility Guidelines for Buildings and Facilities"
 - 2. ANSI/BHMA A156.18 - Materials and Finishes
 - 3. NFPA 80 - Standard for Fire Doors and Windows
 - 4. Underwriters Laboratories - Building Materials Directory
 - 5. UL 10C - Underwriters Laboratories, "Positive Pressure Fire Tests of Door Assemblies".
 - 6. ICC/ANSI A117.1 - "Accessible and Usable Building and Facilities"
- B. Codes:
 - 1. Washington State Building Code, Chapter 51-50 WAC

1.4 SUBMITTALS

- A. General Requirements: Submittals shall be in accordance with Division 01 "Submittal Procedures".
- B. Product Data: Submit Six (6) copies of manufacturer's data for each item of finish hardware.
- C. Hardware Schedule: Submit Six (6) copies of a detailed Finish Hardware Schedule.
 - 1. The submitted Finish Hardware Schedule shall indicate the complete designation of every item required for each door or opening.
 - 2. Furnish cover sheet listing title of project as shown on the Contract Documents, name, address, phone and fax numbers of Owner, Architect, Contractor, and Supplier, name of Certified Hardware Consultant, and date of submittal.

3. List each opening individually under separate headings in the same order as the door schedule. Do not group like or similar doors under a single heading. Do not continue headings on separate pages.
4. Each heading shall indicate opening location, handing, degree of opening, door size, type, fire rating, and Door and Frame material.
5. Indicate product Manufacturer and incorporate cross-reference to symbols used in Article 2.14 Hardware Schedule.
6. Include an index indicating door, heading, and page numbers and locking function for each opening.
7. Locations shall be included and miscellaneous hardware items.
8. A cross reference for abbreviations or symbols used shall be included.
9. Schedules in coded or horizontal format are unacceptable.
10. Submittals not conforming to these requirements will be returned without review, for re-submittal. Following is an example of the required format:

1	Sgl. Door #104 - Reception 100 to Office 104	LH 90°	
	3-0 x 7-0 x 1-3/4" x 20 Minute x Type C	SC WD x HMF	
3	Each Butts (B2)	MC	TA714 US26D (652) 4.5 x 4.5 x 1/2MS
1	Office Lockset (L3)	SC	L9050R 06L 630 LH
1	Door Closer (C1)	LCN	4041 Alum./689 x Hinge Face Mtg. x STB
1	Kick Plate (K2)	TI	B4EKP - 10 x 34.5 - US32D x B4E x CTSK
1	Wall Stop (S1)	TR	1270CX US26D (626)
1	Set Gasket (W1)	PE	S88D - 17' per Set

11. Processing: Hardware schedules will not be reviewed by the Architect until they have been reviewed and approved by Contractor.
 12. Revisions: The Finish Hardware Submittal shall be kept current throughout the project duration. Revisions incorporated shall be submitted in accordance with the above requirements. Submit only cover sheet and revised pages. Clearly identify changes from previous submittal content.
- D. Samples: If requested by the Architect, submit one (1) sample of each exposed hardware category, finished as required, and tagged with full description for coordination with the hardware schedule. Samples will be reviewed, by the Architect, for design and finish only, compliance with other requirements is the responsibility of the Contractor. Units which are acceptable and remain undamaged through submittal procedures may be used on the project.
- E. Color Samples: Submit Six (6) set of color charts and physical samples of each product requiring color selection.
- F. Key Schedule: Upon completion of the Key meeting indicated under paragraph 2.13 C., submit four (4) copies of a key schedule indicating the complete project key system for approval. Obtain approval prior to proceeding with lock portion of the project.
- G. Wiring Diagrams and Risers:
1. Submit Six (6) copies of electronic hardware system riser and terminal-to-terminal wiring diagrams for each Electronic Hardware application, cross-referenced to the Finish Hardware Submittal and Door Schedule.
 2. Include voltage, wire quantity and gauge requirements along with product data and installation instructions.
 3. Indicate connection points to equipment provided under Divisions 26 and 28.
 4. Wiring Diagrams must be produced by the specified provider, or prior approved firms.
- H. Operations and Maintenance Data.
1. Submit Maintenance and Operations Manuals under the provisions of Section 017700, Closeout Procedures.

2. Manuals shall contain final copy of the Finish Hardware Submittal, Product Data, Parts Lists and Diagrams, Key Schedule, Installation Instructions, and Warrantees.

1.5 QUALITY ASSURANCE

A. Supplier:

1. Finish hardware shall be supplied by a recognized detention hardware supplier who has been furnishing hardware in the same area as the project for a period of not less than five (5) years.
2. Factory direct, authorized, and stocking distributor of the Locksets and Door Closers.
3. Employ an Architectural Hardware Consultant, certified by the Door and Hardware Institute.

B. Installers:

1. Approved Installers: Subject to compliance with requirements, installers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. CML Security

Contact: Rob Henderson | Preconstruction Manager
Email: RHenderson@cmlsecurity.us
Broomfield Headquarters
1785 W. 160th Ave., Suite 700
Broomfield, CO 80023
Cell: 651.249.7462
PH: 720.466.3650
www.cmlsecurity.us

b. Corrections Technology Group (CTG)

Contact: Kirk Hansen | Director of Sales
Email: kirk@corrtechgroup.com
Spokane Branch
2702 N Perry St.,
Spokane, WA 99207
Cell: 509.981.2847
PH: 509.436.9060
Website: www.Corrtechgroup.com

- C. Source: Obtain each kind of Hardware (Butts, Locksets, Exit Devices, Door Closers, etc.) from only one manufacturer.
- D. Installer: Finish hardware shall be installed only by experienced tradesmen in compliance with trade union jurisdictions, either at the door and frame fabrication plant or at the project site.
- E. Templates: Furnish hardware templates for each fabricator of doors, frames and other work to be factory prepared for the installation of hardware. Upon request, check the shop drawings of such other work to confirm that provisions will be made for the proper installation of hardware.
- F. Regulatory Requirements:
 1. Comply with applicable local and state current building codes.
 2. Hardware for fire-rated openings shall also be in compliance with fire building codes applicable to the district in which the building is located. Provide only hardware which has been tested and listed by "UL" for the types and sizes of doors required, and which complies with the requirements of the door and door frame labels. Provide Door Closers,

- Automatic self latching bolts, coordinators, gasketing, and astragals if required to conform to label requirements.
3. Comply with the requirements of ICC/ANSI A117.1, Accessible and Usable Building and Facilities.

1.6 PRODUCT HANDLING AND STORAGE

- A. Packaging: Each item or package is to be separately tagged with identification related to the final hardware schedule. Complete installation instructions shall be included in the packages.
- B. Storage: Provide a locked room at the jobsite for the storage of the hardware.

1.7 WARRANTY

- A. Finish hardware shall be guaranteed against defects in workmanship and operation for a period of one year, backed by a factory guarantee of the hardware manufacturer. The following products shall be guaranteed for periods beyond one year:
 1. Locks – Two Years
 2. Door Closers – Ten Years

1.8 MAINTENANCE

- A. Furnish the following extra materials, which shall be delivered directly to the Owner prior to substantial completion, in accordance with Division 01 Section “Closeout Procedures”.
 1. One set of Special Tools required for installation and adjustment
 2. Two Sets Torx Handles and Drivers for each size used on project

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND SUBSTITUTIONS

- A. Manufacturers: Products may be furnished by the manufacturers listed under “As Specified” below, or equivalent products of type, grade, design, and function from manufacturers listed under “Acceptable Substitutions”. Requests for products not listed must be made in accordance with Division 01 Section “Product Requirements”.

<u>Product</u>	<u>As Specified</u>	<u>Acceptable Substitutions</u>
Butt Hinges	RR Brinks	McKinney
Locksets	RR Brinks	Folger Adam
Cylinders and Keying	RR Brinks	Folger Adam
Door Closers	LCN	Norton
Door Pulls	RR Brinks	Folger Adam
Push and Pull Plates	Trimco	Rockwood, Tice
Kick & Mop Plates	Tice Industries	Rockwood, Trimco
Wall and Floor Stops	Trimco	Rockwood
Overhead Stop and Holders	Glynn-Johnson	ABH, Rixson
Door Scope	Security Products	None

2.2 HARDWARE MATERIALS AND FABRICATIONS

- A. Fasteners: Provide fasteners for installation with each hardware item. Provide Phillips head fasteners, countersunk oval, flat head, or undercut head as appropriate for material to be installed. Provide Door Closers shall be applied to Wood Composite or Mineral Core Doors with Sex Bolts sized to the Thickness of the Door.
- B. Exposed fasteners shall have Pin-Torx Fasteners.
- C. Compatibility: Provide fasteners which are compatible with both unit fastened and substrate, and which will not cause corrosion or deterioration of hardware, base material, or fastener.

2.3 HARDWARE FINISHES

- A. Finish in general shall be: US26D, Satin Chrome Plated (BHMA 626), except:
 - 1. Hinges Locksets, Push Plates, Door Pulls, Overhead Stops, and Exterior Hinges: US32D, Satin Stainless Steel (BHMA 630).
 - 2. Door Closers: Sprayed Aluminum (BHMA 689).
 - 3. Kick Plates: US32D Satin Stainless Steel (BHMA 630).
 - 4. Smoke Gasketing: As Selected.
 - 5. Threshold, Weatherstrip & Door Bottoms: As listed

2.4 BUTT HINGES

- A. Types: Types required are indicated as SH1, SH2 etc. under Hardware Schedule, Article 2.14, Column B, and as described below.
 - 1. Quantity (per Leaf):
 - a. Door openings up to 60": 2 each
 - b. Door openings 60 to 90": 3 each
 - c. Doors over 90": Furnish one (1) additional for each 30" increment or fraction thereof.
 - 2. Pins: All doors shall have non-removable pins (NRP – Set Screw in Barrel)
 - 3. Width: Width of Hinges shall be as require to clear projecting trim or other conditions to allow maximum degree of opening
 - 4. Tips: Hinges shall have Hospital Tips.
 - 5. Non-Standard Sizes: For unusual size or weight doors, furnish type, size and quantity recommended by the hinge manufacturer.

Symbol	Function Description	Factory Number and Size
SH1	Full Mortise, Heavy Weight	#4-1/2

2.5 LOCKSETS AND CYLINDERS

- A. Types: Types required are indicated as SL1, SL2 etc. under Hardware Schedule, Article 2.14, Column L, and as described below.
 - 1. Furnish Lever Handle Locksets and Latches in Lever Eskort Design.
 - 2. Backset: 2-3/4"
 - 3. The Locksets and Latchsets shall be listed with Underwriters Laboratories for A label and lesser class doors.
 - 4. Provide Curved Lip Strikes with adequate projection to protect door trim. Provide flat, flush lip strikes for pairs of doors with overlapping Astragals.

Symbol	Function Description	Factory Number
SL1	Electromechanical Automatic	3026-FSE-MSLH-FKC-KCE

Symbol	Function Description	Factory Number
SL6	Deadlocking Latch, Keyed Both Sides	
	Door Pull	300021
	Flush Pull	300011-C
	Electromechanical Automatic Deadlocking Latch, Keyed One Side	3522-600-FSE-MSLH-FKC
	Door Pull	300021
	Flush Pull	300011-C

2.6 DOOR CLOSERS

- A. Types: Types required are indicated as SC1, SC2 etc. under Hardware Schedule, Article 2.14, Column L, and as described below.
1. Pair Openings: Furnish Two (2) Door Closers for pair openings.
 2. Drop Plates: Furnish drop plates where doors have insufficient height top rails, or where Regular Arm Door Closers are used in conjunction with Concealed Overhead Stops.
 3. Provide special closer mounting as required where interference with weatherstrip or sound seals occurs.
 4. Furnish cold weather fluid, at exterior & vestibule doors. Furnish non-flammable fluid at fire rated openings in conformance with UL Test Standard 10C.
 5. Furnish Spacer Blocks and/or shoe supports where frame stop does not provide for adequate support for the parallel arm soffit shoe.
 6. Wood Doors: Provide Shoulder Through Bolts for Wood Composite and Mineral Core Door applications.

Symbol	Function Description	Factory Number
SC5	Overhead Concealed	2210

2.7 KICK, MOP, AND ARMOR PLATES

- A. Types: Types required are indicated as K1, K2 etc. under Hardware Schedule, Article 2.14, Column K, and as described below.
1. Pair Openings: Furnish Two (2) Kick Plates for pair openings.
 2. Kick and Armor Plates shall be applied to the Push Side of the Door, Mop Plate applied to the Pull Side.
 3. Material: Plates shall be .050 Satin Stainless Steel
 4. Plates shall be beveled four edges (B4E) and countersunk for screws.
 5. Plates shall be furnished with width as required to provide 1/4" clearance at sides of doors, stops, sound seal, or weatherstrip.

Symbol	Function Description	Factory Number
K2	10" High Kick Plate	B4EKP

2.8 STOPS AND HOLDERS

- A. Types: Types required are indicated as S1, S2 etc. under Hardware Schedule, Article 2.14, Column S, and as described below.
1. Furnish Overhead Stop and Holders sized as recommended by the manufacturer.
 2. Furnish Overhead Stop and Holders with special shims, brackets, or special template mounting where required.
 3. Site Conditions:

- a. Where specified Wall Stops cannot be mounted to comply with sub-paragraph 3.2 A.3., provide floor stops 1215CKU Series.
- b. Where Floor Stops cannot be mounted to comply with sub-paragraph 3.2 B.7., provide Overhead Stop Type S4

Symbol	Function Description	Factory Number
S1	Convex Wall Stop	1277 x Torx Fasteners

2.9 THRESHOLDS

2.10

2.10 WEATHERSTRIP AND GASKETING

- A. Types: Types required are indicated as W1, W2 etc. under Hardware Schedule, Article 2.14, Column W, and as described below.

- 1. Furnish weatherstrip and gaskets for complete perimeter of opening, including mullions, and astragals. Furnish weatherstrip at sill of Four (4) sided frames.

Symbol	Function Description	Factory Number
W2	Rigid Jamb Weatherstrip	2891AS (Head) x 290AS (Jambs)

2.11 DOOR SILENCERS

- A. Furnish Rubber Door Silencers for openings not specified to have Smoke Gasketing or Weatherstrip.
- B. Quantity: Furnish three (3) for each single door frame, and four (4) for each pair of door frames.
- C. Type: Trimco 1229A.

2.12 MISCELLANEOUS HARDWARE

- A. Not Used.

2.13 KEYING

- A. Match the existing Key System for this project. The key operated products (Locksets, Cylinders, Deadlocks, etc.) specified under this Section shall be keyed to be compatible with the existing keying system, including the security electronic system. The Contractor shall coordinate all functionality of the door locking operation with the Owner and the Owner's security electronics provider, IP Fusion.
Construction Keying: Provide Construction Cylinders and Keys for all Locksets and Cylinders during the construction period. Plastic Construction Cylinders are unacceptable.
- B. Key Conference: The Finish Hardware Supplier shall meet with the Owner to prepare the permanent keying schedule. Submit Key Schedule for Approval in accordance with 1.4 H.
- C. All Permanent Cores and Keys shall be transmitted directly to the Owner, prior to substantial completion. The General Contractor shall remove the construction cylinders and install the permanent cores. All Construction Cylinders shall be returned to the Finish Hardware Supplier.

- D. Transmittal: All Permanent Cylinders and Keys shall be sent direct from the lock manufacturer via Registered Mail, Return Receipt Requested, to the Owner. Construction Keys shall be sent to the General Contractor.
- E. Stamping: Stamp all Keys "Do not Duplicate" and with change designation as directed.
- F. Key Quantities: Furnish the following Key Quantities:
 - 1. Six (6) Building Grand Master Keys
 - 2. Six (6) Master Keys per Set
 - 3. Four (4) change keys per Lockset or Cylinder.
 - 4. Twelve (12) Construction Keys

2.14 HARDWARE SCHEDULE

- 1. Hardware Schedule Notes:
 - a. Note 1 – Door Closer Active Leaf only
 - b. Note 2 - Coordinate Electronic Hardware location, rough-in, and wiring requirements with Electrical and integrate into existing PLC security system.
 - c. Note 3 – Balance of Hardware by Door Manufacturer
 - d. Note 4 – Cam Lift Hinges, Sound Seals, Door Bottoms, Thresholds, Astragals, and mounting brackets by Sound Door Manufacturer
 - e. Note 5 – All Hardware by Door Manufacturer
 - f. Note 6 – See Door Hardware Section 087100
 - g. Note 7 – Future NIC

	Butts	Locks	Closers	Kick Plate	Stops	Threshold	Weatherstrip	Remarks
Door	B	L	C	K	S	T	W	
J113N	SH1	SL1	SC5	K2	S1			Note 2
J114N	SH1	SL6	SC5	K2	S1		W2	Note 2

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examination: Examine Doors, Frames, and related items for conditions that would prevent the proper application and operation of the Doors and Finish Hardware. Do not proceed until defects are corrected.
- B. Provide solid blocking for wall mounted components.
- C. Fasteners: Check conditions and use fastening devices as needed to securely anchor the hardware as per manufacturer's published templates. Self-tapping sheet metal screws are not acceptable.

3.2 INSTALLATION

- A. Mounting Heights: Mount units at heights as recommended in "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames (2001)" by Doors and Hardware Institute, except as indicated below. Products not specifically covered shall be installed in accordance with the manufacturer templates and instructions.
 - 1. Hinges:
 - a. Top Hinge: 7-1/4", Top of frame rabbet to centerline of hinge.

- b. Bottom Hinge: 12-1/4", Bottom of Frame to centerline of hinge
 - c. Intermediate Hinges: Centered, equal spacing between top and bottom hinges.
 2. Mortise Lock Strikes: 40", bottom of frame to centerline of Strike.
 3. Wall Stops: Locate Wall Stops intended for use with Lever Handle Locksets and Exit Devices at the Centerline of the Spindle or Pull.
 4. Deadlocks: 48", bottom of frame to centerline of Cylinder.
 5. Push and Pull Plates: 42", bottom of frame to centerline of Plate.
- B. Install each hardware item in compliance with manufacturer's instructions.
 1. Cutting and Fitting: Wherever cutting and fitting are required to install hardware surfaces which will be painted or finished at a later time, install each item completely and then remove and store in a secure place. After completion of the finishes, re-install each item.
 2. Finishes: Do not install surface-mounted items until finishes have been completed on the substrate.
 3. Install Fire Rated Openings to comply with NFPA 80.
 4. Door Closers shall be located to allow maximum degree of opening that project conditions will allow. Door Closers shall not be used to stop the door, except for models equipped with an integral stop-on-the-arm feature.
 5. Overhead Stops: Furnish Overhead Stop and Holders with maximum degree of opening that project conditions will allow.
 6. Floor Stops: Locate Floor Stops at maximum degree of opening that project conditions will allow. Do not locate Floor Stops where they create a hazardous condition. Stops should be located no more than 1/3 Door width from the latch edge of the Door.
 7. Thresholds: Set exterior Thresholds in a bed of butyl rubber sealant in conformance with Division 7 requirements. Remove excess sealant. Caulk edges and joints to exclude moisture.
 8. Sound Seal: Sound Seals for vertical jambs shall be installed full length of jamb. Do not notch or shorten the Sound Seal to clear surface mounted Automatic Door Bottoms
 9. Weatherstrip: Mount and adjust Rigid Jamb Weatherstrip prior to mounting Parallel Arm Door Closers. Weatherstrip shall be installed to provide a continuous seal at head and jambs. Do not notch Weatherstrip for Door Closer shoe. Provide Parallel Arm 5th hole spacer of increased thickness to allow for revised location.
 10. Smoke Gasket
 - a. Completely clean frame and apply gasket in accordance with manufacturer's instructions.
 - b. Apply Gasket to Door rabbet of hinge jamb and to stop face of Strike Jamb and Headers, as described in Pemko's installation instructions for alternative positioning.
- C. Adjust and check each operating item of hardware and each door to insure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly.

3.3 ADJUSTMENT

- A. Wherever hardware installation is made more than one (1) month prior to acceptance or occupancy, make a final check and adjustment of hardware during the week prior to acceptance or occupancy. Clean and lubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Door Closer Adjustment: After mechanical systems have been balanced, adjust Door Closers to comply with following ICC/ANSI A117.1 - 2003 requirements, as modified by WAC 51-50 and the 2009 International Building Code:

1. Closing Speed: Door Closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to an open position of 12 degrees shall be 5 seconds minimum.
 2. Opening Force: The maximum force for pushing or pulling a door open shall be as follows: (these forces do not apply to the force required to retract latch bolts or disengage other devices securing the door.
 - a. Fire Doors: The minimum opening force allowable by the appropriate administrative authority.
 - b. Exterior Doors: 10 lbf (44.4 N).
 - c. Interior Doors: 5.0 lbf (22.2 N).
 3. Adjust backcheck to prevent damage to the closer, hardware, door and frame, and wall.
- C. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes

END OF SECTION 087163

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass for hollow steel doors and frames.
 - 2. Glazing schedule at the end of the Section.
- B. Related Sections:
 - 1. 081100 - Hollow Metal Doors and Frames: Doors and frames to receive glazing.

1.2 REFERENCES

- A. American National Standard (ANSI): Z97.1 - Performance Specifications and Test Methods for Safety Glazing Materials in Buildings.
- B. American Society for Testing and Materials (ASTM):
 - 1. C1036 - Standard Specification for Flat Glass.
 - 2. C1048 - Standard Specification for Heat Treated Flat Glass, Kind HS, Kind FT (Coated and Uncoated).
- C. Glass Association of North America (GANA): Glazing Manual.
- D. National Fire Protection Association (NFPA): NFPA 80 - "Standard for Fire Doors and Windows, 1999 Edition."

1.3 GLASS PERFORMANCE CRITERIA

- A. Stress Analysis:
 - 1. The glass manufacturer shall perform stress analysis to determine the proper glass thickness and treatment required to resist the structural and thermal stresses for each glazing condition (based on the worse case for each condition). All costs in conjunction with the analysis shall be borne by the Contractor.
 - 2. Stress analysis shall conform to the requirements of ASTM E1300.
- B. Structural Stress Criteria:
 - 1. Vertical Glazing: Design glazing to withstand positive and negative wind loads as indicated on the structural drawings.
 - 2. Design for a glass breakage based on statistical glass breakage factor of 8 lights per 1,000. Breakage of either light in an insulating glass unit shall constitute unit breakage.
 - 3. Center Deflection: Maximum deflection shall not exceed L/175 or 3/4 inch, whichever is less.

1.4 INSTALLERS

- A. Approved Installers: Subject to compliance with requirements, installers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. CML Security
 - Contact: Rob Henderson | Preconstruction Manager
 - Email: RHenderson@cmlsecurity.us
 - Broomfield Headquarters
 - 1785 W. 160th Ave., Suite 700
 - Broomfield, CO 80023
 - Cell: 651.249.7462
 - PH: 720.466.3650
 - www.cmlsecurity.us
 - 2. Corrections Technology Group (CTG)
 - Contact: Kirk Hansen | Director of Sales

Email: kirk@corrtechgroup.com
Spokane Branch
2702 N Perry St.,
Spokane, WA 99207
Cell: 509.981.2847
PH: 509.436.9060
Website: www.Corrtechgroup.com

1.5 SUBMITTALS

- A. Make submittals in accordance with Section 013300.
- B. Submittals specified in this Section shall be incorporated into submittal specified in other Sections, where glass is to be provided in those Sections.
- C. Product Data: Submit product data on glass, glazing materials, and insulating glass system.
- D. Samples: Submit 12 x 12 inch samples of the following glass types:
- E. Quality Control Submittals:
 - 1. Warranty: Submit draft of manufacturer's and fabricator's warranty.
 - 2. Certification: Submit certification that the glazing has been designed to meet the stress analysis requirements specified.

1.6 QUALITY ASSURANCE

- A. Comply with pertinent recommendations in the GANA "Manual of Glazing."
- B. Safety Glass Standard: Comply with code applicable IBC requirements.
- C. Qualifications of Glazers: Provide personnel thoroughly trained and experienced in the skills required, and at least one person completely familiar with the referenced standards and the requirements of this Work, who shall personally direct installation of glazing materials.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with applicable provisions of Section 016000.
- B. Provide cushions at edges of glass to prevent impact damage during shipment and storage.
- C. Keep vacuum cups free from foreign material that could scratch glass.
- D. Comply with insulating unit fabricators requirements for limits on exposure to reduced barometric pressure during shipment.

1.8 WARRANTY

- A. Submit warranties under provisions of Section 017700.
- B. Replacement Guarantee:
 - 1. Provide new conforming glass units to replace glass units which break for a period of one year.
 - 2. Units broken by impact, fire, earthquake, or similar events which exceed the design loads and conditions are not subject to this requirement.
 - 3. Do not include probability for glass breakage based on specified statistical glass breakage analysis factor.
 - 4. Include all labor and materials for replacement of failed unit(s). Replacement shall include coordination with the Owner, immediate provision for maintaining openings secure and weathertight, timely ordering and fabrication of replacement items as required, installation, and cleaning.

PART 2 PRODUCTS

2.1 GLASS

- A. Furnish the following glass in combinations as scheduled at the end of this Section:
 - 1. Clear Glass: ASTM C1036, Type I, class 1 (clear), quality Q3 glazing select.
 - 2. Clear Fire Rated Glass: Clear, polished glazing material which has been tested and approved for 60 minute fire rating. Thickness: 3/16 inch minimum; one of the following.
 - a. Technical Glass Products "FireLite - Architectural Quality."
 - b. Vetrotech Saint-Gobain North America, Inc. (Auburn WA; 253-333-0660; 888-803-9533) "SGG Keralite FR-R."
 - c. SuperLite I XL by SaftiFirst.
 - 3. Fire Rated Laminated Safety Glass: 5/16 inch thick laminated fire-rated and impact safety-rated glazing material; one of the following.
 - a. Technical Glass Products (Kirkland, WA; 800-426-0279) "FireLite Plus."
 - b. Vetrotech Saint-Gobain North America, Inc. (Auburn WA; 253-333-0660; 888-803-9533) "SGG Keralite FR-L."
 - c. Pyran Platinum L by SaftiFirst.

2.2 ACCESSORIES

- A. Setting Blocks: Neoprene; 70-90 Shore A durometer hardness; 4 inches long x 1/4 high x width as required for application indicated.
- B. Weather Glazing Sealant: Compatible with insulating glass seal.
- C. Glazing Tape (Interior): Norton "V-980," PTI "303," or approved. Size: 1/8 inch by 1/2 inch.

2.3 FABRICATION

- A. Attack Rated Glass Fabrication:
 - 1. Basis of Design Product: Lexgard SP019 by Global Security Glass. Similar and equal products by other manufacturers may be used.
 - 2. Provide glass clad construction with polycarbonate interlayer.
 - 3. Test Ratings:
 - a. ASTM F1233: Class IV.
 - b. HPW-TP-0500.02: Level III.
 - c. WMFL: Level III; 30 minute attack.
 - 4. Certified Safety Glass:
 - a. Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.
 - b. Permanently marked with certification label of SGCC.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this section may properly commence. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.
- C. Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready for work of this Section.

3.2 PREPARATION

- A. Clean contact surfaces and wipe dry.
- B. Seal frame corner joints, and other leakage points with sealant. At insulating glass units the sealant shall be compatible with the seal of the unit. Do not plug weep holes.
- C. Prime surfaces scheduled to receive sealant, unless otherwise recommended by the sealant manufacturer.

3.3 INSTALLATION

- A. Setting Blocks: Place setting blocks in frames for support of glass. Place at quarter points unless approved otherwise.
- B. Set glass tightly in position with proper clearances in accordance with the referenced standards.
- C. Perimeter glass clearances within setting frame shall be in accordance with GANA recommendations, and as required by the glass manufacturer to provide for wind, earthquake drift, and thermal expansion.
- D. Unless specified otherwise, glaze units with gaskets furnished with the framing systems specified in other sections.
- E. Security Glazing:
 - 1. Provide silicone wet/wet glazing at glazing conditions where GL-3 and GL-4 is used.
- F. Glazing for Interior Non-Rated Doors and Windows, Where Gaskets Are Not Furnished:
 - 1. Glaze with glazing tape.
 - 2. Pre-measure and cut tapes to required lengths; adhere to fixed stops, setting horizontal tape at heads and sills before vertical tape.
 - 3. Install tape with tight butt joints; no overlaps will be accepted. Set tape with straight lines level with frame sight line.
 - 4. Position glass, uniformly sealing against tape. Install inside removable stops and place tape in stops forming a uniform seal against glass, level with sight lines.
- G. Adjust glazing materials to form a uniform sight line.

3.4 CLEANING

- A. Clean excess glazing materials from adjacent finished surfaces.
- B. Remove labels after work is completed.

3.5 GLASS TYPE SCHEDULE

- A. The following are the glass types as indicated on the Drawings:
 - 1. GL-3A: Attack Rated Glass.
 - a. Laminated attack rated glass.

3.6 GLASS LOCATION SCHEDULE

- A. GL-3A: Interior glazing at security and detention conditions unless indicated otherwise.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Epoxy floor sealer.

1.2 SUBMITTALS

- A. Product Data: For floor sealer.

1.3 PROJECT CONDITIONS

- A. Conform to manufacturer's instructions.

1.4 SEQUENCING AND SCHEDULING

- A. Schedule the final application of the concrete sealer immediately prior to Substantial Completion.

PART 2 PRODUCTS

2.1 EPOXY FLOOR SEALER

- A. Basis of Design: Euclid Chemical; Eucopoxy Tufcoat: www.euclidchemical.com.
- B. Description:
 - 1. Two-component, waterbased, low odor, epoxy-polyamide coating; semigloss sheen.
 - 2. VOC: Less than 125 g/l.
- C. Color: As selected by Architect from manufacturer's complete line.

2.2 ACCESSORIES

- A. Aggregate: Uniformly graded, washed silicon carbide sand of particle sizes, shape, and minimum hardness recommended by coating manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence.
- B. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.
- C. Do not begin work until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 PREPARATION

- A. Cover and protect surfaces not to receive concrete sealer.
- B. Clean concrete surfaces to remove dirt, oil, grease, adhesives, joint compound, and other surface contamination. Use cleaner as recommended by the concrete sealer manufacturer.
- C. Allow surfaces to dry.

3.3 APPLICATION

- A. Apply 2 coats of epoxy sealer in accordance with the manufacturer's recommendations.
 - 1. Apply one coat and uniformly broadcast aggregate over wet film and roller embed aggregate.
 - 2. Apply second coat.

3.4 CLEANING

- A. Leave area clean, free from spillage, overspray, tracking, and other residue resulting from work of this Section.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Site applied opaque paint coatings, except as otherwise noted.
- B. Related Sections:
 - 1. 05 50 00 - Metal Fabrications: Pre-primed metal surfaces.
 - 2. 08 11 10 - Hollow Metal Doors and Frames: Preprimed metal surfaces.

1.2 REFERENCES

- A. Master Painters Institute (MPI): Architectural Painting Specification Manual
- B. Steel Structures Painting Council (SSPC).

1.3 SUBMITTALS

- A. Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- B. Samples:
 - 1. Paint Samples:
 - a. Submit three samples of each paint finish on an 8"x10" card. Reference manufacturer, type of paint, color, sheen, substrate, and application.
 - b. Furnish additional samples until all paint finishes are approved.

1.4 QUALITY ASSURANCE

- A. Applicator: Company specializing in commercial painting and finishing with a minimum of three years documented experience.
- B. Visual Standards: Each distinct area of the finished work shall be free of variations in color and sheen, orange peel, runs, sags, blistering, checking, cracking, scratches, dust, dirt, bugs, and other contaminants.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. In accordance with Section 01 60 00 - Product Requirements.
- B. Delivery: Deliver paint materials to the jobsite in sealed, original, labeled containers, each bearing manufacturer's name, type of paint, brand name, color designation, and instructions for mixing and/or reducing.
- C. Storage: Store paint materials at a minimum ambient temperature of 45 degrees F. in a well ventilated area.
- D. Toxic, acidic, and combustible materials: Take all necessary precautionary safety measures as recommended by the material manufacturers and governing regulations.
- E. Place cotton waste, cloths, and material which may constitute a fire hazard in closed metal containers and daily remove from the site.

1.6 SITE CONDITIONS

- A. Weather Conditions:
 - 1. Do no exterior work on unprotected surfaces when raining, or other moisture is present or expected, or before applied paints can dry or attain proper cure.
 - 2. Allow wetted surfaces to dry and attain temperatures and condition specified hereinafter before proceeding with previously started work.
- B. Temperature:
 - 1. Do no painting work when surface and air temperatures are below 40 degrees F or below those temperatures recommended by the manufacturer for the material type used.

2. Minimum temperatures for latex finishes: 45 degrees F for interior work and 50 degrees F. for exterior work, unless approved otherwise.
- C. Lighting: Maintain a lighting level of minimum 50 foot-candles on the surfaces to be painted or finished.
- D. Ventilation: Provide adequate continuous ventilation.

1.7 MAINTENANCE

- A. Furnish overage of paint materials equal to 10 percent minimum of quantity of each paint and transparent finish system component, color and sheen required for the work, but furnish not more than five full one gallon cans, nor less than two full one quart cans, of each type. Overruns in excess of five gallons may be furnished to the Owner at the Contractor's option. Overage shall be taken from the batch mix furnished for the work. Overage shall be furnished in completely filled, properly labeled, sealed cans.

PART 2 PRODUCTS

2.1 PRODUCTS

- A. Interior Waterborne Epoxy Systems for Ferrous Metal: One of the following; VOC of 150g/L or less.
 1. Benjamin Moore Paint Company.
 - a. Primer: Ultraspec HP Acrylic Metal Primer HP04.
 - b. Finish Coat: Corotech V342 Eggshell Precatalyzed Water Based Epoxy.
 2. Sherwin-Williams.
 - a. Primer: Procryl Acrylic Metal Primer; B66W1310
 - b. Finish Coat: "Proindustrial Waterbased Catalyzed Epoxy B73 Series; gloss (or eggshell).
 3. Rodda/Cloverdale Paint
 - a. Primer: 70323 EcoLogic Shop Primer.
 - b. Finish Coat: 70503 EcoLogic WB Epoxy; Semi-gloss
 4. Approved equal.
- B. Interior Waterborne Epoxy Systems for Masonry:
 1. Benjamin Moore:
 - a. Block Filler: UltraSpec Masonry Interior/Exterior High Build Block Filler 0571.
 - b. Finish Coat: Corotech Precatalyzed Water Based Epoxy, Eggshell V342.
 2. Sherwin-Williams.
 - a. Block Filler: Preprite Block Filler B25W25
 - b. Finish Coat: "Proindustrial Waterbased Catalyzed Epoxy B73 Series; gloss (or eggshell).
 3. Rodda/Cloverdale Paint
 - a. Block Filler: 501901 Sprayable Smooth Block Filler.
 - b. Finish Coat: 70503 EcoLogic WB Epoxy Semi-gloss.
 4. Approved equal.
- C. Products for each general purpose shall be compatible. Each system shall be products of one manufacturer where ever possible.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to starting work, inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Perform adhesion

tests on factory primed items. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.

- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 MOISTURE CHECK

- A. Check for excess moisture using an electronic moisture meter. Do not paint materials with moisture levels which would impair the bonding of finish coatings.

3.3 PROTECTION

- A. Adequately protect surfaces not to be painted, from spills, drips, over painting, and other damage caused by this work. Include surfaces within the paint storage and preparation areas. Mask off sprinkler heads, light fixtures, identification labels, and similar informational and functional elements.
- B. Hardware and Miscellaneous Items:
 - 1. Remove electrical outlet and switch plates, mechanical diffusers, escutcheons, surface hardware, and fittings prior to starting work.
 - 2. Store, clean and reinstall these items upon completion of work in each area. Use materials and techniques as necessary to prevent damage to finishes on such items.

3.4 SURFACE PREPARATION

- A. General: Prepare surfaces by removing dirt, dust, grease, oil, moisture, and other contaminants which would impair finish adhesion.
- B. Ferrous Metal Shop Primed under other Sections: Solvent clean to remove oil and grease. Remove loose rust, and blistered and peeling paint to bare metal by scraping, sanding, and wire brushing in accordance with SSPC-SP2 and SP3. Immediately retouch damaged or abraded surfaces with compatible primer. Lightly sand all shop prime painted surfaces to receive paint finish.
- C. Galvanized Ferrous Metal: Galvanized Surfaces: Prepare surfaces in accordance with ASTM D6386 as necessary to achieve sufficient profile for paint adhesion.
- D. Unprimed Ferrous Metal:
 - 1. Solvent clean in accordance with SSPC SP-1.
 - 2. Commercial blast per SSPC SP6.
- E. Aluminum: Remove surface contamination by solvent washing. Mechanically roughen surface with abrasive pad.
- F. Existing Finished Surfaces To Be Repainted:
 - 1. Remove loose, blistered, scaled, or crazed finishes to bare substrate; feather new work into existing work. Prepare surfaces to the nearest break line if necessary to blend new finishes with old finishes.
 - 2. Wash and rinse surfaces with trisodium phosphate and water or other solution required to remove remaining film, wax, oil, grease, or foreign matter which would impair bond or cause bleed through.
 - 3. Lightly sand, or apply a liquid deglosser on existing semi-gloss and high-gloss finishes before refinishing.

3.5 GENERAL APPLICATION REQUIREMENTS

- A. Unless specified or indicated otherwise, comply with requirements of MPI Architectural Painting Specification Manual.

- B. Unless specified or indicated otherwise, follow paint manufacturer's label directions for general application procedures and coverage rates.
- C. Do not apply finishes on surfaces that are not sufficiently dry. Make sure each coat of finish is dry and hard before a following coat is applied unless the manufacturer's directions state otherwise.
- D. Tint filler to match stain when clear finishes are specified; work filler well into grain and, before it has set, working perpendicularly to the grain, wipe the excess from the surface.
- E. Opaque Finishes:
 - 1. Apply number of coats scheduled for each application, except that additional finish coats shall be applied as necessary for complete hiding of substrate colors.
 - 2. Apply primer coats untinted. Where more than one coat of paint is required, tint each succeeding coat up to the final coat similar in tint, but slightly lighter in value (shade).
 - 3. Sand lightly between coats if necessary to achieve required finish.
- F. Rollers for application and backrolling of latex paints shall have a nap of 3/8 inch or less.
- G. Where roller texture is scheduled for application to gypsum board surfaces, finish coats may be roller-applied, or spray applied and backrolled at Contractor's option.
- H. Factory Primed Surfaces: Apply scheduled finish system, less primer coat, except as necessary for patching damage to factory prime coating.
- I. Except where scheduled or indicated otherwise, the intent is to paint all new rooms and areas. Existing areas which have not been remodeled or do not have patched surfaces are not to be repainted. Where existing surfaces have been remodeled or patched the entire room is to be repainted, including the associated access panels, electrical panels, hollow metal doors and frames (both sides), and similar elements within the room.
- J. Do not apply paint to the following surfaces:
 - 1. Pre-finished metal.
 - 2. Labels and adhered operating instructions.
 - 3. Floor finishes such as tile, resilient flooring, polished concrete and other specially applied floor finishes.
 - 4. Prefinished ceilings.
 - 5. Light fixtures and trim.
 - 6. Switches and outlets electrical controls and covers.
 - 7. Prefinished diffusers and return air grilles.
 - 8. Sprinkler heads.

3.6 INTERIOR PAINTING AND FINISHING SYSTEMS

- A. Ferrous Metal - Epoxy System:
 - 1. System: Three coats; first coat acrylic DTM primer; second and third coats epoxy finish. The primer may be omitted at factory primed surfaces, except as necessary to recoat damaged or abraded preprimed surfaces.
 - 2. Sheen: Semi-gloss, unless indicated otherwise.
 - 3. Application:
 - a. Interior ferrous metal surfaces including hollow steel metal doors and frames.
- B. Concrete Masonry Units -Epoxy System:
 - 1. System: Three coats - first coat manufacturer's recommended primer/sealer or block filler, second and third coat epoxy coating.
 - 2. Sheen: Semi-gloss sheen, unless indicated otherwise.
 - 3. Application: Interior exposed non-decorative CMU walls in detention area.

3.7 CLEANUP

- A. As the work proceeds and on completion of the work, promptly remove all sealers, primers, paints and finishes where spilled, splashed or splattered in a manner not to damage the surface from which it is removed.
- B. Remove masking.
- C. Clean, or replace with new, all lamps and electrical fixtures damaged by overspray; replace with new identical components all lighting fixture louvers and reflectors damaged by overspray.

3.8 COLOR SCHEDULE

- A. Provide paint colors to match those indicated as specified below. Where a paint color is listed from a specific manufacturer, paint products from other approved manufacturers may be used, provided the color exactly matches the specified color, and the paint system meets the specified requirements. Where no paint color is indicated, provide color and sheen as selected by the Architect.
 - 1. P1: Match existing. (Benjamin Moore OC 26 Silver Satin, verify in field.)
 - 2. P2: Match existing. (Benjamin Moore 7020 Silver Fox, verify in field.)

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work under Division 22 includes furnishing materials, equipment, labor, supervision, tools and items necessary for construction, installation, connection, testing and operation of mechanical work for this project, as shown on Drawings and defined in Division 22 specifications.

1.2 QUALITY ASSURANCE

- A. Tests: Demonstrate that equipment operates as indicated, as specified, and in accordance with manufacturer's recommendations. Perform tests in presence of Architect. Provide instruments and personnel required to conduct tests.
- B. Qualifications: Use sufficient journeymen and competent supervisors in execution of Work to ensure proper and adequate installation throughout. In acceptance of installed work, no allowance will be made for lack of skill on part of workmen.

1.3 WORK OF OTHER TRADES

- A. Drawings do not show complete details of building construction. Refer to architectural, structural, civil, and electrical Drawings for those details which may affect execution of this Work. Obtain specific locations of structural or architectural features or equipment items from referenced Drawings, field measurements or trade providing material or equipment. No extra payments will be allowed for failure to obtain this information.
- B. Coordination: Conform to requirements of Division 01. Plan and execute Work including, but not limited to, piping and ductwork, in cooperation with other trades. Make every reasonable effort to provide timely notice of work affecting other trades to prevent conflicts or interference as to space requirements, dimensions, openings, block-outs, sleeving or other matters which will cause delays or necessitate work-around methods. Failure to coordinate Work will be considered sufficient cause for Work to be altered at Contractor's expense, as directed by Architect.

1.4 EXISTING CONDITIONS

- A. Demolition work required is noted on Drawings. Verify specific scope of demolition work and operating conditions to be encountered from on-site review and coordination with Owner. Maintain service to existing equipment and devices to be retained in area adjacent to existing areas scheduled for renovation. Provide temporary services as necessary to meet these conditions.
- B. Special Protection: Exercise maximum precaution to provide positive protection for existing building and equipment from damage of any kind, and in particular prevent any water and dust seepage into existing building.

1.5 CODES, PERMITS, INSPECTIONS, AND FEES

- A. Conform to requirements of Division 01.
- B. Obtain permits and inspections and pay fees required by National, State and Local authorities. Make arrangements for inspections by Architect, Owner or other authority as required. Submit 3 copies of certificates of compliance to Architect.
- C. Work and materials shall be in accordance with requirements of latest adopted edition of applicable codes, regulations, ordinances, and local amendments including, but not limited to, the following.
 - 1. International Building Code.
 - 2. International Mechanical Code.
 - 3. International Fire Code.
 - 4. International Fuel Gas Code.
 - 5. Uniform Plumbing Code.
 - 6. Washington State Energy Code.
 - 7. National Electrical Code.

8. State of Washington standards, WAC-296-24, General Safety and Health Standards.
 9. NFPA 13, Sprinkler Systems.
 10. NFPA 30, Flammable and Combustion Liquids Code.
 11. NFPA 90A, Installation of Air Conditioning and Ventilating Systems.
 12. American National Standard Code for Pressure Piping, Chapter V (ANSI B31.1).
 13. Washington Boilers and Unfired Pressure Vessel Laws, RCW 70.79 and WAC 296, Chapter 104, as published by Washington State Department of Labor and Industries, Division of Boiler Inspection.
 14. Americans with Disabilities Act (ADA).
 15. Puget Sound Air Pollution Control Agency.
- D. Nothing in Drawings and Specifications shall be construed to permit Work not in conformance with these rules and regulations.
- E. Where Drawings or Specifications call for material or construction of a better quality or larger sizes than required by above-mentioned rules and regulations, provisions of Drawings or Specifications shall take precedence over requirements of rules and regulations.
- F. Utilities: Comply with rules and requirements of local utility companies; coordinate and pay for connections.

1.6 EQUIPMENT AND MATERIALS APPROVALS

- A. Whenever UL listed standards exist for equipment with electrical components, provide UL listed equipment. Otherwise provide equipment certified by manufacturer as complying with UL standards for similar items.
- B. Label materials, equipment, and processes requiring approval of Washington State Department of Labor and Industries or other nationally-recognized testing agency as so approved in accordance with provisions of Washington Administrative Code.

1.7 INTENT OF DRAWINGS

- A. Drawings are diagrammatic and show only approximate locations of piping, ducts, fixtures, and equipment. Take measurements from building or site and verify with Drawings. Because of small scale of Drawings, it is not possible to indicate all offsets, fittings, and accessories that may be required. Carefully investigate plumbing, fire protection, electrical, structural, and finish conditions that would affect Work to be performed and arrange such work accordingly, providing required ductwork and piping offsets, fittings, and accessories to meet such conditions.
- B. Provide equipment that fits into space allotted and allow adequate acceptable clearances for installation, replacement, entry, servicing, and maintenance. When motors furnished are larger than sizes indicated, provide any required changes to electrical services as may be necessary and related work as a part of Work for Section specifying that motor.
- C. Report any conflict to Architect prior to proceeding with Work. Failure to follow this instruction is considered sufficient cause to alter Work, at no cost to Owner, as directed by Architect.
- D. Plans and sections generally do not show all isolating valves, control valves, instruments, or other components; refer to diagrams to obtain a more complete description of systems.

1.8 DETAIL DRAWINGS

- A. Wherever Work is of sufficient complexity to warrant additional detailing, prepare additional detail drawings to scale 1/4 inch = 1 foot, prepared on AutoCAD Version 2016 or later same size as Contract Drawings; with layouts, coordinate work with work of other trades. Identify such detailing work on drawings as to area to which it applies.
- B. Do not submit these drawings to Architect for approval. At completion, however, include a set of such drawings with each set of as-built drawings for Owner's record purposes.

1.9 SUBMITTALS

- A. Conform to requirements of Division 01.
- B. List of Manufacturers: Submit within 30 days after award of Contract a Bill of Materials containing items to be used on this project, listing manufacturer's name and catalog numbers (where applicable) and referenced to applicable Specification paragraph.
- C. Submit Shop Drawings, descriptive bulletins, data sheets, diagrams, catalog cuts or other additional information as required for items specified hereinafter in other Sections.
- D. Acceptance: Acceptance of a manufacturer's name or product by Architect does not relieve Contractor of responsibility for providing materials and equipment which comply in details with requirements of Contract Documents.

1.10 MATERIALS

- A. Conform to requirements of Division 01.
- B. Quality: Materials, products, and equipment shall be in strict accordance with governing codes and ordinances.
- C. Quantity: Equipment and items of any one classification which are used in quantity, such as accessories, valves, specialties, cleanouts, drains, fittings, fans, air handling units etc., shall be products of one manufacturer and shall be used only for services recommended by manufacturer.

1.11 SUBSTITUTIONS

- A. Conform to requirements of Division 01.

1.12 ABBREVIATIONS, DEFINITIONS, AND REFERENCE STANDARDS

- A. Refer to Division 01 for reference standards. Refer to Division 01 for definitions and abbreviations. Additional reference standards, definitions, and abbreviations are as follows.

AASHTO	American Association of State Highway Transportation Officials
AGA	American Gas Association
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
AHRI	Air-Conditioning, Heating, and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
as shown	as shown on Drawings
CAGI	Compressed Air and Gas Institute
CISPI	Cast Iron Soil Pipe Institute
CSA	Canadian Standards Institute
F	Degrees Fahrenheit
FRP	Fiberglass reinforced plastic
FM	FM Global
ICBO	International Conference of Building Officials
IBC	International Building Code
mA	milliamps
iwc	inches water column
MSS	Manufacturer's Standardization Society
mV	millivolts
NEMA	National Electrical Manufacturer's Association
NEC	National Electrical Code
NFPA	National Fire Protection Association

provide	furnish and install
psig	pounds per square inch gage pressure
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPDT	Single Pole, Double Throw
UL	Underwriters Laboratories, Inc.
V	Volts
VAC	Volts, Alternating Current
VDC	Volts, Direct Current
wp	Working Pressure (psig)
wg	Water Gage

1.13 OPERATION AND MAINTENANCE MANUALS

- A. Time of submittals, quantity of copies for submittals, binding, content, and other requirements shall conform to requirements of Division 01.
- B. Prepare an operation and maintenance manual for each component, device, piece of equipment, and system requiring operation instructions or maintenance requirements provided under Division 22; conform to requirements of Division 01.
- C. Operation and maintenance manuals shall comply with requirements of the Washington State Energy Code.
 1. Prepare and submit an operating and maintenance manual for each component, device, piece of equipment, and system required to be commissioned by the Washington State Energy Code. Operation and maintenance manual shall include the following code requirements.
 - a. Submittal data indicating all selected options for each piece of equipment.
 - b. Manufacturer's operation manuals and maintenance manuals for each device, piece of equipment, and system requiring maintenance, except equipment not furnished as part of project. Identify required routine maintenance actions and cleaning.
 - c. Name and address of at least one service agency.
 - d. Controls system inspection schedule, maintenance and calibration information, wiring diagrams, schematics, and control sequence descriptions. Permanently record desired or field-determined setpoints on control drawings at control devices or, for digital control systems, on graphic where settings may be changed.

1.14 RECORD DOCUMENTS

- A. Furnish record documents conforming to requirements of Division 01.
- B. Record documents shall conform to requirements of the Washington State Energy Code.

1.15 PRESSURE VESSEL CERTIFICATES

- A. Construct and label to conform with the Boiler and Unfired Pressure Vessels Laws of the State of Washington. Provide, for each item, a framed certificate under glass. Mount where directed by Architect.

1.16 SITE CONDITIONS AND METHODS

- A. Cutting and Patching: Conform to requirements of Division 01. Keep cutting and patching to a minimum. If required, patching shall conform to Specifications for new general construction work. Finish to match existing work.
- B. Measurements: Verify space availability by field measurement prior to submitting Shop Drawings for approval.
- C. Roughing-In Dimensions: Obtain roughing-in dimensions for equipment from approved Shop Drawings or actual equipment measurements.
- D. Manufacturer's Installation Instructions: Follow manufacturer's written instructions where furnished. If details are in conflict with Drawings, notify Architect for resolution.

- E. Accessibility: Install products which require periodic servicing or repair so that products are readily accessible. Otherwise, obtain Architect's approval of location.
- F. Provision for Light Fixtures: In laying out piping and ductwork, provide a minimum of 8 inches above ceilings to allow clearance for light fixtures. If interferences occur, move piping or ducts and, if not possible, notify Architect.
- G. Rejected Materials: Remove damaged or rejected materials from site.
- H. Operation of Equipment and Systems: Contractor is responsible during periods of balancing and testing.
- I. Delivery, Storage, and Handling: Conform to requirements of Division 01.
 - 1. Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with manufacturer's recommendations and as approved by Architect. Replace damaged or defective items.
 - 2. Refinish equipment with damaged factory applied finishes as required to bring equipment to a like-new condition in accordance with manufacturer's recommendations.

1.17 TESTING AND DEMONSTRATION

- A. Conform to requirements of Division 01.
- B. Systems Operation Demonstration: Subject systems to such operating tests as are required to demonstrate that equipment installed will operate within specified limits through normal ranges and sequences including simulation of possible abnormal conditions. Operate every device manually and automatically, in accordance with its purpose. Operating test duration; not less than 6 hours after major corrections have been made. If tests do not demonstrate satisfactory system performance, correct deficiencies and retest systems.
- C. If Work is completed during heating season, perform final tests of cooling equipment the following summer. If completed during summer, perform test of heating system the following winter.

1.18 INSTRUCTION FOR OWNER'S PERSONNEL

- A. Conform to requirements of Division 01.
- B. Training for Owner's personnel shall conform to requirements of the Washington State Energy Code. Training shall include the following.
 - 1. Review of operation and maintenance manual and permanent certificate.
 - 2. Hands-on demonstration of normal maintenance procedures, normal operating modes, and emergency shutdown and start-up procedures.
 - 3. Training completion report.
- C. Contractor's representatives, in general, who conduct these instructions and demonstrations shall be qualified foremen or superintendents acquainted with this project and from trade involved. For control systems, representative shall be the control engineer who performs testing and adjustment. For major equipment, representative shall be manufacturer's representatives with operating experience and substantial design experience on this project. Submit their qualifications to Architect before conducting instruction period.
- D. Representatives of Owner who will be present at these meetings may include Owner's administrative, operating, and maintenance personnel; and for fire protection systems, representatives of City Fire Department.
- E. General Description of Instruction Periods: Each period shall include preliminary discussion and presentation of information from operation and maintenance manuals with appropriate references to Drawings, followed by tours of equipment spaces explaining maintenance requirements, access methods, servicing, and maintenance procedures, temperature settings, and available system and equipment adjustments.

1.19 INSPECTION

- A. When requesting final inspection, submit written certification that Work has been fully completed in strict accordance with Drawings and Specifications.
- B. Submit written certification of inspection from governing building authority stating that Work has been inspected, accepted, and approved as complying with existing governing ordinances and codes.

1.20 FINAL PUNCHLIST

- A. Conform to requirements of Division 01. When Architect is completing punchlist during final inspection, provide access to devices as requested by Architect, including ceiling tile removal and replacement. Provide ladders, scaffolds, staging, and accessories required to gain access to devices.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 DEMOLITION EXAMINATION

- A. Verify field measurements are as shown on Drawings.
- B. Demolition Drawings are based on field observation and existing record documents. Report discrepancies to Architect before disturbing existing installation.
- C. Beginning of demolition means installer accepts existing conditions.
- D. Provide temporary connections to maintain existing systems in service during construction. When work must be performed on energized equipment, use personnel experienced in such operations.
- E. Where piping is indicated on Drawings to be abandoned, drain and cap piping unless indicated otherwise.
- F. Repair adjacent construction and finishes damaged during demolition and extension work.
- G. Maintain access to existing installations which remain active.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes anchor bolts; support channels; structural attachments to wood structure; protective coatings; mechanical identification; sleeves; cored openings; prepared openings; seals; and miscellaneous other basic materials.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Anchor bolts.
 - 2. Support channels.
 - 3. Structural attachments to wood structure.
 - 4. Protective coatings.
 - 5. Equipment, piping, and valve identification.
 - 6. Pipe seals.
 - 7. Grout.
- B. Samples: Nameplates and valve tags.
- C. Seismic Design: Submit calculations, details, Shop Drawings, Product Data, and statement of special inspections for seismic restraint design of mechanical and electrical nonstructural components in Division 22 to Architect for Architect's review. After Architect's review, Architect will submit Architect's notification with calculations, details, Shop Drawings, Product Data, and statement of special inspections to Building Official per 2021 International Building Code section 107.3.4.1. No Work shall be started until calculations, details, Shop Drawings, Product Data, and statement of special inspections have been approved by Building Official. If Contractor hired professional engineer licensed in the State of Washington determines that the 2021 International Building Code does not require some of the mechanical and electrical nonstructural components in Division 22 to be seismically restrained, then submit a stamped and signed statement from professional engineer to that effect.
 - 1. Submit a written "Contractor's Statement of Responsibility", where such statement is required by Section 1704.4 of the 2021 International Building Code, to Architect and to Building Official for mechanical nonstructural components listed in statement of special inspections per 2021 International Building Code prior to commencement of Work on system or component.
- D. Submit seismic certification of mechanical nonstructural components and designated seismic systems where such certification is required by Section 1705.13 of 2021 International Building Code.

PART 2 PRODUCTS

2.1 MISCELLANEOUS MATERIALS

- A. Pipe Sleeves: Schedule 40 galvanized steel pipe with unthreaded ends.
- B. Anchor Bolts:
 - 1. Anchor Bolts (Cast-In-Place): Hot-dip galvanized steel bolts conforming to requirements of ASTM A307 and hot-dip galvanized steel nuts conforming to requirements of ASTM A194. Number and size per manufacturer's recommendations or as shown. In concrete construction, provide bolts set in formwork before pouring concrete. In building floors where equipment bases are cast iron over 18 inches maximum dimension, provide a pipe sleeve around each bolt to allow for positioning.
 - 2. Anchor Bolts (Expansion Type): Molly "Parabolt" or Hilti "Kwik-Bolt III"; Type 304 stainless steel construction; with impact section on end of bolt.
 - 3. Anchor Bolts (Epoxy Type): Hilti "Type HIT-RE-500-V3 Epoxy Adhesive" or equivalent; two part anchoring epoxy conforming to requirements of ASTM C881 Type IV; Grades 2

and 3; Classes A, B, and C except for gel time. Hot-dip galvanized steel bolts conforming to requirements ASTM A307 and hot-dip galvanized steel nuts conforming to requirements of ASTM A194; IBC compliant.

- C. Support Channels: Unistrut, Cooper B-Line, or Powerstrut; manufacturers shall be members of MFMA; steel support channels shall conform to MFMA "Metal Framing Standards Publication"; non-perforated channels, 12 gage (0.105 inch) minimum, 1-5/8 inch by 1-5/8 inch minimum cross-section size; with hex-head bolt, nut, and spring; hot-dip galvanized finish unless indicated otherwise.
- D. Structural Attachments To Wood Structure: Lag screws, wood rod hanger threaded rod hanger system, wood drive screws, steel side beam connectors, or approved equal; carbon steel, plain inside building and galvanized outside building. Structural attachments shall be rated for weight of item that is being supported.
- E. Guy Wires, Fittings, and Hardware: Following accessories shall be furnished as needed to support and maintain alignment. Materials shall have a hot-dip galvanized finish.
 - 1. Guy Wires: ASTM A475, extra high strength grade, extra galvanized, stranded with 7 or 19 wires in each strand. Thimbles shall be provided at each end of guy wires.
 - 2. Clamps: Hot-dip galvanized forged high carbon steel clamps capable of developing full strength of guy wire, and fitted with galvanized heat-treated bolts. Provide two clamps at each connection of guy wire.
 - 3. Turnbuckles: Open type, forged steel body, with jaw and jaw end pulls, hot-dip galvanized.
 - 4. Anchor Rods and Anchors: Thimble-eye, steel rod with screw anchor, hot-dip galvanized.

2.2 FIELD REPAIR OF GALVANIZING

- A. Field repair of galvanizing shall be with a zinc rich coating; Tnemec 90-98, Galvacon, or approved equal.

2.3 NEW EQUIPMENT, PIPING, AND VALVE IDENTIFICATION

- A. Valve Tags: 19 gage brass with stamped, black-enamel-filled characters. Provide with brass chain and brass S-hook. At Contractor's option, valve tags may be black and white laminated plastic with lettering engraved through black cover to white backing.
- B. Nameplates: Laminated black and white plastic with lettering cut through to white background.
- C. Pipe Markers and Directional Flow Arrows: Semi-rigid plastic or adhesive identification markers and directional flow arrows. Markers shall conform to requirements of ASME A13.1, unless specified otherwise.

2.4 SEGMENTED FLEXIBLE, LEAKPROOF PIPE SEALS FOR NON-INSULATED PIPES PASSING THROUGH OPENINGS IN CONCRETE WALLS

- A. Link-Seal, Innerlynx of Advance Products and Systems, or approved equal; segmented flexible, leakproof type pipe seal.

2.5 PREFABRICATED PENETRATION FLASHING UNITS

- A. Piping Passing Through Exterior Metal Walls Above Grade and Piping Passing Through Flat or Sloping Metal Roofs: Prefabricated penetration flashing unit engineered for pipe penetrations through metal roof systems and wall penetrations. Portals Plus "Deck-Mate", equivalent of Roof Products and Systems Corporation, or approved equal. Flexible aluminum base; EPDM cap, except use silicone cap for piping with temperatures greater than 250 degrees F; resistant to ozone; resistant to ultraviolet; specifically designed for nominal pipe diameter of piping passing flashing unit. Provide stainless steel clamp to secure boot to pipe.
- B. Piping Passing Through Flat Non-Metal Roofs, Except for Refrigerant Piping:
 - 1. Portals Plus "Pipe Boots", equivalent of Roof Products and Systems Corporation, or approved equal; EPDM or neoprene material.

2. Portals Plus "Alumi-Flash System", equivalent of Roof Products and Systems Corporation, or approved equal; aluminum base with an EPDM cap.
 - C. Refrigerant Piping Passing Through Flat Non-Metal Roofs: Portals Plus "Portal System", equivalent of Roof Products and Systems Corporation, or approved equal; ABS curb cover with EPDM caps; shall allow piping to expand, contract, and vibrate independently of roofing system.
 - D. Piping Passing Through Sloped Shingled Roofs: Portals Plus "Shingle Flashings", equivalent of Roof Products and Systems Corporation, or approved equal; designed to seal round pipe penetrating shingle roofing systems at up to 40 degree slopes; seal shall be an elastomeric collar integrally locked into an aluminum base which shall remain flat on roof; shingle flashings shall be rated to 180 degrees F continuous heat.
- 2.6 GROUT
- A. Hydraulic cement-based metallic-aggregate non-shrink grout conforming to requirements of CRD-C-621 Grades B and C and ASTM C1107.

PART 3 EXECUTION

3.1 ANCHOR BOLTS

- A. New Concrete Construction:
 1. Anchor Bolts (Cast-In-Place): Set anchor bolts in formwork before pouring concrete. Number of anchor bolts shall be per manufacturer's recommendations or as shown on Drawings. Install anchor bolts through concrete equipment pads to structural concrete slab. Provide a pipe sleeve around each bolt to allow for positioning in building floors where equipment bases are cast iron over 18 inches maximum dimension,
- B. Existing Concrete Construction:
 1. Anchor Bolts (Expansion Type): Use only where necessary to support piping, ductwork, and anchor non-rotating equipment from existing concrete slabs and walls and for rotating equipment with anchor bolts in tension. Install expansion type anchor bolts in holes drilled in concrete. Install anchor bolts through concrete equipment pads, installed into existing structural concrete slabs.
 2. Anchor Bolts (Epoxy Type): Use only where necessary to anchor rotating equipment from existing concrete slabs and walls. Install adhesive type anchor bolts in holes drilled in concrete. Install anchor bolts through concrete equipment pads, installed into existing structural concrete slabs. Do not use adhesive type anchor bolts in tension.
 3. Powder actuated inserts are not acceptable.

3.2 SUPPORT CHANNELS

- A. Attachment of Hangers to Channels: Provide manufacturer's standard locking type inserted nuts, of same manufacturer as channel.

3.3 GUY WIRES, FITTINGS, AND HARDWARE

- A. Stress guy wires until taut.

3.4 FIELD REPAIR OF GALVANIZING

- A. If it is necessary that previously galvanized items be drilled, welded, cut or ground, exposed material shall be repaired. Prepare surface in accordance with coating manufacturer.

3.5 NEW EQUIPMENT, PIPING, AND VALVE IDENTIFICATION

- A. Valve Tags, General: Install valve tags on new piping where destination is not visible from valve. Valve tags shall contain the following information.
 1. Valve numbers with a description of function.

2. Include a typewritten list in each operation and maintenance manual of valve tag numbers, showing specific valve location and specific list of rooms affected by valve operation.
 3. Number each valve tag chronologically by system and applicable tag number shall be indicated on as-built drawings. Valve numbering system shall conform to Owner's existing system.
 4. Tags: Text line shall read "CPS-SP" which stands for "Central Power Station-Steam Plant". Text line shall have commodity code valve or device code for pipe line (e.g. HPS, HPR, BFW) for piping system that valve or device is located in, followed by a hyphen and then sequential valve/device number for that piping system (i.e. 001, 002, 003, etc.). An example shall read as follows.
 - a. CPS-SP-HPS-001.
 5. Provide valve/device number used at each valve/device on Record Drawings.
 6. Include in each operation and maintenance manual a typewritten list of valve/device tag numbers, showing specific valve/device location.
- B. Nameplates: Install on each piece of new equipment, controller, and other device including any special instruction for its use. Each equipment nameplate shall have equipment identification number.
- C. Labeling Schedule:

Outside Diameter of Pipe or Covering	Minimum Length of Color Band	Minimum Size of Letter
1/2 inch to 1-1/4 inch	8 inch	1/2 inch
1-1/2 inch to 2 inch	8 inch	3/4 inch
2-1/2 inch to 6 inch	12 inch	1-1/4 inch
8 inch to 10 inch	24 inch	2-1/2 inch
Over 10 inch	32 inch	3-1/2 inch

- D. Identification Marker Color Coding and Marking:

Pipe Contents	Band Color	Letter Color	Marker Wording
Pumped Waste	Green	White	PW
Sanitary Soil	Green	White	S
Sanitary Waste	Green	White	W
Indirect Drain	Green	White	D
Sanitary Vent	Green	White	V
Acid Resistant Waste	Green	White	ARW
Acid Resistant Vent	Green	White	ARV
Grease Waste	Green	White	GRW
Domestic Cold Water (Potable Water)	Green	White	CW
Domestic Hot Water (Potable Water)	Green	White	HW
Domestic Hot Water Circulating (Potable Water)	Green	White	HWC
Service Water (Potable Water)	Green	White	SW
Refrigerated Water (Potable Water)	Green	White	RW

Pipe Contents	Band Color	Letter Color	Marker Wording
Combined Fire And Domestic Water Service Water (Potable Water)	Green	White	CFDW
Kitchen Hot Water (Potable Water)	Green	White	KHW
Kitchen Hot Water Circulating (Potable Water)	Green	White	KHWC
Laboratory Cold Water (Nonpotable Water)	Yellow	Black	LCW
Laboratory Waste	Green	White	LW
Laboratory Vent	Green	White	LV
Laboratory Hot Water (Nonpotable Water)	Yellow	Black	LHW
Laboratory Hot Water Circulating (Nonpotable Water)	Yellow	Black	LHWC
Nonpotable Water (Nonpotable Water)	Yellow	Black	NPW
Trap Primer	Yellow	Black	TP
Irrigation Water (Nonpotable Water)	Yellow	Black	IRR
Nonpotable Rainwater (Nonpotable Water)	Yellow	Black	NPRW
Reclaimed Water To Flush Valves (Nonpotable Water)	Yellow	Black	RWFV
Tempered Water (Potable Water)	Green	White	TW
Tempered Water Circulating (Potable Water)	Green	White	TWC
Deionized Water	Green	White	DI
Heating Water Supply	Yellow	Black	HWS
Heating Water Return	Yellow	Black	HWR
Heat Recovery Water Supply	Green	White	HRS
Heat Recovery Water Return	Green	White	HRR
Radiant Floor Heating Supply	Yellow	Black	RFS
Radiant Floor Heating Return	Yellow	Black	RFR
Chilled Water Supply	Green	White	CHS
Chilled Water Return	Green	White	CHR
Secondary Chilled Water Supply	Green	White	SCHS
Secondary Chilled Water Return	Green	White	SCHR
Condenser Water Supply	Green	White	CWS
Condenser Water Return	Green	White	CWR
Fire Service	Red	White	F
Fire Department Connection	Red	White	FDC
Wet Pipe Sprinkler	Red	White	WS
Dry Pipe Sprinkler	Red	White	DS
Pre-Action Pipe Sprinkler	Red	White	PA
Natural Gas	Yellow	Black	G
Natural Gas (Low Pressure)	Yellow	Black	G
Natural Gas (Medium Pressure-5 psig)	Yellow	Black	MPG
Propane Gas	Yellow	Black	PG
Laboratory Natural Gas (Low Pressure)	Yellow	Black	LG
Fuel Oil Supply	Yellow	Black	FOS

Pipe Contents	Band Color	Letter Color	Marker Wording
Fuel Oil Return	Yellow	Black	FOR
Fuel Oil Fill	Yellow	Black	FOF
Fuel Oil Vent	Yellow	Black	FOV
High Pressure Steam	Yellow	Black	HPS
Low Pressure Steam	Yellow	Black	LPS
Gravity Condensate Return	Yellow	Black	GR
High Pressure Condensate Return	Yellow	Black	HPR
Pumped Condensate Return	Yellow	Black	PR
Steam Vent	Yellow	Black	SV
Compressed Air	Yellow	Black	A
Laboratory Compressed Air	Yellow	Black	LA
Vacuum	Green	White	VAC
Vacuum Discharge	Green	White	VD
Laboratory Vacuum	Green	White	LV
Laboratory Vacuum Discharge	Green	White	LVD
Nitrogen	Green	White	N
Refrigerant Discharge	Yellow	Black	RD
Refrigerant Suction	Yellow	Black	RS
Refrigerant Hot Gas	Yellow	Black	RHG
Refrigerant Hot Gas Reheat	Yellow	Black	RHGR
Rain Leader	Green	White	RL
Overflow Rain Leader	Green	White	ORL

3.6 ACCESS DOORS

- A. Coordinate location of access doors, in addition to those shown on architectural Drawings, as required to gain access to mechanical devices requiring periodic inspection, through finished walls or ceilings. Coordinate with other trades to provide unobstructed access to devices.

3.7 SLEEVES, CORED OPENINGS, AND SEALING OF PIPING

- A. Size of Sleeve or Cored Opening: Unless specified otherwise, provide an annular clear space of approximately 1/4 inch for bare pipe sleeves; 1/2 inch for sealed sleeves. Provide insulation and covering continuous through sleeve.
- B. New Interior Construction:
 1. Install sleeves for piping passing through new floors, roofs, and walls.
 2. Set sleeves in place prior to pouring of concrete. Attach sleeves to concrete steel reinforcement.
 3. For floor slabs, extend sleeves 1 inch above finished floor except when pipe is located in a finished area.
 4. Where penetrating a membrane waterproof floor, provide a membrane clamping device.
 5. Sleeves are not required for cast iron soil pipe passing through concrete slab on grade.
- C. Existing Interior Construction:
 1. Install sleeves for piping passing through floors, roofs, and walls that are not concrete or concrete masonry unit.

2. Core drill or saw cut concrete where piping penetrates concrete walls and above grade concrete floor slabs. Sleeves are not required.
 - a. For floor slabs, provide a galvanized sheet metal dam around opening on top of floor where piping penetrates concrete floor slabs except when pipe is located in a finished area. Sheet metal dams shall be water-tight welded construction; seal welded areas with corrosion resistant coating; seal and anchor dams water-tight to floor; minimum 1 inch projection above floor; and shall have a minimum 1/2 inch flange width on floor or spigot end with 3/16 inch bead.
 3. Core drill or saw cut walls where piping penetrates concrete masonry unit walls. Provide sleeves and grout in place.
- D. Unless specified otherwise, annular space between pipe and sleeve or between insulation jacket and sleeve does not require sealing in interior walls or pipe chase areas which are not designated as fire, smoke, or acoustical rated.
- 3.8 EQUIPMENT, DUCTWORK, AND PIPING INSTALLATION
- A. Welding to Building Structural Members: Not allowed except where approved and as indicated on Drawings.
 - B. Provide supports for equipment, piping, and appurtenances as required, including braces as required for seismic restraint; these include frames or supports for pumps and fans. Steel framework exposed to weather shall be hot-dip galvanized after fabrication.
 - C. Manufacturer's Instructions: Install equipment, including ductwork and piping appurtenances, in strict accordance with manufacturer's instructions.
 - D. Floor-Mounted Equipment, General:
 1. Provide machine and floor or foundation fastenings; set equipment on concrete pads. Provide equipment base drawings, bolt-setting information, and anchor bolts for floor mounted equipment.
 2. Install equipment at locations and to dimensions indicated. Set equipment accurately with principal centerlines, and level using manufacturer's leveling screws, blocks, shims, or wedges. Do not distort equipment or baseplates.
 - E. Floor-Mounted Equipment without Vibration Isolation Mountings:
 1. Install shims and blocks that are to remain in place on both sides of anchor bolts, sealed in grout on grouted foundations.
 2. Roughen surface of concrete to receive grout and remove laitance and other loose materials. Set elevation to top of concrete to allow 1/2 to 1-1/2 inches of grout between machine or structure base and concrete. Thoroughly moisten concrete surface immediately before grouting. Leave no free water on surface.
 3. Place non-shrink grout prior to connecting equipment to piping. Mix grout in accordance with manufacturer's recommendations. Dry-Pack or flow grouting may be used depending on size and configuration of equipment to be grouted.
 4. Work grout in under every part of equipment base to ensure a complete bearing surface free from air pockets and cavities. Finish outside edges smooth to allow drainage to drain away from equipment base.
 5. Do not remove forms and shims and do not tighten anchor bolts for at least 24 hours after applying grout. Do not attach piping to equipment until after anchor bolts are tightened.
 - F. Suspended Equipment, Piping, and Ductwork: Supporting elements shall be suitable for stresses imposed by systems, with a safety factor of not less than 5.0.
 1. Do not anchor supports to metal decking.

2. Supporting elements not shown or specified shall be provided in accordance with SMACNA and NFPA standards. Piping and equipment supports, not otherwise detailed, shall conform to applicable provisions of MSS SP-58.
3. Where it is necessary to frame structural members between existing members or where structural members are used in lieu of commercially rated supports, such supplementary steel shall be provided in accordance with AISC Specification for Design, Fabrication and Erection of Structural Steel for Buildings.
4. Welding of structural members, where approved, shall be in accordance with AWS D.1.1.
5. Vibration isolation provisions shall be as indicated or specified.

3.9 SEISMIC AND WIND

- A. Seismic Restraints: Seismically restrain mechanical and electrical nonstructural components in Division 22 in accordance with requirements of 2021 International Building Code. Mechanical and electrical nonstructural components in Division 22 shall be as defined by ASCE 7. Design of seismic restraints shall allow for stress of piping and thermal expansion of piping.
 1. Obtain the services of a professional engineer licensed in the State of Washington to prepare seismic restraint design for mechanical and electrical nonstructural components in Division 22. The professional engineer licensed in the State of Washington shall also prepare a statement of special inspections per requirements of the 2021 International Building Code where such statement is required by Code. Submit calculations, details, Shop Drawings, Product Data, and statement of special inspections for seismic restraint design of mechanical and electrical nonstructural components in Division 22. If the professional engineer determines that the 2021 International Building Code does not require some of the mechanical and electrical nonstructural components in Division 22 to be seismically restrained, then submit a stamped and signed statement from the professional engineer to that effect.
- B. The professional engineer obtained by Contractor shall prepare seismic designs.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes piping, fittings, valves, supports, hangers, and miscellaneous system accessories.

1.2 SUBMITTALS

- A. Test and Evaluation Reports:
 - 1. Flushing procedures.
 - 2. Chemical treatment procedures.
 - 3. Pressure tests.
- B. Certificates: Submit manufacturer's current certification sheets stating that pipe, tubing, fittings, valves, gaskets, and strainers are from an ISO 9000 certified manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. General: Pipe, tubing, fitting, valve, gasket, and strainer manufacturers listed below are acceptable.
 - 1. Copper Tubing: Mueller, Elkhart Products Corporation, Cerrotube, or Cambridge-Lee Industries.
 - 2. Copper Fittings: Nibco, Mueller, Elkhart Products Corporation.
 - 3. Valves: Apollo, Centerline, Victaulic, Jenkins, Walworth, Kennedy, Stockham, Anvil International, Nibco, Milwaukee, Powell, Dezurick, Homestead, Watts Regulator, Rockwell-McCanna, Kitz, Red-White, Wheatley, Worcester, FNW, or Mueller.
 - 4. Gaskets: Crane, Garlock, U. S. Rubber, Anchor, or Flexitallic.
 - 5. Strainers: Armstrong, Keckley, Metraflex, McAlear, Sarco, Hoffman, Crane, Wheatley, Watts, Mueller, Anvil International, Grinnell Mechanical Products, or Victaulic.
- B. Substitutions: When requesting a substitution for pipe, tubing, fitting, valve, gasket, and strainer manufacturers, submit a current certification sheet with substitution request stating that pipe, tubing, fittings, valves, gaskets, and strainers are from an ISO 9000 certified manufacturer.

2.2 COPPER PIPING - GENERAL

- A. Pressure Ratings: Provide pipe, tubing, fittings, accessories, and other components with minimum pressure rating of 150 psig at 230 degrees F.
- B. Tubing (Pipe), Aboveground: ASTM B88 Type L copper water tube, hard drawn.
- C. Fittings:
 - 1. Wrought copper solder fittings and threaded adapters, ANSI B16.22.
 - 2. Cast copper alloy solder joint fittings and threaded adapters, ANSI B16.18.
 - 3. Use of T-Drill fittings is not permitted.
- D. Unions:
 - 1. Wrought copper solder joint unions, ANSI B16.22.
 - 2. Cast copper alloy solder joint fittings, ANSI B16.18.
- E. Flanges and Flanged Fittings: Cast bronze, 125 psig Class, ASME Standards.
- F. Bolting: Hex head bolts, ASTM A307, Grade B; hexagon nut, ASTM A194; dimensions per ANSI B18.2.1 and ANSI B18.2.2; coarse type threads per ANSI B1.1; bronze plated.
- G. Gaskets: ANSI B16.21 nonmetallic 1/16 inch thick. Garlock Style 3000.
- H. Joint Compound:
 - 1. 1 Inch and Smaller: Polytetrafluoroethylene (PTFE) pipe thread tape conforming to requirements of ASTM D3308 and NSF 61.

2. 1-1/4 Inches and Larger: Lead free, non-toxic, non-hardening, pipe joint compound conforming to requirements of NSF 61 and Federal Specification TT-S-1732. Hercules Megaloc, or equivalent of Rectorseal, La-Co, or Oatey.
- I. Solder: 95 percent tin, 5 percent antimony solder, ASTM B32 Harris "Bridgit" acceptable; certified to NSF 61. Laco flux or similar not permitted.
- J. Brazing Alloy: Silver brazing; Handy and Harmon "Sil-Fos" or equal of Harris, 1190 degrees F minimum melting temperature.
- K. Strainers: Cast bronze, Y-pattern, threaded or solder end; 20-mesh stainless steel (3/64 inch for 3 inch size) screen, 250 psi at 210 degrees F.
- L. Combination Ball Valve and Strainer 1-1/2 Inches and Smaller: At Contractor's option, use combination ball valve and strainer on pipe sizes 1-1/2 inch and smaller in lieu of a separate ball valve and a separate strainer.
 1. Griswold Controls combination ball valve and strainer.
- M. Valves:
 1. Gate: MSS SP80, 150-psig bronze, threaded end connections, union bonnet, rising stem, solid bronze disc, repackable under pressure.
 2. Globe or Angle: MSS SP80, 150-psig bronze, threaded end connections, union bonnet, rising stem, solid bronze 500 BHN disc and seat ring or Teflon disc, repackable under pressure.
 3. Check: MSS SP80, 150-psig bronze threaded end connections, threaded cap, Y-pattern, swing disc of Teflon, renewable seat and disc.
 4. Ball: Two-piece body conforming to requirements of MSS SP-110; full port; solid ball; bronze body; chrome plated brass ball; brass stem; threaded end connections conforming to requirements of ASME B1.20.1; polytetrafluoroethylene (PTFE) seat and seal. Provide stem extension for use in insulated piping. Valve shall meet minimum pressure rating of 150 psig at 230 degrees F. Submit pressure-temperature rating table or graph.
 5. Butterfly: Victaulic Series 608 with ductile iron disk with elastomeric coating, wrought copper or cast bronze body; bubble tight shutoff to 300 psi.

2.3 ESCUTCHEONS

- A. Chrome-plated escutcheons; provide spring clip type at ceilings.
- B. Provide 2 inch deep escutcheons for lavatory and sink drains where required.
- C. Manufacturer: Brass Craft, Chicago Specialties, or approved equal.

2.4 AIR VENTS

- A. Automatic: Float operated type, 150 psig working pressure; 3/4 inch Hoffman Model 78 or equivalent of Bell and Gossett, Crane, Sarco, Armstrong or approved.
- B. Manual: Provide either style of manual air vent as described in the 2 subparagraphs below. All manual air vents on project shall be of same style.
 1. Manual air vents shall consist of a 3/4 inch ball valve with a capped hose end connection.
 2. Manual air vents shall consist of a hose end drain valve as specified in this Section with a capped hose end connection.

2.5 RELIEF VALVES

- A. Vacuum Relief Valves: Provide a vacuum relief valve on shell of each shell and u-tube steam heat exchanger and on factory supplied steam inlet nozzle of each plate and frame heat exchanger.
- B. Pressure Relief Valves: Provide one or more pressure relief valves for each heat exchanger in accordance with ASME boiler and pressure vessel section VIII Div 1 code. Aggregate relieving capacity of relief valves shall be no less than that required by code. Discharge from valves

shall be installed as indicated. Pressure relief valves for steam heat exchanger shall be located on water supply coming from heat exchanger as indicated.

2.6 FLOW BALANCING/MEASURING DEVICES

- A. Balancing/Measuring Valves: Provide with identification tag on chain indicating model number, pipe size, and flow rate.
 - 1. Size 2 Inches and Under: Provide either style of balancing/measuring valve as described in the 2 subparagraphs below. All balancing/measuring valves on project shall be of same style and shall be of same manufacturer.
 - a. Brass combination ball valve with memory locking handle and venturi or orifice type flow measuring unit with pressure/temperature read-out valves; Gerand "Balvalve-Indicators Style BVT", Flowset "Accusetter," Preso, Hyspan, or Griswold Controls.
 - b. Victaulic (Tour and Anderson) TA Series 786, TA Series 787, and Series 78K circuit balancing valves. Valves shall be of the 'Y' pattern, equal percentage globe-style and provide flow measurement, flow balancing, and positive drip-tight shutoff. Valves shall be furnished with precision machined venturi built into valve body to provide accurate flow measurement and flow balancing. Venturi shall have two, 1/4 inch threaded brass metering ports with check valves and gasketed caps located on inlet side of valve. Valve body, stem, and plug shall be brass.

2.7 PIPE GUIDES

- A. Manufacturer and Type: Keflex P Series or equivalent of Anvil International; fabricated steel guide which shall include an internal element clamped to pipe and an outer cylindrical enclosure. Outer cylindrical enclosure shall be 2 half sections bolted together with an annular space of at least 1/2 inch between cylindrical enclosure and internal element clamped to pipe or pipe insulation.

2.8 PIPE ANCHORS

- A. Anchors: Welded structural steel per ASTM A36.

2.9 PIPE SLIDES

- A. Slide Plate: Anvil International Figure 280; carbon steel with painted finish; polytetrafluoroethylene (PTFE) bonded base; 8,000 pounds maximum load at 70 degrees F.

2.10 FLEXIBLE CONNECTORS

- A. Hydronic Systems: Mason types specified; equal of Unisource, Wheatley, Korfund, Amber Booth, Keyflex, or Redflex acceptable. Provide control cables for flexible connectors where piping is not anchored on both sides of connector per manufacturer's recommendation. Install flexible connectors in accordance with manufacturer's written instructions.
 - 1. 1-1/4 Inches and Smaller: Mason "Safeflex" Type SFU; single sphere; 235 psi pressure rating at 210 degrees F; constructed of multi-layered Kevlar tire cord fabric reinforcement with peroxide cured EPDM cover, liner, and fabric frictioning; with threaded ductile iron pipe flanges.
 - 2. 1-1/2 Inches and Larger: Mason "Safeflex" Type SFDEJ; double sphere; 235 psi pressure rating at 210 degrees F; constructed of multi-layered Kevlar tire cord fabric reinforcement with peroxide cured EPDM cover, liner, and fabric frictioning; with ductile iron floating flanges.

2.11 FLEXIBLE HOSE

- A. Synthetic rubber tube with textile inner braid and high tensile steel wire braid reinforcement. Parker 20 series or approved.
- B. Corrugated stainless steel hose with braided stainless steel cover; threaded or flanged ends. Mason Type BSS.

2.12 PIPE HANGERS AND SUPPORTS

- A. Conform to requirements of MSS SP 58.
- B. Manufacturers: Anvil International, Tolco, Basic Engineering Inc., B-Line, ERICO/Michigan Hanger, PHD, or Pipe Shields.
- C. Materials:
 - 1. Hanger Material: Match piping material at point of contact with piping.
 - a. Black Steel Pipe: Carbon steel, cast iron, or malleable iron.
 - b. Galvanized Steel Pipe: Carbon steel, cast iron, or malleable with zinc coating.
 - c. Copper Tubing: Carbon steel or malleable iron with copper finish or carbon steel or malleable iron with plastic coating.
 - d. Cast Iron Pipe: Carbon steel, cast iron, or malleable iron.
 - 2. Pipe hangers and hanger rods exposed to weather shall be hot-dip galvanized.
- D. Hanger Rods: Hot rolled steel rod, ASTM A36; size to "Code for Pressure Piping", ANSI B31.1, with safety factor of 5; hanger rod size and maximum load listed below.

<u>Rod Diameter</u> <u>(Inches)</u>	<u>Pipe Size</u> <u>(Inches)</u>	<u>Load</u> <u>(Pounds)</u>
3/8	2 and smaller	610
1/2	2-1/2 and 3-1/2	1,130

- E. Hanger Selection:
 - 1. Bare Pipe: Select to fit outside diameter of pipe.
 - 2. Insulated Pipe: Select to fit outside diameter of insert.
- F. Ring Hangers: Anvil International Figure 69 or 104.
- G. Clevis Hangers: Anvil International Figure 260.
- H. Pipe Stanchions: Anvil International Figure 63 or equal of Tolco, Basic Engineering Inc., B-Line, ERICO/Michigan Hanger, or PHD; galvanized steel construction.
- I. Pipe Hangers at Wall:
 - 1. Pipe 2-1/2 Inches and Smaller: Malleable iron one-hole clamp Anvil International Figure 126.
 - 2. Loads not to exceed ratings shown in manufacturer's catalog.
- J. Pipe Hangers for Vertical Piping:
 - 1. Pipe 1 Inch and Smaller: Steel preformed metal framing, Unistrut P1100 Series with Series P2024 clamps for outside diameter tubing and P2558 Series for pipe; galvanized finish unless indicated otherwise.
 - 2. Pipe 2-1/2 Inches and Smaller: Steel preformed metal framing, Unistrut P1100 Series framing with P2558 Series pipe straps; galvanized finish unless indicated otherwise.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Diagrams: Diagrams showing pipe connections are schematic only. Do not use for calculating lineal runs or numbers and types of fittings.
 - 2. Headroom:
 - a. At ceilings, maintain maximum possible headroom. Employ carefully planned arrangements to give best results.
 - b. In areas of egress, maintain a headroom of 7 feet from floor to bottom of an obstruction.

3. Install piping promptly, capping or plugging open ends and making pipe generally level and plumb, free from traps, and in a manner to conserve space for other work.
 4. Inspect each piece of pipe, tubing, fittings, and equipment for defects and obstructions; promptly remove defective material from jobsite.
 5. Install pipes to clear beams and obstructions; do not cut into or reduce size of load carrying members.
 6. Use long radius elbows wherever possible.
 7. Install piping in accordance with ASME B31.9 "Building Services Piping" and as specified herein.
- B. Location of Pipe: Piping layout as shown is diagrammatic indicating general arrangement. Determine measurements at jobsite, accurately cutting pipe to suit. Locate piping to avoid interference with building structural members, equipment, and building openings; provide access for operation, service, disconnection, removal and replacement of valves, fixtures, and equipment. Within buildings, conceal piping in walls and above ceiling except where indicated to remain exposed.
- C. Cleaning: Clean interior of piping before making joints and placing in position by blowing clean with steam or compressed air. Maintain cleanliness of piping throughout installation; provide caps or plugs on open ends of cleaned piping.
- D. Unions, Flanges, and Fittings: Provide unions or flanges at valves, fixtures, and equipment if a means of disconnection is not otherwise provided. Provide reducing fittings for changes in pipe size; bushings are not acceptable. Use fittings for changes in direction of piping.
- E. Routing: Run parallel to column lines and perpendicular to floor unless shown otherwise on Drawings.
- F. Leaks: Correct immediately, using new materials; leak-sealing compounds not permitted.
- G. Position of Gate Valves and Globe Valves: Install stem horizontal or above.
- H. Concealed Piping: Install piping as concealed Work in finished areas, unless indicated otherwise. Do not cover up or enclose Work until properly and completely inspected and reviewed. Should Work be covered up or enclosed prior to inspections and reviews, uncover Work as required and, after completely inspected and reviewed, make repairs and replacements with materials as necessary and at no additional cost to Owner.
- I. Hose End Drain Valves: Provide at low points of systems and as indicated. This shall include points upstream and downstream of shutoff valves.
- J. Air Vents:
1. Manual: Provide at high points of water systems generally and where indicated. This shall include points upstream and downstream of shutoff valves.
 2. Automatic Air Vents: Provide as shown with discharge piping to indirect drain. Connect to piping through a ball valve.
- K. Seismic Bracing: Conform to requirements of Section 22 03 00.
- L. Pipe Hangers and Supports:
1. Unless specified or indicated otherwise, install hangers, supports, anchors, bolts, and mounting accessories for piping and equipment in accordance with MSS SP 58.
 2. Spacing of Horizontal Pipe Hangers:
 - a. Unless specified or indicated otherwise, comply with spacing requirements of MSS SP 58 and install a support not over 1 foot from pipe fitting joint at each change in direction of piping.
 - b. Provide additional supports at concentrated loads, such as flanges, valves, and similar items.

3. Vertical Piping: Route vertical piping in a manner such that it can be attached to adjacent walls or columns.
 4. Piping at Ceiling: Suspend piping at ceiling using steel rod hangers, with individual rods for each hanger, except where 2-rod suspension pipe roll supports are specified or indicated on Drawings.
 5. Piping Anchors, Guides, and Supports:
 - a. Support piping to route expansion and contraction in required direction.
 - b. Use hangers for supporting pipe 2 inches and larger that are fabricated to permit adjustment after erection while still supporting its load.
 - c. Use wall brackets where pipes are adjacent to walls or other vertical surfaces which may be used for support.
 - d. Install supports to adequately carry load and still maintain proper alignment.
 - e. Set inserts and sleeves for supports in concrete where necessary before concrete is poured.
 - f. Riser clamps shall not be supported on floor sleeves. Provide means to support riser clamps from floor slab.
 6. Beam clamps shall be complete with retaining straps.
- M. Insulation Saddles and Inserts:
1. All Other Insulated Piping: Provide factory fabricated insulation inserts with split metal jacket. Install inserts prior to installing insulation.
- N. Joints:
1. Threaded:
 - a. Produce sufficient lengths of perfect threads to ensure full metal-to-metal contacts when screwed into fittings; countersink, ream and clean ends of pipes of chips and burrs after threading.
 - b. Make up full connections with not more than one full thread exposed, by such method that will not subject pipes or fittings to twisting or cross strains; lubricate male threads only with joint compound.
 2. Brazed and Soldered: Cut ends square and remove fins and burrs. Replace dents and damaged tubing with new tubing. Remove grease and oil from joints by wiping with clean cloth saturated with a suitable chemical solvent and then clean with emery cloth. After cleaning apply non-corrosive flux, apply heat and solder and hold joint rigidly until solder or brazing alloy has hardened. Wipe excess solder from exterior of joint before hardening. Before soldering or brazing, remove stems and washers of solder joint valves.
 3. Welded: Conform welding to requirements of paragraph titled "Welding of Piping". Branch Connections may be made as follows.
 - a. Straight Tees: Use welding tees.
 - b. Branch One Size Smaller than Main: Use reducing tees.
 - c. Branch Two or More Sizes Smaller than Main: Use weldolets, threadolets, or sockolets as required.
 4. Grooved Joint Couplings:
 - a. Check pipe to be certain it is sufficiently free of indentations, projections, grooves, weld seams, or roll marks on exterior of pipe over entire gasket seating area to ensure a leak-tight seat for gasket. Check that pipe ends are square cut and that penetration is in accordance with Victaulic, Anvil International, or Grinnell Mechanical Products manufacturer's standards.
 - b. Provide gaskets of central cavity pressure-responsive design. Gasket style and grade shall be checked to be certain gasket supplied is suited for intended service.

- c. Provide lubrication for proper coupling/fitting assembly as follows.
 - 1) Lubricate gasket exterior including lips and/or pipe ends and housing interiors, to prevent pinching gasket and for proper gasket seating and alignment during installation.
 - 2) Use Victaulic lubricant or equal of Anvil International or Grinnell Mechanical Products for installation. Other compatible materials such as silicone and others may be used, however, petroleum based lubricants must not be used on Grade "E" or "M" gaskets.
 - 3) Apply a thin, uniform coat of lubricant as follows.
 - a) Brush lubricant on gasket lips (ID) and entire exterior of gasket.
 - b) Brush lubricant on pipe ends around entire pipe circumference and inside coupling housing.
 - d. Provide new gaskets when existing couplings are taken apart and reinstalled.
- 5. Pressfit System: Install in strict compliance with manufacturer's recommendations using Victaulic Pressfit tool.
- O. Escutcheon Plates: Provide where exposed piping passes through walls, floors, and ceilings of finished rooms. Omit plates where sleeves project above floor.
- P. Balancing/Measuring Valves:
 - 1. Select valves such that design flow rate exceeds manufacturer's minimum recommended flow rate, and valve pressure drop at design flow rate is less than 2 PSID. Provide increasers/reducers if valve size differs from pipe size, and straight pipe lengths of 10 and 5 valve diameters upstream and downstream of valve respectively.
 - 2. Follow other manufacturer's recommendations for installation. Use extreme care in installing units with correct flow direction. Install with ports horizontal.
- Q. Pressure Independent Two-Way Modulating Control Valves: Purge air from differential pressure chamber within pressure independent two-way modulating control valves in accordance with manufacturer's instructions. Install flexible hoses with sufficient slack to allow for shrinkage or expansion of hoses.

3.2 CLEANING

- A. Flush new piping after fabrication and prior to connecting into existing systems and prior to pressure tests.
- B. Remove strainer screens during flushing except those protecting control equipment. Clean screens protecting control equipment during flushing if necessary and after flushing is completed.
- C. Add cleaning solution via a bypass feeder or pump until a phenolphthalein alkalinity of 500 ppm is obtained. Circulate solution for 12 hours. At the end of cleaning period, start and continue a running flush until system water runs clear, clean of chemical, and is at normal pH of fresh water.

3.3 FIELD TESTS

- A. General:
 - 1. Test new piping and connected equipment. Test after lines have been cleaned and prior to insulation.
 - 2. Furnish test equipment. Install a calibrated test pressure gage in piping being tested.
 - 3. Prior to testing, remove or valve-off gages, traps, and other apparatus which may be damaged by testing.
 - 4. Make test in presence of Architect.
 - 5. Rectify defects which develop during testing and retest until approved by Architect at no additional charge to Owner.

6. Provide vents and drain valves as required to drain piping after testing.
- B. Test Requirements: Follow test requirements unless requirements are specified in individual Specification Sections.
1. Pressure: 1-1/2 times design working pressure or 150 psig, whichever is greater.
 2. Time: Hold pressure to inspect joints and connections; not less than 15 minutes.
 3. Test joints in air-tested systems by brushing with a soapy water solution.
 4. Water test piping except refrigerant piping, compressed air piping, medical gas piping, medical vacuum piping, and natural gas piping with water less than 100 degrees F.
 5. Plumbing piping test requirements are specified in Section 22 10 00.
- C. Submit a complete report of testing procedures.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes seismic restraints.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Seismic restraints.
- B. Reports: Manufacturer computations.

PART 2 PRODUCTS

2.1 SEISMIC RESTRAINTS

- A. Computations: Following selection of equipment mounted on isolation mountings, manufacturer shall prepare computations with vibration isolation mountings selections and show how vibration isolation efficiency will be produced; submit for review prior to ordering materials.
- B. Design of seismic restraints shall conform to requirements for seismic design in Section 22 03 00.
- C. Where exposed to outside atmosphere, steel shall be finished with dry powder coating for corrosion protection; hardware (bolts and capscrews) shall be zinc electroplated; springs shall be dry powder coated.
- D. Seismic Restraints:
 - 1. Provide resilient earthquake restraints with suitable structural support for vibration isolated equipment and piping as specified herein,. Restraints shall be attached to structural members capable of withstanding design dynamic load specified below. Ensure that dynamic load capacity of attachment bolts and supporting structure is greater than or equal to capacity of seismic restraint. Design of seismic restraints shall conform to requirements for seismic design in Section 22 03 00.
 - a. Seismic Restraint Type SR-1: Seismic cable restraints shall consist of galvanized steel aircraft cables sized to resist seismic loads with a minimum safety factor of 2 and arranged to provide all-directional restraint. Cables shall be pre-stretched to achieve a certified minimum modulus of elasticity. Cable end connections shall be steel assemblies that swivel to final installation angle and shall utilize clamping bolts to provide proper cable engagement. Cables shall be slack during normal operation of equipment and shall not compromise efficiency of vibration isolation hangers.
 - b. Seismic Restraint Type SR-2: Snubbers consisting of interlocking steel members (one attached to equipment frame and other attached to building structure) restrained by neoprene rubber compounded to bridge bearing specifications. Neoprene elements shall be replaceable and have a minimum thickness of 3/4 inch at all points. Restraints shall be installed with factory set clearances of 1/8 inch minimum to 1/4 inch maximum between steel and neoprene elements. Snubbers shall be installed after full equipment load is placed on vibration isolators to ensure that equipment will not contact snubber during normal operation.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Seismic Restraints: Install in strict accordance with manufacturer's instructions.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes testing, adjusting, and balancing.

1.2 SUBMITTALS

- A. Reports:
 - 1. Testing and balancing certified reports.
- B. Certification: Certified individual qualifications of testing agency and persons from testing agency.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 TESTING, ADJUSTING, AND BALANCING

- A. General:
 - 1. Testing, adjusting, and balancing shall comply with requirements of the Washington State Energy Code.
 - 2. Obtain the services of a qualified testing agency that is a separate firm not financially connected to Contractor and subcontractors. Prior to commencing Work under this Section of Specifications, testing agency shall have been approved by Architect and shall be a certified member of Associated Air Balance Council (AABC) or National Environmental Air Balancing Bureau (NEBB). Minimum qualifications for acceptance shall be general membership standards of AABC or NEBB. Balancing agency and personnel shall be unrelated to sale or installation of the system and the control equipment.
 - 3. Procedures: Balancing shall be accomplished in accordance with schedules approved by Architect. Procedures shall be in conformance with AABC "Test and Balance Procedures", NEBB "Testing, Adjusting or Balancing of Environmental Systems", except as supplemented and modified by this Section.
 - 4. Qualifications: Submit name of agency proposed to Architect for approval within time limit specified in Contract Documents. Submittal shall further include certified individual qualifications of persons responsible for supervising and performing actual balancing, name of certifying engineer and qualifications of Registered Professional Engineer licensed in the State of Washington certifying report.
 - 5. Instruments: Instruments used for measurements shall be accurate and calibration histories for each instrument will be available for examination. Method of application of instrumentation shall be in accordance with AABC or NEBB procedures.
- B. Work by Contractor: Before balancing and testing can commence, check pumps and other rotating equipment for proper rotation and lubricate per manufacturer's recommendations and operate pumps, and auxiliary equipment. Provide the following.
 - 1. Access to valves, balancing devices, and safety devices including ceiling tile removal and replacement.
 - 2. Ladders, scaffolds, staging, and accessories required to gain access to valves, balancing devices, and safety devices.
- C. Water System:
 - 1. Adjusting:
 - a. Adjust new water piping to provide required quantity to or through each component.
 - b. Adjust domestic hot water system to provide even temperatures throughout system.

2. Adjusting: Adjust water systems which are shown on Drawings as new to provide required quantity to or through each component. Adjust existing systems shown on Drawings as being modified to provide required quantity to or through each component.
 3. Adjust water flow rates to within 10 percent of design values.
- D. Certified Reports: Submit 3 copies of report covering water system balance to Architect, prior to final acceptance of project. Reports shall be certified by a Registered Professional Engineer licensed in the State of Washington who is experienced in air and water balancing or by a certified member of the Associated Air Balance Council (AABC) or National Environmental Air Balancing Bureau (NEBB).

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes insulation and accessories for piping systems.

1.2 DEFINITIONS

- A. Thickness: Normal thickness of insulation is defined as thickness of basic insulating medium not including finishing coats.
- B. Exposed Versus Concealed Insulation:
 - 1. Exposed is defined as Work exposed to view of occupants in normally occupied areas and in equipment rooms.
 - 2. Concealed is defined as Work located in ceiling spaces, chases, and other locations not exposed to view.
- C. Thermal conductivity is defined as Btu-inch/hour-square feet-degree F.
- D. Cold Piping: Domestic cold water.

1.3 SUBMITTALS

- A. Product Data: All materials.

PART 2 PRODUCTS

2.1 INSULATION CHARACTERISTICS

- A. Manufacturer: Owens-Corning, Certainteed, Johns Manville, Pittsburgh Corning, Armacell, or Knauf.
- B. Pipe Insulation:
 - 1. Closed Cell Elastomeric: Suitable for pipe temperature from minus 40 degrees F to plus 220 degrees F; one piece type with only one longitudinal joint; thermal conductivity not greater than 0.25 Btu-inch/hour-square feet-degree F at 75 degrees F mean temperature.
- C. Insulation for Valves 2 Inches and Smaller, Fittings, Flanges, Grooved Joint Pipe Couplings, and Unions:
 - 1. Closed Cell Elastomeric: Same as specified for pipe.
- D. Insulation for Flexible Hoses at Coils: Closed cell elastomeric suitable for water temperature from minus 40 degrees F to plus 220 degrees F; one piece type with only one longitudinal joint; thermal conductivity not greater than 0.27 Btu-inch/hour-square feet-degree F at 75 degrees F mean temperature; 1 inch thickness. Factory applied all-service jacket not required.
- E. Insulation for Piping below ADA Accessible Lavatories and Sinks: Truebro "Lav Guard 2 E-Z" or equivalent of Plumberex; shall comply with ADA requirements; trap, tailpiece, and waste arm cover, and hot and cold supply tube and stop covers; molded vinyl; color as selected by Architect.

2.2 INSULATION SPECIALTIES

- A. Joint Tape: Glass fiber reinforced, aluminum foil and kraft paper laminate with vapor barrier characteristics comparable to insulation facing.
- B. Finishing Cement: Hydraulic setting, low shrinkage insulating and finishing cement for one coat finish, suitable for painting with water base paint.
- C. Insulating Cement: Mineral fiber cement suitable for application on metal in single layers up to 4 inches thick.
- D. Vapor Barrier Adhesive: Vapor barrier lap sealing adhesive, Foster 85-20, Childers CP-82, or approved equal.
- E. Vapor Barrier Coating: Foster 30-80, Childers CP-38, or Vimasco 749 water based vapor barrier coating, or approved equal. Maximum perm rating of 0.08 perms or less at 37 mils dry tested at 100 degrees F and 90 percent RH per ASTM F1249.

- F. Insulation Pin Fasteners: Zinc coated steel, 2 inches by 2 inches perforated plate with spindle and washer. Spindle length to suit insulation thickness.
- G. Insulation Pin Adhesive: Contact cement suitable for fastening insulation pins to metal surfaces, Miracle Adhesive HT4620, Tuf-Bond all-purpose, or approved equal.
- H. Reinforcing Mesh Fabric: Mesh suitable for reinforcing coating; Pittsburgh Corning "PC Fabric 79"
- I. Insulation Inserts: Conform to requirements of Section 22 04 00.
- J. Insulation Bands: 3/4 inch wide, 26 gage stainless steel.
- K. Wire: Soft annealed stainless steel, 16 or 18 gage.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install with joints tightly butted. Tuck and tuft edges of insulation. Maintain vapor barrier when butting insulation to inserts.
- B. Install insulation to allow easy access to equipment for inspection and repairs.
- C. Bevel and seal insulation around equipment nameplates. Seal raw edges of insulation at flanges, etc.
- D. Remove loose dirt, rust, other loose foreign material, moisture and frost from surfaces prior to installing insulation.
- E. Apply insulation only after piping has been tested.
- F. Repair and/or replace damaged or removed covering on existing piping where damaged by Work under this Contract.
- G. Piping, General:
 - 1. Provide insulation continuous through floor, wall, and ceiling openings and sleeves.
 - 2. In order to prevent condensation formation under normal operation, apply insulation with continuous, unbroken vapor seal throughout each entire cold piping system. Refer to definition of cold piping in PART 1 of this Section. Adequately insulate and vapor seal hangers, supports, and anchors that are secured directly to cold surfaces to prevent condensation.
 - 3. Apply specific adhesives, mastics, and coatings at manufacturer's recommended minimum coverage per gallon.
 - 4. Provide insulation in space between pipe and pipe saddle.
 - 5. Inserts: Overlap adjacent insulation jacket a minimum of 1 inch on insulation inserts and securely cement in place.
- H. Elastomeric Insulation:
 - 1. Slip insulation on pipe prior to connection wherever possible, and seal butt joints with adhesive. Where slip-on technique is not possible, slit and snap insulation over pipe, and seal seams and butt joints with adhesive.
 - 2. Fabricate and install fitting insulation according to manufacturer's recommended procedures. Insulate sweat fittings with miter-cut pieces of pipe insulation same size as on adjacent piping. Seal joints and miter-cut pieces with adhesive.

3.2 ITEMS TO BE INSULATED

- A. Piping:
 - 1. New Cold Piping: Domestic cold water.
 - a. Domestic water packaged pumping system specified in Section 22 10 00 is shipped from factory without insulation. Insulate pumps, piping, and piping components on packaged domestic water pumping system.

2. New Hot Piping:
 - a. Domestic hot water,
3. Piping Below New ADA Accessible Lavatories and Sinks: Exposed drain including trap, tailpiece, and waste arm; and exposed hot and cold supply tubes and stops.
 - a. Supply tubes, stops, and mixing valve mounted in a surface mounted box do not need to be insulated. Refer to Section 22 40 00 for lavatories and sinks that have a surface mounted box for stops and a mixing valve.

3.3 INSULATION TYPE AND THICKNESS

- A. Pipe: Except where shown otherwise on Drawings or specified otherwise, insulate piping to thickness listed in following table. For piping located outside or in outdoor air conditions, increase thickness shown in table by 1/2 inch.

Service	Type	Insulation Thickness for Pipe Sizes Shown (Inches)				
		Less Than 1	1 to Less Than 1-1/2	1-1/2 to Less Than 4	4 to Less Than 8	8 and Over
Domestic Hot Water	E	1.0	1.0	1.5	1.5	1.5
Domestic Cold Water	E	0.5	0.5	1.0	1.0	1.0
(1) For piping 1-1/4 inch and smaller that has heat maintenance tape on it, use insulation that is oversized in diameter by 1/4 inch to allow for installation over heat maintenance tape. Verify this requirement for these pipe sizes and all pipe sizes with manufacturer of heat maintenance tape actually provided. Coordinate with heat maintenance tape specified in Section 22 03 00.						

- B. Abbreviations:
1. FG - Fiberglass.
 2. E - Elastomeric.
 3. CS - Calcium Silicate.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes domestic cold water piping, domestic hot water piping, sanitary waste piping, sanitary vent piping, valves, pipe specialties and accessories.

1.2 REFERENCE STANDARDS

- A. Provide plumbing Work conforming to requirements Uniform Plumbing Code and local amendments.

1.3 SUBMITTALS

- A. Product Data:
 - 1. Piping and valves.
 - 2. Pipe specialties and accessories.
- B. Source Quality Control Submittals: Submit pump performance curve for each pump. Curve shall show pressure versus volume flow, efficiency, and brake horsepower. Specified point of rating shall be prominently shown and labeled on curve.
- C. Quality Assurance:
 - 1. Documentation for pipe, tube, fittings, and valves used in potable water systems intended to supply drinking water.
 - 2. Documentation for low lead content in pipes, pipe fittings, plumbing fittings, and fixtures intended to convey or dispense water for human consumption.
 - 3. Documentation for low lead content in solder and flux where used in piping systems that convey or dispense water for human consumption.
- D. Test and Evaluation Reports:
 - 1. Pressure tests.
 - 2. Domestic water piping sterilization tests.
 - 3. Demonstration report.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Pipe, tube, fittings, valves, expansion tanks, supply tanks, interior tank coatings, tank liners, solvent cements, thread sealants, solders, and flux used in potable water systems intended to supply drinking water shall comply with requirements of NSF 61. Submit documentation.
- B. Maximum allowable lead content in pipes, pipe fittings, plumbing fittings, and fixtures intended to convey or dispense water for human consumption shall be not more than a weighted average of 0.25 percent with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. Submit documentation.
- C. For solder and flux, the lead content shall be not more than 0.2 percent where used in piping systems that convey or dispense water for human consumption. Submit documentation.
- D. Pipes, pipe fittings, and valves utilized in water supply system for non-drinking water applications shall have a maximum of 8 percent lead content.

2.2 DOMESTIC COLD WATER PIPING, DOMESTIC HOT WATER PIPING, DOMESTIC HOT WATER CIRCULATING PIPING AND VALVES

- A. Materials used in water supply system, except valves and similar devices, shall be of a like material unless otherwise specified.
- B. Domestic Cold Water Piping, Domestic Hot Water Piping:
 - 1. Pressure Ratings: Provide pipe, tubing, fittings, accessories, and other components with minimum pressure rating of 150 psig at 230 degrees F.

2. Tubing (Pipe): ASTM B88 Type L copper water tube, hard drawn; shall comply with requirements of NSF 61.
3. Fittings: Wrought copper solder fittings and threaded adapters, ANSI B16.22; shall comply with requirements of NSF 61.
 - a. Use of T-Drill fittings is not permitted.
4. Unions: Wrought copper solder joint unions, ANSI B16.22; shall comply with requirements of NSF 61.
5. Flanges and Flanged Fittings: Cast bronze, 125 psig Class, ASME Standards; flat face; shall comply with requirements of NSF 61.
6. Bolting: Hex head bolts, ASTM A307, Grade B; hexagon nut, ASTM A194; dimensions per ANSI B18.2.1 and ANSI B18.2.2; coarse type threads per ANSI B1.1; bronze plated.
7. Gaskets: Garlock Style 3760-U; shall comply with requirements of NSF 61; synthetic fiber with rubber binder; ANSI B16.21; 1/16 inch thick.
8. Joint Compound:
 - a. 1 Inch and Smaller: Polytetrafluoroethylene (PTFE) pipe thread tape conforming to requirements of ASTM D3308; shall comply with requirements of NSF 61.
 - b. 1-1/4 Inches and Larger: Lead free, non-toxic, non-hardening, pipe joint compound shall comply with requirements of NSF 61 and Federal Specification TT-S-1732. Hercules Megaloc, or equivalent of Rectorseal, La-Co, or Oatey.
9. Solder: 95 percent tin, 5 percent antimony solder, ASTM B32 Harris "Bridgit" acceptable; solder shall comply with requirements of NSF 61.
10. Valves:
 - a. Check Valves:
 - 1) Manufacturer: Mueller, Nibco, Apollo, or approved equal.
 - 2) 2 Inches and Smaller: Type 3 or Type 4 conforming to requirements of MSS SP-80 or MSS SP-139; shall comply with requirements of NSF 61; cast silicon bronze body conforming to requirements of ASTM B584; bronze or polytetrafluoroethylene (PTFE) disc; threaded end connections conforming to requirements of ASME B1.20.1; screwed cap, Y-pattern, swing disc; renewable seat and disc. Valve shall meet minimum pressure rating of 150 psig at 230 degrees F. Submit pressure-temperature rating table or graph.
 - b. Ball Valves:
 - 1) Manufacturers: Apollo, Nibco, or approved equal.
 - 2) Two-piece body conforming to requirements of MSS SP-110; shall comply with requirements of NSF 61; full port; solid ball; cast silicon bronze body conforming to requirements of ASTM B584; threaded end connections conforming to requirements of ASME B1.20.1; polytetrafluoroethylene (PTFE) seat. Provide stem extension for use in insulated piping. Valve shall meet minimum pressure rating of 150 psig at 230 degrees F. Submit pressure-temperature rating table or graph.
- C. Cross-Linked Polyethylene (PEX) Domestic Cold Water Piping, Domestic Hot Water Piping, and Valves (Aboveground):
 1. Where fittings and valves are made from copper alloys containing more than 15 percent zinc by weight and are used in plastic piping systems, fittings and valves shall be resistant to dezincification and stress corrosion cracking in accordance with NSF 14.
 2. Manufacturer: Uponor AquaPEX piping used with Uponor ProPEX EP fittings.

3. Piping: 1/4 inch through 3 inch nominal pipe size.
 - a. SDR9 crosslinked polyethylene manufactured using Engel method (PEX-a).
 - 1) Minimum degree of cross-linking shall be between 70-89 percent when tested in accordance with ASTM D2765, Method B.
 - b. Manufactured in accordance with ASTM F876 and ASTM F877 and tested for compliance by an independent, third-party agency.
 - 1) Piping shall have a minimum material designation of PEX 5106.
 - c. Potable water piping shall comply with NSF 14 and NSF 61 and bear "NSF-pw" marking.
 - d. Temperature and pressure requirements in accordance with PPI TR-3: 73.4 degrees F at 80psi, 180 degrees F at 100psi, and 200 degrees F at 80psi.
 4. Manufactured Joints: 3/8 inch through 3 inch nominal pipe size.
 - a. ASTM F1960 cold-expansion fitting manufactured from the following material types.
 - 1) UNS No. C69300 lead-free (LF) brass.
 - 2) 20 percent glass-filled polysulfone as specified in ASTM D6394.
 - 3) Unreinforced polysulfone (group 01, class 1, grade 2) as specified in ASTM D6394.
 - 4) Polyphenylsulfone (group 03, class 1, grade 2) as specified in ASTM D6394.
 - 5) Blend of polyphenylsulfone (55-80 percent) and unreinforced polysulfone (rem.) as specified in ASTM D6394.
 - b. Reinforcing cold-expansion rings shall be manufactured from same source as PEX-a piping and marked "F1960".
 - c. Potable water fittings shall comply with NSF 14 and NSF 61 and bear "NSF-pw" marking.
 5. Valves: Uponor ProPEX lead-free brass ball valve; both ends shall be manufactured with ProPEX fitting for connections to Uponor AquaPEX piping; 250 psi maximum working pressure; 250 degrees F maximum temperature; shall comply with NSF 14 and NSF 61.
- D. Domestic Cold Water Piping, Domestic Hot Water Piping:
1. Where fittings and valves are made from copper alloys containing more than 15 percent zinc by weight and are used in plastic piping systems, fittings and valves shall be resistant to dezincification and stress corrosion cracking in accordance with NSF 14.
 2. Cross-Linked Polyethylene (PEX) Tubing, Fittings, and Manifolds: Viega "ViegaPEX" cross-linked polyethylene tubing and Viega "PureFlow" PEX fittings and stainless steel press sleeves or approved equal shall comply with requirements of NSF 61.
 3. Tubing shall be copper tube size dimension (CTS), SDR9 wall thickness and shall meet respective requirements of ASTM F876 and F 877. Design temperature and pressure ratings for tubing shall be 160 psi at 73 degrees F and 100 psi at 180 degrees F. Tubing shall be manufactured from a cross-linkable high density polyethylene. Tubing shall be pigmented red for hot water lines and pigmented blue for cold lines. Tubing shall be marked with name of manufacturer, nominal size, plastic tubing material designation code, design pressure and temperature ratings, relevant ASTM standards numbers, manufacturing date and production code, as well as both NSF-pw and NSF CL-R/CL-TD stamps indicating third-party certification by NSF International for meeting and exceeding performance and toxicological standards, as well as chlorine resistance rating. Tubing shall also be listed with IAPMO and ICBO Evaluation Service.
 4. Fittings: Provide Type 304 stainless steel press sleeves and solid bronze alloy PEX press fittings and accessories as required for a complete system and as recommended by PEX

manufacturer to maintain minimum turn radius of tubing and to minimize number of joints. Barbed PEX connections without press sleeves are not allowed.

- a. Provide copper stub-outs at plumbing fixtures. Refer to Section 22 40 00 for stops, supplies, and escutcheons.
5. Manifolds: System shall use PEX copper manifolds located in main piping in corridors for providing hot and cold PEX piping to fixtures.
- E. Domestic Cold Water Piping, Domestic Hot Water Piping:
 1. Where fittings and valves are made from copper alloys containing more than 15 percent zinc by weight and are used in plastic piping systems, fittings and valves shall be resistant to dezincification and stress corrosion cracking in accordance with NSF 14.
 2. Pipe, Fittings, and Valves: Piping shall be cross-linked polyethylene (PEX) tubing except for copper piping upstream of PEX water distribution manifold and elsewhere as indicated on Drawings and Specifications.
 - a. Copper Pipe, Fittings, and Valves: Conform to requirements of this Section.
 - 1) Valves: Valves 2 inch and smaller shall be ball valves.
 - b. Cross-Linked Polyethylene (PEX) Tubing, Manifolds, and Fittings: Viega "VIEGAPEX" cross-linked polyethylene hot and cold water distribution tubing or approved equal; shall comply with requirements of NSF 61.
 - 1) Tubing shall be copper tube size dimension (CTS), SDR9 wall thickness and shall meet respective requirements of ASTM F876 and F877. Design temperature and pressure ratings for tubing shall be 160 psi at 73 degrees F and 100 psi at 180 degrees F.
 - 2) Tubing shall be manufactured from a cross-linkable high density polyethylene. Tubing shall be pigmented red for hot water lines and pigmented blue for cold lines.
 - 3) Tubing shall be marked with name of manufacturer, nominal size, design pressure and temperature ratings, relevant ASTM standards numbers, manufacturing date and production code, as well as both NSF-pw and NSF CL-R/CL-TD stamps indicating third-party certification by NSF International for meeting and exceeding performance and toxicological standards, as well as chlorine resistance rating. Tubing shall also be listed with IAPMO and ICBO Evaluation Service.
 - 4) Manifolds: System shall use a water PEX distribution manifold in which PEX hot and cold water lines supply each side of each fixture with their own dedicated line. Refer to PEX manifold detail on Drawings. Provide valves where shown on Drawings.
 - a) Access Box for Manifold: Box shall be custom fabricated by Metcraft manufacturer or equivalent; recessed box, access door, and front frame shall be galvanized steel; welded seam construction with seams welded watertight; 18 gage for recessed box and 16 gage for access door and front frame; piano hinge and lockable latch; exposed surfaces shall have a painted finish to match color of adjacent wall, coordinate color with Architect.
 - 5) Fittings: Provide copper crimp rings and fittings and accessories as required for a complete system and as recommended by PEX manufacturer to maintain minimum turn radius of tubing and to minimize number of joints. Barbed PEX connections without crimp rings are not allowed and compression fittings for

PEX are not allowed. PEX connections shall be barbed PEX connections with crimp rings. Copper stub-outs are allowed.

a) Provide copper stub-outs at lavatories, sinks, and water closets. Refer to

F. Copper Piping and Valves:

1. Manufacturers: Conform to requirements of Section 22 04 00 unless otherwise specified.
2. Pressure Ratings: Provide pipe, tubing, fittings, accessories, and other components with minimum pressure rating of 150 psig at 230 degrees F.
3. Tubing (Pipe): ASTM B88 Type L copper water tube, hard drawn; shall comply with requirements of NSF 61.
4. Fittings:
 - a. Press Fittings: Viega "ProPress" system fittings or approved equal; copper body with ProPress press ends. Copper press fittings shall conform to material requirements of ASME B16.22 and performance criteria of IAPMO PS 117. Sealing elements for press fittings shall be EPDM. Sealing elements shall be factory installed. Fittings shall comply with requirements of NSF 61.
 - 1) Threaded Fittings: Pipe threads shall conform to ASME B1.20.1.
5. Valves: Conform to requirements of this Section.
6. Provide chrome-plated construction for all exposed non-insulated pipe, fittings, and valves.

2.3 DRAINAGE PIPING AND VENT PIPING

A. Sanitary Waste Piping and Sanitary Vent Piping,:

1. Aboveground:
 - a. Standard weight bell and spigot cast iron pipe per ASTM A74, with neoprene compression seal per ASTM C564; long pattern cast iron drainage fittings.
 - b. Standard weight hubless cast iron pipe and fittings per CISPI 301; neoprene sleeve gasket with stainless steel shield and band; long pattern cast iron drainage fittings. Coupling shall conform to CISPI 310.

B. Contractor's Option for Aboveground Sanitary Soil Piping, Sanitary Waste Piping, Sanitary Vent Piping:

1. Copper Drainage Tube: Type DWV, ASTM B306.
2. Fittings:
 - a. Type DWV wrought copper drainage fittings, ANSI B16.29.
 - b. Type DWV cast copper alloy drainage fittings, ANSI B16.23.
3. Solder: 95 percent tin, 5 percent antimony solder, ASTM B32 Harris "Bridgit" acceptable; solder shall comply with requirements of NSF 61.

C. PVC Waste Piping, and Vent Piping:

1. Aboveground:
 - a. Pipe: Polyvinyl chloride (PVC) per ASTM D2665; Schedule 40.
 - b. Fittings: DWV fittings; polyvinyl chloride (PVC) per ASTM D2665.
 - c. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.

2.4 PIPE SPECIALTIES AND ACCESSORIES

- A. Acceptable Manufacturers: Jay R. Smith, Josam, Wade, Zurn, Jones, Mifab, Watts, Ancon, Woodford, Sioux Chief, Chicago Faucet, Bell & Gossett, Precision Plumbing Products, or as specified.
- B. Flashings: Conform to requirements of Section 22 03 00.

- C.
- C. Unions:
 - 1. 2 Inches and Smaller: Unions rated at 250 psig at 180 degrees F; shall comply with requirements of NSF 61.
 - 2. 2-1/2 Inches and Larger: Flange fittings rated at 175 psig at 180 degrees F; shall comply with requirements of NSF 61.
- D. Pipe Guides: Conform to requirements of Section 22 04 00.
- E. Pipe Anchors: Conform to requirements of Section 22 04 00.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspection:
 - 1. Carefully inspect installed Work of other trades and verify that such Work is complete to the point where this installation may properly commence.
 - 2. Verify that plumbing is installed in accordance with pertinent codes, regulations, and Drawings.
- B. Discrepancies: In the event of discrepancy, immediately notify Architect; do not proceed with installation until discrepancies have been resolved.
- C. Concealed Work:
 - 1. General: Do not cover up or enclose Work until inspected and approved.
 - 2. Noncompliance: Should Work be covered up or enclosed prior to required inspections, uncover Work as required and, after inspection and approval, make repairs and replacements.

3.2 INSTALLATION

- A. Piping:
 - 1. Conform to requirements of Section 22 04 00 and as follows.
 - a. Install plastic pipe in accordance with manufacturer's instructions.
 - b. Securely anchor water pipes in walls or pipe chases that are connected to fixtures.
 - c. Unless otherwise indicated, provide uniform pitch of at least 1/4 inch per foot for horizontal sanitary waste piping within building.
 - 2. PEX Potable Water Distribution System:
 - a. Install PEX tubing in accordance with tubing manufacturer's recommendations, installation manuals, technical bulletins, and as indicated on Drawings.
 - b. PEX tubing shall not be exposed to direct sunlight for more than 30 days.
 - c. Ensure that no glues, solvents, sealants, or chemicals come in contact with tubing without prior permission from tube manufacturer.
 - d. Use grommets or sleeves at penetration where PEX tubing passes through metal studs.
 - e. Protect PEX tubing with sleeves where abrasion may occur.
 - f. Use strike protectors where PEX tubing has potential for being struck with a screw or nail.
 - g. Use manufacturer's bend supports where bends are less than 6 times outside pipe diameter.
 - h. Support horizontal runs of 1 inch and greater runs by galvanized support channels.
 - i. Fitting connections to PEX tubing shall made to requirements of ASTM F1960.
 - j. Use multi-port tee's in-suite wherever possible instead of straight or reducing tee's to minimize pressure drops in plumbing distribution system.

- k. Use wall penetration brackets at wall membrane penetrations.
 - 3. Cross-Linked Polyethylene (PEX) Tubing:
 - a. Install tubing in accordance with applicable code requirements and current installation practices available from manufacturer.
 - 1) Install continuous tubing between tubing manifold and plumbing fixtures; no joints allowed.
 - 2) Do not use tubing upstream of water distribution manifold.
 - 3) When penetrating a wood stud or floor, provide a protection sleeve around PEX tubing to prevent abrasion. Protection sleeve shall pass at least 1 inch on both sides of hole. Secure sleeve to ensure that, after installation, it will not move when PEX tubing expands and contracts.
 - 4. Copper Tubing (Underground or Embedded in Concrete up to Fitting at Connection to Aboveground Piping):
 - a. Install corrosion protection tape and primer on copper tubing in accordance with tape manufacturer's recommendations.
 - b. Clean and dry surfaces to be wrapped such that tubing surfaces are dry and free of oil, grease, and other contaminants.
 - c. Apply a uniform, continuous coating of primer to tubing surfaces and let dry.
 - d. Spirally wrapped tubing with tape per manufacturer's instructions.
 - e. Terminate tape at fitting at connection to aboveground piping.
 - f. Inspect wrapped surfaces for thickness and uniformity of tape application. Test these surfaces in their entirety for presence of flaws with an electrical flaw and holiday detector. Instrument shall be approved type and incapable of field adjustment, with calibration within the past 6 months certified by manufacturer or by an approved testing laboratory (e.g., National Bureau of Standards). Perform test before and after installation. Repair defects and repeat test on affected areas.
 - 5. Systems With Press Fittings: Install in strict compliance with manufacturer's recommendations using manufacturer's tool.
 - 6. Unions, Flanges, and Fittings: Provide unions or flanges at valves, fixtures, and equipment if a means of disconnection is not otherwise provided. Provide reducing fittings for changes in pipe size; bushings are not acceptable. Use fittings for changes in direction of piping.
- B. Hangers and Supports:
- 1. Conform to requirements of Section 22 04 00 unless specified otherwise.
 - 2. Support suspended piping at intervals not to exceed those shown in the Uniform Plumbing Code and local amendments.
 - 3. Support piping independently from connected equipment.
 - 4. Vertical stacks, supported at floors with clamp anchors.
 - 5. For aboveground hub and spigot cast iron soil pipe, support piping at 5 feet maximum center and at every joint.
 - 6. Use wall brackets for supporting piping adjacent to walls or other vertical surfaces. Use bolted steel clamps for supporting vertical lines. Place supports as near as possible to concentrated loads and, when practicable, immediately adjacent to changes in direction. Support horizontal piping so as to maintain alignment, prevent grade reversals, and prevent sagging.
 - 7. Plastic Piping: Support plastic pipe in accordance with manufacturer's instructions. Hangers and supports for plastic pipe shall not compress, distort, cut or abrade piping, and shall allow free movement of pipe. Provide a wide band type support which is broad

and flat at each hanger and anchorage, made so there are no sharp edges or burrs.
Adjust clamps to allow pipe movement.

- C. Cleanouts: Provide where shown and install at locations required by code and as required to permit cleaning of piping. Provide cleanouts full size of pipe, but not larger than 4 inch. Where cleanouts occur in floor, install top flush with floor. Install cleanouts threads with graphite. Locate cleanouts to clear cabinet work and make them easily accessible.
- D. Vandal Proof Vent Cap: Install at termination of each plumbing vent through roof.

3.3 FIELD TESTS

- A. Pressure Tests:
 - 1. Conform to requirements of Section 22 04 00 except as follows.
 - 2. Water Piping: Test with potable water at 1-1/2 times the working pressure.
 - 3. Drainage Piping and Vent Piping:
 - a. Make pressure test of 5 psig minimum, witnessed by Plumbing Inspector.
 - b. Make pipe leaks tight, repeat test.

3.4 CLEANING

- A. Prior to acceptance of building, thoroughly clean exposed portions of plumbing installation, removing labels and traces of foreign substance, using only a cleaning solution approved by manufacturer of plumbing item and being careful to avoid damage to finished surfaces.
- B. Sterilization And Flushing:
 - 1. After completion of new domestic water piping installation, flush piping thoroughly.
 - 2. Sterilize new domestic water piping in accordance with local code requirements.
 - 3. Prepare a report indicating results of sterilization procedures; submit copy to Architect.

3.5 DEMONSTRATION

- A. Subject systems to such operating tests as are required to demonstrate that equipment installed will operate within the specified limits through normal ranges and sequences including simulation of possible abnormal conditions. Operate every device manually and automatically, in accordance with its purpose. Operating test duration; not less than 6 hours after major corrections have been made. If tests do not demonstrate satisfactory system performance, correct deficiencies and retest systems. Submit a written report.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work of this Section includes plumbing fixture supports, plumbing fixtures, and plumbing fixture trim.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Plumbing fixture supports.
 - 2. Plumbing fixtures and trim.
- B. Certification:
 - 1. Documentation for pipe, tube, fittings, valves, faucets, and fixture fittings used in potable water systems intended to supply drinking water compliance with requirements of NSF 61.
 - 2. Documentation for low lead content in pipes, pipe fittings, plumbing fittings, and fixtures intended to convey or dispense water for human consumption.

1.3 QUALITY ASSURANCE

- A. Provide plumbing Work conforming to requirements of Uniform Plumbing Code and local amendments.

PART 2 PRODUCTS

2.1 FIXTURES

- A. See attached cutsheet.
- B. Plumbing Fixture Management System: Acorn Master-Trol Water Management System remotely controlled electronic valve and flush valve system; 6 electronic valve controllers; Versa-Link Cable Interface; solenoid valve assemblies; and station cable.
 - 1. Versa-Link Cable Interface: Manufacturer furnished cable interface between the computer desktop server and the electronic valve controllers; cable interface shall include interconnecting cable (24 gage, shielded twisted pair, data-transfer cable), terminal blocks, and connectors; up to 4,000 feet long; shall communicate with up to 32 electronic valve controllers.
 - 2. Electronic Valve Controller: Shall simultaneously direct up to 12 solenoid valves; microprocessor driven and powered by a transformer with a 3 amp fuse; shall retain programmed setting in the event of a power loss. Provide 1 electronic valve controller for fixture P6-1 located in J114.
 - a. Transformer: 24 VAC, 50 VA, Class 2 UL/CSA listed.
 - 3. Solenoid Valve Assemblies: Manufacturer furnished branch box mounted to solenoid valve or solenoid flush valve assembly. The branch box shall be used to interface between the electronic valve controllers (via station cable), solenoid valves, and push buttons. Solenoid valve assembly locations are indicated on Drawings.
 - 4. Station Cable: Six conductor phone cable with modular connectors connecting the branch box to the electronic valve controller. Manufacturer shall furnish one 14 foot long station cable with each solenoid valve.
 - 5. Stainless Steel Push Buttons: Locations as indicated on Drawings or fixture mounted; insulated from electrical or electronic circuits; after actuation, push button shall pneumatically activate a pressure switch that provides an electronic signal to the electronic valve controller. Maximum 10 foot leads to valve.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Plumbing Fixture Supports:
 - 1. Support wall mounted fixtures rigidly with metal supporting members so no stress is transmitted to connections. Fit fixtures on finished walls without noticeable warpage on either wall or fixture.
 - 2. Anchor support to floor slab with anchor bolts.
- B. Fixtures, General:
 - 1. Locate fixtures where indicated on Drawings. Refer to Architectural Drawings for mounting heights. Locate in accordance with details and dimensions on Drawings. Use type of mountings specified.
 - 2. Secure floor outlet of floor-mounted fixtures rigidly to drainage connections and floor.
 - 3. Make connections gas tight and water tight.
 - 4. Use one-piece special molded gaskets for connections between earthenware of fixtures and soil pipe flanges. Do not use bulk material, including putty and plastic, for gaskets.
 - 5. Provide individual vents for each fixture.
 - 6. Provide separate traps for each fixture, where manufacturers do not supply trap for fixture.
 - 7. Stops: Provide stops in each water connection to each fixture, except where a fitting has integral stops.
 - 8. Unless otherwise specified, provide water based silicone sealer between top and sides of plumbing fixture edges and adjacent wall surfaces. Apply per manufacturer's recommendations to form a smooth unobtrusive joint. Install 1 sample joint on each type of fixture for Architect's review before proceeding with installation of remainder of this sealant.
 - a. Use silicone caulking for plumbing fixture trim at Corian fixtures.
 - 9. Mixing Valve to Maintain Hot Water Temperature to Faucet at 105 Degrees F: Set mixing valve to 105 Degrees F.
- C. Plumbing Fixture Management System:
 - 1. Install in accordance with manufacturer's installation instructions. Install components as indicated on Drawings.
- D. Water Closet Flush Valves: Install flush valves with handles facing wide side of toilet stall per ADA requirements.

3.2 CLEANING

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

3.3 DEMONSTRATION

- A. Subject fixtures to such operating tests as are required to demonstrate that fixtures installed will operate within normal conditions. Operate every fixture manually, in accordance with its purpose. If tests do not demonstrate satisfactory system performance, correct deficiencies and retest fixtures.
- B. Prepare a report indicating results.

END OF SECTION



Secur-Care® - Ligature Resistant LR1449 Series
 ADA 2010 Compliant - Lav/Toilet Ligature Resistant Comby - Offset Toilet Bowl



Federal Public Law 111-380 (No Lead)



LR1449-RO-2-04-DMB

Fixture May Show Some Available Options



Please visit www.acorneng.com for most current specifications.

ADA 2010 Compliant - Lav/Toilet Ligature Resistant Comby - Offset Toilet Bowl

IMPORTANT: For Compliance with CBC Calif. Title 24 refer to 1452 and LR1452 series.

Fixture is arranged to be installed on finished wall and serviced from an accessible pipe chase. Fixture is seamless welded construction and polished to a satin finish. Fixture cabinet and toilet is fabricated of 14 gage, type 304 stainless steel and polished to a satin finish. The inside of the toilet bowl also has a satin finish. Cabinet interior is sound deadened with fire-resistant material. Access panel is provided to service lavy valve pushbuttons. Optional Wall Sleeve or Metal Template is recommended for all installations to provide required wall openings. Engineered to reduce possible risk of the fixture being used as a ligature device. Unit complies with the accessibility requirements of ANSI, UFAS, ADA, and OBC regarding toilet and lavatory fixtures. Compliance is subject to the interpretation and requirements of the local code authority. (**NOTE:** Not compliant for CBC Calif. Title 24 Accessibility requirements.)

Lavatory 'D' Bowl is 15-1/4" x 12-1/2" x 4" deep. Standard P-trap waste outlet is 1-1/2" O.D. plain end.

Optional Valve may be an Air-Control pneumatically operated, hemispherical pushbutton valve with 0.70 GPM flow control for the Hemispherical bubbler spout. Pushbutton requires less than 5 lbs. to activate valve. Valve is metering, non-hold open type. Timing is adjustable from 5 to 60 seconds. Valve can be remotely located up to 10 feet from the operating pushbutton. Valve and bubbler conform with the requirements of NSF61, section 9 and is IAPMO R&T certified to meet the lead free requirements of Section 1417 of the Federal Safe Drinking Water Act and Section 116875 of the California Health and Safety Code.

Toilet is blowout jet type with ligature resistant elongated bowl manufactured to ASME A112.19.3 and CSA B45.4 requirements and will flush with a minimum of 25 PSI flow pressure when used in conjunction with a minimum of 1.6 GPF. Trap has a minimum 3-1/2" seal and will pass a 2-1/8" ball. Toilet waste outlet is 2-3/8" diameter plain end extending 3" beyond the back of fixture for wall outlet and Gasket Waste for floor outlet.

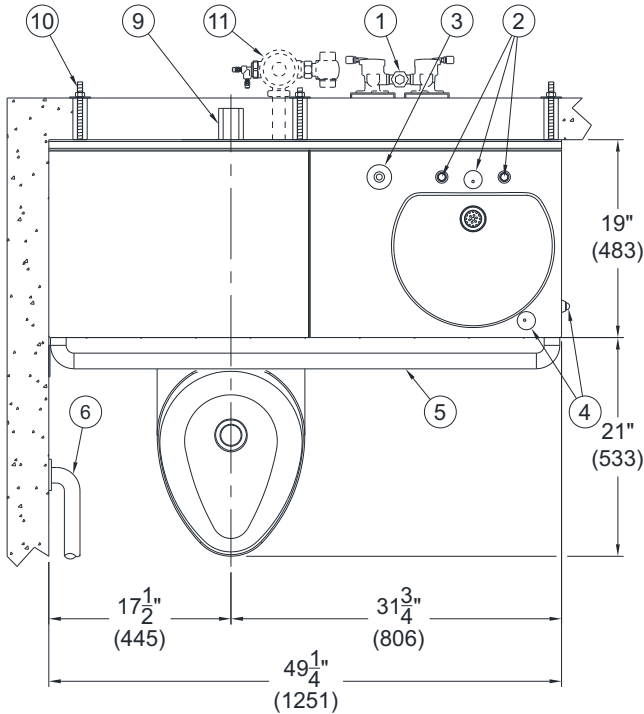
Grab Bar is heavy gage type 304 stainless steel construction, 1-1/2" diameter, extends the width of the fixture and measures 47-3/8" long from center to center. Grab bar is positioned behind toilet and is integral to the cabinet. Also includes ADA Compliant closure plate to reduce ligature points. Important: Optional Grab Bar Closure Plate may affect ADA Conformance.

GUIDE SPECIFICATION

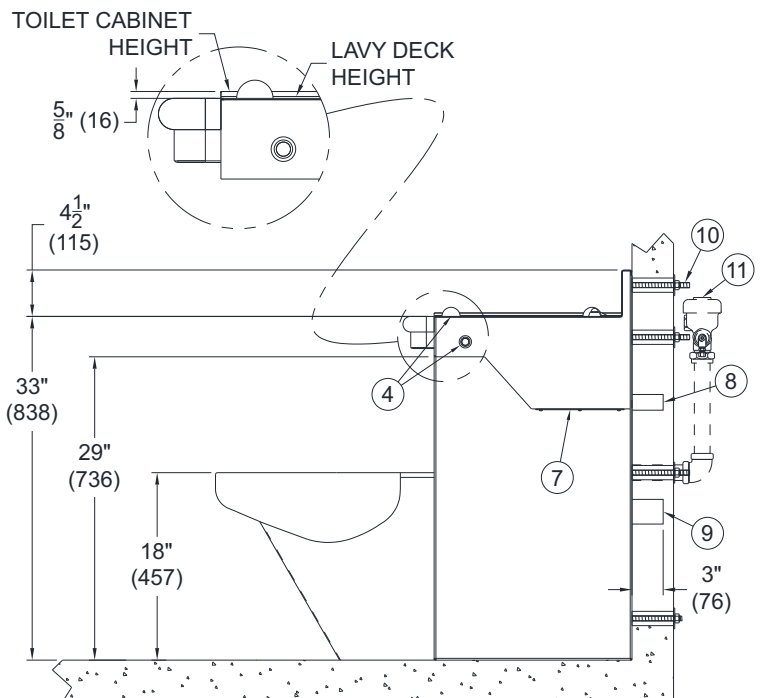
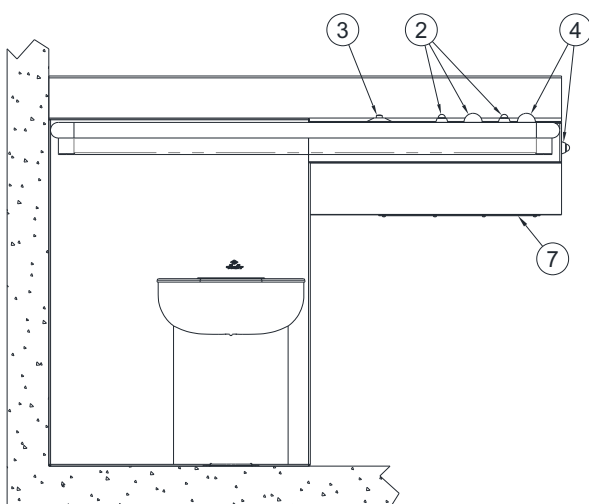
Provide and install Secur-Care® - Ligature Resistant ADA 2010 Compliant Lav/Toilet-Comby-Offset Toilet Bowl (specify model number and options). Fixture shall be fabricated from type 304 stainless steel. Construction shall be seamless welded and exposed surfaces shall have a satin finish. Provide a stainless steel grab bar to be located behind toilet. Fixture shall have an Air-Control pneumatically operated, metering, non-hold open pushbutton valve. Valve shall require less than 5 lbs. to activate. Valve and bubbler conform with the requirements of NSF61, section 9 and is IAPMO R&T certified to meet the lead free requirements of Section 1417 of the Federal Safe Drinking Water Act and Section 116875 of the California Health and Safety Code. Toilet shall be concealed blowout jet type with an elongated bowl, a self-draining flushing rim, and an integral contoured seat. Fixture shall be cUPC certified and toilet shall meet ASME A112.19.3 and CSA B45.4 requirements and will flush with a minimum of 25 PSI flow pressure. Toilet trap shall have a minimum 3-1/2" seal that shall pass a 2-1/8" diameter ball and be fully enclosed. Cabinet interior is to be sound deadened with fire-resistant material. Fixture shall withstand loadings of 5,000 pounds without permanent damage. Fixture shall be furnished with necessary fasteners for proper installation.

Secur-Care® - Ligature Resistant LR1449:

ADA 2010 Compliant Lav/Toilet Ligature Resistant Comby - Offset Toilet Bowl



1. OPTIONAL -04-M AIR-CONTROL VALVE
2. DECK MOUNTED SPOUT & PUSHBUTTONS
3. HYDRAULIC FLUSH VALVE PUSHBUTTON
4. OPTIONAL -DMB DRINKING BUBBLER & PUSHBUTTON
5. GRAB BAR WITH L-SHAPED CLOSURE
6. 42" LONG GRAB BAR BY OTHERS
7. ACCESS PANEL/FLUSH MOUNT
8. 1-1/2" OD LAVY WASTE OUTLET
9. 2-3/8" OD TOILET WASTE OUTLET
10. WALL MOUNTING HARDWARE
11. CHASE MOUNTED FLUSH VALVE, HYDRAULIC SHOWN



July 8, 2026

Revised: 10/11/24



Secur-Care® - Ligature Resistant LR1449:

ADA 2010 Compliant Lav/Toilet Ligature Resistant Comby - Offset Toilet Bowl

WALL THICKNESS AND TYPE (Must Specify)

Thickness: _____ Type: Concrete Block Steel

MODEL AND OPTIONS SELECTION:

BASE MODEL NUMBER

LR1449 49" Lav-Toilet Comby

TOILET ORIENTATION (Must Specify)

-LO Left Offset
 -RO Right Offset

FIXTURE MOUNTING AND WASTE (Must Specify)

-2 On-Floor, Wall Outlet
 -3 On-Floor, Floor Outlet w/ Gasket Waste Outlet

VALVE SELECTION (Must Specify)

Air-Trol (Pneumatic)

-03-M Single Temp, Metering
 -04-M Hot & Cold, Metering

Master-Trol (Electronic)

-EVS1 Single Temp
 -EVS2 Hot & Cold
 -EVSP1 Single Temp, Piezo Button
 -EVSP2 Hot & Cold, Piezo Buttons

Master-Trol PLUS (Electronic)

-MTP1 Single Temp
 -MTP2 Hot & Cold
 -MTPP1 Single Temp, Piezo Button
 -MTPP2 Hot & Cold, Piezo Buttons

-MTP VALVE OPTION

-PFB Power Failure Bypass (Provides emergency drinking water in the event of power failure)

Time-Trol (Electronic)

-MVC1 Single Temp
 -MVC1-BAT Single Temp Battery Powered (Batteries Not Included)
 -MVC2 Hot & Cold
 -MVC2-BAT Hot & Cold Battery Powered (Batteries Not Included)

Programmable (Electronic) w/9VDC Plug-In Transformer

-PPZ1 Single Temp Programmable Piezo Button
 -PPZ2 Hot & Cold Programmable Piezo Button

Valve By Others

N/A

VALVE OPTIONS

-BRS Brass Body Valve
 -CI Cycle Interrupt for Time-Trol Valves
 -MA2 Manifoldd, 2-Stack
 -MA3 Manifoldd, 3-Stack
 -MA4 Manifoldd, 4-Stack
 -TF Transformer, 120VAC to 24VAC (-MVC option only)

FLUSH VALVE GPF's (Must Specify)

-1.28 GPF
 -1.6 GPF

FLUSH VALVE OPTIONS (Must Specify)

-EVSVV Master-Trol Electronic Flush Valve
 -EVSPFV Master-Trol Electronic Flush Valve w/ Piezo Button
 -FVBO Flush Valve by Others
 -FVH Flush Valve, Hydraulic
 -MTPFV Master-Trol PLUS Electronic Flush Valve
 -MTPPFV Master-Trol PLUS Electronic Flush Valve w/ Piezo Button
 -MVCFV Time-Trol Electronic Flush Valve

CABINET OPTIONS

-FMT Fixture Mounted Trim
 -LGB Less Grab Bar
 -PH Paper Holder, not ADA Compliant (Opposite Toilet/Offset Orientation)
 -TG 12 Gage Cabinet
 -THLR Towel Hook, Single Double (Installed on lavy side of unit)

LAVATORY WASTE OPTIONS

-CW Combined Waste*
**NOTE: Reduces Ligature Resistance due to Lavy Waste Drain Hole located within Toilet Bowl.*
 -LWE Lavy Waste Extension (3" Standard) Specify Length Beyond Fixture: _____

TOILET OPTIONS

-CO1 Cleanout w/ 2-3/8" OD O-Ring Connection to No-Hub 4" (Plain End Only, Not applicable with -GW)
 -CO1-3 Cleanout w/ 2-3/8" OD O-Ring Connection to No-Hub 3" (Plain End Only, Not applicable with -GW)
 -COH Cleanout Hook Assembly
 -FT Flood-Trol (Manual Reset)**
 -FTA Flood-Trol Auto-reset**
 -FTE Flood-Trol Electronic**
***NOTE: Reduces Ligature Resistance due to Toilet Bowl Sensor Fitting.*
 -FVT Flush Valve Thru Wall Connector
 -GW Gasket Toilet Waste, -Wall Outlet, (Standard with Floor Outlet)
 -HPS High Polished Seat
 -PC Pinned Cleanout Plug (For CO1 Options above)
 -TSC Toilet Shipping Cover
 -TWE Toilet Waste Extension, (3" Standard) Specify Length Beyond Fixture: _____
 -WO3B 2-3/8" P-Trap w/ 3" OD Plain End Waste Outlet

PRODUCT OPTIONS

-EGE Enviro-Glaze, Specify Color: _____ Toilet Exterior Only
 -DMB Deck Mounted Hemispherical Drinking Bubbler (Cold water only) Not applicable with -03-M tempered supply
 -LPFV Less Punching for Flush Valve
 -MT Metal Template (Only 1 required per project)
 -SW Wall Sleeve
 -VAC AcornVac Systems

Please visit www.acorneng.com for most current specifications.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

Important: Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions. Dimensions are subject to manufacturer's tolerance of plus or minus 1/4" and change without notice. Acorn assumes no responsibility for use of void or superseded data. © Copyright 2009 Acorn Engineering Company	
<p style="text-align: center;">Selection Summary</p> <p>Model No. & Options _____</p> <p>Quantity _____</p>	<p style="text-align: center;">Approved for Manufacturing</p> <p>Company _____ Title _____</p> <p>Signature _____ Date _____</p>

PART 1 GENERAL

1.1 SUMMARY

- A. The Work under Divisions 26, 27, and 28 includes furnishing materials, equipment, labor, supervision, tools and items necessary for the construction, installation, connection, testing and operation of electrical work for this project, as shown on the Drawings and defined in the Specifications.

1.2 REFERENCES

- A. IEEE C2 (Institute of Electrical and Electronics Engineers) – National Electrical Safety Code.
- B. NECA 1000 (National Electrical Contractors Association) – National Electrical Installation Standards Specification System.
- C. NFPA 70 (National Fire Protection Association) – National Electrical Code.
- D. NFPA 70A/70E (National Fire Protection Association) – Electrical Safety in the Workplace.
- E. Manufacturer's installation and operating instructions.

1.3 QUALITY ASSURANCE

- A. Substitutions: Conform to requirements in Division 01.
 - 1. The Architect will be the sole and final judge as to quality and acceptability of substitutions.
 - 2. The Contractor shall be liable for costs incurred by the Owner, Architect and Engineer of Record for architectural and engineering services resulting from substitutions.
- B. Tests: Demonstrate that equipment operates as indicated as specified, and in accordance with the manufacturer's recommendations. Perform tests in the presence of the Architect. Provide instruments, personnel, and utilities required to conduct the tests.
- C. Qualifications: Use sufficient journeymen and competent supervisors in the execution of the Work to ensure proper and adequate installation throughout. In the acceptance of installed work, no allowance will be made for lack of skill on the part of the workmen.

1.4 WORK OF OTHER TRADES

- A. The Drawings do not show complete details of the building construction. Refer to the architectural, structural, civil, and mechanical Drawings for those details which may affect the execution of this work. Specific locations of structural or architectural features or equipment items shall be obtained from field measurements or the trade providing the material or equipment. No extra payments will be allowed for failure to obtain this information.
- B. Coordination: Conform to requirements in Division 01. Failure to coordinate work will be considered sufficient cause for work to be altered at Contractor's expense, as directed by Architect.
 - 1. Plan and execute Work including, but not limited to, ducts, conduit, raceways, pathways, and cable trays, in cooperation with other trades and local serving utilities.
 - 2. Make every reasonable effort to provide timely notice of work affecting other trades to prevent conflicts or interference as to space requirements, dimensions, openings, block-outs, sleeves, firestopping, painting, finishing, or other matters which will cause delays or necessitate work-around methods.
 - 3. Yield right-of-way to piping installed at required slope.
 - 4. Provide electrical materials and installation work required to connect, test and operate systems, devices, or equipment shown or described in the Drawings or Specifications of other Divisions.

1.5 EXISTING CONDITIONS

- A. Where permitted or required in the bidding instructions, visit the site prior to bidding to become familiar with existing conditions and other factors which may affect the execution of the Work.

- B. Demolition work required is noted on the Drawings. Specific scope of demolition work and operating conditions to be encountered shall be verified from on-site review and coordination with the Owner. Maintain service to existing equipment and devices to be retained in area adjacent to the existing areas scheduled for renovation. Provide temporary services as necessary to meet these conditions.
- C. Special Protection: Exercise maximum precaution to provide positive protection for the existing building and equipment from damage of any kind, and in particular prevent any water and dust seepage into the existing building. Mark and protect equipment and systems from the activities of other trades. Refer to Division 02.
- D. Utilities and Services:
 - 1. Do not disturb existing utilities without Owner's written consent. Notify the Owner and Architect not less than 10 days prior to the scheduled work date.
 - 2. Prior to demolition, field-verify and document existing area, conduits, and boxes shown for demolition.
 - 3. Where the area, ducts, conduits, and boxes contain utilities not shown for permanent demolition, submit a re-routing plan to the Architect showing the ducts, conduits, manholes, handholes, conductors, boxes, wiring, and connections required to re-route the utilities outside of the area affected by the demolition. Upon receiving written approval of the re-routing plan, re-route existing utilities and systems in accordance with the approved work plan.
 - 4. Prior to core drilling, use ground penetrating radar, pacometer, X-ray or other suitable means to locate existing rebar, embedded conduit, post tensioning cables and other imbedded obstructions. Locate core drill to avoid obstructions.
 - 5. Where the Drawings show existing services to be abandoned, terminate in conformance with requirements of the utility and Authority Having Jurisdiction.
 - 6. Install and test new services prior to demolishing existing services unless otherwise shown.
 - 7. Failure to verify the existing conditions or submit re-routing plan will be considered sufficient cause for work to be altered at Contractor's expense, as directed by Architect.

1.6 CODES, PERMITS, INSPECTIONS, AND FEES

- A. Comply with requirements of Division 01.
- B. Obtain permits and inspections and pay fees required by National, State and Local authorities. Make arrangements for inspections by the Architect, Owner or other authority as required. Submit 3 copies of certificates of compliance to the Architect.
- C. Work and materials shall be in accordance with requirements of the latest adopted edition of applicable codes, regulations, ordinances, and local amendments including, but not limited to, the following.
 - 1. International Building Code.
 - 2. International Fire Code.
 - 3. Washington State Energy Code.
 - 4. National Electrical Code (NEC), NFPA 70 as amended by the Washington Cities Electrical Code.
 - 5. Washington Administrative Code, Chapter 296-24 WAC – General Safety and Health Standards.
 - 6. Washington Administrative Code, Chapter 296-46B WAC – Electrical Safety Standards, Administration, and Installation.
 - 7. The Americans with Disabilities Act (ADA).
 - 8. National Electrical Safety Code, IEEE C2.

9. Electrical Safety in the Workplace, NFPA 70E.
- D. Nothing in Drawings and Specifications shall be construed to permit Work not in conformance with these rules and regulations.
 - E. Thoroughly examine the Drawings and the Specifications prior to procuring or installing products. Notify Architect immediately upon discovery of work shown on the Drawings or in the Specifications that is not compliant with the codes, ordinances, or regulations. Notice shall describe the conflict and shall cite the specific title and paragraph of the code, ordinance, or regulation. Contractor shall be responsible for removal, re-installation, re-testing, and re-commissioning of work that is found to be non-compliant with the codes, ordinances, or regulations.
 - F. Where Drawings or Specifications call for material or construction of a better quality or larger sizes than required by the above-mentioned rules and regulations, the provisions of the Drawings or Specifications shall take precedence over requirements of the rules and regulations.
 - G. Changes in the work after initial installation due to requirements of code enforcing agencies shall be performed by the Contractor at no additional cost to the Owner.
 - H. Permits: Obtain and pay for permits and fees required for this project.
 - I. Coordination: Coordinate with the appropriate "Authorities Having Jurisdiction" for this project.
 - 1. Arrange plans and shop drawing reviews.
 - 2. Schedule inspections in a timely manner.
 - 3. Notify the Architect of non-conformance issues.
 - 4. Proceed with changes suggested by the Authorities Having Jurisdiction only with written authorization by the Architect.
 - 5. Make necessary corrections as required by the Authorities Having Jurisdiction.
 - J. Utilities: Comply with rules and requirements of local utility companies; coordinate and pay for connections.

1.7 SAFETY

- A. Contractor shall be responsible for conditions of the job site, including safety of persons and property during performance of the Work.
- B. Provide safety policies, training, retraining, equipment, safeguards, restraints, permit systems, and other safety measures required by federal, state, local, and the Owner's site rules and regulations and for the safe performance of the Work.
- C. Comply with the "Safety and Health Regulations for Construction," 29 CFR 1926, by the U.S. Department of Labor.
- D. Provide safety measures continuously during work and off work hours.
- E. Consult with the state or federal safety inspector for interpretation whenever in doubt as to whether safe conditions do or do not exist or whether the Contractor is or is not in compliance with state or federal regulations.
- F. Perform safety audits, inspections, meetings, and personnel interviews in accordance with federal, state, local, and Owner site safety rules and regulations.
- G. Do not use the Architect's construction observations as a substitute for Contractor's safety audits and inspection responsibilities.

1.8 EQUIPMENT AND MATERIALS APPROVALS

- A. Whenever UL listed standards exist for equipment with electrical components, provide UL listed equipment. Otherwise provide equipment certified by the manufacturer as complying with UL standards for similar items.

- B. Materials, equipment, and processes requiring approval of the Washington State Department of Labor and Industries or other nationally-recognized testing agency shall be labeled as so approved in accordance with the provisions of the Washington Administrative Code.

1.9 INTENT OF DRAWINGS

- A. Drawings are diagrammatic and show only approximate locations of ducts, conduits, cable trays, pathways, raceways, devices, and equipment. Take measurements from building or site and verify with Drawings. Because of the small scale of the Drawings, it is not possible to indicate all offsets, fittings, and accessories that may be required. Carefully investigate the plumbing, fire protection, mechanical, structural, and finish conditions that would affect the Work to be performed and arrange such work accordingly, providing required ducts, conduits, cable trays, pathways, raceways, devices, fittings, conduit bodies, and accessories to meet such conditions.
- A. It is the responsibility of the Contractor to provide equipment that fits into the space allotted and allows adequate acceptable clearances for installation, replacement, entry, servicing, and maintenance. When motors furnished are larger than sizes indicated, provide any required changes to the electrical services as may be necessary and related work as a part of the Work for the Section specifying that motor.
- B. Report any conflict to Architect prior to proceeding with the Work. Failure to follow this instruction is considered sufficient cause to alter the Work, at no cost to the Owner, as directed by the Architect.
- C. Plans and sections generally do not show all conduits, conductors, conductor sizes, junction boxes, conduit bodies, grounding conductors, control devices, instruments, or other components; refer to diagrams or schematics to obtain a more complete description of systems.
- D. Provide work shown on the Drawings and provide work described in the Specifications.

1.10 DETAIL DRAWINGS BY CONTRACTOR

- A. Wherever the Work is of sufficient complexity to warrant additional detailing, prepare additional detail drawings to scale 1/4 inch = 1 foot, prepared on tracing paper the same size as Contract Drawings; with these layouts, coordinate work with the work of other trades. All such detailing work shall be clearly identified on the drawings as to the area to which it applies.
- B. Do not submit these drawings to the Architect for approval. At completion, however, include a set of such drawings with each set of as-built drawings for Owner's record purposes.

1.11 SUBMITTALS

- A. Comply with requirements of Division 01.
- B. Do not use the submittal process to request substitutions. Make requests for substitution in accordance with Division 01.
- C. Acceptance: Checking is only for general conformance with the design concepts of the information given in the Contract Documents. Any action shown is subject to the requirements of the plans and Specifications, which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work. The acceptance of a manufacturer's name or product by the Architect does not relieve the Contractor of the responsibility for providing materials and equipment which comply in detail with the requirements of the Contract Documents.
- D. Product Data: Submit manufacturer's descriptive product information including catalog cuts, performance curves, ratings, accessories, features, time-current curves, standards (i.e. ANSI, IEEE, UL, MIL, NEMA) and other information required to confirm compliance with the Drawings and Specifications. Include complete ordering numbers showing prefixes and suffixes identified for the specified product. Submittals showing generic model numbers, part numbers, product line, or other generalized information will be returned without review or rejected.

- E. Shop Drawings: Submit manufacturer's shop drawings including plans, elevations, sections, schedules, wiring diagrams, schematics, seismic installation instructions, and other information required to confirm compliance with the Drawings and Specifications. Shop drawings shall accurately represent the specified product, including specified options and accessories. Show the specified included options and accessories as included. Show connections to specified options and accessories. Show interconnections including shipping splits, remote wiring, fuel system, exhaust systems, and other coordination items. Submittals showing generic product-line information will be returned without review or rejected.
- F. Detail and Coordination Drawings: Submit Contractor prepared drawings to show how multiple systems and interdisciplinary work will be coordinated.
- G. Calculations: Submit calculations for battery capacity, fuel consumption, fuel capacity, seismic, and other items specified. Include input variables, constants, formulas, assumptions, temperatures, resistances, capacitances, inductances, and other information to confirm compliance with the Drawings and Specifications.
- H. Samples: Submit samples complying with the requirements of the Specifications.
 - 1. Submit samples to the Architect for color and material selection where the color or material selection is not specified.
 - 2. Submit samples of devices, covers, conductors, and other items where the sample is required by the Specifications.
- I. Test Reports: Submit factory test reports and field quality control acceptance test reports.
 - 1. Test reports shall include a cover sheet having the following information.
 - a. Project title as shown on the Drawings.
 - b. Signature of person reviewing the test report.
 - c. Printed name and title of person reviewing the test report.
 - d. Date reviewed.
 - e. Company name and contact information for the company performing the test.
 - f. Contractor name and contact information.
 - 2. Test report data sheets shall show the following information.
 - a. Project title, location, testing company name, date the test is performed, name of person performing the test.
 - b. Test equipment model, serial number, and actual date the test equipment was last calibrated. Do not show the date that calibration is due.
 - c. Test conditions including ambient temperature, humidity, and short description of weather during the test (example: raining). Show date of last rainfall for ground and earth resistance measurements.
 - d. Show test parameters in numeric form including but not limited to voltages, currents, times, resistance, distances, and temperatures.
 - e. Show test results in numeric form for electrical tests and mechanical measurements. Show manufacturer's minimum and maximum acceptable tolerances in numeric form for tests such as minimum pickup, time delays, contact travel, wipe, and other measurable tests.
 - f. Show function test results. Show the input action (example: "Turned breaker control switch to "Close"") and the resultant action (example: "Breaker 52-1 closed and recharged."), and the expected reaction described in the sequence of operations shown or specified. Terms such as "Pass", "Fail", "Sat", "OK" are not to be used.
- J. Certificates: Submit statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Shall be dated after award of project contract and clearly name the project.

- K. Thoroughly review vendor-assembled shop drawings, catalog cuts, etc. to ensure that these documents are complete and comply with the Drawings and Specifications. The Architect reserves the right to reject the complete submittal without review when documents are not complete or do not comply with the Drawings and Specifications.
- L. Communicate the Architect's review comments to the supplier and manufacturer. Work found to be not in conformance with the Architect's comments will be rejected, shall be removed from the job site and replaced with conforming work at no additional cost to the Owner.

1.12 TESTING

- A. Acceptance Testing: Perform acceptance testing in accordance with NETA ATS and as specified.
 - 1. Instruments shall be calibrated in accordance with the following frequency schedule.
 - a. Field instruments: Analog, 6 months maximum; Digital, 12 months maximum.
 - b. Laboratory instruments: 12 months maximum.
 - c. Leased specialty equipment: 12 months maximum.
 - 2. Dated calibration labels shall be visible on all test equipment.
 - 3. Records, which show date and results of instruments calibrated or tested, must be kept up to date.
 - 4. Calibrating standard shall be of higher accuracy than that of the instrument tested.
 - 5. Furnish test reports and data sheets complying with the requirements of Article SUBMITTALS, paragraph "Test Reports" of this Section.
- B. Prerequisites: Comply with the following prerequisites prior to scheduling factory witness tests and on-site system level tests and system commissioning. The Contractor is responsible for all costs incurred by the Owner including the Owner's Representative, Engineer, Commissioning Authority, and other persons required to re-witness these tests due to any failure of the Contractor, subcontractors, vendors, manufacturer's and equipment to pass the tests.
 - 1. Submit test plans and checklists demonstrating compliance with the Contract Documents and specified references including, but not limited to National Electrical Testing Association (NETA), and National Electrical Code (NEC). Include manufacturer's written instructions. Include space on the checklist for signatories and dates for each test procedure line-item. Signatories include the Contractor, Owner's Representative, Electrical Testing Organization (ETO), Commissioning Authority (CA), and Engineer. Include the following additional information for each test.
 - a. Signoff that affected trades, personnel, and jurisdictions have been notified and that affected machinery has been shut down and is secure.
 - b. Signoff that a pre-test safety meeting has been performed and that all safety hazards and accident prevention requirements have been met.
 - c. Signoff that a pre-test technical procedure review meeting has been performed and that all team members are familiar with the procedures.
 - d. Signoff that acceptance testing has been completed for the affected system and components.
 - e. Signoff that test equipment calibration is in accordance with the Contract Documents.
 - f. Signoff that O&M's have been submitted to and accepted by the Owner's Representative.
 - g. Signoff that dimensional clearances such as working space about electrical equipment have been met.
 - h. Signoff that maintenance features and accessory equipment functions in accordance with the Specifications.
 - i. Signoff that protective device settings are set in accordance with the Contract Documents and the coordination study.

- j. Include spaces to record critical time information such as lighting on/off times and similar time delays, thresholds and duration information.
- k. Include spaces to record critical test values such as volts (V, kV), current (A, kW), kilo-watts (kW), kilowatt-hours (kWh), frequency (Hz) and similar information.
- C. Test wiring and electrical equipment installed on this Contract to verify wiring insulation integrity, absence of grounds and short circuits and verify proper operation, rotation, and phase relationship.
- D. Perform tests in the presence of the Owner and Architect, or their representatives unless the witnessing requirement is waived in writing by the Owner and Architect.
- E. Provide instruments, load banks, controls and protection settings, and personnel required to conduct the tests.
- F. Provide all test reports, waivers, calibration certificates, and drawings. The documents shall become the property of the Owner upon completion of construction.
- G. Record the settings of adjustable breakers and submit the record as part of the closeout submittals.
- H. Provide acceptance testing of each circuit breaker rated 100 amperes and higher in accordance with NETA ATS and applicable ANSI standards.
- I. Replace equipment not meeting the test result evaluation criteria. Perform tests on the replacement equipment.
- J. Place a sticker on each piece of tested equipment indicating the date of the test and the name of the testing agency.
- K. Record the results of the tests and submit the record as part of the closeout submittals.

1.13 DEMONSTRATION

- A. Demonstrate the installed system components to the Owner's maintenance personnel in accordance with the provisions of the General Conditions, Special Conditions, and Division 01.
- B. Following initial operation of electrical equipment and prior to acceptance of the electrical work, conduct demonstrations of equipment operation and perform instruction periods for the Owner's representatives.
- C. Contractor's representatives, in general, who conduct these instructions and demonstrations shall be qualified foremen or superintendents acquainted with this project and from the trade involved.
 - 1. For electrical systems and subsystems, the representative shall be the engineer or technician who performs testing and adjustment.
 - 2. For major equipment, the representative shall be manufacturer's representatives with operating experience and substantial design experience on this project.
 - 3. Their qualifications shall be submitted to the Architect before conducting the instruction period.
- D. Representatives of Owner who will be present at these meetings may include Owner's Operating and Maintenance personnel.
- E. Scheduling of Instruction Periods: Provide notice of Contractor's readiness to conduct such instruction and demonstration periods to Owner at least 2 weeks prior to each instruction period and reach agreement on the date of each instruction period.

1.14 INSPECTIONS

- A. Observations will be conducted periodically throughout the construction by the Architect.
- B. On-site meetings or reviews of construction by the Architect or Owner shall not be construed as acceptance by these parties as related to quantities, rough-in locations, and compliance with

code enforcing authorities unless specific exceptions have been brought to the attention of the Architect and have been accepted in writing.

- C. When requesting final inspection, provide 10 days' notice. Submit written certification that the work has been fully completed in strict accordance with plans and Specifications.
- D. Notify the Owner and Architect upon completion of the following tasks.
 - 1. Equipment labeling.
 - 2. Conduit marking.
 - 3. Wire and cable identification.
 - 4. Replacement of damaged equipment.
 - 5. Touch-up painting.
 - 6. Posting of completed panel schedules.
 - 7. Resolution of previously noted comments.
 - 8. Installation of previously missing equipment.
- E. Obtain a Certificate of Final Electrical Inspection from the local Authority Having Jurisdiction stating that work had been inspected, accepted and approved as complying with existing governing ordinances and codes.
- F. Submit to the Owner upon completion of the project as part of project closeout.

1.15 FINAL PUNCHLIST

- A. Comply with Division 01.
- B. When Architect is completing punchlist during final inspection, provide access to devices as requested by the Architect, including ceiling tile removal and replacement.
- C. Provide ladders, scaffolds, staging, safe opening of equipment, and accessories required to access the devices and work.
- D. Demonstrate the operation of equipment upon request of the Architect.

1.16 WARRANTY

- A. Comply with Division 01.
- B. Provide a warranty for electrical work in accordance with the provisions of the General Conditions. Submit the warranty in written form in accordance with Division 01.
- C. Furnish the originals of manufacturers' warranties for the Owner's records.

1.17 ABBREVIATIONS, DEFINITIONS, AND REFERENCE STANDARDS

- A. Refer to Division 01 for definitions and abbreviations. Additional reference standards, definitions, and abbreviations are as follows.

A	Amperes
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
as shown	as shown on the Drawings
C	Degrees Celsius
DPDT	Double Pole, Double Throw
F	Degrees Fahrenheit
FRP	Fiberglass reinforced plastic
Hz	Hertz (frequency)
IBC	International Building Code
kVA	Kilovolt-Ampere
kVAR	Kilovolt-Ampere Reactive
kW	Kilowatt
kWH	Kilowatt-Hour
mA	Milliamperes

mV	Millivolts
MVA	Megavolt Amperes
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NETA	InterNational Electrical Testing Association
NFPA	National Fire Protection Association
provide	furnish and install
psig	pounds per square inch gage pressure
SPDT	Single Pole, Double Throw
UL	Underwriters Laboratories, Inc.
V	Volts
VAC	Volts Alternating Current
VDC	Volts Direct Current

1.18 OPERATION AND MAINTENANCE MANUALS

- A. Time of submittals, quantity of copies for submittals, binding, content, and other requirements shall be as specified in Division 01.
- B. Prepare an operation and maintenance manual for equipment provided.
- C. Operation and maintenance manuals shall comply with the requirements of the Washington State Energy Code.

1.19 RECORD DRAWINGS

- A. Furnish record drawings in conformance with the requirements of Division 01.
- B. Show location of equipment and size of conduits, raceways, pathways, ducts, and cable trays. Locate lighting fixtures, lighting switches, equipment disconnect switches, receptacles, and other equipment and devices. Keep record drawings continuously updated during progress of project and ready for reference. Make available to Architect at site for review prior to each pay request.
- C. Record drawings shall comply with the requirements of the Washington State Energy Code.
- D. Duct banks and conduits installed below grade shall be shown with both horizontal and vertical dimensions at an accuracy of plus or minus 6 inches.
- E. Show the actual equipment installed. Dimensions on plans, elevations, and sections shall match exactly as installed.
- F. Approved modifications to equipment in the field shall be shown on the record drawings to reflect the "as-built" conditions.
- G. Record drawings shall be consistent. Changes made to plans, elevations, sections, wiring diagrams, schematics, or functional diagrams shall be made to related or otherwise affected plans, elevations, sections, wiring diagrams, schematics, or functional diagrams.

1.20 SITE CONDITIONS AND METHODS

- A. Cutting and Patching: Conform to requirements in Division 01. Keep cutting and patching to a minimum. If required, patching shall conform to Specifications for the new general construction work. Finish materials to match existing work.
- B. Measurements: Verify space availability by field measurement prior to submitting Shop Drawings for approval.
- C. Roughing-In Dimensions: Obtain roughing-in dimensions for equipment from approved Shop Drawings or actual equipment measurements.
- D. Manufacturer's Installation Instructions: Follow manufacturer's written instructions where furnished. If the details are in conflict with design drawings, notify Architect for resolution.
- E. Accessibility: Install products which require periodic servicing or repair so that products are readily accessible. Otherwise, obtain Architect's approval of location.

- F. Rejected Materials: Remove damaged or rejected materials from the site.
- G. Delivery, Storage, and Handling: Conform to requirements in Division 01.
 - 1. Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with the manufacturer's recommendations and as approved by the Architect. Replace damaged or defective items.
 - 2. Equipment with damaged factory applied finishes shall be refinished as required to bring the equipment to a like-new condition in accordance with manufacturer's recommendations.
 - 3. Conduits shall be maintained clean, free of debris, and dry from fabrication through field installation. Open ends shall be sealed with plastic at the end of each workday. Maintain sealing procedure until installation is completed. Damaged, wet, and dirty conduits shall be removed from site.
 - 4. All components and equipment shall be maintained clean, free of debris, and dry from fabrication through field installation. Openings shall be sealed with plastic at all times except when the equipment is in the process of being connected to conduits and connected equipment. Maintain sealing procedure from fabrication until installation is completed with conduits connected to the equipment.

1.21 INSTRUCTION FOR OWNER'S PERSONNEL

- A. Conform to requirements of Division 01.
- B. Scope: Following initial operation of electrical equipment and prior to acceptance of the electrical work, conduct demonstrations of equipment operation and instruction periods for the Owner's personnel during the time acceptance testing work is being performed.
- C. Contractor's representatives, in general, who conduct these instructions and demonstrations shall be qualified foremen or superintendents acquainted with this project and from the trade involved. For lighting control systems, fire alarm systems, intercom systems, or other major equipment or systems, the representative shall be manufacturer's representatives with operating experience and substantial design experience on this project. Their qualifications shall be submitted to the Architect before conducting the instruction period.
- D. Representatives of Owner who will be present at these meetings may include Owner's administrative, operating, and maintenance personnel; and for fire protection systems, representatives of authorities having jurisdiction.
- E. General Description of Instruction Periods: Each period shall include preliminary discussion and presentation of information from operation and maintenance manuals with appropriate references to Drawings, followed by tours of equipment spaces explaining maintenance requirements, access methods, servicing, and maintenance procedures, temperature settings, and available system and equipment adjustments.
- F. Utilize visual aids such as handouts, books, tutorials, slides, video or movies in the training. Furnish the visual aids to the Owner as part of the Owner's permanent files to be used for reference, refresher, and retraining.
- G. Scheduling of Instruction Periods: Notice of Contractor's readiness to conduct such instruction and demonstration periods shall be given to Owner at least 14 days prior to each instruction period and agreement reached on the date of each instruction period.
- H. Training Agenda:
 - 1. Operator training shall provide a complete overview of equipment, components, and systems with an emphasis on the following.
 - a. Documentation in the final operations and maintenance manuals.
 - b. How to use the operations and maintenance manuals.
 - c. System operational procedures for all modes of operation, including warm-up, cool-down, occupied, unoccupied, startup, shutdown, etc.

- d. Acceptable tolerances for system adjustments in all operating modes including voltage, current, frequency, and efficiency adjustments.
 - e. Procedures for dealing with abnormal conditions including emergency operations, retrieving event reports, and resetting alarms and targets.
 - f. Hazards and safety.
 - g. Control sequences.
 - h. Review of maintenance and operations in relation with applicable warranties, agreements, to maintain and service, and similar continuing commitments.
- I. Retraining: After final commissioning, electrical operation and maintenance personnel shall be instructed by the Contractor on changes and reconfiguration which may have occurred during the commissioning process.

1.22 CLOSEOUT SUBMITTALS

- A. Comply with the requirements of Division 01.
- B. Submit warranties, record drawings, certificates, inspections, punch lists, test reports, and operations and maintenance manuals for electrical equipment installed on this project.
- C. Submit acceptances by the inspecting Authorities Having Jurisdictions for electrical equipment installed on this project.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 DEMOLITION EXAMINATION

- A. Verify measurements are as shown on the Drawings.
- B. Demolition Drawings are based on existing record documents. Field-verify existing conditions. Report discrepancies to Architect before disturbing existing installation.
- C. Contractor accepts existing conditions upon beginning the Work.
- D. Provide temporary connections to maintain existing systems in service during construction. When work must be performed on energized equipment, use personnel experienced in such operations and perform the work in accordance with laws, rules, and regulations.
- E. Where conduit is indicated on Drawings to be abandoned, remove conductors, remove debris from inside the conduit, and seal the conduit openings unless indicated otherwise.
- F. Repair adjacent construction and finishes damaged during demolition and extension work.
- G. Maintain access to existing installations which remain active. Maintain NEC required working space around and above electrical equipment.

3.2 EQUIPMENT CONNECTIONS

- A. Coordinate and provide raceway, wiring, junction boxes, switches, receptacles, overcurrent protection, anchors, supports, and connections required by equipment manufacturers to make the equipment and systems completely functional. This includes, but is not limited to, items between equipment or components of same or different manufacturers, whether or not the items are shown on Drawings, Specifications, shop drawings, or product data. It is the Contractor's responsibility to ensure that the shop drawings show the required connections and associated devices.
- B. Test continuity and insulation resistance of conductors.
- C. Test interconnection functionality and demonstrate that the interconnections result in the function intended by the Contract Documents.
- D. Test overcurrent protective devices.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The work of this Section includes supports, anchors, fasteners, nameplates, labels, wire markers, raceway markers, vibration isolators, sealing, and fireproofing.

1.2 REFERENCES

- A. ASTM A 153/A 153M (ASTM International) – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- B. ASTM B633 (ASTM International) – Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
- C. ASTM C 1107 (American Society for Testing Materials) – Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
- D. NECA (National Electrical Contractors Association) – Standard of Installation.
- E. NETA ATS (International Electrical Testing Association) – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 DESIGN REQUIREMENTS

- A. Select materials, sizes, and types of anchors, fasteners, and supports to carry loads of equipment and raceway, including weight of wire and cable in raceway.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Submit product data and tabulated lists of nameplate, label, and marker types for equipment, devices, and wiring. Group the list by type of equipment, device, and wiring. Include material type and thickness, font type, size, vertical and horizontal spacing (tracking), number of rows, colors, and other specified features.
 - 2. Submit product data for sealants. Identify the specific application for which the sealant is being submitted. Include manufacturer's instructions showing approved and prohibited installation methods.
 - 3. Submit product data for firestopping. Identify the specific application for which the firestopping is being submitted. Include manufacturer's instructions showing approved and prohibited installation methods.
 - 4. Submit product data for anchors and fasteners. Include rated load and pull-out strengths.
- B. Seismic Design: Submit calculations, details, Shop Drawings, Product Data, and statement of special inspections for the seismic design of equipment, raceway, luminaires, cable tray, and bus to Architect for Architect's review. After Architect's review, Architect will submit the Architect's notification with the calculations, details, Shop Drawings, and statement of special inspections to the Building Official per 2021 International Building Code section 107.3.4.1. No Work shall be started until the calculations, details, Shop Drawings, Product Data, and statement of special inspections have been approved by the Building Official. If the Contractor hired professional engineer licensed in the State of Washington determines that the 2021 International Building Code does not require some of the equipment, raceway, luminaires, cable tray, and bus be seismically restrained, then submit a stamped and signed statement from the professional engineer to that effect.

1.5 CLOSEOUT SUBMITTALS

- A. Include product data for firestopping and sealing products in the Operations and Maintenance manuals.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience and with service facilities within 100 miles of project.

1.7 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 ANCHORS AND FASTENERS

- A. Materials and Finishes: Corrosion resistant.

2.2 FORMED STEEL CHANNEL

- A. Manufacturers:
 - 1. B-Line.
 - 2. Globestrut.
 - 3. Unistrut.
- B. Description: Strut-type support and fittings.
 - 1. Provide ASTM B633 Type III SC 3, electrolytically zinc-coated steel. Minimum thickness shall be 0.5 mils.

2.3 NAMEPLATES

- A. Provide three-layer laminated melamine plastic nameplates for each item specified in the technical Sections or shown on the drawings including, but not limited to the following.
 - 1. Panelboards.
 - 2. Equipment enclosures.
 - 3. Relays.
 - 4. Switches.
 - 5. Devices.
 - 6. Junction Boxes.
- B. Description:
 - 1. Size: 1 inch by 2.5 inches, minimum, by 0.125 inch thick, square corners.
 - 2. Matt black background with white letters for normal power.
 - 3. Matt red background with white letters for emergency power.
- C. Letter Size:
 - 1. 1/4 inch letters for identifying individual equipment and loads.
 - 2. 3/8 inch letters for identifying grouped equipment and loads.

2.4 LABELS

- A. Labels: Embossed adhesive tape, with 3/16 inch white letters on black background.

2.5 WIRE MARKERS

- A. Description: Cloth tape, split sleeve or tubing type wire markers.
- B. Legend:
 - 1. Power and Lighting Circuits: Branch circuit or feeder number as shown on Drawings.
 - 2. Control Circuits: Control wire number as indicated on shop drawings.

2.6 CIRCUIT DIRECTORIES

- A. Provide typewritten circuit directories for all switchboards and panelboards, including breaker/fuse identification and size, equipment or system served and locations.
- B. Place directories inside doors under transparent plastic covers.

2.7 SLEEVES

- A. Round: Rigid galvanized steel conduit (RGS).
- B. Rectangular: Galvanized sheet steel.
 - 1. Perimeter less than 50 inches with no side greater than 16 inches: 18 Gage.
 - 2. Perimeter equal to or greater than 50 inches or with a side greater than 16 inches: 10 Gage.

2.8 GROUT

- A. ASTM C 1107.
- B. Mix with water for 30 minutes of working time.

2.9 SEALING AND FIREPROOFING

- A. General:
 - 1. Furnish UL listed products and systems that are listed for the application.
 - 2. Select products with rating not less than rating of wall or floor being penetrated.
- B. Fire and Smoke Rated Surfaces:
 - 1. Manufacturers:
 - a. 3M FS 195+ Fire Barrier Wrap Strips.
 - b. 3M CS 195+ Composite Sheet.
 - c. 3M IC 15WB+ Intumescent Sealant.
 - d. Nelson Firestop Products LBS3 Intumescent Sealant.
 - e. Tremco TREMstop IA Intumescent Acrylic Sealant.
- C. Non-Rated Surfaces:
 - 1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.
 - 2. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.
 - 3. For interior wall or floor openings, furnish one of the following to effect seal.
 - a. Tremco Dymonic.
 - b. Sika Corp. Sikaflex Ia.
 - c. Sonneborn Sonolastic NPI.
 - d. Mameco Vilken 116 urethane caulk.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify wiring and equipment that are about to be demolished are no longer required for the facility.

3.2 EXISTING WORK

- A. Demolition Drawings are based on existing record documents. Field verify existing conditions prior to demolition. Report discrepancies to Architect/Engineer before disturbing existing installation. Protect existing systems not designated for removal or demolition from damage. Repair or replace any systems inadvertently damaged.
- B. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- C. Remove, relocate, and extend existing installations to accommodate new construction.
- D. Remove exposed abandoned grounding and bonding components, fasteners and supports, and electrical identification components, including abandoned components above accessible ceiling finishes. Cut embedded support elements flush with walls and floors. Patch surfaces damaged by removal of existing components.

- E. Install temporary wiring and connections to maintain existing systems in service during construction.
- F. Perform work on energized equipment or circuits with experienced and trained personnel.
- G. Repair adjacent construction and finishes damaged during demolition and extension work.

3.3 INSTALLATION

A. Supports:

1. Install electrical systems and equipment attached directly to structure and to dedicated supports attached directly to structure. Attach supports to structure, independent of all other equipment and systems. Do not fasten electrical equipment to pipes, ducts, mechanical equipment, other equipment or the supports for such equipment or systems.
2. Fabricate supports from structural steel or formed steel members. Rigidly weld members or install hex-head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
3. Locate and install anchors, fasteners, and supports in accordance with seismic requirements.
4. Install surface mounted cabinets and panelboards with minimum of four anchors.
5. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch off wall.
6. Install sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.
7. Do not use powder-actuated anchors.
8. Do not drill or cut structural members.

B. Identification Components:

1. Degrease and clean surfaces to receive nameplates and labels.
2. Install nameplate and label parallel to equipment lines.
3. Secure nameplate to equipment front using screws or rivets.
4. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
5. Conduit Marker Spacing: 20 feet on center.
6. Identify underground conduits using one underground warning tape for each trench at 3 inches below finished grade.

C. Emergency Systems Equipment Identification:

1. All exit and emergency lights, whether or not required by the NEC, must be installed in accordance with Article 700 NEC.
2. Device and junction boxes for fire alarm systems other than the surface raceway type, must be substantially red in color, both inside and outside. Power-limited fire protective signaling circuit conductors must be durably and plainly marked in or on junction boxes or other enclosures to indicate that it is a power-limited fire protective signaling circuit.
3. All boxes and enclosures, for Article 700 NEC systems, larger than six inches by six inches, including transfer switches, generators, and power panels for emergency systems and circuits must be permanently identified with an identification plate that is substantially orange in color. All other device and junction boxes for emergency systems and circuits must be substantially orange in color, both inside and outside.

3.4 SEISMIC AND WIND RESTRAINTS

- A. Seismic Restraints: Seismically restrain equipment, raceway, luminaires, cable tray, and bus in accordance with the requirements of the 2021 International Building Code. Design of seismic restraints shall allow for the stress and thermal expansion of raceway and bus.
1. Obtain the services of a professional engineer licensed in the State of Washington to prepare the seismic design for equipment, raceway, luminaires, cable tray, and bus. The professional engineer licensed in the State of Washington shall also prepare a statement of special inspections per requirements of the 2021 International Building Code. Submit calculations, details, Shop Drawings, Product Data, and statement of special inspections for the seismic design of equipment, raceway, luminaires, cable tray, and bus. If the professional engineer determines that the 2021 International Building Code does not require some of the equipment, raceway, luminaires, cable tray, and bus be seismically restrained, then submit a stamped and signed statement from the professional engineer to that effect.

3.5 SEALING AND FIREPROOFING

- A. Fire Rated Surface:
1. Provide firestopping of electrical penetrations (e.g. cable tray, bus, wireway, raceway, conduit, and wiring) through fire resistive floors, walls, and partitions in accordance with requirements of the International Building Code.
 2. Provide sleeves for electrical penetrations through fire resistive floors, walls, and partitions. It shall be of the same material and thickness as was used when the firestopping material was tested in accordance with the standards stated in the International Building Code.
 3. The annular space between the sleeve or cored opening and the insulated or non-insulated surfaces of mechanical penetrations shall be the same dimensions as the annular space used when the firestopping material was tested in accordance with the standards stated in the International Building Code.
- B. Non-Rated Surfaces:
1. Install escutcheons, floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
 2. Interior partitions: Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The work of this Section includes the following.
 - 1. Building wire and cable.
 - 2. Wiring connectors and connections.

1.2 REFERENCES

- A. NECA (National Electrical Contractors Association) – Standard of Installation.
- B. NEMA WC 70 (National Electrical Manufacturers Association) – Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.
- C. NETA ATS (International Electrical Testing Association) – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- D. NFPA 70 (National Fire Protection Association) – National Electrical Code.
- E. UL 44 (Underwriters Laboratories) – Thermoset-Insulated Wires and Cables.
- F. UL 83 (Underwriters Laboratories) – Thermoplastic-Insulated Wires and Cables.
- G. UL 489A-489B (Underwriters Laboratories) – Wire Connectors.
- H. UL 489C (Underwriters Laboratories) – Splicing Wire Connectors.

1.3 SYSTEM DESCRIPTION

- A. Conductors for wiring electrical power, lighting, and control circuits. Provide conductors, conduits, boxes, conduit bodies, fittings, wiring devices, terminations, splices, connections, identification, and testing.

1.4 SUBMITTALS

- A. Product Data: Submit for building wire and each cable assembly type.
 - 1. Insulation type, strands, voltage, ampacity, and UL listing.

1.5 CLOSEOUT SUBMITTALS

- A. Test Reports: Indicate procedures and values obtained.
- B. Project Record Documents: Record actual locations of components and circuits.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.7 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on Drawings.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Apply shrink-to-fit sealing caps on wire and cable reels for conductors 250 kCMIL and larger.
- B. Deliver conductors 250 kCMIL and larger on recyclable or returnable reels.

1.9 COORDINATION

- A. Determine routes and lengths where not indicated on the Drawings. Coordinate route with structural members, architectural requirements, and with work by other trades. Pay for costs of routing and rerouting circuits.

PART 2 PRODUCTS

2.1 GENERAL

- A. Conductors shall be copper.
- B. Provide solid conductor for feeders and branch circuits 10 AWG and smaller.
- C. Stranded conductors for control circuits.

- D. Power and lighting circuits shall not be smaller than 12 AWG.
- E. Control circuits shall not be smaller than 16 AWG.
- F. Provide 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.
- G. Provide 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 100 feet.
- H. Wire coloring shall be integral to the jacket or insulation for wires 6 AWG and smaller. For wires 4 AWG and larger, provide colored tape or colored shrink-to-fit sleeves.
- I. Wire Colors, 120/208 Volt Three-Phase Systems:
 - 1. A-Phase shall be black.
 - 2. B-Phase shall be red.
 - 3. C-Phase shall be blue.
 - 4. Neutral shall be white.
- J. Wire Colors, 277/480 Volt Three-Phase Systems:
 - 1. A-Phase shall be brown.
 - 2. B-Phase shall be orange.
 - 3. C-Phase shall be yellow.
 - 4. Neutral shall be grey.
- K. Neutral Conductors: When two or more neutrals are located in one conduit, individually identify each with proper circuit number using shrink-to-fit wire sleeve.
- L. Branch Circuit Conductors: Install three- and four-wire home runs with each phase uniquely color coded.
- M. Feeder Circuit Conductors: Uniquely color code each phase.
- N. Equipment Ground Conductors:
 - 1. For 6 AWG and smaller: Green.
 - 2. For 4 AWG and larger: Identify with green tape or shrink-to-fit sleeves at both ends and at visible points including junction boxes.

2.2 BUILDING WIRE

- A. Product Description: NFPA 70 type XHHW-2, UL 44 thermoset insulated conductors and NFPA 70 type THHN/THWN, UL 83 thermoplastic insulated conductors.
- B. THHN/THWN: UL 83 thermoplastic single conductor insulated wire.
- C. Insulation Types:
 - 1. Feeders: NFPA 70; Type XHHW-2.
 - 2. Branch Circuits 2 AWG and Larger: NFPA 70; Type XHHW-2.
 - 3. Branch Circuits Smaller than 2 AWG: NFPA 70; Type THHN/THWN or XHHW-2.
- D. THHN/THWN Insulation Thickness:
 - 1. 14 AWG to 12 AWG shall be 15 mils minimum.
 - 2. 10 AWG shall be 20 mils minimum.
 - 3. 8 AWG to 6 AWG shall be 30 mils minimum.
 - 4. 4 AWG shall be 40 mils minimum.
- E. Conductor: Copper.

2.3 WIRE CONNECTORS, COMPRESSION TYPE

- A. Product Description: UL 486A-486B wire connectors, mechanical set-screw, split-bolt, and high-pressure type.
- B. Manufacturers:
 - 1. 3M.
 - 2. Thomas & Betts (T&B).

- C. Construction: Plated copper connector without insulation. With or without set-screws.
- D. Operating Temperature: Rated not less than the wire or equipment terminal, whichever is higher.
- E. Color: Manufacturer's standard colors, coded by wire size and quantity application.
- F. Use Restrictions:
 - 1. For each type and size installed, all shall be of the same manufacturer.
 - 2. Use on conductors at equipment terminal pads. Used for in-line splices when included in a UL listed splice kit.
 - 3. Crimp type connectors shall be installed using manufacturer-approved ratcheting, hydraulic, or air-powered crimping tool and die.

2.4 SPLICING WIRE CONNECTORS, SOLDERLESS CRIMP TYPE

- A. Product Description: UL 489A-B and 486C splicing wire connectors; insulated, crimp-type connectors, splices, and terminals.
- B. Manufacturers:
 - 1. 3M.
 - 2. Stakon.
- C. Construction: Vinyl or nylon insulation covering tin or silver-plated annealed copper connector.
- D. Operating Temperature: Rated for use up to 105 degrees C.
- E. Voltage Rating: 600 volts.
- F. Color: Manufacturer's standard colors, coded by wire size.
- G. Use Restrictions:
 - 1. Crimp type connectors shall be installed using manufacturer-approved ratcheting crimping tool and die.
 - 2. For each type and size installed, all shall be of the same manufacturer.
 - 3. In-line splices shall only be used for extending existing circuits where specifically called out on drawings.
 - 4. End-cap solderless crimp type shall be used only for permanent, non-maintenance applications.
 - 5. Insulation-displacing splices and connectors shall not be used.
 - 6. Terminal connectors for current transformer secondary circuits, relays, meters, test blocks, and shorting blocks shall be ring type. Spade terminals shall be rejected.

2.5 SPLICING WIRE CONNECTORS, SPRING TYPE

- A. Product Description: UL 486C splicing wire connectors.
- B. Manufacturers:
 - 1. 3M; ScotchLok or Performance Plus.
- C. Construction: Spring steel, corrosion resistant coating with flame retardant, polypropylene and thermoplastic elastomeric insulator.
- D. Operating Temperature: Rated for use up to 105 degrees C.
- E. Voltage Rating: 600 volts when used as building wire splices. 1000 volts when used for signs and luminaires.
- F. Flammability: UL 94 V-2.
- G. Color: Manufacturer's standard colors, coded by wire size and quantity application.
- H. Use Restriction: Conductors 16 AWG to 8 AWG, in receptacle, switch, and rotating equipment termination boxes only.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify interior of building has been protected from weather.
- B. Verify mechanical work likely to damage wire and cable has been completed.
- C. Verify raceway installation is complete and supported.

3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.
- B. Protect exposed cable from damage and moisture. Apply shrink-to-fit sealing caps on wire and cable reels when stored outdoors.

3.3 EXISTING WORK

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods as specified.
- E. Clean and repair existing wire and cable remaining or is wire and cable to be reinstalled.

3.4 INSTALLATION

- A. Metal Clad (MC) Cable: Type MC cable shall not be permitted. Requests to substitute type MC cable will not be considered.
- B. Replace wire and cable damaged during installation with new.
- C. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- D. Identify circuits under provisions of Section 26 00 50 – Basic Electrical Materials and Methods. Identify each conductor with its circuit number.
- E. Insulation: NFPA 70; Type XHHW insulation for feeders and branch circuits No. 2 AWG and larger; Type THHN/THWN or XHHW insulation for feeders and branch circuits smaller than No. 2 AWG.
- F. Feeder Circuits: Shall be continuous without splices unless specifically called out on the Drawings.
- G. Dedicated Neutral: Provide dedicated neutral conductors for 120 V and 277 V circuits.
- H. Concealed Dry Interior Locations: Use only building wire, Type THHN/THWN or XHHW-2 insulated, single conductors in raceway.
- I. Exposed Dry Interior Locations: Use only building wire, Type THHN/THWN or XHHW-2 insulated, single conductors in raceway.
- J. Above Accessible Ceilings: Use only building wire, Type THHN/THWN or XHHW-2 insulated, in raceway.
- K. Class 1 and Class 2 Control Circuits: Use only building wire, Type THHN/THWN insulated, single conductors in raceway.
- L. Wet or Damp Interior Locations: Use only building wire, Type THHN/THWN or XHHW-2 insulated, single conductors in raceway.
- M. Pull conductors into raceway at same time.
- N. Use wire-pulling equipment including fish-tape, rope, or cable appropriate for the size of wire, conduit, and circuit length. Use basket-weave wire/cable grips for multiple conductors over 2 AWG.

- O. Use manufacturer-approved pulling compound or lubricant where necessary. Compound used shall not deteriorate conductors or insulation.
- P. Pull wire in accordance with the wire manufacturer's recommended pulling tensions and side wall pressure values.
- Q. Pulling means/methods shall not damage cables or raceways.
- R. Wiring Above Suspended Ceilings: Support cables above accessible ceiling, using spring metal clips or metal plastic cable ties to support cables from structure. Cable shall not rest on ceiling panels.
- S. Wiring Connections:
 - 1. Clean conductor surfaces before installing lugs and connectors.
 - 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
 - 3. 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-486B.
 - 4. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
 - 5. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - a. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger except where in-line splices are specified.
 - b. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
 - c. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
 - 6. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.
 - 7. Install solid conductors for feeders and branch circuits 10 AWG and smaller. If, however, special conditions require stranded conductors in lieu of solid, then install crimp on locking (barbed) fork terminals for device terminations. Do not place bare stranded conductors directly under screws.

3.5 FIELD QUALITY CONTROL

- A. Perform insulation resistance (Megger) test on conductors 2 AWG and larger. Measure resistance phase to phase and phase to ground for one minute. Test voltage shall be 1000 VDC. Record results. Minimum acceptable insulation resistance shall be 100 megohms in accordance with NETA ATS, Table 100.1.
- B. Remove and replace defective conductors, splices, and terminations until test results meet the specified requirements.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The Work of this Section includes the following.
 - 1. Conduit.
 - 2. Tubing.
 - 3. Outlet boxes.
 - 4. Pull and junction boxes.

1.2 REFERENCES

- A. ANSI C80.1 (American National Standards Institute) – Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.3 (American National Standards Institute) – Electrical Metallic Tubing, Zinc Coated.
- C. NEMA FB 1 (National Electrical Manufacturers Association) – Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- D. NEMA OS 1 (National Electrical Manufacturers Association) – Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- E. NEMA WD 1 (National Electrical Protection Association) – General Purpose Wiring Devices.
- F. NEMA WD 6 (National Electrical Protection Association) – Wiring Devices – Dimensional Requirements.
- G. NEMA 250 (National Electrical Manufacturers Association) – Enclosures for Electrical Equipment (1000 Volts Maximum).
- H. UL 1 (Underwriters Laboratories) – Flexible Metal Conduit.
- I. UL 6 (Underwriters Laboratories) – Electrical Rigid Metal Conduit – Steel.
- J. UL 360 (Underwriters Laboratories) – Liquid-Tight Flexible Steel Conduit.
- K. UL 514B (Underwriters Laboratories) – Conduit, Tubing and Cable Fittings.
- L. UL 797 (Underwriters Laboratories) – Electrical Metallic Tubing – Steel.
- M. UL 870 (Underwriters Laboratories) – Wireways, Auxiliary Gutters and Associated Fittings.

1.3 SYSTEM DESCRIPTION

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.
- B. Connections to equipment using flexible conduit and wire connections.
- C. Outdoor Locations, Above Grade: Provide rigid steel conduit. Provide cast metal or nonmetallic outlet, pull, and junction boxes.
- D. Wet and Damp Locations above grade: Provide rigid steel conduit. Provide cast metal or nonmetallic outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.
- E. Concealed Dry Locations: Provide rigid steel and electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pullboxes.
- F. Exposed Dry Locations: Provide rigid steel and electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pullboxes.

1.4 DESIGN REQUIREMENTS

- A. Minimum Raceway Size: 1/2 inch, 3/4 inch for homeruns, unless otherwise specified.

1.5 SUBMITTALS

- A. Product Data:
 - 1. Flexible metal conduit.
 - 2. Raceway fittings.
 - 3. Conduit bodies.
 - 4. Wireway.
 - 5. Pull and junction boxes.
 - 6. Surface metal raceway.
- B. Manufacturer's Installation Instructions: For adhesives, wireway and handholes, submit instructions for storage, handling, protection, examination, preparation, and installation of the product.

1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents:
 - 1. Record actual routing of conduits of 1-1/2 inch trade size and larger.
 - 2. Record actual locations and mounting heights of outlet, pull, and junction boxes.
 - 3. Record actual locations, sizes, and configurations of equipment connections.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

1.8 COORDINATION

- A. Coordinate installation of outlet boxes for equipment connected under Section 26 27 26 - Wiring Devices.
- B. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.
- C. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- D. Determine connection locations and requirements.
- E. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- F. Sequence electrical connections to coordinate with start-up of equipment.
- G. Coordinate with Division 03 prior to installing conduit in concrete slabs and other structural members. Obtain written permission from the Structural Engineer prior to installing conduit.

PART 2 PRODUCTS

2.1 RIGID METAL CONDUIT (RMC)

- A. Rigid Steel Conduit: ANSI C80.1 and UL 6.
- B. Fittings and Conduit Bodies: NEMA FB 1; threaded, all steel fittings.

2.2 ELECTRICAL METALLIC TUBING (EMT)

- A. Product Description: ANSI C80.3 and UL 797; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1.
 - 1. Steel.
 - 2. Compression type.
 - 3. Insulated throat.
 - 4. Listed as rainproof.

2.3 METALLIC CONDUIT BODIES

- A. Product Description: UL 514B.

2.4 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.
 - 2. Concrete Ceiling Boxes: Concrete type.
 - 3. Minimum size: 4 inches square, 1-1/2 inches deep.
- B. Cast Boxes: NEMA FB 1, Type FD, cast ferralloy. Furnish gasketed cover by box manufacturer. Furnish threaded hubs.
- C. Wall Plates for Finished Areas: As specified in 26 27 26 - Wiring Devices.
- D. Wall Plates for Unfinished Areas: Furnish gasketed cover.

2.5 VOICE AND DATA OUTLET BOXES

- A. Minimum Size: 4-11/16 inches square, 2-1/8 inches deep. Depth does not include plaster or extension rings.
- B. Cast Boxes: NEMA FB 1, Type FD, cast ferralloy. Furnish gasketed cover by box manufacturer. Furnish threaded hubs.

2.6 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify equipment is ready for electrical connection, for wiring, and to be energized.
- B. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 EXISTING WORK

- A. In nurse and IMC rooms, boxes marked to be demolished shall be grouted to be flush with existing wall.
- B. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- C. Remove concealed abandoned raceway to its source.
- D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- E. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.
- F. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.
- G. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel. Mark and protect all raceway not designated for modification or demolition. Replace any raceway not designated for modification or demolition that becomes damaged during the project.
- H. Extend existing raceway and box installations using materials and methods as specified.
- I. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.3 INSTALLATION

- A. Install raceway and boxes in accordance with NECA "Standard of Installation."
- B. Penetrate firewalls and fire-rated floors with rigid galvanized steel conduit. Extend a minimum of six inches beyond the firewall. Provide firestopping ground and bond raceway and boxes.
- C. Fasten raceway and box supports to structure and finishes.

D. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION – RACEWAY

- A. Minimum Size: Install raceway with the following minimum sizes unless otherwise shown on the Drawings.
 - 1. Homeruns: 3/4 inch trade size diameter.
 - 2. Single Outlet Drops: 1/2 inch trade size diameter.
 - 3. Communication Drops: 1 inch trade size diameter.
 - 4. Fire Alarm: 1/2 inch trade size diameter.
 - 5. Security: 3/4 inch trade size diameter.
- B. Raceway Selection and Location Criteria:
 - 1. Nurse room: RMC with 2-hole straps and tamper-resistant screws. Horizontal conduit shall be a minimum of 12' aff. All conduit below 12' aff shall be run vertically.
 - 2. Booking room: RMC with 2-hole straps and tamper-resistant screws. Provide 2x2 surface unistrut covering conduit on booking side wall.
 - 3. All other above-ceiling and non-secured spaces: EMT or RMC.
- C. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- D. Arrange raceway supports to prevent misalignment during wiring installation.
- E. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- F. Group related raceway; support using conduit rack attached to structure. Construct rack using steel channel; provide space on each for 25 percent additional raceways.
- G. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports.
- H. Do not attach raceway to ceiling support wires or other piping systems.
- I. Install RMC and EMT for general wiring. Flexible conduit shall not be used.
- J. Route exposed raceway parallel and perpendicular to walls.
- K. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
- L. Maintain clearance between raceway and piping for maintenance purposes.
- M. Maintain 12-inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.
- N. Cut conduit square using saw or pipecutter; de-burr cut ends.
- O. Bring conduit to shoulder of fittings; fasten securely.
- P. Install conduit hubs to fasten conduit to cast boxes.
- Q. Install no more than equivalent of three 90-degree bends between conduit bodies and boxes. Install conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one-shot bender to fabricate or install factory elbows for bends in metal conduit 2-inch trade size and larger.
- R. Install no more than equivalent of two 90-degree bends between boxes for communications conduits.
- S. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- T. Install fittings to accommodate expansion and deflection where raceway crosses seismic, control and expansion joints.
- U. Install pull string or cord in each empty raceway except sleeves and nipples.
- V. Install caps to protect installed conduit against entrance of dirt and moisture.

- W. Close ends and unused openings in wireway.
- X. Provide insulated throat box connectors where raceway terminates at sheet steel in boxes, panels, switchboards, and equipment. Connector material shall match raceway.

3.5 INSTALLATION – BOXES

- A. Box Selection and Location Criteria:
 - 1. Nurse room: Cast metal box and tamper-resistant screws.
 - 2. All other above-ceiling and non-secured spaces: Sheet metal box.
- B. Install boxes used for equipment and luminaire attachment directly to structure or to supports provided under Section 26 00 50 - Basic Electrical Materials and Methods. Do not use supports for non-electrical equipment or systems for electrical system attachment.
- C. Install wall mounted boxes at elevations to accommodate mounting heights specified in 26 27 26 - Wiring Devices. Use 4-inch square boxes for receptacles.
- D. Adjust box location up to 10 feet prior to rough-in to accommodate intended purpose.
- E. Orient boxes to accommodate wiring device orientation.
- F. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- G. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- H. Install stamped steel bridges to fasten flush mounting outlet box between studs.
- I. Install adjustable steel channel fasteners for hung ceiling outlet box.
- J. Do not fasten boxes to ceiling support wires or other piping systems.
- K. Support boxes independently of conduit.
- L. Install gang box where more than one device is mounted together. Do not use sectional box.
- M. Install gang box with plaster ring for single device outlets.
- N. Install a minimum of one dedicated 1-inch conduit for every communication outlet back box.

3.6 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods in accordance with Section 26 00 50 - Basic Electrical Materials and Methods.
- B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.
- C. Locate outlet boxes to allow luminaires positioned as indicated on reflected ceiling plan.
- D. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

3.7 ADJUSTING

- A. Adjust flush-mounting outlets to make front flush with finished wall material.
- B. Install knockout closures in unused openings in boxes.
- C. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

3.8 CLEANING

- A. Clean interior of boxes to remove dust, debris, and other material.
- B. Clean exposed surfaces and restore finish.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The work of this Section includes the following.
 - 1. Receptacles.
 - 2. Device plates and decorative box covers.

1.2 REFERENCES

- A. NECA (National Electrical Contractors Association) – Standard of Installation.
- B. NEMA FB 11 (National Electrical Manufacturers Association) – Plugs, Receptacles and Connectors of the Pin-and Sleeve Type for Hazardous Locations.
- C. NEMA WD 1 (National Electrical Manufacturers Association) – General Requirements for Wiring Devices.
- D. NEMA WD 6 (National Electrical Manufacturers Association) – Wiring Device–Dimensional Requirements.
- E. UL 498 (Underwriters Laboratories) – Attachment Plugs and Receptacles.
- F. UL 943 (Underwriters Laboratories) – Ground-Fault Circuit-Interrupters.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's catalog information showing dimensions, colors, and configurations.
- B. Operation and Maintenance Data: Submit manufacturer's wiring diagrams, installation instructions and operating instructions.

1.4 CLOSEOUT SUBMITTALS

- A. Operations and Maintenance information: Complete cut sheets showing model numbers of materials actually used.
- B. Test Reports: Reports of tests performed in the field during and after installation.

PART 2 PRODUCTS

2.1 GENERAL

- A. Damp Location Receptacles:
 - 1. Receptacles identified on the Drawings as damp location receptacles are in addition to the NEC. Where the Drawings do not identify receptacle type, use the NEC definition of wet location.
 - 2. Receptacles shall be UL listed as weather resistant in accordance with NEC Article 406.
 - 3. Wall plates shall be NEMA 250 Type 3R when the covers are closed.
 - 4. Wall plates shall be constructed of corrosion resistant cast metal with spring-loaded covers. They shall have gaskets between the wall plate and box.
- B. Wet Location Receptacles:
 - 1. Receptacles identified on the Drawings as wet location receptacles are in addition to the NEC. Where the Drawings do not identify receptacle type, use the NEC definition of wet location.
 - 2. Receptacles shall be UL listed as weather resistant in accordance with NEC Article 406.
 - 3. Wall plates shall be NEMA 250 Type 3R when the in-use cover is closed.
 - 4. Wall plates shall be constructed of corrosion resistant cast metal with self-closing covers. They shall have gaskets between the wall plate and box.
 - 5. In-use covers shall be lockable in the "in-use" position using off the shelf pad-locks having shank diameters not less than 1/4 inch.
 - 6. Wall plates for 15 and 20 amp receptacles shall be UL listed for "in-use" operation.

7. Wall plates for other than 15 and 20 amp receptacles shall be UL listed for "in-use" operation where this requirement is shown on Drawings or otherwise required by the NEC.

2.2 GFCI TAMPER RESISTANT RECEPTACLES

A. GFCI Tamper Resistant Convenience Receptacles:

1. Manufacturers:
 - a. Hubbell.
 - b. Leviton.
 - c. Pass & Seymour.
 - d. Substitutions: Not permitted.
2. Product Description: NEMA WD 1, UL 498 and UL 943 Class A Industrial grade, hard use GFCI tamper resistant receptacles.
 - a. Configuration: NEMA WD 6, Type 5-20R.
 - b. Voltage: 125 V.
 - c. Amperage: 20 A.
 - d. Wiring Terminals: Side-wired, screw-type, with strand containment for stranded conductor applications.
 - e. Face: Nylon.
 - f. Body: Nylon.
 - g. Color: White.

2.3 WALL PLATES

A. Manufacturers:

1. Bryant.
2. Cooper.
3. Hubbell.
4. Leviton.
5. Pass & Seymour.
6. Substitutions: Not permitted.

B. Decorative Cover Plate: Lined, 302 stainless steel.

C. Jumbo Cover Plate: Lined 302 stainless steel.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify outlet boxes are installed at proper height.
- B. Verify wall openings are neatly cut and completely covered by wall plates.
- C. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

- A. Clean debris from outlet boxes.

3.3 EXISTING WORK

- A. Disconnect and remove abandoned wiring devices.
- B. Modify installation to maintain access to existing wiring devices to remain active.
- C. Mark and protect wiring devices which are to remain. Replace any wiring devices damaged during the project.
- D. Clean and repair existing wiring devices to remain or to be reinstalled.

3.4 INSTALLATION

- A. Install in accordance with NECA "Standard of Installation."
- B. Install devices plumb, square and level.
- C. Install receptacles with grounding pole on bottom, unless required otherwise the AHJ.
- D. Provide identification labels for receptacles showing panelboard and circuit in accordance with Section 26 00 50 - Basic Electrical Materials and Methods.
- E. Connect wiring device grounding terminal to branch circuit equipment grounding conductor.
- F. Install decorative plates on receptacle and blank outlets in finished areas.
- G. Connect wiring devices by wrapping solid conductor around screw terminal. When stranded conductors are used in lieu of solid, use crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under device screws.
- H. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

3.5 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations of outlet boxes provided under Section 26 05 30 - Raceway and Boxes to obtain mounting heights as specified.
- B. Install convenience receptacle and telecommunications outlets 18 inches above finished floor.
- C. Install convenience receptacle 6 inches above counter.

3.6 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify each receptacle device is energized.
- D. Test each receptacle device for proper polarity: Record results of tests.

3.7 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

3.8 CLEANING

- A. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The Work under this Section includes providing materials, equipment, labor, supervision, tools and items necessary for the construction, installation, connection, testing and operation of a hanger and support for communications system.

1.2 REFERENCES

- A. ASTM A123 (ASTM International) – Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip.
- B. ASTM A510 (ASTM International) – Specification for General Requirements for Wire Rods and Coarse Round Wire, carbon Steel.
- C. ASTM A525 (ASTM International) – General Requirements for Steel Sheet, Zinc-Coated Galvanized by the Hot-Dip Process.
- D. ASTM A 580, - Standard Specification for Stainless Steel Wire.
- E. ASTM A 591, - Specifications for Electrodepositing Coatings of Zinc on steel wire or sheets.
- F. ASTM B633 (ASTM International) – Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
- G. ASTM A 641, - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
- H. ASTM D3451, - Standard Guide for Testing Coating Powders and Powder Coatings.
- I. NEMA FG-1 (National Electrical Manufacturers Association) – Fiberglass Cable Tray Systems.
- J. NEMA VE-1 (National Electrical Manufacturers Association) – Metallic Cable Tray Systems.
- K. NEMA VE-2 (National Electrical Manufacturers Association) – Metallic Cable Tray Installation Guidelines.

1.3 SUBMITTALS

- A. Product Data
 - 1. Dimensions.
 - 2. Features.
 - 3. Tray type(s).
 - 4. Finishes.
 - 5. Performance.
 - 6. Load rating.
 - 7. Accessories and fittings.
- B. Shop Drawings:
 - 1. Accessories and fittings.
 - 2. Dimensioned drawings.
 - 3. Lifting and support points.
 - 4. Installation drawings showing sizes of items, weights, and support points.
 - 5. Installation plan and schedule.
 - 6. Floor plans and sections, drawn to scale. Include scaled cable tray layout and relationships between components and adjacent structural, electrical, and mechanical elements.
 - 7. Vertical and horizontal offsets and transitions.
 - 8. Clearances for access above and to side of cable trays.
 - 9. Locations where clearances cannot be maintained.
 - 10. Interface points for conduits through fire rated walls.
 - 11. Vertical elevation of cable trays above the floor or bottom of ceiling structure.
 - 12. Grounding requirements and methods of connection.

- C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents:
 - 1. Record actual routing of cable tray and main runs of J-Hooks and locations of supports.
 - 2. Identify locations where firestopping system have been applied.
- B. Visual inspection reports.
- C. Test results.

1.5 COORDINATION

- A. Coordinate the installation of cable trays outside of the communication rooms with the Work of other Divisions.
- B. Coordinate the bonding of cable trays with the bonding busbars installed under Section 260526 – Grounding and Bonding for Electrical Systems

PART 2 PRODUCTS

2.1 WIDE BASE CABLE SUPPORTS

- A. Manufacturers:
 - 1. ERICO/Caddy
 - 2. Garvin
 - 3. ICC
 - 4. Panduit (J-Pro)
 - 5. Platinum Tools (MPH)
 - 6. MonoSystems
- B. UL listed
- C. J-Hooks with wide base and flared/beveled edges, snap in latch gates/cable retainers and supporting structure. Complete with brackets, fasteners, clamps, C and Z Purlins, hanger rods or support wires for attaching, securing and connecting to walls, slabs, beams and ceiling structures.
 - 1. Suitable for use in a plenum environment.
 - 2. Size: 1-inch, 2-inch and 4-inch.
- D. Finish:
 - 1. Dry Locations - Galvanized.
 - 2. Wet/Damp Locations - Stainless steel.

PART 3 EXECUTION

3.1 GENERAL

- A. Comply with manufacturers' instructions for installing components and systems. Where no instructions are included with the equipment, follow accepted industry best practices as identified in the BICSI Design and Installation Manual.
- B. Refer to Architectural drawings for ceiling construction and fire rated wall/floors construction locations and details.

3.2 INSTALLATION

- A. Examine the areas to receive the work and the conditions under which the Work would be performed. Remedy unsatisfactory conditions detrimental to the proper and timely completion of the Work. Where a remedy of unsatisfactory conditions is not available or possible, notify the Architect for resolution.

- B. When cables are installed outside of conduits and are not supported by cable tray, provide the J-hooks to support cables.
 - 1. Minimum 1 inch wide J-hook where cables exit conduit stub ups.
 - 2. 2-inch wide J-hook for up to twenty-five cables.
 - 3. 4-inch wide J-hook for up to forty-eight cables.
- C. Provide multiple J-hooks at each hanger location as required by cable count limits are exceeded or as per cable segregation requirements identified here-in.
- D. Provide applicable accessories to independently support J-hooks from structure, including extender bracket/trees for mounting multiple J hooks on a single support, fasteners and clamps for connecting to wall, beams, rods, dedicated support wires and C and Z Purlins as required for specific construction.
- E. Space cable supports and J-hooks at a maximum of 48-inch intervals and at each change of direction of the cables. Maintain a maximum of 12-inch sag in the cable between supports. Provide additional J-hooks when interval and or sag limits are exceeded.
- F. At a minimum, brace multiple J-hook assemblies from structure with diagonal braces at each change of direction of the cable run.
- G. Maintain and repair fire-proofing material during the installation of cable tray and cable supporting structure.

3.3 FIELD QUALITY CONTROL

- A. After installing cable trays and before cables have been energized, inspect for compliance with requirements.
 - 1. Inspect cable insulation for damage. Correct sharp corners and protuberances in cable tray. Eliminate causes of vibration and thermal expansion/contraction which may cause or have caused damage.
 - 2. Verify the number, size, and voltage of cables in cable tray do not exceed that permitted by NFPA 70. Verify that communication or data-processing circuits are separated from power circuits by barriers.
 - 3. Verify there is no intrusion of such items as pipe, hangers or other equipment that could damage cables.
- B. Prepare and submit report of findings of visual inspections under Article "Closeout Submittals.

3.4 FIRESTOPPING

- A. Provide firestopping systems at rated walls and floors.
- B. Comply with TIA/EIA-569-A, Annex A, "Firestopping."
- C. Comply with BICSI TDMM, "Firestopping Systems" Article.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The Work under this Section includes furnishing materials, equipment, labor, supervision, tools and items necessary for the construction, installation, labeling and testing of a communication horizontal cabling system.

1.2 DEFINITIONS

- A. Bundle – A group of cables that are tied together or in contact with one another in a closely packed configuration for at least 36 inches.

1.3 SUBMITTALS

- A. Manufacturer's Instructions:
 - 1. Submit application conditions and limitations of use stipulated by the manufacturer.
 - 2. Submit manufacturer's instructions for storage, handling, protection, examination, preparation, operation and installation of product.
 - 3. A letter from the connectivity system manufacturer, stating that the product set offered will meet their requirements to ensure that a Performance Warranty shall be offered to the owner at the completion of the project.
- B. Product Data:
 - 1. System data.
 - 2. Materials list
- C. Shop Drawings:
 - 1. Sample horizontal cable termination schedules for of each type of cable installed. Schedules to include for each cable pair or strand.
 - a. Building ID.
 - b. Room ID.
 - c. Cable Type
 - d. Cable Category.
 - e. Cable ID.
 - f. Outlet ID.
 - g. Outlet Port #.
 - h. Connector Type.
 - i. Rack.ID
 - j. Wall.
 - k. Patch Panel ID.
 - l. Patch Panel Port #
 - m. Termination Block ID.
 - n. Row.
 - 2. Performance test plan and procedure for category cables, identifying tester manufacturer and model, and date of the last tester calibration. Note that cable tests with Pass * (star) results will not be accepted.
 - 3. Sample cable test results for each type of cable installed.
 - 4. Sample cable labels.
 - 5. Statement of field tester apparatus is using the current software or firmware.
 - 6. Statement of field tester apparatus last date consumable replacement, including modular jacks as per the tester manufacturer's recommendations.
 - 7. Associated enlarged communication room drawing.
 - 8. Associated floor plan drawing.

1.4 CERTIFICATION & WARRANTY

- A. Provide a manufacturer's "Permanent Link" performance warranty of TIA 568-B category 6 cables for a minimum period of twenty-five years, from Owner acceptance. Where a manufacturer's warranty is longer than twenty-five years, offer the longer warranty.
 - 1. The Permanent Link Performance Warranty shall be issued and signed by the component manufacturer and shall list the owner as the holder of the warranty.
 - 2. The Permanent Link Performance Warranty shall cover the testing and replacement, including labor and material for "Permanent Link" components.
 - 3. The structured cable system shall be a complete certified system as offered by a single manufacturer. The system and components shall be performance matched, approved for use with a single manufacturer and guaranteed by the manufacturer. The cable must be approved for use with the manufacturer's system.

1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents:
 - 1. Record actual information of the installed Work.
 - 2. Floor plans showing the communication outlets and their associated cable identification number.
 - 3. Cable/termination device drawings identifying device, outlet and cable IDs. Identify locations where cables pass through fire rated floors, walls and fire rated sleeves.
 - 4. Cable termination schedules in Microsoft Excel format (latest version).
 - 5. Cable tests results. Submit cable test results one day after handing off the respective communication rooms to the Owner.
 - 6. Enlarged communication room with equipment rack and wall elevations for cable termination devices.

1.6 QUALITY ASSURANCE

- A. All testing procedures and field-test instruments shall comply with applicable requirements of:
 - 1. ANSI/TIA-1152, Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
 - 2. ANSI/TIA-568, Generic Telecommunications Cabling for Customer Premises.
 - 3. ANSI/TIA-568, Commercial Building Telecommunications Cabling Standard
 - 4. ANSI/TIA-568, Balanced Twisted-Pair Telecommunications Cabling and Components Standards.
 - 5. ANSI/TIA-568, Balanced Twisted-Pair Telecommunications Cabling and Components Standards.
 - 6. ANSI/TIA-606, Administration Standard for Commercial Telecommunications Infrastructure, including the requirements specified by the customer, unless the customer specifies their own labeling requirements.
- B. Trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof shall execute the tests. These certificates may have been issued by any of the following organizations or an equivalent organization:
 - 1. Manufacturer of the connectors or cable.
 - 2. Manufacturer of the test equipment used for the field certification.
 - 3. Training organizations
 - a. BICSI.
 - b. Association of Cabling Professionals.
 - c. Cabling Business Institute.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the entrance of dirt, dust, moisture and debris.

1.8 COORDINATION

- A. Coordinate the Work of communication horizontal cables in the ceiling and workstation areas to validate that conduits, sleeves, cable trays, hangars and supports are in place to supported and protect cables.
- B. Coordinate the final labeling nomenclature for cables, and termination devices with the Owner and Architect prior to installation of cable and device labels. Obtain Owner sign off.
- C. Coordinate the format and schema of the cable termination schedules with the Owner and Architect prior to preparation of the schedules. Obtain Owner sign off prior to use on cables and termination devices.

PART 2 PRODUCTS

2.1 GENERAL

- A. Subject to compliance with requirements, provide products by one of the manufacturers.

2.2 UNSHIELDED TWISTED-PAIR CABLES

- A. Approved Manufacturers:
 - 1. CommScope – Systimax.
 - 2. Substitutions not permitted.
- B. 4-Pair Cable Unshielded Twisted Pair:
 - 1. Physical specifications: 4 twisted pair, 22 AWG, solid copper conductors, 100-Ohm nominal impedance and impedance tolerance plus or minus 15 percent. Comply with UL 444.
 - 2. Electrical characteristics: Superior to the individual characteristics established in TIA 568-B.2 for category 6 cable performance.
 - 3. Cable construction: round cable, individually insulated conductors under a common sheath.
 - 4. NFPA 70 type CMP.
 - 5. Cable Jacket Color:
 - a. Blue.

2.3 TERMINATION HARDWARE

- A. Approved Manufactures:
 - 1. CommScope - Systimax.
 - 2. Substitutions not permitted.
- B. 8-Pin Modular Connectors:
 - 1. 100-ohm, balanced, 8-pin modular connectors suitable to terminate on the approved 4-pair cables. Comply with TIA- 568 category 6 performance. Outlet wired with standards compliant T568-B pinning.
 - 2. Color:
 - a. Blue.
- C. Faceplate:
 - 1. Stainless steel. Single gang with one, two or four ports for 8-pin modular connectors.
 - 2. Stainless steel. Double gang with four, six or more ports for 8-pin modular connectors.
 - 3. Stainless steel face-plate, single gang with two mounting studs to support wall mounted telephone with one 8-pin modular connector.

4. Snap on dust covers for unused faceplate ports.
5. Screws shall be tamper resistant.

2.4 CABLE MANAGEMENT STRAPS

- A. Reusable hook and loop type (Velcro style) reusable straps, 3/4 inch wide.

2.5 IDENTIFICATION LABELS

- A. Approved Manufactures:
 1. Panduit.
 2. Brady.
- B. Comply with TIA-606 and applicable requirements in this section.
- C. Machine printed self-adhesive, smudge resistant labels for cables and face-plates. Labels shall be appropriately sized for cable diameter. Labels shall be appropriately colored for face-plate color contrast. Submit sample labels for approval.

PART 3 EXECUTION

3.1 GENERAL

- A. Comply with manufacturers' instructions for installing components and adjusting equipment and telecommunications cables. Where no instructions are included with the equipment, follow accepted industry best practices as identified in the BICSI design and installation manual.
- B. Provide equipment and component mounting hardware.
- C. Keep items protected before and after installation, with dust and waterproof barrier materials as necessary. Maintain the integrity of the protective measures throughout the life of the project.
- D. Comply with 27 05 28 for requirements for the installation of cables supports:
 1. Size.
 2. Spacing.
 3. Access.
 4. Cable bundles.
- E. Protect communications cable and termination devices from damage during the construction. Do not install communication cables and termination devices in the communications rooms until the other trades have completed their work in the areas so that the equipment will not be moved or damaged. Do not install communication cable and termination devices in communications rooms until after plywood backboards have been painted.
- F. Maintain safe ingress and egress from work areas during the movement and installation of materials.
- G. Examine the areas to receive the work and the conditions under which the Work would be performed. Remedy unsatisfactory conditions detrimental to the proper and timely completion of the Work. Where a remedy of unsatisfactory conditions is not available or possible, notify the Architect for resolution. Do not proceed until unsatisfactory conditions have been corrected.
- H. Examine pathway elements intended for the installation and support of communication cables.
 1. Verify the proposed routes of communication cables prior to commencement.
 2. Validate that hangars, conduits, sleeves, conduit/sleeves bushings, cable trays, cable supports, and other elements are in place prior to commencement of any Work. Do not install cable where the cables can be subsequently damaged by the Work of other Trades.
 3. Validate that the cabling can be installed without subject the cables to electromechanical interference (EMI). Do not install cable where the cables can be affected by EMI energy.
 4. Validate that the load capacity of cable support structures is adequate to support the cables. Where a cable support is not rated for the required capacity of cables, notify the

Architect for resolution. Do not proceed until unsatisfactory conditions have been corrected.

- I. Deliver to Owner two sets of special tools specifically needed for proper operation, adjustment and maintenance of cable and cable termination hardware installed under this Contract.

3.2 SURVEY AND PREPARATION

- A. Survey and inspect cable trays, conduit paths and routes prior to commencement of Work and report discrepancies and issues with the use of these for cable installation. Failure to perform this inspection and submit the report holds the Contractor at cost risk for corrective actions and schedule impacts later in the Work.

3.3 METHODS AND PROCEDURES

- A. Install components in accordance with this Specification, the approved Cable Termination Schedule, the manufacturer's recommendations, and the Drawings.
- B. Ensure that telecommunications cable supports (J-hooks, cable tray, conduits, etc.) are fully installed before proceeding with cable installation. Do not allow cables to be installed and left unsupported. Do not allow cables to be supported to other supporting structure in lieu of specified cable supports.
- C. When anchoring cables to cable supports, use hoop & loop straps only. Do not use tie-wraps.
- D. When bundling cables, use hook & loop style straps only. Do not bundle cables with tie-wraps or cable mesh/socks.
- E. Do not group more than 48 cables in a single bundle. Create multiple bundles when the size of a bundle exceeds 48 cables.
- F. Continuously protect cables during installation, especially when the cables are coiled on floor(s), including dedicated communication spaces. Provide rigid protection for cables left on floor at any time during construction. Design protection to prevent pressure on cables from walking, equipment placement, or rolled/dragged construction equipment and materials.
- G. When installing cables through lateral conduits and sleeves and conduits and sleeves are stacked in more than one row, route cables through the lower row(s) before proceeding to the upper row(s).
- H. When installing cables through vertical conduits and sleeves and conduits and sleeves are stacked in more than one row, route cables through the back row(s) before proceeding to the forward row(s).
- I. Provide J-Hooks where no other cable supports are available. Refer to Section 27 05 28 Hangars and Supports for Communication System Cables for additional information.
 1. Install J-Hooks so that cables are supported at maximum intervals of 48 inches.
 2. Install J-Hooks so that the sag in the cables between the J-Hooks is less than 12 inches.
 3. Install J-Hooks at a height above the finished ceiling so that the sag in the cables between J-hooks is greater than 5 inches above the top of the ceiling tile or light fixtures.
- J. Maintain manufacturer's recommended minimum bend radius of the cables. Do not stretch, stress, tightly coil, bend or crimp the workstation cables during the installation or when leaving them out of the way of other trades during the staging of the work. The Contractor, at the Contractor's expense shall replace abused or stressed cables.
- K. After dressing the cable to its final location, remove only enough jacketing to allow the conductors to be splayed and terminated in a neat and uniform fashion. Maintain jacketing integrity by removing only as much jacketing as is practical, to accomplish termination. For twisted pair cables, maintain the manufacturer's twisting of the wire pairs through to the point of termination.
- L. Install cable in continuous runs without splices or mechanical couplers between the cable points of origin and termination for the inter-building and intra-building cable.

- M. Terminate cables neatly, with enough slack (3 inches to 9 inches) to pull off, test and re-terminate each cable as needed.
- N. Provide an 18-inch service loop in the ceiling above the communication outlet.
- O. Provide a 24 inch service loop in the cable bundles in the cable tray above the equipment racks.
- P. When pulling cables through conduits, leave in-place drag-lines for future use.
- Q. Cross communication cables cross over electrical cables/conduits at 90-degree angles.
- R. When running twisted pair cables parallel electrical cables/conduits, separated cables by a minimum of the following.
 - 1. Open cable and open power conductors less than 2 kVa: 5 inches.
 - 2. Open cable and open power conductors less than 5 kVa: 12 inches.
 - 3. Open cable and open power conductors greater than 5 kVa: 24 inches.
 - 4. Grounded cable conduits and open power conductors less than 2 kVa: 3 inches.
 - 5. Grounded cable conduits and open power conductors less than 5 kVa: 6 inches.
 - 6. Grounded cable conduits and open power conductors greater than 5 kVa: 12 inches.
 - 7. Grounded cable conduits and grounded power conduits less than 2 kVa: 0 inches.
 - 8. Grounded cable conduits and grounded power conduits less than 5 kVa: 3 inches.
 - 9. Grounded cable conduits and grounded power conduits greater than 5 kVa: 6 inches.
 - 10. Cables and electrical motors and transformers: 48 inches.
 - 11. Cables and fluorescent light fixtures: 5 inches.

3.4 EXISTING CABLING TO BE DEMOLISHED

- A. Field verify existing space and identify cables that are to be demolished and cables that are to remain.
- B. Existing cables that are to be removed shall be removed back to patch panel.

3.5 EXISTING CABLING TO REMAIN

- A. Protect and maintain existing cables that are to remain.
- B. Provide support for existing communication cables that are to remain in space.
- C. Move patch panels, horizontal cables, patch cords and network switches from the wall to the equipment rack.
- D. Schedule the Work with the Architect so that the network down time does not interfere with class instructions. Coordinate Work with the Owner prior to commencement of Work.

3.6 CABLING

- A. Provide 4-pair UTP cables from the respective communication rooms to the wall mounted communication outlets as shown on the drawings. Terminate the cables onto 8-pin modular connectors snapped into a patch panel in the communication rooms and onto 8-pin modular connectors at the outlet location. Route the cable in the accessible ceiling areas. Support the cables with J-hooks installed at a maximum separation of 48 inches.

3.7 CONNECTORS/FACEPLATES

- A. Provide Category 6 8-pin modular connectors for the termination of 4-pair cables.
- B. Provide an accompanying faceplate, mounting plate or surface mount box at the appropriate outlet location. Install faceplates level and align to adjacent outlet faceplates. Provide dust caps on an unused port. Coordinate color and material with Architect.

3.8 PATCH PANELS

- A. Coordinate the location of new termination devices installed in the existing equipment racks with the Owner prior to commencement of Work.

3.9 IDENTIFICATION

- A. Provide identification labels that are in accordance with the approved cable termination schedule.
- B. Room numbers shown on the Drawings are not the final room numbers. Validate the final room numbers with the Architect prior to use in creating termination schedules, cable identification labels, cable record drawings, O&M documentation and cable test reports.
- C. Provide machine-generated labels on cables in black uppercase lettering on a permanent adhesive, white label stock, covered with a permanent water-resistant sealer. Place labels on both ends of each cable and no more than 6 inches from the point at which the cable is broken out into individual copper pairs or strands from the connector or termination block or patch panel. Install labels so that the labels are parallel with the cable. Install labels so that labels are readily visible. Do not label cables with hand lettered labels.
- D. Provide machine-generated labels on faceplates with the cable ID, in uppercase lettering. Label shall be of a contrasting color to the faceplate color. Do not label cables with hand lettered labels.
- E. Provide machine-generated labels on patch panels with the equipment rack or cabinet ID and the rack unit position in uppercase lettering. Do not label devices with hand lettered labels.
- F. Provide machine-generated label on patch panels with the cable ID and port number in uppercase lettering. Do not label devices with hand lettered labels.
- G. Replace labels if at any time during the project, the label becomes illegible or is removed.

3.10 FIELD QUALITY CONTROL

- A. Provide an updated cable test plan submitted and approved as part of the Submittals process. Refer to article 1.02.D.2.
- B. Notify the Architect, Owner and Engineer a minimum of 5 days in advance of the commencement of cable testing so that they can meet the cable tester at the site to observe the tester setup and the initial testing of cables.
- C. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch/equipment cords, and labeling of components. Do not test cables until final dressing and labeling of the cables are in place.
- D. Use testers that have been factory recalibrated within the last 12 months.
- E. Use testers with current test firmware installed within.
- F. For modular plug terminated links, use a Permanent Link Adapter on the Main Unit and a Patch Cord Adapter on the Far End or Remote Test Equipment. Do not use Channel adapters.
- G. Comply with TIA 1152 Field Test Standard.
- H. Test cables.
- I. 4-Pair Cables- Perform inspections and permanent link tests and prepare test reports for 4-pair cable.
 - 1. Use a UL level 4 field test instrument.
 - 2. Use test instruments meet or exceed applicable requirements in TIA-568-C.2. Perform tests with a tester that complies with performance requirements in Annex I, complying with measurement accuracy specified in Annex H. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 - 3. Set the tester to the specific cable performance parameters as identified by the cable manufacturer for the specific cable being tested. Do not use generic cable test settings.
 - 4. Set test to reject Pass* (star) results.
 - 5. Test parameters for category 6 cables:
 - a. Wire Map.

- b. Length.
 - c. Propagation Delay.
 - d. Delay Skew.
 - e. DC Loop Resistance.
 - f. DC Resistance Unbalanced Within a Pair.
 - g. DC Resistance Unbalanced Between Pairs.
 - h. Insertion Loss.
 - i. Return Loss.
 - j. NEXT (Near-End Crosstalk).
 - k. PS NEXT (Power Sum Near-End Crosstalk).
 - l. ACR-N (Attenuation to Crosstalk Ratio Near-End).
 - m. ACR-F (Attenuation to Crosstalk Ratio Far-End).
 - n. PSACR-N (Power Sum Attenuation to Crosstalk Ratio Near-End).
 - o. PSACR-F (Power Sum Attenuation to Crosstalk Ratio Far--End).
 - p. TCL (Transverse Conversion Loss).
 - q. ELTCT. (Equal Level Transverse Conversion Loss).
6. Test category 6 cables and conductors from 1 to 250 MHz with a tester that complies with TIA 1152 performance requirements in TIA-568-C.2, Level III. Include tests for longitudinal or transverse conversion loss.
 7. Test directly terminated cables with a field plug test adaptor with a plug on one end and a modular connector on the end.
 8. Provide evidence of testing apparatus has been calibrated within the last 12 months.
 9. Provide evidence of replacement of consumable testing apparatus, including modular jacks, per the tester manufacturer's recommendations.
 10. Provide evidence that the testing apparatus software or firmware has been updated to current revision/version.
 11. Perform permanent link tests for cable length, insertion loss, near-end crosstalk loss, power sum near-end crosstalk loss, equal-level far-end crosstalk loss, power sum equal-level far-end crosstalk, return loss, propagation delay, and delay skew. Performance shall comply with minimum criteria in TIA-568-C.2.
- J. Test Reports:
1. Document test data for each measurement, including:
 - a. Test parameters identified above.
 - b. The overall Pass evaluation of the link-under-test.
 - c. The date and time the test results were saved in the memory of the tester.
 - d. The identification of the customer site as specified by the Owner.
 - e. The name of the test limit selected to execute the stored test results.
 - f. The name of the personnel performing the test.
 - g. The version of the test firmware and the version of the test limit database held within the test instrument.
 - h. The manufacturer, model and serial number of the field-test instrument.
 - i. The adapters used.
 - j. The factory calibration date.
 2. Provide a summary report that is formatted consistent with Table 10.1 in BICSI TDMM stating that cables meet the associated category performance requirements.
 3. Provide a USB Flash Drive containing the cable test reports in the PDF format.

4. Provide a USB Flash Drive containing the individual cable test reports in the native file format of the test instrument(s). Provide the software for the Owner's unlimited use in inspecting and printing test summary and individual cable test results.
- K. Remove and replace cabling where test results do not comply with specified requirements. Retest and inspect cabling to determine compliance of replaced or additional work with specified requirements.
- L. Upon review of the results of the completed tests, the Owner/Engineer reserves the right to witness the retesting of up to 5 percent of the installed cables, utilizing the Contractor's tester and the Contractor's labor. Retesting of cables shall stop when retested cables match the printed results.
- M. After the installation is complete, in addition to any other required testing as described herein, and at such times as the Owner/Engineer directs, the Contractor shall be present while the Owner conducts an operating test for approval. The installation shall be demonstrated to be in accordance with the requirements of this specification. Any defects revealed shall be corrected promptly at the Contractor's expense and the tests performed again.
- N. Provide test results to the Manufacturer for the processing of the performance warranties afforded to the Owner.

3.11 FIRESTOPPING

- A. Provide Firestopping systems as rated walls and floors.
- B. Comply with requirements in Division 07.
- C. Comply with TIA-569 "Firestopping."
- D. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.12 CLEANING

- A. Cover 8-pin modular patch panels with dust proof barriers until final room cleaning.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The work of this Section includes analog addressable interior fire alarm systems in single or multiple buildings.

1.2 REFERENCES

- A. IBC (INTERNATIONAL CODE COUNCIL) – International Building Code with City of Seattle amendments.
- B. IFC (INTERNATIONAL CODE COUNCIL) – International Fire Code with City of Seattle amendments.
- C. IEEE A17.1 (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS) – Safety Code for Elevators and Escalators.
- D. IEEE C62.41 (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS) – Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.
- E. NFPA 70 (NATIONAL FIRE PROTECTION ASSOCIATION) – National Electrical Code.
- F. NFPA 72 (NATIONAL FIRE PROTECTION ASSOCIATION) – National Fire Alarm Code.
- G. NFPA 90A (NATIONAL FIRE PROTECTION ASSOCIATION) – Installation of Air Conditioning and Ventilating Systems.
- H. NFPA 101 (NATIONAL FIRE PROTECTION ASSOCIATION) – Life Safety Code.
- I. NFPA 241 (NATIONAL FIRE PROTECTION ASSOCIATION) – Safeguarding Construction, Alteration, and Demolition Operations.
- J. UL 38 (UNDERWRITERS LABORATORIES) – Manual Signaling Boxes for Fire Alarm Systems.
- K. UL 228 (UNDERWRITERS LABORATORIES) – Door Closers-Holders, With or Without Integral Smoke Detectors.
- L. UL 268 (UNDERWRITERS LABORATORIES) – Smoke Detectors for Fire Alarm Signaling Systems.
- M. UL 268A (UNDERWRITERS LABORATORIES) – Smoke Detectors for Duct Application.
- N. UL 464 (UNDERWRITERS LABORATORIES) – Audible Signal Appliances.
- O. UL 521 (UNDERWRITERS LABORATORIES) – Heat Detectors for Fire Protective Signaling Systems.
- P. UL 864 (UNDERWRITERS LABORATORIES) – Control Units and Accessories for Fire Alarm Systems.
- Q. UL 1971 (UNDERWRITERS LABORATORIES) – Signaling Devices for the Hearing Impaired.

1.3 DEFINITIONS

- A. Analog Addressable System: A system in which multiple signals are transmitted via the same conduction path to a remote fire alarm control unit and fire alarm control panel, decoded and separated so that each signal will initiate the specified response.
- B. Interface Device: An addressable device which interconnects non-addressable systems or devices to an analog addressable system.
- C. Remote Fire Alarm Control Unit: A control panel, remote from the fire alarm control panel, that receives inputs from automatic and manual fire alarm devices; may supply power to detection devices and interface devices; may provide transfer of power to the notification appliances; may provide transfer of condition to relays or devices connected to the control unit; and reports to and receives signals from the fire alarm control panel.

- D. Fire Alarm Control Panel (FACP): A master control panel having the features of a fire alarm control unit and to which fire alarm control units are interconnected. The panel has central processing, memory, input and output terminals, and printers.
- E. Notification Appliance Circuit (NAC): One or more expansion panels designed to expand the power capabilities of the fire alarm control panel's notification appliance circuit. NAC panels require input power and connections.

1.4 SYSTEM DESCRIPTION

- A. Design and modifying the existing analog addressable fire alarm system in accordance with IBC, IFC, NFPA 70, NFPA 72 and NFPA 101.
- B. The System includes the following.
 - 1. Wiring.
 - 2. Raceways.
 - 3. Pull boxes.
 - 4. Terminal cabinets.
 - 5. Outlet and mounting boxes.
 - 6. Control equipment.
 - 7. Batteries.
 - 8. Battery charger.
 - 9. Alarm and supervisory signal initiating devices.
 - 10. Alarm notification appliances.
 - 11. Other accessories and miscellaneous items required for a complete operating system even though each item is not specifically mentioned or described.
- C. The system layout on the drawings show the intent of coverage and devices are shown in suggested locations. Final quantity, layout, and coordination are the responsibility of the Contractor.

1.5 DESIGN REQUIREMENTS

- A. Detail installation drawings shall be prepared and signed by a Registered Professional Engineer or a National Institute for Certification in Engineering Technologies (NICET) Level III or Level IV Fire Alarm Technician acceptable to the Authority Having Jurisdiction.
 - 1. The Contract Documents show the location of the fire alarm control panel and its associated power connection. They may show the location of an annunciator, a master fire alarm box, an external connection, etc., and suggested locations for alarm initiation and notification devices as well as auxiliary devices. It is the responsibility of the Contractor to design and construct the fire alarm system to meet the requirements of applicable codes and the Authority Having Jurisdiction.
 - 2. Design the layout based on the actual detectors to be installed. The detail drawings shall contain complete power and fire alarm wiring and schematic diagrams for the equipment furnished, equipment layout, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit.
 - 3. Provide a complete list of equipment and material, including manufacturer's descriptive and technical literature, catalog cuts, and installation instructions.
 - 4. Prepare a detailed point-to-point wiring diagram showing points of connection. Include connections between system devices, appliances, control panels, supervised devices, and equipment that is activated or controlled by the panel.
 - 5. Submit the design to and receive approval from the Authority Having Jurisdiction.

1.6 SUBMITTALS

- A. Shop Drawings: Provide drawings showing the following. Submittal must indicate that the design has been approved by the Authority Having Jurisdiction.
 - 1. Point-to-point wiring diagrams showing the points of connection and terminals used for electrical field connections in the system, including interconnections between the equipment or systems which are supervised or controlled by the system.
 - 2. Diagrams showing connections from field devices to the FACP and remote fire alarm control units, initiating circuits, switches, relays and terminals.
 - 3. Plan view drawing showing device locations, terminal cabinet locations, junction boxes, other related equipment, conduit routing, wire counts, circuit identification in each conduit, and circuit layouts for all floors.
 - 4. Complete description of the system operation in matrix format on the drawings.
 - 5. Complete list of device addresses and corresponding messages.
 - 6. Detailed drawings of the graphic annunciator.
 - 7. Annotated catalog data, in table format on the drawings, showing manufacturer's name, model, voltage, and catalog numbers for equipment and components.
 - 8. Complete riser diagrams indicating the wiring sequence of devices and their connections to the control equipment. Include a color code schedule for the wiring. Include floor plans showing the locations of devices and equipment.
- B. Test Procedures: Indicate procedures to be used in testing.
 - 1. Detailed test procedures, prepared and signed by a Registered Professional Engineer or a NICET Level 3 Fire Alarm Technician, for the fire detection and alarm system 60 days prior to performing system tests.
 - 2. Provide a detailed description of the final acceptance testing procedures (including equipment necessary for testing smoke detectors using real smoke).
- C. Manufacturer's Installation Instructions: Submit manufacturer's published instructions for installation and interconnection of each piece of equipment supplied.

1.7 CLOSEOUT SUBMITTALS

- A. Project Record Documents.
- B. Test Reports: Submit completed NFPA 72 Inspection and Testing Form test reports.
- C. Certificates: Submit completed NFPA 72 Certificate of Completion.
- D. Provide original and backup copies of all software delivered for this project, on each type of media utilized.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this Section with minimum ten years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum five years documented experience and approved by the manufacturer of the equipment.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Accept fire alarm system equipment on site. Inspect for damage.
- B. Protect from moisture, dirt and damage.

PART 2 PRODUCTS

2.1 ANALOG ADDRESSABLE FIRE ALARM SYSTEM

- A. Manufacturers:
 - 1. Existing System Manufacturer: Simplex.

- B. System Description: The system shall be a complete, supervised, non-coded, analog addressable fire alarm system conforming to NFPA 72.
 - 1. Initiating Device Circuits: Class B.
 - 2. Notification Appliance Circuits: Class B.
 - 3. Signaling Line Circuits: Class B.
- C. Interface With Existing Fire Alarm Equipment:
 - 1. The equipment specified herein shall operate as an extension to an existing configuration.
 - 2. The new equipment shall be connected to the existing control panel in the existing part of the building.
 - 3. Existing control equipment shall be expanded, modified, or supplemented as necessary to extend the existing control functions to the new points.
 - 4. New components shall be capable of merging with the existing configuration without degrading the performance of the system.
 - 5. The existing system is to remain in operation throughout construction.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify area construction has progressed to the point that the fire alarm system can be installed.

3.2 EXISTING WORK

- A. Disconnect and remove abandoned system components, including abandoned system components above accessible ceiling finishes. In IMC room, boxes marked to be demolished shall be grouted to be flush with existing wall.
- B. Disconnect, remove, store and protect existing devices designated for reuse. Protect existing equipment remaining in place from damage during demolition and construction.
- C. Maintain access to existing fire alarm system components designated for reuse. Modify installation or install access panel required for continuing access.
- D. Extend existing fire alarm system installations using materials and methods compatible with existing system.
- E. Modify/extend programming and software to accommodate added, moved and changed system components.
- F. Clean and repair existing remaining and reinstalled equipment.

3.3 INSTALLATION

- A. Install in accordance with NFPA 70 and NFPA 72, and in accordance with the manufacturer's diagrams and recommendations.
 - 1. Install Notification Appliance devices as required by NFPA 72.
 - a. Mount assemblies on walls 84 inches above the finished floor or 6 inches below the ceiling whichever is lower.
 - b. Provide notification appliance circuit expansion panels. Provide fire alarm and power wiring conduits, junction boxes, wires, and connections to notification appliance expansion circuit panels.
 - 2. Install wiring conforming to NFPA 70 and NFPA 72. Install 14 AWG minimum size conductors for fire alarm signal circuit conductors in conduit. Install 16 AWG minimum size conductors for fire alarm detection circuit conductors in conduit.

- B. The modification of any fire alarm system and the procedures shall comply with the requirements of NFPA 241.
1. The initiating device circuit module shall be used to connect supervised conventional initiating devices (water flow switches, water pressure switches, manual fire alarm stations, high/low air pressure switches, and tamper switches).
 2. The module shall mount in an electrical box adjacent to or connected to the device it is monitoring and shall be capable of Style B supervised wiring to the initiating device.
 3. In order to maintain proper supervision, there shall be no T-taps allowed on style B lines.
 4. Addressable initiating device circuit modules shall monitor only one initiating device each.
 5. Contacts in suppression systems and other fire protection subsystems shall be connected to the fire alarm system to perform supervisory and alarm functions.
 6. Addressable and control modules shall be installed in the outlet box or adjacent to the device they are controlling.
 7. All interconnecting wires shall be supervised unless an open circuit or short circuit abnormal condition does not affect the required operation of the fire alarm system.
 8. If control modules are used as interfaces to other systems, such as HVAC or elevator control, they shall be within the control panel or immediately adjacent to it.
 9. Control modules that control a group of notification appliances shall be adjacent to the first notification appliance in the notification appliance circuits.
 10. Control modules that connect to devices shall supervise the notification appliance circuits.
 11. Control modules that connect to auxiliary systems or interface with other systems (non-life safety systems) and where not required by NFPA 72, shall not require the secondary circuits to be supervised.
 12. Contacts in suppression systems and other fire protection subsystems shall be connected to the fire alarm system to perform required alarm functions.

3.4 FIELD QUALITY CONTROL

- A. Wiring Tests: After wiring is installed and prior to connection, wiring shall be Meggar tested for the following.
1. Opens.
 2. Shorts.
 3. Grounds.
 4. Foreign voltage.
 5. Loop Resistance.
 6. Insulation Resistance.
 7. Conductors with 300 volt rated insulation shall be tested at a minimum of 250 VDC.
 8. Conductors with 600 volt rated insulation shall be tested at a minimum of 500 VDC.
 9. Test results recorded for use at the final acceptance test.
- B. Preliminary Testing: After connection of system components, test the system in accordance with the procedures outlined in NFPA 72.
1. Verify the absence of unwanted voltages between circuit conductors and ground.
 2. Verify that the control unit is in the normal condition as detailed in the manufacturer's O&M manual.
 3. Test each initiating and indicating device and circuit for proper operation and response at the control unit.
 4. Smoke sensors shall be tested in accordance with manufacturer's recommended calibrated test method.
 5. Testing of duct smoke detectors shall comply with the requirements of NFPA 72.

6. Test the system for specified functions in accordance with the contract drawings and specifications and the manufacturer's O&M manual.
 7. Test both primary power and secondary power.
 8. Verify, by test, the secondary power system is capable of operating the system for the time period and in the manner specified.
 9. Determine that the system is operable under trouble conditions as specified.
 10. Visually inspect wiring.
 11. Test the battery charger and batteries.
 12. Verify that software control and data files have been entered or programmed into the FACP.
 13. Provide hard copy and electronic copies of the software to the Owner.
 14. Verify that "as constructed" drawings are accurate.
 15. Measure the current in circuits to ensure there is the calculated spare capacity for the circuits.
 16. Measure voltage readings for circuits to ensure that voltage drop is not excessive.
 17. Disconnect the verification feature for smoke sensors during tests to minimize the amount of smoke needed to activate the sensor. Test smoke sensors using real smoke.
 18. The tests shall be accomplished at the preliminary test with results available at the final system test.
 19. The Contractor and an authorized representative from each supplier of equipment shall be in attendance at the preliminary testing to make necessary adjustments.
- C. After preliminary testing is complete and any required corrections have been made, including retesting, conduct acceptance tests, witnessed by the Authority Having Jurisdiction.
1. Complete and submit the NFPA 72, Figure 10.6.2.3, Inspection and Testing Form.
 2. Complete and submit the NFPA 72, Figure 4.5.2.1, Record of Completion.
- D. Provide a letter certifying that the installation is complete and fully operable.
1. State that each initiating and indicating device was tested in place and functioned properly.
 2. State that panel functions were tested and operated properly.
 3. Include the names and titles of the witnesses to the acceptance tests.
- E. Request for Final Inspection:
1. Notify the Engineer in writing when the system is ready for final inspection.
 2. Submit request for inspection at least 15 calendar days prior to the test date.
- F. A final inspection will not be scheduled until the operation and maintenance (O&M) manuals are furnished to the Engineer and the following are provided at the job site.
1. The systems manufacturer's technical representative.
 2. Marked-up red line drawings of the system as actually installed.
 3. Complete program printout including input/output addresses.
- G. The final tests shall be conducted by the Contractor, with the assistance of the Manufacturer's Representative and witnessed by the Engineer and Owner.
1. At this time, any and all required tests shall be repeated at the discretion of the Engineer and Owner.
- H. Following acceptance of the system, as-built drawings and O&M manuals shall be delivered to the Engineer for review and acceptance.
- 3.5 MANUFACTURER'S FIELD SERVICES**
- A. Provide the services of the fire alarm system manufacturer's representative for system setup, testing and training.

3.6 PROTECTION OF FINISHED WORK

- A. Protect fire alarm system control panels and devices from damage during any punch list work. Replace any equipment damaged.

END OF SECTION