1230 W Boone Ave
Spokane, WA 99201
www.spokanetransit.com

INVITATION FOR BID

2026-11230

BEB On-Route Charging Infrastructure

ISSUE DATE: **Sunday, May 31, 2026**

PROPOSAL DUE DATE: **Monday, June 22, 2026**
10 AM Pacific Time

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ADVERTISEMENT FOR BIDS

Sealed bids will be accepted for the following project:

Project No.:	2026-11230
Project Title:	BEB On-Route Charging Infrastructure
Agency:	Spokane Transit Authority (STA) 1230 W Boone Ave. Spokane, WA 99201
Purchasing Manager:	Haley Wilson Purchasing Manager hwilson@spokanetransit.com 509-325-6076
Public Bid Opening:	10:00 AM, June 22, 2026 Spokane Transit Authority
Pre-Bid Walk-through:	9:00 AM, June 10, 2026 Spokane Transit Authority Boone North West Garage 1224 N Cedar Spokane, WA 99201
Project Summary:	This public works project consists of the installation of four (4) depot style pantograph chargers and associated infrastructure, including conduit, wiring, housekeeping pads, structural supports and frames. This project is partially funded by a Washington State Green Transportation Grant.

Please direct all questions regarding this project to the Purchasing Manager stated above.

State of Washington prevailing wage rates are applicable for this public works project located in Spokane County. Bidders are responsible to verify and use the most recent prevailing wage rates. The "Effective Date" for this project is the Bid Form due date above. The applicable prevailing wage rates may be found on the Department of Labor & Industries website located at:

https://fortress.wa.gov/lni/wagelookup/prvWagelookup.aspx.

No Bidder may withdraw their bid after the bid due date and time unless contract award is delayed for a period exceeding ninety (90) days.

The Agency reserves the right to accept or reject any or all bids and to waive informalities in the solicitation process.

Use of Minority and Women's Business Enterprise (MWBE) contractors and suppliers is encouraged, but not mandatory. Bidders may contact the Office of Minority and Women's Business Enterprise at http://OMWBE.wa.gov/ to obtain information on certified firms. Bidders may also utilize Veteran-owned Businesses at http://www.dva.wa.gov/program/certified-veteran-and-servicemember-owned-businesses.

Spokane Transit Authority is an Equal Employment Opportunity (EEO) organization which does not discriminate on the basis of race, color, creed, national origin, sex, sexual orientation, gender identity, or presence of any sensory, mental or physical disability in the consideration of contract award. The successful Bidder will be required to comply with all federal, state and local EEO laws and regulations.

Spokane Transit Authority assures nondiscrimination in accordance with Title VI of the Civil Rights Act of 1964. For more information, visit www.spokanetransit.com.

Upon request, alternative formats of this information will be produced for individuals with disabilities. The public bid opening facility is accessible for individuals using wheelchairs. For other accommodations, please call (509) 325-6094 (TTY WA Relay 711) at least forty-eight (48) hours in advance.

END OF SECTION 001100

INSTRUCTIONS TO BIDDERS

DEFINITIONS

A. **Addenda** are written or graphic instruments, approved and issued by the Owner prior to the time designated for opening of bids, which amend, modify or interpret the solicitation documents by identifying additions, deletions, clarifications or corrections.

B. **Bid Option** is the amount stated in the Bid to be added or deducted from the amount of the Base Bid if the corresponding change in project scope or materials or methods of construction described in the solicitation documents is accepted.

C. **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.

D. **Base Bid** is the sum stated in the Bid for which the Bidder offers to perform the work described as the Base, to which work may be added or deducted from sums stated in Alternate Bids (if any).

E. **Bid** is the submission of a complete and properly signed Bid Proposal Form together with a bid guarantee, when applicable, and the certifications and representations required to comply with this solicitation.

F. **Bidder** is one who submits a Bid for a Contract with the Owner for the Work described in the construction documents.

G. **Bid Proposal Form** is the form provided in Section 004213 of this solicitation.

H. **Contract** is the formal written executed agreement between Owner and Contractor authorizing Contractor to perform the Work in accordance with the Contract Documents.

I. **Contractor** is the Bidder who has been awarded a Contract to perform the Work in accordance with the Contract Documents.

J. **Contract Documents** means the Advertisement for Bids, Instructions to Bidders, executed Bid Proposal Form and Bidder certifications, Contract, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Federal Terms & Conditions, Drawings, Specifications, any addenda and/or modifications thereof, any or all supporting documentation required by the above, special forms, or as requested by Owner.

K. **Federal Assistance** means project funding provided, in whole or in part, by the US Department of Transportation, Federal Transit Administration (“FTA”).

L. **Non-responsive Bid** means any Bid which fails to conform in all respects to the material requirements of this solicitation, imposes conditions which would modify requirements of this solicitation, or would limit a Bidder's liability to the Owner so as to give the Bidder an advantage over other Bidders as determined by the Owner.

M. **Owner** means the Spokane Transit Authority, “STA” or its authorized representative with the authority to enter into, administer and/or terminate the Work in accordance with the Contract Documents, and make related determinations and findings.

N. **Responsible Bidder** means a contractor who meets the criteria listed in RCW 39.04.350.

O. **Unit Price** is an amount stated in the Bid as a price per unit of measurement or materials or services as described in the construction documents as defined in the General Conditions of the Contract.

PART 1 - GENERAL

1.1 INTRODUCTION

A. Scope of Work. The general description and scope of work for the project can be found in Section 003100 of this solicitation.

B. Schedule. Work may begin when the Contractor receives a formal "Notice to Proceed." Contractor shall proceed with promptness and dispatch and shall complete the project within **365** calendar days beginning on the day of commencement as stated in a Notice to Proceed.

This schedule assumes a construction shutdown period from approximately November 1, 2026 – March 30, 2027 where site and/or underground construction may not be feasible due to weather conditions.

Contractor must sequence/phase work between both locations. Valley Transit Center (VTC)'s work must begin first and all underground, steel frame structures, concrete placement, etc. must be complete or substantially complete no later than November 1, 2026. Contractor may continue aboveground work after this period, as weather permits, and upon coordination and approval by an authorized Spokane Transit Authority (STA) representative.

Liberty Lake Park and Ride (LLPR) has a different charger support configuration and additional manufacturer coordination requirements. LLPR's construction must be coordinated around the charging equipment lead time (approximately 36-40 weeks) and weather conditions.

STA anticipates that all OFCI charging equipment will be procured prior to contract award and delivered prior to the start of 2027 construction season.

Contractor acknowledges that work will extend into the following construction season (2027), with potential for site shutdown from approximately November 1, 2026 – March 30, 2027, due to equipment lead times, manufacturer coordination, permitting, and weather conditions.

C. Public Records. Materials submitted in response to this competitive procurement shall become the property of Spokane Transit Authority. All received Bids shall be deemed public records as defined in Chapter 42.56 RCW *Public Records Act*. Any information in the Bid that the Bidder desires to claim as confidential and exempt from disclosure under the provisions of state law shall be clearly designated as "Confidential". Each page claimed to be exempt from disclosure must be clearly identified by the word "Confidential" printed on it. Marking the entire Bid exempt from disclosure will not be honored. STA will consider a Bidder's request for exemption from disclosure; however, STA will make a decision predicated upon state law and regulations. If any information is marked as Confidential in the Bid, it will not be made available until the affected Bidder has been given a reasonable opportunity to seek a court injunction against the requested disclosure. STA assumes no liability for disclosure of Confidential material submitted by Bidders. Bid submittals shall be considered public documents under applicable Washington state law and shall be available for inspection and copying by the public, except to the extent portions of the submittals are otherwise protected under applicable law. Each Bidder will be responsible for protecting any disclosure of its submittal under applicable law.

D. Request for Information. Any prospective Bidder desiring an explanation or interpretation of this solicitation, drawings, specifications, etc., must submit a request in writing to the A/E seven (7) calendar days before the bid due date. Oral explanations or instructions given before the award of Contract will not be binding. Any information given a prospective Bidder concerning a solicitation will be furnished promptly to all other prospective Bidders by addendum to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective Bidders.

E. Disadvantaged Business Enterprise. STA is committed to ensuring that all firms regardless of race, color, sex or national origin have equal opportunity to participate in STA contracts. Therefore, STA has established an annual agency goal for Disadvantaged Business Enterprise (DBE) participation in its contracting opportunities. In accordance with the legislative findings and policies set forth in Chapter 39.19 RCW, STA encourages participation in all of its contracts by Minority Business Enterprises (MBE), Women Owned Business Enterprise (WBE), and Minority Women Owned Business Enterprise (MWBE) firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this solicitation or as a subcontractor to a contractor submitting bids. However, unless required by federal statutes, regulations, grants or contract terms referenced in the Contract Documents, no preference will be included in the evaluation of Bids, no minimum level of DBE/MBE/WBE/MWBE participation shall be required as a condition for receiving an award, and Bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the Contract Documents will apply.

1.2 PREPARATION OF BIDS – CONSTRUCTION

A. Bids must be: (1) submitted on the Bid Proposal Form, or copies thereof, furnished by Owner or Owner's agent, and (2) signed in ink. The person signing a Bid must initial each change appearing on any Bid Proposal Form. If the Bid is made by a corporation, it shall be signed by the corporation's authorized designee. The address of the Bidder shall be typed or printed on the bid form in the space provided.

B. The Bid Proposal Form may require Bidders to submit bid prices for one or more items on a varying basis, including: (1) lump sum base bid; (2) lump sum bid option prices; (3) unit prices; or (4) any combination of items 1 through 3 above.

C. If the solicitation includes bid option items, failure to provide a price on any Bid Options may disqualify the Bid. If bidding on all items is not required, Bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

D. Substitute bid proposals will not be considered unless this solicitation authorizes their submission.

1.3 BID PRICES

A. The bid prices shown for each item on the Bid Proposal Form shall include all labor, material, equipment, overhead and compensation to complete all of the work for that item.

B. The actual cost of building permit (only) and the public utility hookup fees will be a direct reimbursement to the Contractor or paid directly to the permitting agency by the Owner. Fees for these permits should not be included by the Bidder in the bid amount.

C. The Bidder agrees to hold all Bid prices for ninety (90) days from date of bid opening.

1.4 ADDITIVE OR DEDUCTIVE BID ITEMS

A. The low Bidder, for purposes of award, shall be the responsive Bidder offering the low aggregate amount for the Base Bid, plus Bid Options selected by the Owner, and within funds available for the project.

B. The Bidder agrees to hold all Bid Options prices for ninety (90) days from date of bid opening.

1.5 TAXES

A. This work qualifies as a "public road construction" as described in WAC 458-20-171 ("Rule 171"). Refer to Section 007200 Supplemental Conditions.

B. NOTE: Contractor must bond for total contract amount including WSST.

1.6 BID GUARANTEE

A. When the sum of the Base Bid plus all Bid Options is $35,000.00 or less, a bid guarantee is not required. When the sum of the Base Bid plus all Bid Options is greater than $35,000.00, a bid guarantee in the amount of five percent (5%) of the Base Bid amount is required. Failure of the Bidder to provide a bid guarantee when required shall render the Bid non-responsive.

B. Acceptable forms of bid guarantee are: A bid bond, U. S. postal money order, or certified check or cashier's check made payable to Spokane Transit Authority. The Owner will return bid guarantees (other than bid bond) to unsuccessful Bidders as soon as practicable, but not sooner than the execution of a contract with the successful Bidder. The bid guarantee of the successful Bidder will be returned to the successful Bidder with its official notice to proceed with the Work.

C. The Bidder will allow ninety (90) days from the bid opening date for acceptance of its Bid by the Owner. The Bidder will return to Owner a signed Contract, insurance certificate and requisite bond(s) or bond waiver within fifteen (15) days after receipt of the Contract. If the apparent successful Bidder fails to sign all contract documents, provide the bond and insurance as required, or return the documents within fifteen (15) days after receipt of the Contract, the Owner may terminate the award of the Contract.

D. In the event a Bidder discovers an error in its Bid following the bid opening, the Bidder may request to withdraw its Bid under the following conditions:

1. Written notification is received by the Owner within twenty-four (24) hours following bid opening.
2. The Bidder provides written documentation of the claimed error to the satisfaction of the Owner within seventy-two (72) hours following the bid opening.

The Owner will approve or disapprove the request for withdrawal of the Bid in writing. If the Bidder's request for withdrawal of its Bid is approved, the Bidder will be released from further obligation to the Owner without penalty. If it is disapproved, the Owner may retain the Bidder's bid guarantee.

1.7 ACKNOWLEDGEMENT OF ADDENDA

Bidders shall acknowledge receipt of all addenda to this solicitation by identifying the addenda numbers in the space provided for this purpose on the Bid Proposal Form. Failure to do so may result in the bid being declared non-responsive.

1.8 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK

A. The Bidder acknowledges that it has taken steps necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling and storage of materials; (2) the availability of labor, water, electric power and road; (3) uncertainties of weather, river stages, tides or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during the work. The Bidder also

acknowledges that it has satisfied itself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner, as well as from the drawings and specifications made a part of this solicitation. Any failure of the Bidder to take the actions described and acknowledged in this paragraph will not relieve the Bidder from responsibility for estimating properly the difficulty and cost of successfully performing the work.

B. If Bidder is unable to attend the scheduled pre-bid meeting, please contact STA to arrange a separate site visit. **Bids submitted by Bidders that have not either attended a pre-bid meeting or inspected the sites in the presence of STA staff shall be considered non-responsive.**

1.9 PREVAILING WAGE

A. The Work for this project constitutes a public work under RCW 39.04 *Public Works*. In accordance with RCW 39.12 *Prevailing Wages on Public Works*, the Contractor shall pay the highest prevailing wage rate by trade or occupation as specified by the State of Washington, Department of Labor and Industries.

B. If this Project is subject to Federal Assistance, the Contractor shall pay the *greater* of prevailing wages paid in accordance with the Davis Bacon and Related Acts or RCW 39.12 *Prevailing Wages on Public Works.* See Section 007200.1 *Public Works General Conditions*.

1.10 SUBMISSION OF BIDS

A. Bids must be submitted on or before the time specified in the Advertisement for Bids or as extended by written addenda to this solicitation.

B. Bids shall be submitted in a sealed envelope addressed to the office specified in the Advertisement for Bids. Oral, telephonic, electronic or facsimile bids are invalid and will not receive consideration. The envelope shall have printed on the outside:

1. The project number and description.
2. The name and address of the Bidder.
3. Identification as Bid Proposal.

C. Prior to the bid opening, the Owner's representative will designate the official bid clock. Any part of the Bid or Bid modification not received prior to the times specified, per the designated bid clock, will not be considered and the Bid will be returned to the Bidder unopened.

D. A Bid may be withdrawn in person by the authorized representative of the Bidder before bid opening. The representative of the Bidder will be required to show ID and sign the bid summary sheet before the Bid will be released to Bidder.

E. Individuals with disabilities who wish to request special accommodation, (e.g., sign language interpreters, Braille, etc.) need to contact the Owner ten (10) working days prior to the scheduled bid opening.

1.11 CONSIDERATION OF BIDS

A. Owner shall have the right to reject any or all Bids, to reject Bids considered non-responsive, including but not limited to, Bids not accompanied by any required bid guarantee, Bidder certifications or data required by the solicitation, or a Bid not signed by the Bidder's authorized representative.

B. The Owner shall have the right to waive any informality or irregularity in any Bid received.

C. In the event that a single Bid is received, Owner will conduct a cost/price analysis of the Bid. This analysis will compare the price and quality of the proposed equipment with that involved in recent similar purchases with similar specifications made by this or other governmental agencies in an attempt to determine the competitive integrity of the submitted Bid.

1.12 BID RESULTS

After the bid opening, Bidders may obtain bid results from the Owner.

1.13 RESPONSIBLE BIDDER

A. To be considered a "Responsible Bidder", at the time of Bid submittal, Bidders must meet all requirements specified in Section 004512 *Bidder Responsibility Criteria*.

B. Supplemental Responsibility Criteria: In addition to the mandatory Bidder responsibility criteria, the Owner may adopt relevant supplemental criteria for determining Bidder responsibility applicable to a project which the Bidder must meet. Where applicable, such supplemental criteria shall be attached to this solicitation.

1. At least seven (7) days prior to the bid submittal deadline, a potential Bidder may request the Owner modify the supplemental responsibility criteria. The Owner will evaluate the information submitted by the potential Bidder and respond before the Bid submittal deadline. If the evaluation results in a change of the supplemental responsibility criteria, the Owner will issue an addendum to this solicitation identifying the new and/or modified criteria.

2. Upon Owner's request, the apparent low Bidder must supply the requested responsibility information within two (2) business days of request by Owner. Withholding information or failure to submit all the information requested within the time provided may render the Bid non-responsive.

3. Upon request of the Owner, a Bidder whose Bid is under consideration for award of Contract shall submit promptly satisfactory evidence of his/her financial resources, experience, organization, and equipment available for performance of the Contract on AIA Form A305 "Contractor's Qualification Statement" or similar form approved by the Owner.

C. Not-responsible Bidder Notification.

1. If the Owner determines that the apparent low Bidder is not responsible, the Owner will notify the Bidder of its preliminary determination in writing.

2. Within three (3) days after receipt of the preliminary determination, the Bidder may withdraw its Bid or request a hearing where the Bidder may appeal the preliminary determination and present additional information to the Owner.

3. The Owner will schedule a hearing within three (3) working days of receipt of the Bidder's request. The hearing members will include a STA Executive or their designee, and Project Manager.

4. The Owner will issue a final determination after reviewing information presented at the hearing.

5. If the Owner determines a Bidder to be not responsible, the Owner will provide, in writing, the reasons for the determination. If the final determination affirms that the Bidder is not responsible, the Owner will not execute a Contract with any other responsible Bidder until

two (2) business days following submittal of the final determination to the not responsible Bidder.

6. The Owner's final determination is specific to this project and will have no effect on other or future projects.

1.14 CONTRACT AWARD

A. The Owner will evaluate Bid responsiveness and responsibility.

1. A Bid will be considered responsive if it meets the following requirements:

a. It is received at the proper time and place.

b. It meets the stated requirements of this solicitation.

c. It is accompanied by a bid guarantee, when required.

2. A Bid will be considered responsible if it meets the following requirements:

a. It is submitted by a licensed/registered contractor within the state of Washington at the time of bid opening and is not banned from bidding on Public Works projects as determined by the Department of Labor and Industries; and

b. It meets the mandatory responsibility criteria established in RCW 39.04.350 for prime contractors and subcontractors and an overall accounting of the supplemental responsibility criteria established for the project.

B. The Owner reserves the right to accept or reject any or all Bids and to waive informalities.

C. The Owner may negotiate Bid price adjustments with the low responsive Bidder, including changes in the Contract Documents, to bring the Bid within the available funding per RCW 39.04.015.

D. The apparent low Bidder, for purpose of award, shall be the responsive and responsible Bidder offering the low aggregate amount for the Base Bid plus selected Bid Options and meeting all other bid submittal requirements.

E. The Contract will only become effective when signed by the Owner. Prior to the Owner's signature, any and all costs incurred shall be the sole responsibility of the Bidder.

F. The Contractor must purchase and maintain insurance coverages as stated in Section 007200.1 *General Conditions*.

G. Note: AIA Payment Bond and Performance Bond forms (A312) are required. These forms will not be provided by the Owner.

1.15 CONTRACT DOCUMENTS

A. The Contract Documents under which it is proposed to execute this work consists of all material bound herein, plus any addenda incorporated into the documents.

B. The Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the Work. Any person contemplating the submission of a Bid shall have thoroughly examined all of the various parts of the Contract Documents, and should there be any doubt as to the meaning or intent of the Contract Documents, the Bidder should request in writing to the A/E at least seven (7) working days prior to bid opening, an interpretation thereof. Any interpretation or change in the Contract Documents will be made only in writing, in the form of an addendum to the Contract Documents and will be furnished to

all prospective Bidders receiving a set of documents, who shall indicate receipt of same in the space provided on the Bid Proposal Form. The Owner will not be responsible for any other explanation or interpretation of said documents.

1.16 DISCREPANCIES & CONTRACT DOCUMENT REVIEW

A. The intent of Spokane Transit Authority and Federal Funded Project Contract Documents is to describe a complete Project. These Contract Documents are complimentary. What is required by one part of the Contract Documents shall be binding as if required by all.

B. In the event of a discrepancy between Spokane Transit Authority and Federal Funded Project Contract Documents, the Contractor will use the Contract Document that imparts the highest cost to their Bid and/or longest delay in their schedule. It is the responsibility of the Contractor to bring these discrepancies to the attention of the Architect as soon as they are discovered.

1.17 PROTEST PROCEDURES

STA maintains a set of protest procedures. If any Bidder desires this information, it may be obtained by calling STA's Senior Procurement Manager, at (509) 325-6032.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

END OF SECTION 002100

PROJECT DESCRIPTION AND SCOPE OF WORK

PROJECT DESCRIPTION

This public works project consists of the installation of four (4) depot style pantograph chargers and associated infrastructure, including conduit, wiring, housekeeping pads, structural supports and frames. This project is partially funded by a Washington State Green Transportation Grant.

PROJECT LOCATION

Spokane Transit Authority's Valley Transit Center (VTC) and Liberty Lake Park and Ride (LLPR) located at located at 10501 E 4th Ave., Spokane Valley, WA and 22501 E Mission Ave, Liberty Lake, WA respectively.

PROJECT SCHEDULE

Work may begin when the Contractor receives a formal "Notice to Proceed". Contractor shall proceed with promptness and dispatch. The Contractor shall complete the project within **365 calendar days**, beginning on the day of commencement as stated on the Notice to Proceed.

This schedule assumes a construction shutdown period from approximately November 1, 2026 – March 30, 2027 where site and/or underground construction may not be feasible due to weather conditions.

Contractor must sequence/phase work between both locations. Valley Transit Center (VTC)'s work must begin first and all underground, steel frame structures, concrete placement, etc. must be complete or substantially complete no later than November 1, 2026. Contractor may continue aboveground work after this period, as weather permits, and upon coordination and approval by an authorized Spokane Transit Authority (STA) representative.

Liberty Lake Park and Ride (LLPR) has a different charger support configuration and additional manufacturer coordination requirements. LLPR's construction must be coordinated around the OFCI charging equipment delivery and weather conditions. STA anticipates that all OFCI charging equipment will be procured prior to contract award and delivered prior to the start of 2027 construction season.

Contractor acknowledges that work will extend into the following construction season (2027), with potential for site shutdown from approximately November 1, 2026 – March 30, 2027, due to equipment lead times, manufacturer coordination, permitting, and weather conditions.

PROJECT EXCLUSIONS

Charging equipment, pantograph assemblies, pole/mast assemblies, and proprietary anchor/mounting hardware will be Owner-Furnished Contractor-Installed (OFCI) unless otherwise noted on the plans or in the specifications.

PROJECT GENERAL SCOPE OF WORK

The project shall generally consist of:

1. Obtain and pay for all trade-specific permits and fees (to be included in bid price)
2. Obtain and pay for the City of Spokane Valley and City of Liberty Lake Building permits (cost not included in bid price). These fees will be reimbursable to the Contractor by STA with no markup
3. Establish and maintain jobsite safety and traffic control measures
    a. Prepare and submit a site-specific safety plan to STA for review and approval
    b. Prepare and submit project phasing plans for both sites to STA for review and approval

c. Maintain pedestrian access outside of construction work areas, including adding temporary fencing/ramping/signage/striping to control access, to allow access to bus boarding area(s)

d. Install and maintain temporary signage for pedestrian access, parking, etc.

e. No interruption to STA's operations is allowed

4. Remove existing striping, paint striping as directed per plans and specifications
5. Protect existing structures, equipment, utilities, etc. to remain
6. Selective demolition as directed per plans and specifications
7. Construct structural steel frame, including foundation, and install as directed per plans and specifications
8. Construct equipment enclosures as directed per plans and specifications
9. Construct equipment pads as directed per plans and specifications
10. Install electrical conduit, wiring, transformers, meters, switches, etc. as directed per plans and specifications
11. Install owner-provided charge cabinets on housekeeping pads as directed per plans and specifications
12. Install owner-provided pantograph chargers, including pole/mast and footing, as directed per plans and specifications
13. Contractor to coordinate receiving, unloading, storage/protection, installation and final assembly of all OFCI equipment unless specifically excluded
14. If the bid option to reconfigure the existing Appleway Blvd. driveway entrance is selected, perform all work per plans and specifications and in accordance with assumed construction schedule
15. Coordinate and schedule with ABB for pole planning, commissioning, and UL stickering once equipment is installed
16. Coordinate and schedule with utility providers for transformer and meter installation as directed per plans and specifications
17. Coordinate with STA for final locations of bus wheel stops prior to installation as directed per plans and specifications
18. Record all "as-built" information and deliver to Owner as required for final closeout
19. All work to be completed as shown and specified in the associated plans and specifications

PROJECT-SPECIFIC NOTES

- OFCI charging equipment is currently 36-40 weeks lead time.
- Special Inspections will be performed by Budinger & Associates, Inc. STA will contract for this work, however, the Contractor is responsible for coordination and scheduling all required inspections.
- STA will maintain operations around the work area. The public will also require access to the facilities around the work areas.
- Work hours are assumed to be 7AM – 5PM. Facility hours of operation are 4AM – 12AM (VTC) and 5AM – 12:30AM (LLPR). Work may be permissible during non-operation hours with a minimum of 3 days (72 hours) notice and approval from an authorized STA representative.
- All work shall meet or exceed all applicable codes, utility locating, rules and regulations, as set forth by the City of Spokane Valley, City of Liberty Lake, Spokane County and the State of Washington.

- Contractor is responsible for the supply of all equipment, materials and labor, and otherwise do all things necessary for or incidental to completion of the Project.
- Contractor shall coordinate all weather-sensitive work accordingly and include temporary protection measures as necessary.
- Contractor is responsible for making arrangements for staging of materials and equipment, if necessary.
- STA will provide a staging location for Contractor use. Contractor responsible for any necessary fencing, signage, monitoring, etc. to secure materials stored on site.
- Contractor shall be responsible for the removal of all trash and waste materials from this project. All items that are disposed of shall be approved by the Project Manager and/or designee. Damages resulting from Contractor negligence shall be repaired immediately at no cost to STA. The Contractor shall take all precautions necessary to protect private property and the public during the construction period.
- Contractor shall keep all STA facilities, landscaping, and vehicles safe from damage during construction. Damages resulting from Contractor negligence shall be repaired immediately at no cost to STA. The Contractor must take all precautions necessary to protect private property and the public during the course of construction.
- All work will be subject to inspection and acceptance by STA's project manager or their designee prior to payment.
- STA reserves the right to increase or decrease the amount of related services listed in the scope of work for a fairly negotiated price.

END OF SECTION 003100

BID SUBMITTAL CHECKLIST

This checklist ***must be completed in its entirety, executed and included*** with the submittal of your signed Bid Proposal Form. By executing below, the Bidder attests all referenced forms are accurate, complete and fully executed. Failure by Bidder to properly complete, execute and include this checklist and all referenced forms with its Bid Proposal Form shall render the Bid non-responsive and shall be grounds for rejection of the Bid.

CHECKLIST

☐	Section 004200	Bid Submittal Checklist
☐	Section 004213	Bid Proposal Form
☐	Section 004215	Bid Response Form
☐	Section 004512	Bidder Responsibility Criteria
☐	Section 004546.B	Wage Payment Statutes—Certificate of Compliance
☐	Bid Guarantee	See subsection 1.6 of Section 002100 Instructions to Bidders.

☐ Bid submitted in a sealed envelope identifying the following on the front of the envelope:

- Project Name: BEB On-Route Charging Infrastructure
- Contract Number: 2026-11230
- Bidder Name: XXX
- Bidder Address: XXX

If Bid is submitted via mail, the sealed envelope required above shall be in addition to the envelope used for mailing.

STATEMENT OF COMPLIANCE

The undersigned has reviewed and fully understands the required Bid Documents and this Bid Submittal Checklist and certifies that all required documents, as marked herein and required by the specifications, are included in its Bid Proposal.

Authorized Signature: _____ Date: _____

Name: _____ Title: _____

Bidder Name: _____

END OF SECTION 004200

BID PROPOSAL FORM

Bidder Name: _____

Each Bid item below shall constitute an offer to STA as outlined herein. By executing below and submitted its Bid, Bidder acknowledges no Bidder may withdraw its Bid after the hour and date set for the bid opening except as permitted by Section 002100, Instructions to Bidders.

STA reserves the right to accept or reject any or all Bids within ninety (90) days of the Bid Due Date. Bidder understands and agrees any additional taxes, permits, bonds, business licenses, contractor registrations, prevailing wages, certifications and fees, and any other ancillary charges, as applicable, have been included in the respective Bid item.

Basis of Award. The "Lowest Bid" shall be lowest sum of the Base Bid and accepted Bid Option, if any. Award of Contract, if any, shall be to the responsive and responsible Bidder submitting the Lowest Bid.

In compliance with the Contract Documents, the following Bid Proposal is submitted:

BASE BID	
	$
(Please print dollar amount in space above)	INCLUDE Washington State Sales Tax
TRENCH EXCAVATION SAFETY PROVISIONS	$
If the bid amount contains any work which requires trenching excavation exceeding a depth of four (4) feet, all costs for trench safety shall be included in the Base Bid for adequate trench safety systems in compliance with Chapters 39.04 RCW & 49.17 RCW and WAC 296-155-650.	$ amount included in Base Bid $ above.

BID OPTION - Appleway Blvd. Driveway Reconfiguration (Sheet C-450) .	
	$
(Please print dollar amount in space above)	DO NOT INCLUDE Washington State Sales Tax

CONTINUED ON NEXT PAGE

UNIT PRICES	
Hot Mix Asphalt (HMA)	$ / TON
	DO NOT INCLUDE Washington State Sales Tax
Crushed Aggregate Base	$ / CY
	DO NOT INCLUDE Washington State Sales Tax
Striping Replacement (incl. standard and ADA parking, ADA loading)	$ / LF
	DO NOT INCLUDE Washington State Sales Tax
Sawcut Asphalt Pavement	$ / LF
	DO NOT INCLUDE Washington State Sales Tax
Asphalt Demolition / Removal	$ / SF
	DO NOT INCLUDE Washington State Sales Tax
Unit prices shall include full compensation for the cost of labor, materials, equipment, overhead, profit and any additional cost associated with the unit bid.	

The undersigned agrees to perform the Work in accordance with the Contract Documents as bid herein.

Signature: _____ Date: _____

Name: _____

END OF SECTION 004213

BID RESPONSE FORM

Bidder Name: _____

The Bid shall constitute an offer to STA as outlined herein and in the Bid Proposal Form. No Bidder may withdraw its Bid following the Bid Due Date, except as allowed under Section 002100 – Instructions to Bidders.

1. EXAMINATION OF DOCUMENTS

   A. Having carefully examined all Contract Documents, **as well as the site and local conditions affecting the Work**, the undersigned proposes to perform all Work in accordance with the Contract Documents for compensation to be computed from prices submitted on the Bid Proposal Form.

   B. By executing this form, the Bidder acknowledges receipt of the following Addenda:

   Addendum No. _____ Addendum Date: _____

   Addendum No. _____ Addendum Date: _____

   Addendum No. _____ Addendum Date: _____

   Addendum No. _____ Addendum Date: _____

   Addendum No. _____ Addendum Date: _____

   C. STA reserves the right to reject any or all Bids, portions or parts thereof, and to waive minor informalities in the Bid process.

2. TIME FOR COMPLETION

   The Bidder agrees to coordinate the completion of all Work within 365 Days of receipt of the Notice to Proceed.

3. FREIGHT

   Bid prices shall include all freight costs to each project site and shall be FOB Destination.

4. ANTI-KICKBACK

   No officer or employee of STA, having the power or duty to perform an official act or action related to this Bid, shall have or acquire any interest in this submittal, or have solicited, accepted or granted a present or future gift, favor, service or other thing of value from or to any person involved in this Bid.

5. FEDERAL DEBARMENT

   The undersigned represents that the Bidder and all offices with any controlling interest herein are not currently, and have not previously, been on any debarred bidders list maintained by the United States Government.

6. UBI CERTIFICATION

   I CERTIFY that no final determination of violation of RCW 50.12.070(1)(b) or 82.32.070(1)(b) has been made by the Washington State Departments of Employment Security, Labor and Industries or Revenue respectively dated within two (2) years of the Bid Due Date. I understand further that no Bid may be submitted, considered or contract awarded for a public work to any person or entity that has a determination of violation of the above reference statutes within two (2) years from the date that a violation is finally determined and the Bid Due Date.

7. AWARD OF CONTRACT

   A. If written notice of acceptance of all or part of this Bid is mailed, sent electronically or delivered to the undersigned within ninety (90) Days after the Bid Due Date, the undersigned will, within **fifteen (15) Days** after date of such notice, execute and deliver to Owner the Contract as specified and furnish all requisite documentation including, but not limited to, Certificates of Insurance (send to coi@spokanetransit.com) and Payment and Performance Bonds, as required. Payment & Performance Bonds must be submitted in their original form. Electronic copies will not be accepted.

   B. If the undersigned fails to complete the above requirements, the Bidder's Guarantee shall be forfeited to the Owner.

I CERTIFY, to the best of my knowledge, the information contained in this Bid is accurate and complete and that I have the legal authority to commit this firm to a contractual agreement. I realize the final funding for any service is based upon budget levels and the approval of the Spokane Transit Authority's Board of Directors.

Bidder Name: _____
(as registered with the State of Washington)

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

1. BIDDER ADMINISTRATIVE INFORMATION

Company Name: _____
(as registered with the State of Washington)

Physical Address: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

Washington Contractor License No.: _____

Washington UBI No.: _____

Washington Industrial Insurance Account No.: _____

Federal Tax Identification No.: _____

2. BIDDER INSURANCE COMPANY

Agency Name: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

3. BIDDER SURETY

Surety Name: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

I certify the information above is true and correct:

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

BIDDER QUALIFICATION STATEMENT

The following statements of experience, personnel, equipment, and general qualifications of the Bidder are submitted with the assurance that the Owner can rely on its accuracy and truthfulness. If more space is required for your answers, please attach a continuation sheet(s) to the corresponding bid response page referencing the item number.

1. The Company has been in business continually since _____ (month & year).

2. The Company has experience equivalent to that required under this Invitation for Bid:

   a. As a prime contractor for 10 years.

   b. As a subcontractor for 15 years.

3. List below work previously completed that is equal to or greater than the scope and complexity of that required under this Invitation to for Bid.

   Required Relevant Experience:

   The Company shall demonstrate successful completion, as Prime Contractor, of a minimum of three (3) projects within the last eight (8) years meeting the following criteria:

   a. Contract value of not less than $2,000,000 each
   b. Multi-phase construction performed over multiple mobilizations and/or seasonal shutdown periods
   c. Multi-site or campus infrastructure construction
   d. Installation of heavy electrical infrastructure, power distribution systems, utility coordination, EV charging systems, transportation infrastructure, industrial equipment, or similarly complex systems
   e. Coordination of multiple trades, long-lead equipment procurement, equipment delivery logistics, and manufacturer/vendor coordination
   f. Underground utility installation, duct banks, concrete foundations, and above-grade electrical/mechanical equipment installation
   g. Work requiring scheduling through weather limitations, phased turnover requirements, or operational constraints
   h. Work on sites that are occupied by and around Owner operations

   Specialized Project Understanding

   The Company acknowledges that this Project includes:

   a. Phased construction at two separate sites
   b. Seasonal schedule constraints
   c. Long-lead equipment coordination
   d. Handling and installation of owner-furnished and/or manufacturer-sensitive charging equipment

e. Heavy equipment placement and precision installation requirements

f. Extensive coordination between civil, electrical, utility, and equipment suppliers

Year	Project Name	Project Location	Contract $	Project Owner & contact info

4. List supervisory personnel and/or project manager(s) currently employed by the Bidder that will be responsible for the Work on this project. Attach a brief (1 page maximum) resume for each individual listed.

   Personnel Requirements:

   a. A dedicated Superintendent assigned full-time during major construction activities with a minimum of seven (7) years of field supervision experience on comparable projects. See also General Conditions Section 007200.1 Part 5.01B for competent persons requirements.

   b. A dedicated Project Manager with a minimum of seven (7) years of experience managing comparable electrical/infrastructure projects

Name	Title	Experience (years)

5. List all projects and/or contracts the Bidder has undertaken in the previous five (5) years which have resulted in:

   a. Arbitration or litigation:

Year	Project Name	Project Location	Project Owner & contact info

b. Claims and/or violations filed by the Federal Government and/or the State of Washington Department of Labor & Industries, Department of Revenue or Employment Security Department:

Year	Project Name	Project Location	Project Owner & contact info

c. Liens filed by suppliers and/or subcontractors:

Year	Project Name	Project Location	Project Owner & contact info

I certify the information above is true and correct:

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

SUBCONTRACTOR LIST

The Owner requests the Bidder list subcontractors and consultants, if applicable, of each work discipline applicable to the performance of Work. If no subcontractors and/or consultants are listed, it will be considered the Bidder's affirmation that it does not intend to use any subcontractors and/or consultants in its performance of the Work.

For projects that are estimated to exceed $1 million dollars, in accordance with RCW 39.30.060, Bidders may submit (1) within one (1) hour after the Bid Due Date, the names of subcontractors with whom the Bidder, if awarded a Contract, will subcontract with for the performance of HVAC (heating, ventilation, and air conditioning), plumbing as described in RCW 18.106, and electrical as described in RCW 19.28, or to name itself for the work; and (2) within forty-eight (48) hours after the Bid Due Date, the names of subcontractors with whom the Bidder, if awarded a Contract, will subcontract with for the performance of structural steel installation and rebar installation.

For additional consultants and/or subcontractors, attach copies of the second page of this Subcontractor List.

Type of work: _____

Company Name: _____
(as registered with the State of Washington)

Physical Address: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

WA Contractor License No.: _____ WA UBI No.: _____

WA Industrial Insurance Account No.: _____ Federal Tax Id No.: _____

Type of work: _____

Company Name: _____
(as registered with the State of Washington)

Physical Address: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

WA Contractor License No.: _____ WA UBI No.: _____

WA Industrial Insurance Account No.: _____ Federal Tax Id No.: _____

Type of work: _____

Company Name: _____
(as registered with the State of Washington)

Physical Address: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

WA Contractor License No.: _____ WA UBI No.: _____

WA Industrial Insurance Account No.: _____ Federal Tax Id No.: _____

Type of work: _____

Company Name: _____
(as registered with the State of Washington)

Physical Address: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

WA Contractor License No.: _____ WA UBI No.: _____

WA Industrial Insurance Account No.: _____ Federal Tax Id No.: _____

Type of work: _____

Company Name: _____
(as registered with the State of Washington)

Physical Address: _____

Mailing Address: _____

Telephone: _____ Fax: _____

Primary Contact: _____

Phone: _____ Email: _____

WA Contractor License No.: _____ WA UBI No.: _____

WA Industrial Insurance Account No.: _____ Federal Tax Id No.: _____

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

CONSTRUCTION WORK PLAN

Upon receipt of a Notice to Proceed for construction, Contractor shall:

CONSTRUCTION WORK PLAN (PG 2)

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

END OF SECTION 004215

BIDDER RESPONSIBILITY CRITERIA

In accordance with RCW 39.04.350, 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 at the time of bid submittal:

1. Have a certificate of registration in compliance with chapter 18.27 RCW;
2. Have a current state unified business identifier (UBI) number;
3. 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;
4. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The training must be provided by the Department of Labor and Industries or by a training provider whose curriculum is approved by the Department. Bidders that have completed three (3) or more public works projects, have had a valid business license in Washington for three (3) or more years, and are listed on the Department of Labor and Industries exemption list are exempt from this training requirement;
5. Within the three (3) year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the 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; and
6. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

In accordance with RCW 39.06, a public works contractor must verify responsibility criteria for each first-tier subcontractor, and a subcontractor of any tier that hires other subcontractors must verify responsibility criteria for each of its subcontractors. Verification shall include that each subcontractor, at the time of subcontract execution, meets the responsibility criteria and possesses an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87. This verification requirement, as well as the responsibility criteria, must be included in every public works contract and subcontract of every tier.

Providing the following information is **MANDATORY** in order to meet "Responsible Bidder" requirements. Failure to provide this information may disqualify your bid as being **"Non-Responsive".** *If your business is not required to have one of the following numbers, provide an explanation***.**

1. State of Washington Contractor Registration No._____
2. State of Washington Unified Business Identifier No._____
3. Employment Security Department No._____
4. State Excise Tax Registration No._____
5. Is the payment of Worker's Comp (Industrial Insurance) Premiums current? If your business does not have a Worker's Comp account with the WA State Dept of L&I, please explain why.
   [ ] Yes
   [ ] No (If No, you are not eligible to bid on this project)
   [ ] No Account – Explain why:_____
6. Are you disqualified from bidding on public works projects in the State of Washington?
   [ ] Yes (If Yes, you are not eligible to bid on this project)
   [ ] No

END OF SECTION 004512

WAGE PAYMENT STATUTES—CERTIFICATE OF COMPLIANCE

The Bidder must submit to STA this completed Wage Payment Statutes—Certificate of Compliance with its Bid on or before the Bid Due Date. Bids that are not accompanied by a completed Wage Payment Statutes—Certificate of Compliance will be rejected as nonresponsive and will be removed from any further consideration.

The Bidder hereby certifies that within the three-year period immediately preceding the Bid Due Date, the Bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of Chapters 49.46, 49.48 or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the State of Washington, Department of Labor and Industries or through a civil judgement entered by a court of limited or general jurisdiction.

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

Bidder Name: _____

Authorized Signature[1]: _____ Date: _____

Printed Name and Title: _____

City & State: _____

Company Type: ☐ Sole Proprietor ☐ Partnership[2] ☐ Joint Venture ☐ Corporation

State of Incorporation or formation: _____

[1] If a Corporation, the Bid must be executed in the corporate name by the president, vice-president, or any other corporate officer accompanied by evidence of authority to execute. If a Partnership, the Bid must be executed by a Partner.

[2] If a Partnership, provide name of firm under which business is transacted: _____

END OF SECTION 04546.B

SPOKANE TRANSIT AUTHORITY PUBLIC WORKS CONSTRUCTION CONTRACT 20XX-11XXX

This Contract is made by and between **XXX** ("Contractor") and the **Spokane Transit Authority** ("Owner") as of the last date of execution.

Contractor	**Owner**
Name Address City, State, Zip Contractor License #: UBI #: XXX-XXX-XXX FEIN #: XX-XXXXXXX	Spokane Transit Authority 1230 W Boone Ave Spokane, WA 99201

The Contractor and Owner agree as follows:

Project: (project name, location, and description)

Design Professional: (architect or engineer)
Address
City, St, Zip
Contact
Email
Phone

Contract Sum:

$ XXX,XXX.XX	Base Bid
$ XXX,XXX.XX	Alternate 1
$ XXX,XXX.XX	Alternate 2
$ XXX,XXX.XX	**TOTAL**

Unit prices:

Item	Units/limits	Unit Price
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

Allowances in Contract Sum:

Item	Units/Limits	Price
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

SAMPLE

CONTRACT DOCUMENTS

Contract Documents include, but are not limited to:

A. This Contract executed by the Contractor and Owner;

B. Advertisement for Bid and all Bid documents;

C. General Conditions;

D. Modifications to General Conditions;

E. Federal Terms & Conditions;

F. Supplemental Conditions;

G. Drawings prepared by the Design Professional:

- List the drawing number range from page 1 to XXX and the date(s).

H. Technical Specifications;

- List the specifications number range from page 1 to XXX and the date(s).

I. Invitation for Bid (IFB)

J. Addenda: (list any/all addenda by number, date and quantity of pages)

Number	Issue Date	# of pages
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

K. Other documents identified as follows:

Description	Date	# of pages
XXX	XXX	XXX
XXX	XXX	XXX

SAMPLE

PROJECT MANAGERS & COMMUNICATIONS

Any administrative or operational communications required under this Contract shall be directed to the Parties' representatives set forth below:

Contractor	Spokane Transit Authority
Contact Title Company Address City, ST ZIP E: email@ P: (XXX) XXX-XXXX	Name Capital Projects Manager Spokane Transit Authority 1230 W Boone Ave Spokane, WA 99201 E: @spokanetransit.com P: (509) XXX-XXXX

Communications to be given hereunder shall be deemed sufficient if given (1) in person; (2) by mail, postage prepaid; or (3) by email, addressed to the Parties' representative set forth above, or as may be revised by written notice in accordance with the Notices Section of this Contract.

NOTICES

All notices, requests, claims, demands and related communications shall be in writing and shall be signed by a person duly authorized to provide such notice. Notices permitted or requested to be given hereunder shall be deemed sufficient if given (1) in person; (2) by regular mail, postage prepaid; (3) by registered or certified mail, postage prepaid, return receipt requested; or (4) by email, addressed to the Parties' representative set forth below, or as may be revised by like notice from time to time.

All notices shall be deemed to have been duly received (1) when delivered in person; (2) three (3) business days after the date of mailing by regular mail, postage prepaid; (3) upon receipt after dispatch by registered or certified mail, postage prepaid; or (4) upon confirmation of a read receipt when transmitted by email.

Contractor	Owner
Contact Title Company Address City, ST ZIP E: email@	Spokane Transit Authority Attn: Contracts 1230 W Boone Ave Spokane, WA 99201 E: contracts@spokanetransit.com

[signatures on the following page]

SAMPLE

SIGNATURES

The Parties affirm the individuals signing this Contract have been granted the authority to do so and by their signature affirm the Parties will comply with the terms and conditions of this Contract.

XXX	**Spokane Transit Authority**
By:	By: Karl Otterstrom
Title:	Title: Chief Executive Officer
Date:	Date:

SAMPLE

The following Public Works General Conditions ("GC") are incorporated into the contract to which they are attached. Although these GC are organized consistent with the General Conditions for Washington State Facility Construction, the provisions herein are not identical. Please review these GC carefully.

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PART 1: GENERAL PROVISIONS

1.01 DEFINITIONS

Capitalized terms included in these GC which are not defined herein shall have the same meaning as defined in the document(s) to which these GC are attached.

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

B. **Architect**, **Engineer** or **A/E** means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.

C. **Award** means the formal decision by the Owner notifying a responsible Bidder with the lowest responsive Bid of the Owner's acceptance of the Bid and intent to enter into a contract with the Bidder.

D. **Bidder** means an individual, partnership, firm, corporation or joint venture submitting a Bid with the intent to enter into a contract with Owner for the completion of the Work.

E. **Business Day** means Monday through Friday, commencing at 12:00 AM and ending at 11:59 PM, unless noted otherwise.

F. **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.

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

H. **Contract Award Amount** is the sum of the Base Bid and any accepted Bid Options.

I. **Contract Documents** means the Advertisement for Bids, Instructions for Bidders, executed Bid Proposal Form and Bidder certifications, Contract, GC, Modifications to the GC, Federal Terms & Conditions, Drawings, Specifications, all addenda and modifications thereof, all supporting documentation required by any of the above, or as requested by the Owner.

J. **Contract Sum** is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents. Except as described below, the Contract Sum includes all taxes imposed by law and properly chargeable to the Work. The Contract Sum does not include Washington State sales tax.

K. **Contract Time** is the number of Days allotted in the Contract Documents 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. Contractor's duties and obligations flow down and become duties and obligations of Subcontractors.

M. **Day(s)** shall mean a calendar day, commencing at 12:00 AM and ending at 11:59 PM, unless noted otherwise.

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 issued to Contractor by Owner after Contractor has completed the requirements of the Contract Documents, as more fully set forth in Section 6.09E.

P. **Final Completion** means that the Work is fully and finally complete in accordance with the Contract Documents, as more fully set forth in Section 6.09D.

Q. **Force Majeure** means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in Section 3.05A.

R. **L&I** means the State of Washington Department of Labor and Industries.

S. **Notice** means a written notice which has been delivered 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.

T. **Notice to Proceed** means a written notice from Owner to Contractor that defines the date on which the Contract Time begins to run.

U. **Owner** means the Spokane Transit Authority, STA or its authorized representative with the authority to enter into, administer and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.

V. **Person** means a corporation, partnership, business association of any kind, trust, company or individual.

W. **Prior Occupancy** means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08A.

X. **Progress Schedule** means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.02B.

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. **Project Manual** means the volume usually assembled for the Work which may include the bidding requirements, sample forms, and other Contract Documents.

AA. **Project Record** means the separate set of Drawings and Specifications as further set forth in Section 4.02A.

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

CC. **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.

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

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

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

GG. **Work** means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits and the manufacture and fabrication of components, performed, furnished or provided in accordance with the Contract Documents.

1.02 ORDER OF PRECEDENCE

A. Any conflict or consistency in the Contract Documents shall be resolved by giving the documents precedence in the following order:

1. Federal Terms & Conditions, if applicable.
2. Executed Change Order(s), in descending order.
3. Executed Form of Contract.
4. Supplemental Conditions, if applicable.
5. Modifications to the GC, if applicable.
6. GC.
7. Specifications. Provisions in Division 1 shall take precedence over provisions of any other Division.
8. Drawings. In case of conflict within the Drawings, large scale drawings shall take precedence over small scale drawings.
9. Signed and Completed Bid Form.
10. Instructions to Bidders.
11. Advertisement for Bids.

1.03 EXECUTION AND INTENT

Contractor makes the following representations to Owner:

A. **Contract Sum Reasonable**. The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;

B. **Contractor Familiar with Project**. Contractor has carefully reviewed the Bid Documents, Contract Documents, visited and examined the Project site, become familiar with the local conditions in which the Work is to be performed, and satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services and other items to be furnished and all other requirements of the Contract Documents,

as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof;

C. **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

D. **Contractor Can Complete Work**. Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform the obligations required by the Contract Documents and has sufficient experience and competence to do so.

PART 2: INSURANCE AND BONDS

2.01 GENERAL INSURANCE REQUIREMENTS

At the Contractor's own expense, the Contractor shall procure and maintain for the duration of the Contract commercial insurance against claims for injuries to persons or damages to property that may arise from or in connection with the Contractor's own work, including the work of the Contractor's agents, representatives, employees, and Subcontractors of any tier. Contractor shall include in its Bid the cost of all insurance and bond costs required to complete the base Bid work and accepted Bid Options.

A. **Evidence of Insurance**. Within ten (10) Days of execution of a contract or prior to commencement of the Work, whichever occurs earlier, Contractor shall submit a Certificate of Insurance evidencing the minimum insurance coverages and limits specified hereunder to Owner at coi@spokanetransit.com. If the Contractor maintains higher limits than those specified herein, the Owner shall be entitled to the higher limits maintained by the Contractor. Owner reserves the right to receive a certified and complete copy of all of the Contractor's insurance policies and the Contractor shall furnish such copies within ten (10) Days of request by Owner. All insurance certificates shall name Owner's Contract number, Project number and Project title.

B. **Insurer Minimum Requirements**. All insurance policies shall be written with insurance companies licensed to provide insurance in the State of Washington and shall have a rating of not less than A:VII according to the A.M. Best Company.

C. **Deductible**. The Contractor is responsible for declaring to the Owner and paying any deductible or self-insured retention that is required by any of the Contractor's insurance. If the Owner is required to contribute to the deductible or self-insured retention under any of the Contractor's insurance policies, the Contractor shall reimburse the Owner the full amount of the deductible or self-insured retention.

D. **Self-insured Retention**. Any Contractor self-insured retentions must be declared to and approved in writing by Owner prior to execution of a Contract. Owner reserves the right to require that self-insured retentions be eliminated, lowered or replaced by a deductible. Self-insurance or self-insured retentions will not be considered to comply with these insurance requirements unless specifically approved in writing by Owner.

E. **Owner as Additional Insured**. Owner shall be named as an additional insured on the Contractor's commercial general liability and automobile liability policies and shall contain, or be endorsed to contain, that the Owner, it's officers, officials, employees and volunteers, are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor, and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including material, parts or equipment furnished in connection with such work or operations. The Owner shall be endorsed as a loss payee on the Contractor's builders' risk and boiler and machinery policies.

F. **Primary and Non-contributory**. It is the intent of the Contract for the Contractor's insurance to be considered primary in the event of a loss, damage or suit. The Owner's own comprehensive general liability policy will be considered excess coverage in respect to the Owner, its officers, officials, employees, and volunteers, and shall not contribute to the Contractor. Additionally, the Contractor's commercial general liability policy must provide cross-liability coverage as would be achieved under a standard ISO separation of insureds clause.

G. **Notification**. The Contractor shall require from its insurer modification of the ACORD certificates to include language that written notification will be given to the Owner for any cancellation, suspension or material change in the

Contractor's coverages at least thirty (30) Days in advance of such cancellation, suspension or material change.

H. **Term of Insurance Coverage**. Contractor shall maintain insurance coverages herein during the Work and for two (2) years after Final Acceptance. Contractor shall also maintain such insurance coverage during the performance of any corrective Work required by Section 5.16.

I. **Subcontractor Coverage**. Contractor shall require and verify all Subcontractors maintain insurance meeting all of the requirements stated herein.

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

2.02 MINIMUM INSURANCE COVERAGES

A. **General Liability Insurance**. Commercial General Liability (CGL) insurance on a project-occurrence basis, with coverage at least as broad as ISO form CG 00 01 with minimum limits of $2,000,000 per occurrence and $4,000,000 in the aggregate. Coverage shall include, but not be limited to:

1. Premise/operations;
2. Contractual liability;
3. Products & completed operations;
4. Independent contractors
5. Property damage; and
6. Personal injury/advertising injury

B. **Automobile Liability Insurance**. Commercial automobile liability insurance on a Combined Single Limit basis at least as broad as ISO form CA 00 01 with minimum limits of $2,000,000 per occurrence.

C. **Industrial Insurance**. 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.

D. **Builder's Risk**. Builder's Risk coverage on a replacement-cost basis, at an amount equal to the initial Contract Sum and any subsequent Change Orders, plus twenty-five percent (25%) for additional architectural and engineering services. This property insurance shall cover, at a minimum, malicious mischief, false work, temporary buildings, debris removal including demolition occasioned by enforcement of any applicable legal requirements, reasonable compensation for Owner's and, if applicable, A/E's services and expenses required as a result of an insured loss, perils insured under the ISO special cause of loss form CP 10 30 and shall be endorsed to provide full coverage for loss or damage from collapse, including collapse resulting from design error. The policy shall cover reasonable compensation for architects' and/or engineers' services and expenses made necessary by an insured loss. Insured property shall include portions of the Work located away from the work site, but intended for use at the work site, and shall cover portions of the Work in transit. The policy shall cover the cost of removing debris, including demolition as may be legally necessary by any law, ordinance or regulation.

The builders risk policy shall be maintained in effect, unless otherwise provided for in the Contract Documents, until the earliest of the following dates: (a) the date on which all persons and organizations who are insureds on the policy agree it shall be terminated; (b) the date on which final payment has been made; (c) the date on which the insurable interests in the property of all insureds other than the Owner have ceased.

E. For projects not involving construction of a new building, an "Installation Floater" is an acceptable substitute for Builder's Risk Insurance. The Installation Floater shall cover all interests of the Owner, Contractor and any Subcontractors, as their interests may appear, for the duration of the Project.

F. **Boiler & Machinery**. When applicable, Contractor shall purchase and maintain boiler and machinery coverage covering insured objects during installation and until Final Acceptance by Owner. This insurance shall name as insureds the Owner, Contractor, and all Subcontractors of any tier.

2.03 PAYMENT AND PERFORMANCE BONDS

A. Payment and performance bonds for one hundred percent (100%) of the Contract Award Amount plus state sales tax, shall be furnished for the Work, using the Payment Bond and Performance Bond form published by and available from the American Institute of Architects (AIA) – form A312 (or current version of the same). Prior to execution of a Change Order that, cumulatively with previous Change Orders, increases the Contract Award Amount by fifteen percent (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 fifteen percent (15%) or more.

B. No payment or performance bond is required if the Contract Sum is $150,000 (one-hundred fifty thousand dollars) or less and Contractor agrees in writing that Owner may, in lieu of the bond, retain ten percent (10%) of the Contract Sum for the period allowed by RCW 39.08.010.

C. **Alternative Surety**. Contractor shall promptly furnish payment and performance bonds from an alternative surety as required to protect Owner and persons supplying labor or materials required by the Contract Documents if:

1. Owner has a reasonable objection to the surety; or
2. Any surety fails to furnish reports on its financial condition if requested by Owner.

PART 3: TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

Contractor shall diligently execute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion within a reasonable period thereafter.

3.02 CONSTRUCTION SCHEDULE

A. **Preliminary Progress Schedule**. Unless otherwise provided in the Contract, Supplemental Conditions, or Modifications to GC, Contractor shall, within fourteen (14) Days after issuance of the Notice to Proceed, submit a preliminary Progress Schedule. The Progress Schedule shall show the sequence in which Contractor proposes to perform the Work, and the dates on which Contractor plans to start and finish major portions of the Work, including dates for shop drawings and other submittals, and for acquiring materials and equipment.

B. **Form of Progress Schedule**. The Progress Schedule shall be created, maintained and edited using MS Project software or similar software identified and agreed to by and between the parties. The scheduling of construction is the responsibility of the Contractor and is included in the Contract to assure adequate planning and execution of the Work. The schedule will be used to evaluate progress of the Work for payment based on the Schedule of Values. The schedule shall show the Contractor's planned order and interdependence of activities, and sequence of work. At a minimum, the schedule shall include:

- Date of Notice to Proceed;
- Activities (resources, durations, individual responsible for activity, early starts, late starts, early finishes, late finishes, etc.);
- Utility Shutdowns;
- Interrelationships and dependence of activities;
- Planned vs. actual status for each activity;
- Substantial Completion;
- Punch list;
- Final inspection;
- Final Completion, and
- Float time.

The Schedule Duration shall be based on the Contract Time of Completion listed on the Bid Proposal Form. The Owner shall not be obligated to accept any Early Completion Schedule suggested by the Contractor. The Contract Time for Completion shall establish the Schedule Completion Date.

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 Project Float time 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. **Owner Comments on Progress Schedule**. Owner shall return comments on the preliminary Progress Schedule to Contractor within fourteen (14) Days of receipt. Review by Owner of Contractor's schedule does not constitute an approval or acceptance of Contractor's construction means, methods or sequencing, or its ability to complete the Work within the Contract Time. Contractor shall revise and resubmit its schedule, as necessary. Owner may withhold a portion of progress payments until a Progress Schedule has been submitted which meets the requirements of this Section.

D. **Monthly Updates and Compliance with Progress Schedule**. Contractor shall utilize and comply with the Progress Schedule. On a monthly basis, or as otherwise directed by Owner, Contractor shall submit an updated Progress Schedule at its own expense to Owner indicating actual progress. If, in the opinion of Owner, Contractor is not in conformance with the Progress Schedule for reasons other than acts of Force Majeure as identified in Section 3.05A, Contractor shall take such steps as are necessary to bring the actual completion dates of its work activities into conformance with the Progress Schedule, and if directed by Owner, Contractor shall submit a corrective action plan or revise the Progress Schedule to reconcile with the actual progress of the Work.

E. **Contractor to Notify Owner of Delays**. Contractor shall promptly notify Owner in writing of any actual or anticipated event which is delaying or could delay achievement of any milestone or performance of any critical path activity of the Work. Contractor shall indicate the expected duration of the delay, the anticipated effect of the delay on the Progress Schedule, and the action being or to be taken to correct the problem. Provision of such notice does not relieve Contractor of its obligation to complete the Work within the Contract Time.

3.03 OWNER'S RIGHT TO SUSPEND THE WORK FOR CONVENIENCE

A. **Owner May Suspend Work**. Owner may, at its sole discretion, order Contractor, in writing, to suspend all or any part of the Work for up to ninety (90) Days, or for such longer period as mutually agreed.

B. **Compliance with Suspension; Owner's Options**. Upon receipt of a written notice suspending the Work, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost of performance directly attributable to such suspension. Within a period up to ninety (90) Days after the notice is delivered to Contractor, or within any extension of that period to which the parties shall have agreed, Owner shall either:

1. Cancel the written notice suspending the Work; or
2. Terminate the Work covered by the notice as provided in the termination provisions of Part 9.

C. **Resumption of Work**. If a written notice suspending the Work is cancelled or the period of the notice or any extension thereof expires, Contractor shall resume Work.

D. **Equitable Adjustment for Suspensions**. Contractor shall be entitled to an equitable adjustment in the Contract Time, or Contract Sum, or both, for increases in the time or cost of performance directly attributable to such suspension, provided Contractor complies with all requirements set forth in Part 7.

3.04 OWNER'S RIGHT TO STOP THE WORK FOR CAUSE

A. **Owner May Stop Work for Contractor's Failure to Perform**. If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until satisfactory corrective action has been taken.

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

C. **Opportunity to Cure**. Owner, in its sole discretion, may, in the case of termination for breach or default, allow the Contractor an appropriate period of time, as determined by Owner, in which to cure the defect of goods or service. In such case, the notice of termination will state the nature of the breach or default, the time period in which cure is permitted and other appropriate conditions. If the Contractor fails to remedy to Owner's satisfaction the breach or default of any of the terms, covenants or conditions of the Contract Documents within the stated period of time for remedy, Owner shall have the right to terminate the Contract without any further obligation to the Contractor. Any such termination for default shall not in any way operate to preclude Owner from also pursuing all available legal remedies against the Contractor and its sureties for said breach or default.

D. **Waiver of Remedies for Any Breach**. In the event that Owner elects to waive its remedies for any breach by the Contractor of any covenant, term or condition of this Contract, such waiver by Owner shall not limit Owner's legal remedies for any succeeding breach of that or of any other term, covenant, or condition of this contract.

3.05 DELAY

A. **Force Majeure Actions Not A Default; Force Majeure Defined**. Any delay in or failure of performance by Owner or Contractor, other than the payment of money, shall not constitute a default hereunder if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party ("Force Majeure"). Acts of Force Majeure include, but are not limited to:

1. Acts of God or the public enemy;
2. Acts or omissions of any government entity;
3. Fire or other casualty for which Contractor is not responsible;
4. Quarantine or epidemic;
5. Strike or defensive lockout;
6. Unusually severe weather, in excess of weather conditions experienced within the area any time in the preceding ten (10) years:
    a. Monthly rainfall in excess of the highest monthly rainfall experienced for the same month.
    b. Annual rainfall in excess of the highest annual rainfall experienced.
    c. Monthly snowfall in excess of the highest monthly snowfall experienced for the same month.
    d. Annual snowfall in excess of the highest annual snowfall experienced.
    e. Average high temperatures, for the summer months, in excess of the highest temperatures experienced.
    f. Average low temperatures for the winter months, lower than the lowest average temperatures experienced.
7. Unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available.

B. **Contract Time Adjustment For Force Majeure**. Contractor shall be entitled to an equitable adjustment in the Contract Time for changes in the time of performance directly attributable to an act of Force Majeure, provided it makes a request for equitable adjustment according to Section 7.03. Contractor shall not be entitled to an adjustment in the Contract Sum resulting from an act of Force Majeure.

C. **Contract Time or Contract Sum Adjustment If Owner at Fault**. Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in Contract Sum, if the cost or time of Contractor's performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request according to Sections 7.02 and 7.03.

D. **No Contract Time or Contract Sum Adjustment If Contractor at Fault**. Contractor shall not be entitled to an adjustment in Contract Time or in the Contract Sum for any delay or failure of performance to the extent such delay or failure was caused by Contractor or anyone for whose acts Contractor is responsible.

E. **Contract Time Adjustment Only for Concurrent Fault**. To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, provided it makes a request for equitable adjustment according to

Section 7.03, but shall not be entitled to an adjustment in Contract Sum.

F. **Contractor to Mitigate Delay Impacts**. Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise.

3.06 NOTICE TO OWNER OF LABOR DISPUTES

A. **Contractor to Notify Owner of Labor Disputes**. If Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay timely performance in accordance with the Contract Documents, Contractor shall immediately give notice, including all relevant information, to Owner.

B. **Pass Through Notification Provisions to Subcontractors**. Contractor agrees to insert a provision in its Subcontracts and to require insertion in all Subcontractor 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 its subcontractors shall immediately notify the next higher tier Subcontractor or Contractor, as the case may be, of all relevant information concerning the dispute.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

A. **Liquidated Damages**

1. **Reason for Liquidated Damages**. Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.

2. **Calculation of Liquidated Damages Amount**. The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner and may be retained by the Owner and deducted from periodic payments to the Contractor.

3. **Contractor Responsible Even If Liquidated Damages Assessed**. Assessment of liquidated damages shall not release Contractor from any further obligations or liabilities pursuant to the Contract Documents.

B. **Actual Damages**

1. **Calculation of Actual Damages**. Actual damages will be assessed for failure to achieve Final Completion within the time provided. Actual damages will be calculated on the basis of direct architectural, administrative, and other related costs attributable to the Project from the date when Final Completion should have been achieved, based on the date Substantial Completion is actually achieved, to the date Final Completion is actually achieved. Owner may offset these costs against any payment due Contractor.

PART 4: SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

A. **Specifications and Drawings Are Basis of The Work**. The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits and supplies, and perform the Work required in accordance with the Drawings, Specifications and other provisions of the Contract Documents.

B. **Parts of The Contract Documents Are Complementary**. The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

C. **Contractor to Report Discrepancies in Contract Documents**. Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency or omission in the Contract Documents, it shall promptly, and before proceeding with the Work affected thereby, report such conflict, error, inconsistency or omission to Owner and, if applicable, A/E in writing.

D. **Contractor Knowledge of Discrepancy in Documents – Responsibility**. Contractor shall do no Work without applicable Drawings, Specifications or written modifications, or Shop Drawings where required, unless instructed to do so in writing by Owner. If Contractor performs any construction activity and it knows or reasonably should have known that any of the Contract Documents contain a conflict, error, inconsistency or omission, Contractor shall be responsible for the performance and shall bear the cost for its correction.

E. **Contractor to Perform Work Implied by Contract Documents**. Contractor shall provide any work or materials the provision of which is clearly implied and is within the scope of the Contract Documents even if the Contract Documents do not mention them specifically.

F. **Interpretation Questions Referred to Owner**. Questions regarding interpretation of the requirements of the Contract Documents shall be referred to the Owner and, if applicable, the A/E.

4.02 PROJECT RECORD

A. **Contractor to Maintain Project Record Drawings and Specifications**. Contractor shall legibly mark in ink on a separate set of the Drawings and Specifications all actual construction which differ from the project Drawings and Specifications, including, but not limited to, depths of foundations, horizontal and vertical locations of internal and underground utilities and appurtenances referenced to permanent visible and accessible surface improvements, field changes with dimensions and details, actual suppliers, manufacturers and trade names, models of installed equipment, and Change Order Proposals ("COP"). This separate set of Drawings and Specifications shall be the "Project Record".

B. **Update Project Record Weekly and Keep on Site**. The Project Record shall be maintained on the Project site throughout the construction and shall be clearly labeled "PROJECT RECORD". The Project Record shall be updated at least weekly noting all changes and shall be available to Owner at all times.

C. **Final Project Record to Owner Before Final Acceptance**. Contractor shall submit the completed and finalized Project Record to Owner prior to Final Acceptance.

4.03 SHOP DRAWINGS

A. **Definition of Shop Drawings**. "Shop Drawings" means documents and other information required to be submitted to Owner and by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural elements; and the installation (i.e., form, fit, and attachment details) of materials and equipment. Shop Drawings include, but are not limited to, drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use and disclose Shop Drawings provided in accordance with the Contract Documents.

B. **Approval of Shop Drawings by Contractor and Owner**. Contractor shall coordinate all Shop Drawings and review them for accuracy, completeness and compliance with the Contract Documents, and shall indicate its approval thereon as evidence of such coordination and review. Where required by law, Shop Drawings shall be stamped by an appropriate professional licensed by the state of Washington. Shop Drawings submitted to Owner without evidence of Contractor's approval shall be returned for resubmission. Contractor shall review, approve and submit Shop Drawings with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of Owner or separate contractors. Contractor's submittal schedule shall allow a reasonable time for Owner and, if applicable, A/E review. Owner and, if

applicable, A/E, will review, approve or take other appropriate action on the Shop Drawings. Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings until the respective submittal has been reviewed and the Owner and, if applicable, A/E, has approved or taken other appropriate action. Owner and, if applicable, A/E, shall respond to Shop Drawing submittals with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Shop Drawings. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

C. **Contractor Not Relieved of Responsibility When Shop Drawings Approved**. Approval, or other appropriate action with regard to Shop Drawings, by Owner and, if applicable, A/E, shall not relieve Contractor of responsibility for any errors or omissions in such Shop Drawings, nor from responsibility for compliance with the requirements of the Contract Documents. Unless specified in the Contract Documents, review by Owner and, if applicable, A/E, shall not constitute an approval of the safety precautions employed by Contractor during construction, or constitute an approval of Contractor's means or methods of construction. If Contractor fails to obtain approval before installation, and the item or work is subsequently rejected, Contractor shall be responsible for all costs of correction.

D. **Variations Between Shop Drawings and Contract Drawings**. If Shop Drawings show variations from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Shop Drawings, at the time it submits the Shop Drawings containing such variations. If Owner and, if applicable, A/E, approves any such variation, an appropriate Change Order will be issued. If the variation is minor and does not involve an adjustment in the Contract Sum or Contract Time, a Change Order need not be issued; however, the modification shall be recorded upon the Project Record.

E. **Contractor to Submit Shop Drawings**. Unless otherwise provided in Division 1, Contractor shall submit to Owner and, if applicable, A/E, for approval three (3) original paper copies and an electronic copy in PDF format of all Shop Drawings. Unless otherwise indicated, one (1) original copy of all Shop Drawings shall be retained by Owner; one (1) original copy shall be retained by A/E; and one (1) original copy shall be returned to Contractor.

4.04 ORGANIZATION OF SPECIFICATIONS

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

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

A. **Owner Or, If Applicable, A/E, Not Contractor, Owns Copyright of Drawings and Specifications**. The Drawings, Specifications and other documents prepared by Owner or, if applicable, A/E, (the "Preparer") are instruments of Preparer's service through which the Work to be executed by Contractor is described. Neither Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications and other documents prepared by Preparer, and Preparer 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 Owner or, if applicable, 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 Owner or, if applicable, 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, if applicable, 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 Owner or, if applicable, A/E, appropriate to and for use in the execution of their Work.

C. **Shop Drawing License Granted to Owner**. Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional

cost or royalty, to use for its own purposes (including reproduction) all Shop Drawings, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Shop Drawings, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Shop Drawings, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in Sections 5.03A and 5.22 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Shop Drawings hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this Section.

D. **Shop Drawings to Be Used Only for This Project**. The Shop Drawings and other submittals prepared by Contractor, Subcontractors of any tier, or its or their equipment or material suppliers, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor of any tier, or material or equipment supplier, on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner. The Contractor, Subcontractors of any tier, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Shop Drawings and other submittals appropriate to and for use in the execution of their Work under the Contract Documents.

PART 5: PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

A. **Contractor Responsible for Means and Methods of Construction**. Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, unless the Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner.

B. **Competent Superintendence Required**. Performance of the Work shall be directly supervised by a competent superintendent who has authority to act for Contractor. The superintendent must be satisfactory to the Owner and shall not be changed without the prior written consent of Owner. Owner may require Contractor to remove the superintendent from the Work or Project site, if Owner reasonably deems the superintendent incompetent, careless or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.

C. **Contractor Responsible for Acts and Omissions of Self and Agents**. Contractor shall be responsible to Owner for acts and omissions of Contractor, Subcontractors and their employees and agents.

D. **Contractor to Employ Competent and Disciplined Workforce**. Contractor shall enforce strict discipline and good order among all of the Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor's employees shall at all times conduct business in a manner which assures fair, equal and nondiscriminatory treatment of all persons. Owner may, by written notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless or otherwise objectionable.

E. **Contractor to Keep Project Documents on Site**. Contractor shall keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Shop Drawings and permits, permit drawings and life safety plans as may be required by federal, state and local agencies.

F. **Contractor to Comply with Ethical Standards**. Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act, RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors' employees if they are in violation of this act.

5.02 PERMITS, FEES, AND NOTICES

A. **Contractor to Obtain and Pay for Permits**. Unless otherwise provided in the Contract Documents, Contractor shall pay for and obtain all permits, licenses and inspections necessary for proper execution and completion of the Work.

Upon issuance of a permit or license, a copy shall be provided to the Owner. Prior to Final Acceptance, the original approved and signed permits shall be delivered to Owner.

B. **Allowances for Permit Fees**. If allowances for permits or utility fees are called for in the Contract Documents and set forth in Contractor's Bid, and the actual costs of those permits or fees differ from the allowances in the Contract Documents, the difference shall be adjusted by Change Order.

C. **Contractor to Comply with All Applicable Laws**. Contractor shall comply with and give notices required by all federal, state and local laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work.

5.03 PATENTS AND ROYALTIES

A. **Payment, Indemnification and Notice**. Contractor is responsible for and shall pay all royalties and license fees. Contractor shall defend, indemnify and hold Owner harmless from any costs, expenses and liabilities arising out of the infringement by Contractor and/or its Subcontractors, of any tier, 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 in writing.

5.04 PREVAILING WAGES

A. **Contractor to Pay Prevailing Wages**. Contractor and Subcontractors of any tier 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 *Prevailing Wages on Public Works*, the rules and regulations of L&I, and where applicable, the Davis-Bacon and Related Acts. The schedule of prevailing wage rates for the locality or localities of the Work is determined by the Industrial Statistician of L&I. Such schedule is located at: https://secure.lni.wa.gov/wagelookup.
Contractor shall use the Bid Due Date as the effective date and Spokane County as the locality of work when determining applicable prevailing wage rates. A copy of applicable prevailing wage rates is available for viewing upon request at Spokane Transit Authority, 1230 W. Boone Ave., Spokane, WA 99201. It is the Contractor's responsibility to verify the applicable state and federal prevailing wage rates for all job classifications.

B. **Statement of Intent to Pay Prevailing Wage**. 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 ("Intent"), approved by L&I, certifying the rate of hourly wage to be paid to each classification of laborers, workers or mechanics employed upon the Work by Contractor and Subcontractors of any tier. Such rates of hourly wage shall not be less than the prevailing wage rate.

C. **Affidavit of Wages Paid**. Prior to release of retainage or, where applicable, bond, the Contractor shall submit to the Owner an Affidavit of Wages Paid ("Affidavit"), approved by L&I, for the Contractor and every subcontractor, of any tier, which performed work on the Project.

D. **Statement with Pay Application**. Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the pre-filed and approved Intent.

E. **Post Statements of Intent at Job Site**. Copies of the approved Intent(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of L&I 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 and Subcontractors of any tier shall pay to L&I the currently established fee(s) for each Intent and/or Affidavit submitted to L&I for certification.

G. **Certified Payrolls**. Consistent with RCW 39.12.120 and WAC 296-127-320, the Contractor and Subcontractors of any tier shall keep accurate payroll records for three (3) years from the date of Final Acceptance of the Project and submit certified payroll records using L&I's online

system at least once per month. If L&I's online system is not used, Contractor and Subcontractors of any tier shall file a copy of its certified payroll records directly with L&I in a format approved by L&I at least once per month. A Contractor's and/or Subcontractor's noncompliance with this Section constitutes a violation of RCW 39.12.050.

H. **Dispute Resolution**. Any dispute regarding prevailing wage rates that cannot be resolved between the parties shall be referred to the Director of L&I and such decision of the Director of L&I shall be final and conclusive and binding on the parties.

I. **Compliance with Federal Funding Requirements.** When the Project is subject to Federal Assistance, Contractor and Subcontractors of any tier shall comply with all requirements of the Davis Bacon and Related Acts. In the event the Project is subject to both State of Washington Prevailing Wages and Davis Bacon and Related Acts, the greater of the two prevailing wage rates shall be paid on a classification-by-classification basis.

5.05 HOURS OF LABOR

A. **Overtime**. Contractor shall comply with all applicable provisions of RCW 49.28, which are incorporated herein by reference. Pursuant to that statute, no laborer, worker or mechanic employed by Contractor, any Subcontractor, or any other person performing or contracting to do the whole or any part of the Work, shall be permitted or required to work more than eight (8) hours in any one (1) calendar day, provided, that in cases of extraordinary emergency, such as danger to life or property, the hours of work may be extended, but in such cases the rate of pay for time employed in excess of eight (8) hours of each calendar day shall be not less than one and one-half (1-1/2) times the rate allowed for this same amount of time during eight (8) hours of service.

B. **4-10 Agreements**. Notwithstanding the preceding Section, RCW 49.28 permits a contractor or subcontractor in any public works contract subject to those provisions, to enter into an agreement with its employees in which the employees work up to ten (10) hours in a calendar day. No such agreement may provide that the employees work ten (10) hour days for more than four (4) calendar days a week. Any such agreement is subject to approval by the employees. The overtime provisions of RCW 49.28 shall not apply to the hours, up to forty (40) hours per week, worked pursuant to any such agreement.

5.06 NONDISCRIMINATION

A. **Discrimination Prohibited by Applicable Laws**. Discrimination in all phases of employment is prohibited by, among other laws and regulations, Title VI of the Civil Rights Act, Title VII of the Civil Rights Act of 1964, the Vietnam Era Veterans Readjustment Act of 1974, Sections 503 and 504 of the Vocational Rehabilitation Act of 1973, the Equal Employment Act of 1972, the Age Discrimination Act of 1975, Section 202 of the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, Presidential Executive Order 11246, Executive Order 11375, Executive Order 13672, Federal Transit law at 49 U.S.C. § 5332, the Washington State Law Against Discrimination, RCW 49.60, and Gubernatorial Executive Order 85-09. These laws and regulations establish minimum requirements for affirmative action and fair employment practices which Contractor and Subcontractors must meet.

B. **During performance of the Work**:

1. **Protected Classes**. Contractor shall not discriminate against any employee or applicant for employment because of race, creed, religion, color, national origin, sex, age, marital status, sexual orientation, gender identity, or the presence of any physical, sensory or mental disability, Vietnam era veteran status, or disabled veteran status, nor commit any other unfair practices as defined in RCW 49.60 and prohibited under state and federal law.

2. **Advertisements to State Nondiscrimination**. Contractor shall, in all solicitations or advertisements for employees placed by or for it, state that all qualified applicants will be considered for employment, without regard to race, creed, religion, color, national origin, sex, age, marital status, sexual orientation, gender identity, or the presence of any physical, sensory, or mental disability.

3. **Contractor to Notify Unions and Others of Nondiscrimination**. Contractor shall send to each labor union, employment agency, or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the labor union, employment agency, or

workers' representative of Contractor's obligations according to the Contract Documents, RCW 49.60, and state and federal prohibitions against discrimination.

4. **Owner and Government Access to Contractor Records**. Contractor shall permit access to its books, records and accounts, and to its premises by Owner, the Equal Employment Opportunity Commission, and the Washington State Human Rights Commission, for the purpose of investigation to ascertain compliance with this Section of the Contract Documents.

5. **Pass Through Provisions to Subcontractors**. Contractor shall include the provisions of this Section in every Subcontract and shall require Subcontractors to include the provisions of this Section in all contracts for the Project.

5.07 SAFETY PRECAUTIONS

A. **Contractor Responsible for Safety**. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work.

B. **Contractor Safety Responsibilities**. In carrying out its responsibilities according to the Contract Documents, Contractor shall protect the lives and health of employees performing the Work and other persons who may be affected by the Work; prevent damage to materials, supplies and equipment whether on site or stored off-site; and prevent damage to other property at the site or adjacent thereto. Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; shall erect and maintain all necessary safeguards for such safety and protection; and shall notify owners of adjacent property and utilities when prosecution of the Work may affect them.

C. **Contractor to Maintain Safety Records**. Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease or damage to property, materials, supplies or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.

D. **Contractor to Provide Hazmat Information and Training**. Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

1. **Information**. At a minimum, Contractor shall inform persons working on the Project site of:

   a. **WAC Requirements**. The requirements of chapter 296-62 WAC, General Occupational Health Standards;

   b. **Presence of Hazardous Chemicals**. Any operations in their work area where hazardous chemicals are present; and

   c. **Hazard Communications Program**. The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety data sheets required by chapter 296-62 WAC.

2. **Training**. At a minimum, Contractor shall provide training for persons working on the Project site which includes, but is not limited to:

   a. **Detecting Hazardous Chemicals**. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

   b. **Hazards of Chemicals**. The physical and health hazards of the chemicals in the work area;

   c. **Protection from Hazards**. The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, its Subcontractors or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures and personal protective equipment to be used; and

d. **Hazard Communications Program**. The details of the hazard communications program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

E. **Hazardous, Toxic or Harmful Substances**. Contractor's responsibility for hazardous, toxic or harmful substances shall include the following duties:

1. **Illegal Use of Dangerous Substances**. Contractor shall not keep, use, dispose, transport, generate or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances") in violation of any such law, regulation, statute or ordinance, but in no case shall any such hazardous substance be stored more than ninety (90) Days on the Project site.

2. **Contractor Notifications of Spills, Failures, Inspections, Citations and Fines**. Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state or local law, regulation or ordinance; all inspections of the Project site by any regulatory entity concerning the same; any citation; 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 responsibility. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.

G. **Contractor to Act in an Emergency**. In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.

H. **No Duty of Safety by Owner or A/E**. Nothing provided in this Section shall be construed as imposing any duty upon Owner and, if applicable, A/E, with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

5.08 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

A. **Limited Storage Areas**. Contractor shall confine all operations, including storage of materials, to Owner-approved areas.

B. **Temporary Buildings and Utilities at Contractor Expense**. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be provided by Contractor only with the consent of Owner and without expense to Owner. The temporary buildings and utilities shall be removed by Contractor at its expense upon completion of the Work.

C. **Roads and Vehicle Loads**. Contractor shall use only established roadways or temporary roadways authorized by Owner. When materials are transported in prosecuting the Work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by federal, state or local law or regulation.

D. **Ownership and Reporting by Contractor of Demolished Materials**. Ownership and control of all materials or facility components to be demolished or removed from the Project site by Contractor shall immediately vest in Contractor upon severance of the component from the facility or severance of the material from the Project site. Contractor shall be responsible for compliance with all laws governing the storage and ultimate disposal. Contractor shall provide Owner with a copy of all manifests and receipts evidencing proper disposal when required by Owner or applicable law.

E. **Contractor Responsible for Care of Materials and Equipment On-Site**. Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site. Materials and equipment may be stored on the premises subject to approval of Owner. When Contractor uses any portion of the Project site as a shop, Contractor shall be responsible for any repairs, patching or cleaning arising from such use.

F. **Contractor Responsible for Loss of Materials and Equipment**. Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Substantial Completion, and shall repair or replace without cost to Owner any damage or loss that may occur, except damages or loss caused by the acts or omissions of Owner. Contractor shall also protect and be responsible for any damage or loss to the Work, or to the materials or equipment, after the date of Substantial Completion, and shall repair or replace without cost to Owner any such damage or loss that might occur, to the extent such damages or loss are caused by the acts or omissions of Contractor, or any Subcontractor.

5.09 PRIOR NOTICE OF EXCAVATION

A. **Excavation Defined**. "Excavation" means an operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than twelve (12) inches in depth for agricultural purposes, or road ditch maintenance that does not change the original road grade or ditch flow line.

B. **Use of Locator Services**. Before commencing any excavation, Contractor shall provide notice of the scheduled commencement of excavation to all owners of underground facilities or utilities, through locator services.

5.10 UNFORESEEN PHYSICAL CONDITIONS

A. **Notice Requirement for Concealed or Unknown Conditions**. If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then Contractor shall give written notice to Owner promptly and in no event later than seven (7) Days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.

B. **Adjustment in Contract Time and Contract Sum**. If such conditions differ materially and cause a change in Contractor's cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in Part 7.

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

A. **Contractor to Protect and Repair Property**. Contractor shall protect from damage all existing structures, equipment, improvements, utilities and vegetation at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.

B. **Tree and Vegetation Protection**. Contractor shall only remove trees when specifically authorized to do so and shall protect vegetation that will remain in place.

5.12 LAYOUT OF WORK

A. **Advanced Planning of The Work**. Contractor shall plan and lay out the Work in advance of operations so as to coordinate all work without delay or revision.

B. **Layout Responsibilities**. Contractor shall lay out the Work from Owner-established baselines and benchmarks indicated on the Drawings and shall be responsible for all field measurements in connection with the layout. Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials and labor required to lay out any part of the Work. Contractor shall be responsible for executing the

Work to the lines and grades that may be established. Contractor shall be responsible for maintaining or restoring all stakes and other marks established.

5.13 MATERIAL AND EQUIPMENT

A. **Contractor to Provide New and Equivalent Equipment and Materials**. All equipment, material and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles or patented processes by trade name, make or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article or process that, in the judgment of A/E, is equal to that named in the specifications, unless otherwise specifically provided in the Contract Documents.

B. **Contractor Responsible for Fitting Parts Together**. Contractor shall do all cutting, fitting or patching that may be required to make its several parts fit together properly or receive or be received by work of others set forth in, or reasonably implied by, the Contract Documents. Contractor shall not endanger any work by cutting, excavating or otherwise altering the Work and shall not cut or alter the work of any other contractor unless approved in advance by Owner.

C. **Owner May Reject Defective Work**. Should any of the Work be found defective, or in any way not in accordance with the Contract Documents, the Work, in whatever stage of completion, may be rejected by Owner.

5.14 AVAILABILITY AND USE OF PREMISES AND UTILITY SERVICES

A. **Use of Premises**. Contractor's use of Owner's premises is limited to Project activities within the areas identified.

B. **Owner's Occupation of Site**. The Owner may occupy the site and existing building(s) during the entire work period. Contractor agrees to cooperate with Owner during operation to minimize conflicts and facilitate Owner usage. Contractor agrees to perform the work so as not to interfere with the Owner's operations.

C. **Contractor Must Allow Owner Access**. Contractor must at all times provide for and allow Owner access. Contractor shall not store or stage vehicles or materials on driveways or at entrances and must keep these access points serving the premises clear and available to the Owner at all times.

D. **Owner to Provide and Charge for Utilities**. Owner shall make all reasonable utilities available to Contractor from existing outlets and supplies, as specified in the Contract Documents. Unless otherwise provided in the Contract Documents, the utility service consumed shall be charged to or paid for by Contractor at prevailing rates charged to Owner or, where the utility is produced by Owner, at reasonable rates determined by Owner. Contractor will carefully conserve any utilities furnished.

E. **Contractor to Install Temporary Connections and Meters**. Contractor shall, at its expense and in a skillful manner satisfactory to Owner, install and maintain all necessary temporary connections and distribution lines, together with appropriate protective devices, and all meters required to measure the amount of each utility used for the purpose of determining charges. Prior to the date of Final Acceptance, Contractor shall remove all temporary connections, distribution lines, meters and associated equipment and materials.

5.15 TESTS AND INSPECTION

A. **Owner to Provide for All Testing and Inspection of Work**. Owner 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 quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Owner shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Contractor shall give Owner timely notice of when and where tests and inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.

B. **Owner May Conduct Tests and Inspections**. Owner may, at any reasonable time, conduct such inspections and tests as it deems necessary to ensure that the Work is in accordance with the

Contract Documents. Owner shall promptly notify Contractor if an inspection or test reveals that the Work is not in accordance with the Contract Documents. Unless the subject items are expressly accepted by Owner, such Owner inspection and tests are for the sole benefit of Owner and do not:

1. Constitute or imply acceptance;
2. Relieve Contractor of responsibility for providing adequate quality control measures;
3. Relieve Contractor of responsibility for risk of loss or damage to the Work, materials or equipment;
4. Relieve Contractor of its responsibility to comply with the requirements of the Contract Documents; or
5. Impair Owner's right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.

C. **Inspections or Inspectors Do Not Modify Contract Documents**. Neither observations by an inspector retained by Owner, the presence or absence of such inspector on the site, nor inspections, tests or approvals by others, shall relieve Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

D. **Contractor Responsibilities on Inspections**. Contractor shall promptly furnish, without additional charge, all facilities, labor, material and equipment reasonably needed for performing such safe and convenient inspections and tests as may be required by Owner. Owner may charge Contractor any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes reinspection or retest necessary. Owner shall perform its inspections and tests in a manner that will cause no undue delay in the Work.

5.16 CORRECTION OF NONCONFORMING WORK

A. **Work Covered by Contractor Without Inspection**. If a portion of the Work is covered contrary to the requirements in the Contract Documents, it must, if required in writing by Owner, be uncovered for Owner's observation and be replaced at the Contractor's expense and without change in the Contract Time.

B. **Payment Provisions for Uncovering Covered Work**. If, at any time prior to Final Completion, Owner desires to examine the Work, or any portion of it, which has been covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an adjustment in the Contract Sum for the costs of uncovering and replacement, and, if completion of the Work is thereby delayed, an adjustment in the Contract Time, provided it makes such a request as provided in Part 7. If such Work is not in accordance with the Contract Documents, the Contractor shall pay the costs of examination and reconstruction.

C. **Contractor to Correct and Pay for Non-Conforming Work**. Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. Contractor shall bear all costs of correcting such nonconforming Work, including additional testing and inspections.

D. **Contractor's Compliance with Warranty Provisions**. If, within one (1) year after the date of Substantial Completion of the Work or designated portion thereof, or within one (1) year after the date for commencement of any system warranties established under Sections 5.16D, 5.21, 6.08B, 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 (1) 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 (1) year from the date of repair or replacement. Obligations under this Section shall survive Final Acceptance.

E. **Contractor to Remove Non-Conforming Work**. Contractor shall remove from the Project site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by Contractor nor accepted by Owner.

F. **Owner May Charge Contractor for Non-Conforming Work**. If Contractor fails to correct nonconforming Work within a reasonable time after written notice to do so, Owner may replace, correct or remove the nonconforming Work and charge the cost thereof to the Contractor.

G. **Contractor to Pay for Damaged Work During Correction**. Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, caused by Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

H. **No Period of Limitation on Other Requirements**. Nothing contained in this Section shall be construed to establish a period of limitation with respect to other obligations which Contractor might have according to the Contract Documents. Establishment of the time period of one (1) year as described in Section 5.16D relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the Contractor's obligation to comply with the Contract Documents may be sought to be enforced, including the time within which such proceedings may be commenced.

I. **Owner May Accept Non-Conforming Work and Charge Contractor**. If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable.

5.17 CLEAN UP

A. **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. Contractor further agrees:

1. To comply with regulations of authorities having jurisdiction and safety standards for cleaning;
2. To not burn waste materials;
3. To not bury debris or excess materials on the Owner's property;
4. To not discharge volatile, harmful or dangerous materials into drainage systems; and
5. To remove waste materials from the site and dispose of in a lawful manner.
6. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

5.18 ACCESS TO WORK AND COMMUNICATIONS REGARDING PROJECT STATUS

A. **Owner and A/E Access to Work Site**. Contractor shall provide Owner and, if applicable, A/E, access to the Work in progress wherever located.

B. **Pre-Project Conference**. Owner shall conduct a pre-project conference after execution of the Contract and prior to commencement of Contractor's performance. The parties to the Agreement shall review their respective responsibilities and personnel assignments.

1. **Attendees**. The Owner, the Contractor and its superintendent, subcontractors, suppliers, manufacturers and other concerned parties shall be represented by persons authorized to conclude matters relating to the Work.
2. **Agenda**. Discuss significant items that could affect progress, including the tentative project progress schedule, critical sequencing, use of the premises and procedures for processing Change Orders and equipment deliveries.
3. Minutes of the meeting shall be taken by the Owner. The Owner shall promptly distribute the meeting minutes to everyone concerned. Contractor is required to distribute the meeting minutes to affected subcontractors and prime suppliers.

C. **Progress Meetings at Regular Intervals**. Contractor should attempt to coordinate meeting dates with preparation of payment requests.

1. **Agenda**. Review minutes of the previous progress meeting. Review significant items that could affect progress. Include topics

appropriate to the current status of the Project.

2. **Review Project Progress Schedule Since the Last Meeting**. Determine where each activity is in relation to the schedule, and whether on time, ahead of, or behind the schedule. Determine how areas that are behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions are required to ensure that current and subsequent activities will be completed within the Contract time.

D. **Reporting**. No later than three (3) Days after each meeting, distribute copies of minutes of the meeting to each party present and to parties who should have been present. Include a summary, in narrative form, of progress since the previous meeting.

5.19 OTHER CONTRACTS

Owner may undertake or award other contracts for additional work at or near the Project site. Contractor shall reasonably cooperate with the other contractors and with Owner's employees and shall carefully adapt scheduling and perform the Work in accordance with these Contract Documents to reasonably accommodate the other work.

5.20 SUBCONTRACTORS AND SUPPLIERS

A. **Subcontractor Responsibilities**. The Contractor shall include the language of this Section 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 Section apply to all subcontractors regardless of tier. At the time of subcontract execution, the Contractor shall verify that each of its first-tier subcontracts meet 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. Have a Washington Employment Security Department number, as required in Title 50 RCW;

4. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;

5. Maintain Industrial Insurance (workers' compensation coverage) for the subcontractor's employees working in Washington, as required in Title 51 RCW;

6. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The training must be provided by L&I or by a training provider whose curriculum is approved by L&I. Contractors that have completed three (3) or more public works projects, have had a valid business license in Washington for three (3) or more years, and are listed on the L&I exemption list are exempt from this training requirement;

7. Within the three (3) year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by L&I, 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;

8. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3); and

9. If applicable, have:

   a. An electrical contractor license, if required by Chapter 19.28 RCW; and/or

   b. An elevator contractor license, if required by Chapter 19.28, RCW.

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 (two thousand five-hundred dollars). Contractor shall utilize Subcontractors and suppliers which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any Subcontractor or supplier to whom the Owner has a reasonable objection and shall obtain

Owner's written consent before making any substitutions or additions.

C. **Subcontracts in Writing and Pass-Through Provision**. All Subcontracts must be in writing. By appropriate written agreement, Contractor shall require each Subcontractor, so far as applicable to the Work to be performed by the Subcontractor, to be bound to Contractor by terms of the Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this Section shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.

D. **Coordination of Subcontractors; Contractor Responsible for Work**. Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.

E. **Automatic Assignment of Subcontracts**. Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that:

1. **Effective Only After Termination and Owner Approval**. The assignment is effective only after termination by Owner for cause pursuant to Section 9.01 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; and

2. **Owner Assumes Contractor's Responsibilities**. After the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract.

3. **Impact of Bond**. The assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

5.21 WARRANTY OF CONSTRUCTION

A. **Contractor Warranty of Work**. In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed by Contractor.

B. **Contractor Responsibilities**. With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:

1. **Obtain Warranties**. Obtain all warranties that would be given in normal commercial practice;

2. **Warranties for Benefit of Owner**. Require all warranties to be executed, in writing, for the benefit of Owner;

3. **Enforcement of Warranties**. Enforce all warranties for the benefit of Owner, if directed by Owner; and

4. **Contractor Responsibility for Subcontractor Warranties**. Be responsible to enforce any subcontractor's, manufacturer's, or supplier's warranties should they extend beyond the period specified in the Contract Documents.

C. **Warranties Beyond Final Acceptance**. The obligations under this Section shall survive Final Acceptance.

5.22 INDEMNIFICATION

A. In performing work and services hereunder, the Contractor, its employees, agents and representatives, shall be acting as independent contractors, and shall not be deemed or construed to be employees or agents of STA in any manner whatsoever. The Contractor shall not hold itself out as, nor claim to be, an officer or employee of STA by reason hereof, and will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of STA. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor's employees, agents and representatives, and shall save and hold STA harmless therefrom.

B. To the maximum extent permitted by law, the Contractor shall indemnify and hold harmless STA and all of STA's officers, employees, and agents from and against all claims, demands,

suits, penalties and liability of any kind, including injuries to persons or damages to property, which arise out of or are due to any acts, errors, or omissions of the Contractor, or the Contractor's employees, agents, and representatives in performing work and services under this Agreement. In the event that any claims, investigations, demands, suits, actions, and lawsuits arise out of any of the aforesaid acts, errors, or omissions, the Contractor shall assume all costs of defending such claims, suits, actions, or lawsuits, including legal fees incurred by STA, any penalties imposed on STA or the Contractor, and all judgments that may be obtained against STA, or any of its officers, agents, or employees in such suits. Further, the Contractor waives immunity under the Industrial Insurance Act and assumes all liability for actions brought by him or his employees against STA for injuries in the performance of this Agreement. The Contractor represents this provision has been negotiated with STA.

C. To the maximum extent permitted by law, STA shall indemnify and hold harmless the Contractor and all of Contractor's officers, employees, and agents from and against all claims, demands, suits, penalties and liability of any kind, including injuries to persons or damages to property, which arise out of or are due to any acts, errors, or omissions of STA, or STA's employees, agents, and representatives while engaged in the business of public transportation and with respect to its duties and obligations as fee owner of the real property which Contractor has been engaged to manage. In the event that any claims, investigations, demands, suits, actions, and lawsuits arise out of any of the aforesaid acts, errors, or omissions, STA shall assume all costs of defending such claims, suits, actions, or lawsuits, including legal fees incurred by Contractor, any penalties imposed on Contractor or STA, and all judgments that may be obtained against Contractor, or any of its officers, agents, or employees in such suits. STA represents this provision has been negotiated with Contractor.

PART 6: PAYMENTS AND COMPLETION

6.01 CONTRACT SUM

A. **Owner Shall Pay Contract Sum**. Owner shall pay Contractor the Contract Sum plus state sales tax for performance of the Work, in accordance with the Contract Documents.

6.02 SCHEDULE OF VALUES

A. **Contractor to Submit Schedule of Values**. Before submitting its first Application for Payment, Contractor shall submit to Owner for approval a Schedule of Values. The Schedule of Values shall include appropriate amounts for mobilization and demobilization, record drawings, Operations & Maintenance manuals, and any other requirements for Project closeout, and shall be approved and used by Owner as the basis for progress payments. Project closeout costs should be scheduled independent of any retainage amount. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.

6.03 APPLICATION FOR PAYMENT

A. **Statement of Intent to Pay Prevailing Wages**. The Statement of Intent to Pay Prevailing Wages for the Contractor and each Subcontractor must be on file with the Owner before commencement of work and before the first payment can be made.

B. **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.

1. Each Application for Payment must include a statement that prevailing wages have been paid by the contractor in accordance with the pre-filed statement or statements of Intent to Pay prevailing wages on file.
2. If federally funded, certified weekly payrolls must be submitted with Application for Payment.
3. Each Application for Payment shall be consistent with previous applications and payments as certified and paid for by the Owner.
4. **Payment Application Times**. Progress payments will be made only for actual work performed or materials delivered.
5. **Payment Application Forms**. Use the Form for Applications for Payment included in the addenda or preapproved format.
6. Include amounts of Change Orders and Construction Change Directives issued prior to the last Day of the construction period covered by the application.

7. **Transmittal**. Submit one (1) executed copy of each Application for Payment to the Owner by means ensuring receipt within twenty-four (24) hours; one (1) copy shall be complete, including waivers of lien and similar attachments, when required.

8. Transmit each copy with a transmittal form listing attachment(s), and recording appropriate information related to the application in a manner acceptable to the Owner.

9. **Waivers of Mechanics Lien**. With each Application for Payment, submit waivers of lien from every entity who may lawfully be entitled to file a lien arising out of the Contract, and related to the work covered by the payment.

10. The Contractor shall be paid, upon the submission of proper applications for payment, within thirty (30) Days after STA's approval of the Contractor's application.

C. **Contractor Certifies Subcontractors Paid**. By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.011, as their interests appeared in the last preceding certificate of payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in Section 1.03 are true and correct, to the best of Contractor's knowledge, as of the date of the Application for Payment.

D. **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.

E. **Payment for Material Delivered to Site or Stored Off-Site**. If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. Payment may similarly be requested for material stored off the Project site, provided Contractor complies with or furnishes satisfactory evidence of the following:

1. **Suitable Facility or Location**. The material will be placed in a facility or location that is structurally sound, dry, lighted and suitable for the materials to be stored;

2. **Facility or Location Within 10 Miles of Project**. The facility or location is located within a ten (10) mile radius of the Project. Other locations may be utilized, if approved in writing, by Owner;

3. **Facility or Location Exclusive to Project's Materials**. Only materials for the Project are stored within the facility or location (or a secure portion of a facility or location set aside for the Project);

4. **Insurance Provided on Materials in Facility or Location**. Contractor furnishes Owner a certificate of insurance extending Contractor's insurance coverage for damage, fire, and theft to cover the full value of all materials stored, or in transit;

5. **Facility or Location Locked and Secure**. The facility or location (or secure portion thereof) is continuously under lock and key, and only Contractor's authorized personnel shall have access;

6. **Owner Right of Access to Facility or Location**. Owner shall at all times have the right of access in company of Contractor;

7. **Contractor Assumes Total Responsibility for Stored Materials**. Contractor and its surety assume total responsibility for the stored materials; and

8. **Contractor Provides Documentation and Notice When Materials Moved to Site**. Contractor furnishes to Owner certified lists of materials stored, bills of lading, invoices, and other information as may be required, and shall also furnish Notice to Owner when materials are moved from storage to the Project site.

6.04 PROGRESS PAYMENTS

A. **Owner to Pay Within Thirty (30) Days**. Owner shall make progress payments, in such amounts as Owner determines are properly due, within thirty (30) Days after receipt of a properly executed and complete 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**. When allowed by law, Owner shall retain five percent (5%) of the amount of each progress payment until forty-five (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.

1. When the Project is subject to Federal Assistance, the Owner shall rely upon the Contractor's Payment and Performance Bonds to satisfy (i) The claims of any person or persons arising under the contract to the extent such claims are provided for in RCW 39.08.010; and (ii) the state with respect to taxes, increases, and penalties incurred on the public improvement project under Titles 50, 51, and 82 RCW which may be due. The contract bond must remain in full force and effect until, at a minimum, all claims filed in compliance with chapter 39.08 RCW are resolved.

C. **Title Passes to Owner Upon Payment**. Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not, however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents.

D. **Interest on Unpaid Balances**. Payments due and unpaid in accordance with the Contract Documents may bear interest as specified in Chapter 39.76 RCW.

6.05 PAYMENTS WITHHELD

A. **Owner's Right to Withhold Payment**. Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary to protect Owner from loss or damage for reasons including but not limited to:

1. **Non-Compliant Work**. Work not in accordance with the Contract Documents;
2. **Remaining Work to Cost More Than Unpaid Balance**. Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum;
3. **Owner Correction or Completion Work**. Work by Owner to correct defective Work or complete the Work in accordance with Section 5.16;
4. **Contractor's Failure to Perform**. Contractor's failure to perform in accordance with the Contract Documents; or
5. **Contractor's Negligent Acts or Omissions**. Cost or liability that may occur to Owner as the result of Contractor's fault or negligent acts or omissions.

B. **Owner to Notify Contractor of Withholding for Unsatisfactory Performance**. In any case where part or all of a payment is going to be withheld for unsatisfactory performance, Owner shall notify Contractor in accordance with Chapter 39.76 RCW.

6.06 RETAINAGE AND BOND CLAIM RIGHTS

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

6.07 SUBSTANTIAL COMPLETION

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 all systems and parts are not functional, if utilities are not connected and operating normally, if all required occupancy permits have not been issued, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. The date Substantial Completion is

achieved shall be established in writing by Owner. Contractor may request an early date of Substantial Completion which must be approved by Change Order. Owner's occupancy of the Work or designated portion thereof does not necessarily indicate that Substantial Completion has been achieved.

6.08 PRIOR OCCUPANCY

A. **Prior Occupancy Defined; Restrictions**. Owner may, upon written notice thereof to Contractor, take possession of or use any completed or partially completed portion of the Work ("Prior Occupancy") at any time prior to Substantial Completion. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the Work; accelerate the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.

B. **Damage; Duty to Repair and Warranties**. Notwithstanding anything in the preceding Section, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor's one (1) year duty to repair any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.09 FINAL INSPECTION, FINAL COMPLETION, ACCEPTANCE, AND PAYMENT (PROJECT CLOSE-OUT)

A. **Final Inspection**. On receipt of a request for inspection, the Owner will either proceed with inspection or advise the Contractor of unfilled requirements. The Owner will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

B. The Owner will repeat the inspection once when requested and assured that the work has been substantially completed. Subsequent inspections necessary to assure that the work has been substantially completed will be charged at the Owner representative's normal billing rate and a Construction Change Directive will be prepared to deduct the representative's charges from the Contract Sum.

1. The Owner will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner.
2. Upon completion of reinspection, the Owner will prepare a certificate of Final Acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for Final Acceptance.

C. Before requesting final inspection for certification of Final Acceptance and final payment, Contractor must complete the following:

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes, if applicable, to the Contract Sum.
3. Submit a certified copy of the Owner's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Owner.
4. Submit a consent of surety to final payment.
5. Submit a final liquidated damages settlement statement, if applicable.
6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
7. Closeout and final payment of this project may be contingent upon completion and resolution of a Davis-Bacon Prevailing Wage audit.
8. Remove temporary protection and facilities installed for protection of the work during construction.
9. Assurance that unsettled claims will be settled.
10. Assurance that Work not complete and accepted will be completed without undue delay.

11. Transmittal of required project construction records to Owner.
12. Proof that taxes, fees, and similar obligations have been paid.
13. Removal of surplus materials (not belonging to STA), rubbish and similar elements.
14. Affidavit of Wages Paid certification.
15. If federally funded, submit final certified weekly payrolls.
16. All required warranties have been written and submitted.

D. **Final Completion Defined**. Final Completion shall be achieved when the Work is fully complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing, but in no case shall constitute Final Acceptance which is a subsequent, separate, and distinct action.

E. **Final Acceptance Defined**. Final Acceptance shall be achieved when the Contractor has completed the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Prior to Final Acceptance, Contractor shall, in addition to all other requirements in the Contract Documents, submit to Owner a written notice of any outstanding disputes or claims between Contractor and any of its Subcontractors, including the amounts and other details thereof. Neither Final Acceptance, nor final payment, shall release Contractor or its sureties from any obligations of these Contract Documents or the payment and performance, or constitute a waiver of any claims by Owner arising from Contractor's failure to perform the Work in accordance with the Contract Documents.

1. Final payment (retainage or release of bond where applicable) cannot be made until Release of Lien Notices have been received from the Washington State Department of Revenue, Employment Security Department, and L&I, if applicable.

F. **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 identified in the Contract Documents.

G. **Prior to and/or contemporaneous with, Final Acceptance the following must be complete**:

1. Contractor must submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents;
2. Contractor must obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates, and similar releases as applicable;
3. Contractor must complete final clean up requirements; and
4. Contractor must arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives.

PART 7: CHANGES

7.01 CHANGE IN THE WORK

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

B. **Owner May Request COP from Contractor**. If Owner desires to order a change in the Work, it may request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a Change Order Proposal within fourteen (14) Days of the request from Owner, or within such other period as mutually agreed. Contractor's Change Order Proposal shall be full compensation for implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including

compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.

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

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

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

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

The Field Authorization shall describe and include the following:

1. The Scope of change to the Work;
2. An estimated amount to perform the scope of the change to the Work;
3. Any estimated change to the Contract Time; and
4. The method of final cost determination in accordance with the requirements of Section 7.02A.3 of the GC; and

Upon satisfactory submittal by the Contractor and approval by the Owner of supporting cost data a Change Order will be executed. The Owner will not make payment to the Contractor for Field Authorization Work until that work has been incorporated into an executed Change Order.

7.02 CHANGE IN THE CONTRACT SUM

A. **General Application**

1. **Contract Sum Changes Only by Change Order**. The Contract Sum shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Sum in its Change Order Proposal.

2. **Owner Fault or Negligence as Basis for Change in Contract Sum**. If the cost of Contractor's performance is changed due to the fault or negligence of Owner, or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Sum in accordance with the following procedure. No change in the Contract Sum shall be allowed to the extent: Contractor's changed cost of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible; the change is concurrently caused by Contractor and Owner; or the change is caused by an act of Force Majeure as defined in Section 3.05A.

   a. **Notice and Record Keeping for Equitable Adjustment**. A request for an equitable adjustment in the Contract Sum shall be based on written notice delivered to Owner within seven (7) Days of the occurrence of the event giving rise to the request. For purposes

of this part, "occurrence" means when Contractor knew, or in its diligent prosecution of the Work should have known, of the event giving rise to the request. If Contractor believes it is entitled to an adjustment in the Contract Sum, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such records and, if requested shall promptly furnish copies of such records to Owner.

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

c. **Contractor to Provide Supplemental Information**. Within thirty (30) Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with Section 7.02A.2.a above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with Section 7.03C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are-prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

d. **Contractor to Proceed with Work as Directed**. Pending final resolution of any request made in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

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

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

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

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

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

   d. **Fixed Price Method Is Default; Owner May Direct Otherwise**. When Owner has requested Contractor to submit a Change Order Proposal, Owner may direct Contractor as to which method in Section 7.02A.3 to use when submitting its proposal. Otherwise, Contractor shall determine the value of the Work, or of a request for an equitable adjustment, on the basis of the fixed price method.

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

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

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

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

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

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

5. **Breakdown Not Required If Change Less Than $1,000**. If the total cost of the change in the Work or request for equitable adjustment does not exceed $1,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work or request for equitable adjustment is sufficiently definitive for Owner to determine fair value.

6. **Breakdown Required If Change Between $1,000 And $2,500**. If the total cost of the change in the Work or request for equitable adjustment is between $1,000 and $2,500, Contractor may submit a breakdown in the following level of detail if the description of the change in the Work or if the request for equitable adjustment is sufficiently definitive to permit the Owner to determine fair value:

   a. lump sum labor;

   b. lump sum material;

   c. lump sum equipment usage;

   d. overhead in accordance with Section 7.02B.7.f;

   e. profit in accordance with Section 7.02B.7.g; and

   f. insurance and bond costs in accordance with Section 7.02B.7.h.

7. **Components of Increased Cost**. Any request for adjustment of Contract Sum based upon the fixed price method over $2,500 shall include only the following items:

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

      (1) **Basic Wages and Benefits**. Hourly rates and benefits as stated on the L&I approved Intent or Davis-Bacon prevailing wages, or a higher amount if approved by the Owner. Direct supervision shall be a reasonable percentage not to exceed fifteen percent (15%) of the cost of direct labor. No supervision markup shall be allowed for a working supervisor's hours.

      (2) **Worker's Compensation Insurance**. Direct contributions to the state of Washington for industrial insurance; medical aid; and supplemental pension, by the class and rates established by L&I.

      (3) **Federal Insurance**. Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.

(4) **Travel Allowance**. Travel allowance and/or subsistence, if applicable, shall be consistent with Owner's policy allowing reimbursement or allotment of amounts actual, reasonable, and necessary. Owner's full policy regarding Travel is available on request.

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

b. **Material Costs**. This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, second from supplier quotations or if these are not available, from standard industry pricing guides. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges shall be itemized.

c. **Equipment Costs**. This is an itemization of the type of equipment and the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for construction equipment only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual invoice costs or if owned, from the current edition of one of the following sources:

(1) Associated General Contractors - Washington State Department of Transportation ("AGC WSDOT") Equipment Rental Agreement current edition, on the Contract execution date.

(2) The state of Washington Utilities and Transportation Commission for trucks used on highways.

(3) The National Electrical Contractors Association for equipment used on electrical work.

(4) The Mechanical Contractors Association of America for equipment used on mechanical work.

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

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

(1) **3% For Contractor**. For Contractor, three percent (3%) of direct labor costs.

(2) **5% For Subcontractors**. For Subcontractors, five percent (5%) of direct labor costs.

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

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

f. **Allowance for Overhead**. This is defined as costs of any kind attributable to direct and indirect delay, acceleration, or impact, added to the total cost to Owner of any change in the Contract Sum. If the Contractor is compensated under Section 7.03D, the amount of such compensation shall be reduced by the amount Contractor is otherwise entitled to under this Section. 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, and any other cost incidental to the change in the Work. It shall be strictly limited in all cases to a reasonable amount, mutually acceptable, or if none can be agreed upon to an amount not to exceed the rates below:

(1) **Projects Less Than $3 Million**. For projects where the Contract Award Amount is under $3 million, the following shall apply:

(a) **Contractor Markup on Contractor Work**. For Contractor, for any Work actually performed by Contractor's own forces, shall not exceed sixteen percent (16%) of the first $50,000 of the cost, and four percent (4%) of the remaining cost, if any.

(b) **Subcontractor Markup for Subcontractor Work**. For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, shall not exceed sixteen percent (16%) of the first $50,000 of the cost, and four percent (4%) of the remaining cost, if any.

(c) **Contractor Markup for Subcontractor Work**. For Contractor, for any work performed by its Subcontractor(s), shall not exceed six percent (6%) of the first $50,000 of the amount due each Subcontractor, and four percent (4%) of the remaining amount if any.

(d) **Subcontractor Markup for Lower Tier Subcontractor Work**. For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, shall not exceed four percent (4%) of the first $50,000 of the amount due the sub-Subcontractor, and two percent (2%) of the remaining amount if any.

(e) **Basis of Cost Applicable for Markup**. The cost to which overhead is to be applied shall be developed in accordance with Sections 7.02B.7.a through 7.02B.7.e.

(2) **Projects More Than $3 Million**. for projects where the Contract Award Amount is equal to or exceeds $3 million, the following shall apply:

(a) **Contractor Markup on Contractor Work**. For Contractor, for any Work actually performed by Contractor's own forces, shall not exceed twelve percent (12%) of the first $50,000 of the cost, and four percent (4%) of the remaining cost, if any.

(b) **Subcontractor Markup for Subcontractor Work**. For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, shall not exceed twelve percent (12%) of the first $50,000 of the cost, and four percent (4%) of the remaining cost, if any.

(c) **Contractor Markup for Subcontractor Work**. For Contractor, for any Work performed by its Subcontractor(s), shall not exceed four percent (4%) of the first $50,000 of the amount due each Subcontractor, and two percent (2%) of the remaining amount if any.

(d) **Subcontractor Markup for Lower Tier Subcontractor Work**. For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, shall not exceed four percent (4%) of the first $50,000 of the amount due the sub-Subcontractor, and two percent (2%) of the remaining amount if any.

(e) **Basis of Cost Applicable for Markup**. The cost to which overhead is to be applied shall be developed in accordance with Sections 7.02B.7.a through 7.02B.7.e.

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

(1) **Contractor/Subcontractor Markup for Self-Performed Work**. For Contractor or Subcontractor of any tier for work performed by their forces, six percent (6%) of the cost developed in accordance with Sections 7.02B.7.a through 7.02B.7.e.

(2) **Contractor/Subcontractor Markup for Work Performed at Lower Tier**. For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, shall not exceed four percent (4%) of the subcontract cost developed in accordance with Sections 7.02B.7.a through 7.02B.7.h.

h. **Insurance and Bond Premiums**. Cost of change in insurance or bond premium. This is defined as:

(1) **Contractor's Liability Insurance**. The cost of any changes in Contractor's liability insurance arising directly from execution of the Change Order; and

(2) **Payment and Performance Bond**. The cost of the additional premium for Contractor's bond arising directly from the changed Work.

The cost of any change in insurance or bond premium shall be added after overhead and allowance for profit are calculated in accordance with Sections 7.02B.7.f and 7.02B.7.g.

C. **Change Order Pricing -- Unit Prices**

1. **Content of Owner authorization**. Whenever Owner authorizes Contractor to perform Work on a unit-price basis, Owner's authorization shall clearly state:

a. **Scope**. Scope of work to be performed;

b. **Reimbursement Basis**. Type of reimbursement including pre-agreed rates for material quantities; and

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

2. **Contractor Responsibilities**. Contractor shall:

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

b. Leave access as appropriate for quantity measurement; and

c. Not exceed any cost limit(s) without Owner's prior written approval.

3. **Cost Breakdown Consistent with Fixed Price Requirements**. Contractor shall submit costs in accordance with Section 7.02B and satisfy the following requirements:

a. **Unit Prices Must Include Overhead, Profit, Bond and Insurance Premiums**. Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs; and

b. **Owner Verification of Quantities**. Quantities must be supported by field

measurement statements approved by Owner.

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

1. **Content of Owner Authorization**. Whenever Owner authorizes Contractor to perform Work on a time-and-material basis, Owner's authorization shall clearly state:

a. **Scope**. Scope of Work to be performed;

b. **Reimbursement Basis**. Type of reimbursement including pre-agreed rates, if any, for material quantities or labor; and

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

2. **Contractor responsibilities**. Contractor shall:

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

b. **Provide Daily Timesheets**. Identify on daily time sheets all labor performed in accordance with this authorization. Submit copies of daily time sheets within two (2) business days for Owner's review;

c. **Allow Owner to Measure Quantities**. Leave access as appropriate for quantity measurement;

d. **Perform Work Efficiently**. Perform all Work in accordance with this Section as efficiently as possible; and

e. **Not Exceed Owner's Cost Limit**. Not exceed any cost limit(s) without Owner's prior written approval.

3. **Cost Breakdown Consistent with Fixed Price Requirements**. Contractor shall submit costs in accordance with Section 7.02B and additional verification supported by:

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

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

7.03 CHANGE IN THE CONTRACT TIME

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

B. **Time Extension Permitted If Not Contractor's Fault**. If the time of Contractor's performance is changed due to an act of Force Majeure, or due to the fault or negligence of Owner or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Time in accordance with the following procedure. No adjustment in the Contract Time shall be allowed to the extent Contractor's changed time of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible.

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

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

3. **Contractor to Provide Supplemental Information**. Within thirty (30) Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain

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

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

C. **Contractor to Demonstrate Impact on Critical Path of Schedule**. Any change in the Contract Time covered by a Change Order or based on a request for an equitable adjustment in the Contract Time, shall be limited to the change in the critical path of Contractor's schedule attributable to the change of Work or event(s) giving rise to the request for equitable adjustment. Any Change Order Proposal or request for an adjustment in the Contract Time shall demonstrate the impact on the critical path of the schedule. Contractor shall be responsible for showing clearly on the Progress Schedule that the change or event: had a specific impact on the critical path, and except in case of concurrent delay, was the sole cause of such impact; and could not have been avoided by resequencing of the Work or other reasonable alternatives.

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

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

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

3. **Demonstrate Impact on Critical Path**. Contractor shall establish the extent of the change in Contract Time in accordance with Section 7.03C; and

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

   a. **Non-Productive Supervision of Labor**. Cost of nonproductive field supervision or labor extended because of the delay;

   b. **Weekly Meetings and Indirect Activities**. Cost of weekly meetings or similar indirect activities extended because of the delay;

   c. **Temporary Facilities or Equipment Rental**. Cost of temporary facilities or equipment rental extended because of the delay;

   d. **Insurance Premiums**. Cost of insurance extended because of the delay;

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

PART 8: CLAIMS AND DISPUTE RESOLUTION

8.01 CLAIMS

A. **A Claim is Contractor's Remedy**. If the parties fail to reach agreement on the terms of any Change Order for Owner-directed Work as provided in Section 7.01, on the resolution of any request for an equitable adjustment in the Contract Sum as provided in Section 7.02, the Contract Time as provided in Section 7.03, or any dispute interpretation of the parties respective obligations and duties under the Contract documents Contractor's only remedy shall be to

file a Claim with Owner as provided in this Section.

B. **Claim Filing Deadline for Contractor.** Contractor shall file its Claim within one-hundred-twenty (120) Days from Owner's final offer made in accordance with Section 7.01E or by the date of Final Acceptance, whichever occurs first.

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

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

2. **Dates**. The date on which facts arose that gave rise to the claim;

3. **Owner and A/E Employee's Knowledgeable About Claim**. The name of each employee of Owner or A/E knowledgeable about the Claim;

4. **Support from Contract Documents**. The specific provisions of the Contract Documents which support the Claim;

5. **Identification of Other Supporting Information**. The identification of any documents and the substance of any oral communications that support the Claim;

6. **Copies of Supporting Documentation**. Copies of any identified documents, other than the Contract Documents, which support the Claim;

7. **Details on Claim for Contract Time**. If an adjustment in the Contract Time is sought: the specific days and dates for which it is sought; the specific reasons Contractor believes an extension in the Contract Time should be granted; and Contractor's analysis of its Progress Schedule to demonstrate the reason for the extension in Contract Time;

8. **Details on Claim**. for adjustment of Contract Sum: If an adjustment in the Contract Sum is sought, the exact amount sought and a breakdown of that amount into the categories set forth in, and in the detail as required by Section 7.02; and

9. **Statement Certifying Claim**. A statement certifying, under penalty of perjury, that the Claim is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the Claim is fully supported by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes Owner is liable.

D. **Response to Claim Filed**. After Contractor has submitted a fully documented Claim that complies with all applicable provisions of Parts 7 and 8, Owner's Contract Compliance Specialist ("CCS"), or their designee, shall respond, in writing, to Contractor as follows:

1. **Response Time for Claim Less Than $50,000**. If the Claim amount is less than $50,000, with a decision within sixty (60) Days from the date the Claim is received; or

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

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

F. **Waiver of Contractor Rights for Failure to Comply with This Section**. Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by

the Contractor unless made in accordance with the requirements of this Section.

G. **Finality of Decision**. The CCS' decision shall be final and conclusive unless within ten (10) Days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the Chief Executive Officer ("CEO") of STA. STA's CEO review of the Contracting Officer's decision is limited to a review and decision issued on the same record presented to the Contracting Officer.

H. **Appeal Procedure**. In connection with appeal to CEO, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of this Contract while matters in dispute are being resolved. The final decision of the CEO shall be binding upon the Contractor and the Contractor shall abide by the decision. The only available review is by an arbitrator as provided below and the applicable standard of review is whether the CEO's decision was arbitrary and capricious.

8.02 ARBITRATION

A. **Timing of Contractor's Demand for Review of CEO's Decision by Third-Party Neutral (Arbitration)**. If Contractor disagrees with CEO's decision rendered in accordance with Section 8.01H, Contractor shall provide Owner with a written demand for review by a third-party neutral (arbitration). No demand for arbitration of any such Claim shall be made later than thirty (30) Days after the date of the CEO's decision on such Claim. Failure to demand arbitration within said thirty (30) Day period shall result in the CEO's decision being final and binding upon Contractor and its Subcontractors.

B. **Selection of The Third-Party Neutral (Arbitrator)**. The parties shall mutually select a third-party neutral to review the parties' claims within the confines of the decision issued by the CEO. If the parties are unable to mutually select a third-party neutral, they shall each appoint a neutral and the two appointed neutrals shall agree to the appointment of the third-party neutral who will preside over the matter.

C. **Standard of Review**. The arbitrator's review shall be limited to determining whether the CEO acted arbitrarily and capriciously in issuing its decision. Decisions issued under the Administrative Procedures Act may guide the arbitrator in determining whether the CEO acted arbitrarily and capriciously.

D. **Costs of Arbitration**. The costs of arbitration will be borne by the party against whom judgment is issued. To the extent neither party substantially prevails at arbitration, the parties will split equally the costs associated with the arbitration.

E. **Arbitration is Forum for Resolving Claims Other Than Those Identified Under Part 8 Above**. All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.

F. **Owner May Combine Claims into Same Arbitration**. Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in the same arbitration or mediation.

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

8.03 CLAIMS AUDITS

A. **Owner May Audit Claims**. All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.

B. **Contractor to Make Documents Available**. In support of Owner audit of any Claim, Contractor

shall, upon request, promptly make available to Owner the following documents:

1. Daily time sheets and supervisor's daily reports;
2. Collective bargaining agreements;
3. Insurance, welfare, and benefits records;
4. Payroll registers;
5. Earnings records;
6. Payroll tax forms;
7. Material invoices, requisitions, and delivery confirmations;
8. Material cost distribution worksheet;
9. Equipment records (list of company equipment, rates, etc.);
10. Vendors', rental agencies', Subcontractors', and agents' invoices;
11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
12. Subcontractors' and agents' payment certificates;
13. Cancelled checks (payroll and vendors);
14. Job cost report, including monthly totals;
15. Job payroll ledger;
16. Planned resource loading schedules and summaries;
17. General ledger;
18. Cash disbursements journal;
19. Financial statements for all years reflecting the operations on the Work. In addition, the Owner may require, if it deems it appropriate, additional financial statements for 3 years preceding execution of the Work;
20. Depreciation records on all company equipment whether these records are maintained by the company involved, its accountant, or others;
21. If a source other than depreciation records is used to develop costs for Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents;
22. All nonprivileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in Contract Sum or Contract Time sought by each Claim;
23. Work sheets or software used to prepare the Claim establishing the cost components for items of the Claim including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors, all documents which establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals; and
24. Work sheets, software, and all other documents used by Contractor to prepare its Bid.

C. **Contractor to Provide Facilities for Audit and Shall Cooperate**. The audit may be performed by employees of Owner or a representative of Owner. Contractor, and its Subcontractors, shall provide adequate facilities acceptable to Owner, for the audit during normal business hours. Contractor, and all Subcontractors, shall make a good faith effort to cooperate with Owner's auditors.

PART 9: TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

A. **Seven (7) Day Notice to Terminate for Cause**. Owner may, upon seven (7) Days written notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:

1. **Contractor Fails to Prosecute Work**. Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Substantial Completion of the Work within the Contract Time;
2. **Contractor Bankrupt**. Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
3. **Contractor Fails to Correct Work**. Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;

4. **Contractor Fails to Supply Workers or Materials**. Contractor repeatedly fails to supply skilled workers or proper materials or equipment;

5. **Contractor Failure to Pay Subcontractors or Labor**. Contractor repeatedly fails to make prompt payment due to Subcontractors or for labor;

6. **Contractor Violates Laws**. Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or

7. **Contractor in Material Breach of Contract.** Contractor is otherwise in material breach of any provision of the Contract Documents.

B. **Owner's Actions Upon Termination**. Upon termination, Owner may at its option:

1. **Take Possession of Project Site**. Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;

2. **Accept Assignment of Subcontracts**. Accept assignment of subcontracts pursuant to Section 5.20; and

3. **Finish the Work**. Finish the Work by whatever other reasonable method it deems expedient.

C. **Surety's Role**. Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

D. **Contractor's Required Actions**. When Owner terminates the Work in accordance with this Section, Contractor shall take the actions set forth in Section 9.02B and shall not be entitled to receive further payment until the Work is accepted.

E. **Contractor to Pay for Unfinished Work**. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E's services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. These obligations for payment shall survive termination.

F. **Contractor and Surety Still Responsible for Work Performed**. Termination of the Work in accordance with this Section shall not relieve Contractor or its surety of any responsibilities for Work performed.

G. **Conversion Of "Termination for Cause" To "Termination for Convenience"**. If Owner terminates Contractor for cause, and it is later determined that none of the circumstances set forth in Section 9.01A exist, then such termination shall be deemed a termination for convenience pursuant to Section 9.02.

9.02 TERMINATION BY OWNER FOR CONVENIENCE

A. **Owner Notice of Termination for Convenience**. Owner may, upon written notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.

B. **Contractor Response to Termination Notice**. Unless Owner directs otherwise, after receipt of a written notice of termination for either cause or convenience, Contractor shall promptly:

1. **Cease Work**. Stop performing Work on the date and as specified in the notice of termination;

2. **No Further Orders or Subcontracts**. Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;

3. **Cancel Orders and Subcontracts**. Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;

4. **Assign Orders and Subcontracts to Owner**. Assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts;

5. **Take Action to Protect the Work**. Take such action as may be necessary or as directed by Owner to preserve and protect the Work, Project site, and any other property related to this Project in the possession of Contractor in which Owner has an interest; and

6. **Continue Performance Not Terminated**. Continue performance only to the extent not terminated.

7. **Owner's Property**. If the Contractor has any property in its possession belonging to STA, the Contractor will account for the same, and return it to STA or dispose of it in the manner STA directs.

C. **Terms of Adjustment in Contract Sum If Contract Terminated**. If Owner terminates the Work or any portion thereof for convenience, Contractor shall be entitled to make a request for an equitable adjustment for its reasonable direct costs incurred prior to the effective date of the termination, plus a reasonable allowance for overhead and profit on Work performed prior to termination, plus the reasonable administrative costs of the termination, but shall not be entitled to any other costs or damages, whatsoever, provided however, the total sum payable upon termination shall not exceed the Contract Sum reduced by prior payments. Contractor shall be required to make its request in accordance with the provisions of Part 7.

D. **Owner to Determine Whether to Adjust Contract Time**. If Owner terminates the Work or any portion thereof for convenience, the Contract Time shall be adjusted as determined by Owner.

PART 10: MISCELLANEOUS PROVISIONS

10.01 GOVERNING LAW & VENUE

The Contract Documents and the rights of the parties herein shall be governed by the laws of the state of Washington. Venue shall be in the Superior Court of Spokane County, Washington.

10.02 COMPLIANCE WITH LAWS

Each Party to this Agreement shall comply with all applicable federal, state and local laws and regulations.

10.03 SUCCESSORS AND ASSIGNS

Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party shall assign the Work without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

10.04 MEANING OF WORDS

Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in these Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such articles as are shown on the drawings or required to complete the installation.

10.05 EMPLOYEE SOLICITATION

Contractor, without the written consent of Owner, shall not directly or indirectly solicit, influence, entice or hire or attempt to solicit, influence, entice or hire any employee of Owner to: (a) cease employment with Owner; or (b) do business related to a business connected with the Contractor's business during this Agreement and for a period of three (3) years from the date on which the Agreement terminates, or the Work is accepted by Owner, whichever is earlier. Owner's employees shall be deemed to be related to or connected with a Contractor if such Owner employee becomes (a) a partner in a general or limited partnership or employee of a partnership; or (b) a shareholder, officer, employee or director of a corporation, member, consultant or agent for the Contractor or any of Contractor's affiliates, subsidiaries or connected business. This Section shall survive the termination of the Contract. This Contract is not restricted to any geographical area.

Contractor recognizes and acknowledges that Owner's employees may receive training and other benefits from its contractual relationship with Owner because of Owner's assignment of employees to work in connection with the Contract. Contractor agrees the restrictions on soliciting,

influencing, enticing or hiring Owner employees are reasonable.

10.06 RIGHTS AND REMEDIES

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

10.07 CONTRACTOR REGISTRATION

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

10.08 TIME COMPUTATIONS

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.

10.09 PUBLIC RECORDS ACT

Each Party to the Contract understands and acknowledges the Owner is a municipal corporation of the State of Washington subject to the "Public Records Act", RCW 42.56 *et seq*.

Contractor understands and agrees that the records it obtains or produces under this Agreement may be public records under the Public Records Act, or its successor act. The Contractor shall cooperate in a timely manner with Owner in responding to a public records request ("PRR") related to this Agreement or the goods/services provided under this Agreement. Such cooperation shall include searching all records regarding the Work and producing all records that are potentially responsive to a PRR to Owner. Contractor shall mark and segregate all materials in its possession that may be protected by the Public Records Act to protect against inadvertent disclosure of such documents and to facilitate Owner's application of allowable Public Records Act exemptions. Contractor shall not charge Owner for the time spent gathering and producing records pursuant to a PRR.

10.10 RECORDS RETENTION

The wage, payroll and cost records of Contractor, and its Subcontractors created or used for the Project, shall be retained for a period of not less than six (6) years after the date of Final Acceptance.

10.11 THIRD-PARTY AGREEMENTS

The Contract Documents shall not be construed to create a contractual relationship of any kind between: A/E and Contractor; Owner and any Subcontractor, or any persons other than Owner and Contractor.

10.12 HEADINGS AND CAPTIONS

All headings and captions used in these GC 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 GC, and do not define the limit or describe the scope or intent of any provision of these GC.

10.13 ANTITRUST ASSIGNMENT

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

10.14 CONFLICT OF INTEREST

No employee, officer or agent of Owner shall participate in the selection, award or administration of the Contract if a conflict of interest, real or apparent, would be involved. Such conflict would arise when:

A. The employee, officer or agent;

B. any member of his or her immediate family;

C. his or her partner; or

D. an organization which employs, or is about to employ, an employee, officer or agent of STA

has a financial interest in the firm, Contractor or Subcontractors, of any tier, selected for Award.

10.15 COUNTERPARTS

The Contract may be executed in one or more counterparts, each of which shall constitute an original Contract, but all of which together shall constitute one and the same instrument.

10.16 ELECTRONIC SIGNATURES

A signed copy of this Agreement or any other ancillary agreement transmitted by facsimile, email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of any original executed copy of this Agreement or such other ancillary agreement for all purposes.

END OF SECTION 007200

SUPPLEMENTAL CONDITIONS

1. LIQUIDATED DAMAGES

The Contractor agrees to pay to STA liquidated damages in the amount of $1,553.00 for each Day the Contractor fails to provide services or respond to an STA request for services hereinafter provided. These liquidated damages are for the purpose of any delay or impact caused to STA by virtue of the Contractor's acts or omissions and do not cover any other actual or consequential damages other than delay. STA and the Contractor agree that such damages cannot be reasonably determined at this time. Such damages are very difficult to accurately estimate because of numerous factors, including, but not limited to inconvenience to STA. Further, the Parties agree this is a reasonable forecast of all factors now known and available for consideration relating to the delay caused by Contractor's failure to perform. Liquidated damages shall be deducted from the Contract by Change Order.

2. RULE 171 – WAC 458-20-171

This Project qualifies as "public road construction" as described in WAC 458-20-171 ("Rule 171"), and therefore only materials used or consumed by the Contractor are subject to sales tax.

The Contractor shall pay all taxes, including sales tax, for the work or portions thereof provided by the Contractor and such taxes shall be included in the Contract amount.

State of Washington sales tax is payable on the "selling price" or "gross proceeds of sale" of the "tangible personal property" as these terms are defined in WAC 458-20-107 (Rule 107), except as excluded by WAC 458-20-171.

Contractors are advised that they are considered the end consumers of all material, including prefabricated and pre-cast items, equipment and supplies used or consumed by them in performing the Work, and must pay any applicable retail sales tax/use tax to their material men and suppliers. In order to maximize the sales tax exemption, Contractors are encouraged to have all material delivered to the job site for consumption. If the Contractor has questions about the application of Rule 171, the Contractor is advised to contact the Washington State Department of Revenue. However, any such communications must be communicated to STA's Director of Finance, prior to making contact with the Department of Revenue.

The Contract Amount must include labor, overhead, profit and applicable sales tax on material, pursuant to Rule 171. Contractors are cautioned against paying sales tax more than once on materials used or consumed, such as by paying sales tax to material men or suppliers, and again remitting sales tax to the state on total costs.

All applicable taxes which the Contractors are required to pay, including retail sales/use tax as specified above, shall be included by them in the Bid prices for the Work covered by their Bid. No adjustment will be made in the amount to be paid by STA under the Contract because of any misunderstanding by, or lack of knowledge of, the Bidder as to their liability for, or the amount of, any taxes or because of any increases in tax rates imposed by any federal, state or local government.

END OF SECTION 007300

WASHINGTON PREVAILING WAGE RATES - SPOKANE COUNTY

In the preparation of its Bid, based on these specifications, the Bidder is solely responsible to:

1. Use the prevailing wage schedule in effect for the Bid Due Date; and
2. Determine the appropriate labor classification(s); and
3. Utilize the appropriate and correct prevailing wage and benefit rate(s).

The State of Washington, Department of Labor and Industries issues revised wage schedules twice per year (every 6 months) which become effective approximately the first of March and the last of August. The wage schedule that will apply to this solicitation will be the schedule in effect as of the Bid Due Date. Therefore, the Bidder is cautioned to be mindful that Addenda changing the Bid Due Date could make the enclosed schedule obsolete. The Bidder is solely responsible to determine what schedule is applicable to this solicitation and to use that schedule in the preparation of its Bid.

The Prevailing Wage Documents for Public Works from the Washington State Department of Labor and Industries for Spokane County may be found on the Department of Labor and Industries website located at: https://secure.lni.wa.gov/wagelookup. Printed copies of the current prevailing wage schedules and forms are available by contacting STA in accordance with subsection 3 of Section 002100 – Instructions to Bidders.

Questions regarding prevailing wages should be directed to the State of Washington, Department of Labor & Industries, located at 901 N. Monroe St., Suite 100, Spokane, Washington, (509) 324-2600; or to PO Box 44540, Olympia WA 98504-4540; (360) 902-5335.

END OF SECTION 007346.1

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SECTION 260500 - COMMON WORK RESULTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 for submittal requirements and formats.

1.2 OUTLINE OF WORK

A. Scope: The work under this division includes furnishing all materials, equipment, labor, supervision, tools and items necessary for the construction, installation, connection, testing and operation of all electrical work for this project as shown on the Electrical Drawings and/or defined in Division 26 of the specifications.

B. Contract Requirements: Comply with the requirements of the General Conditions, the Supplementary Conditions, and Division 01 as they apply to the work in this section. Comply with the requirements of the other specification divisions that have additional requirements for this work as referenced under Division 26 sections. Comply with requirements of the Buy American Act.

C. Related Work Described Elsewhere: Where other divisions require electrical materials or installations under this division of the specifications, comply with all applicable requirements herein. Provide all electrical materials and installation work required to connect, test and operate equipment described in other divisions of these specifications as shown on the Electrical Drawings or specified hereinafter. Electrical installations required by other divisions but not shown on the Electrical Drawings or specifically called out in this division of the specifications shall be provided by the trade requiring the electrical work.

D. Itemized Schedule of Costs: Furnish a contract cost breakdown by specification section to the Architect with a copy to the Engineer to allow evaluation of partial payment requests. Refer to Division 01 for requirements.

E. Warranty: The Contractor shall guarantee all work installed under this specification and make good, repair or replace at his own expense, any defective work, materials or parts within the warranty period, if, in the opinion of the Architect, said defect is due to imperfection in material, design or workmanship. The warranty period shall be in accordance with Division 01 but not less than one year. Lamps are not warranted but all shall be operating at time of final acceptance. Warranty shall be submitted in writing as required ins Division 01.

1.3 REGULATIONS

A. Codes and Ordinances: Comply with all applicable codes, ordinances and regulations including the National Electrical Code, the Washington Administrative Code, National Electrical Safety Code, WISHA, NFPA, and all other national, state and local codes and ordinances. Notify the Architect of any non-compliance in contract documents to applicable codes and regulations prior to installation of the work. Changes in the work after initial installation due to requirements of code enforcing agencies shall be at no additional cost to the Owner.

B. Permits: Provide and pay for all permits and fees required for this project. In addition to paying for all permits and fees, the Contractor shall be responsible for contacting the various Approving Authorities, arranging for review of shop drawings where appropriate, scheduling inspections in a timely manner, and making necessary corrections as required by the Approving Authorities.

C. Approving Authority: It is the Contractor's responsibility to ascertain and contact the appropriate "Approving Authorities" for this project. Approving Authorities will include, but not be limited to the local Fire Marshal and the local authority having jurisdiction.

D. Certificate of Inspection: Obtain a Certificate of Electrical Inspection from the local inspecting authority indicating final acceptance. Submit to the Owner upon completion of the project as part of project closeout.

E. Safety Measures to be Taken: The Architect and Engineer have not been retained or compensated to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Architect and Engineer to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site. It shall be the Contractor's responsibility to comply with "Safety and Health Regulations for Construction," Volume 36, No. 75, Part II of the Federal Register by the U.S. Department of Labor. Contractor shall be responsible for providing all such safety measures and shall 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 he is or is not in compliance all with state or federal regulations.

1.4 DRAWINGS AND SPECIFICATIONS

A. Intent: The Electrical Drawings and specifications are intended to include all labor and materials necessary to provide a complete and operating facility. Any materials shown and called for on the drawings but not mentioned in the specifications, or vice versa, which are necessary for the proper completion of the installation or operation of the equipment, shall be furnished the same as if specifically called for in both. By submitting a bid, the Contractor is acknowledging that he has made a thorough examination of the contract documents, existing site conditions, and has determined that these documents and conditions do sufficiently describe the scope of construction work required under this contract. Any questions regarding interpretation of the contract documents shall be made in writing in a timely manner prior to the bid date to allow reasonable time for resolution of the questions.

B. Diagrammatic Drawings: The Electrical Drawings are diagrammatic and do not show exact or complete raceway and wiring configurations, routing, rating or the necessary number and types of raceway fittings, junction boxes and pull boxes. Provide all labor and materials required to execute the work specified herein or described on the Electrical Drawings.

C. Any minor changes (less than 6'-6" horizontal or vertical) in the location of the raceways, outlets, boxes, devices, wiring, etc., from those shown on the drawings shall be made without extra charge, where coordination requires or if so directed by the Architect prior to rough-in.

1.5 SUBMITTALS AND SHOP DRAWINGS

A. Submittals, General: All equipment must be submitted for review prior to installation. Provide submittals in accordance with Division 01. The remaining instructions in this paragraph are intended to supplement and amplify the requirements of Division 01. Bind submittals in three-ring binder. Open catalog sheets will not be accepted. Shop drawings shall consist of one reproducible drawing and a maximum of four blueprint sets. Index to the applicable specification section with a transmittal letter bound as the first sheet. Provide an index with each section of equipment indicating exact catalog numbers of products provided. In addition, identify the specific products by catalog number within the submittal documents. Submittals will not be accepted unless they conform to these requirements.

B. Shop Drawings: Provide shop drawings, descriptive bulletins, data sheets, diagrams, catalog cuts or other additional information as required for all specified materials including the following:

	Submittal Number	Date Reviewed
Raceways and Fittings	_____	_____
600-Volt Wire and Cable	_____	_____
Outlet, Junction and Pullboxes	_____	_____
Wiring Devices	_____	_____
Electrical Identification	_____	_____
Lighting Controls	_____	_____
Motor Controls & Misc. Equipment Connections	_____	_____
Disconnect Switches	_____	_____
Fuses	_____	_____
Grounding	_____	_____
Panelboards	_____	_____
Transient Voltage Surge Suppressors	_____	_____
Lighting	_____	_____
Telecommunications System	_____	_____

C. Submittal Format: Submittals must be sent in complete "sets," including all specified material. Submission of individual materials will not be accepted.

D. Review: The review 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 all details with the requirements of the contract documents. Contractor shall be solely responsible for submitting materials at such a time to allow a minimum of two weeks for Engineer's review.

E. It is the Contractor's responsibility to thoroughly review vendor-assembled shop drawings, catalog cuts, etc. to ensure that these documents are complete and comply with the specifications. If this coordination effort is not done, the Architect reserves the right to reject the complete submittal without review. To ensure compliance with the Architect's review comments and communication of these comments through the Contractor and supplier to the manufacturer, all corrections to shop drawings shall be done by the manufacturer and resubmitted as requested by the Architect. "Local" mark-ups of the manufacturer's shop drawings will not be accepted.

1.6 OPERATIONS AND MAINTENANCE MANUALS

A. Provide operations and maintenance manuals for all electrical equipment installed on this project in accordance with Division 01.

B. Items described shall include, but not be limited to, the equipment listed under "Shop Drawings" in this division of the specifications. Provide table of contents at front of manual indicating general content of each section. Provide index for each section of the manual with complete equipment catalog item or identification.

C. The information and diagrams included must be on the specific equipment installed for this project. General "product line" information is not acceptable. The equipment model and catalog numbers with appropriate prefixes and suffixes must be clearly indicated on the data sheets. Manuals shall contain shop drawings, schematic and wiring diagrams (showing all external connections), parts lists, operating and maintenance information. Any modifications to equipment in the field shall be updated on the drawings, diagrams, etc., to reflect the "as-built" conditions.

D. Binding: Bind with three-screw post-type binder with heavy-duty hardboard cover and cloth backing. Imprint edge of volume with name of the building, year of completion and the words "Electrical Equipment." Front of manual shall be imprinted with the words "Electrical Equipment" the name of the project, the name of the Owner, year completed, name of the Architect, Engineer and Contractor. All printing in gold lettering. If the thickness of the manual exceeds approximately 2", provide separate volumes, each approximately 2" thick with each volume imprinted as described above and with the addition of the volume number. The back edge shall be imprinted with the name of the project, name of the Owner and year of completion.

E. Provide one preliminary copy to the Commissioning Authority for review 30 days prior to scheduled training or project completion, whichever is first. One preliminary copy shall be submitted to the Engineer for review 30 days prior to completion of the project. Placeholders are to be used for information that is not available at the time of draft manual submission. Preliminary copy shall include proposed wording for cover and back edge of the manual. Submit final bound copies for distribution as required by Division 01.

1.7 RECORD DRAWINGS

A. Maintained on Site: A record shall be made during the progress of the project indicating the work as actually installed. Corrections and changes shall be kept up to date at all times on a separate set of record drawings kept at the job site for review by the Architect. Mark-ups may be schematic as related to interior raceway systems, however, all raceways shall be shown in proper relationship with junction boxes, panelboards, devices, and equipment. Raceways installed below grade shall be shown with both horizontal and vertical dimensions at an accuracy of ±6 inches.

B. Project Closeout: Provide one set of prints indicating work as revised, detailed and actually installed, and submit to the Architect as part of the Project Closeout documentation. Panel schedules and fixture/equipment schedules shall also be updated.

C. Additional Record Drawings: Refer to Signal and Communication Systems section for additional record drawing requirements. AutoCAD production requirements also apply to all signal and communications system drawings.

1.8 CONSTRUCTION SCHEDULING AND SEQUENCING

A. Construction will occur in numerous phases. At the completion of each phase the electrical systems shall be tested and the Owner trained in the use of the systems. Refer to Architectural Drawings and the specifications for construction schedules and sequencing requirements.

1.9 ABBREVIATIONS AND DEFINITIONS

A. Provide: To furnish and install.

B. Wiring: Raceway, conductors and connections.

C. Exposed: Visible from occupied areas.

D. Install: To set in position and make fully operational.

E. Furnish: Purchase and deliver to the job site.

F. Required: As required by code, authority having jurisdiction or contract documents for the system and/or installation to be fully operational.

PART 2 – PRODUCTS

2.1 STANDARD OF QUALITY

A. General: Whenever any material or equipment is specified by patent or proprietary name or by the name of the manufacturer, such specification shall establish the standard of quality in that particular field of manufacture. The Architect shall be the sole and final judge as to quality and acceptability of substitutions, no exceptions.

B. Substitutions:

1. Unless otherwise noted on the drawings or other sections of the specifications, the Contractor may offer material or equipment with equal or better qualities than those specified. Reference is made particularly to Instructions to Bidders related to prior approval requirements.
2. When the substitute equipment or material necessitates revisions to the plans or involves other trades, the Contractor shall include drawings and details showing all such changes, and coordinate and assume any liability and costs from the affected trades. Also, if a change required engineering or mechanical services or other equipment modifications, these services shall be billable to the Contractor.

2.2 PRODUCT LISTING OR LABELING

A. All electrical equipment and materials shall have Underwriters' Laboratories, Inc., or other approved testing facility label whenever published standards exist. Equipment in compliance with UL standards but not bearing their label is not acceptable. If the manufacturer cannot arrange for labeling of an assembled unit at the factory, the necessary inspection and acceptance by the testing facility shall be performed in the field at no additional cost to the Owner, and be acceptable to the authority having jurisdiction.

PART 3 – EXECUTION

3.1 GENERAL

A. All materials shall be new, free from defects and arrive at the job site in original unopened containers.

3.2 MATERIAL STORAGE

A. Make all necessary provisions for storing materials and equipment at site so as to insure the quality and fitness of the items to be incorporated in the work. Equipment shall be stored to prevent damage and corrosion.

3.3 WORKMANSHIP AND COORDINATION

A. General: Workmanship shall be the best quality as recognized by the electrical construction industry and satisfactory to the Owner and Architect. Remove and replace lesser quality work as directed at no additional cost to the Owner. The Architect, or his designated representative, shall be the judge of the required quality of workmanship.

B. Work of Other Trades: The Electrical Drawings do not show complete details of the building construction. Refer to the Architectural, Structural, Civil Landscape and Mechanical Drawings for those details which may affect the execution of this work. Specific locations of construction features shall be obtained from the reference drawings, field measurements, or the trade providing the material or equipment. No extra payments will be allowed for failure to obtain this information.

C. The Contractor will not be paid for work requiring reinstallation due to lack of coordination prior to installation i.e., removing, replacing, relocating, cutting, patching or finishing. Special attention is called to the following items and all conflicts shall be coordinated prior to installation:

1. Light switches will be located on the "strike" side of the door.
2. All electrical outlets, lighting fixtures, signal and communications devices, and other electrical devices and equipment are installed to avoid conflict with grilles, pipes, sprinkler heads, ducts and other mechanical equipment.
3. Electrical outlets, lighting fixtures, signal and communications devices and equipment are to be installed in proper relation to cabinets, counters, doors and other Architectural appurtenances.
4. Electrical characteristics (HP, KVA, voltage, phase, fusing, overload protection) of actual equipment furnished under other divisions being different from that shown on the electrical drawings.

D. Cooperation: Plan and execute work in cooperation with all other trades and utility companies. Every reasonable effort shall be made to provide all concerned with timely notice of work affecting other trades, and 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.

E. General Construction:

1. Cutting and Patching: Provide all cutting, demolition and patching required for the installation of the electrical work on this project. Patching shall be accomplished by utilizing the general construction trades normally providing materials and labor needed for restoration of floor, ceiling or walls. Penetrations through existing structural walls, ceiling or floor slabs shall be core drilled. Spillage from core drilling shall be contained by diking, vacuuming and covering with protective plastic sheeting as required. In no case shall structural members be penetrated without prior approval of the Architect. After installation of raceways, provide approved fire sealing materials to close spaces around raceways.
2. Sleeves and openings required through floors and walls for electrical work shall be the responsibility of the Contractor. This work shall be carefully coordinated with the General Contractor and other trades involved. All openings around conduits in sleeves shall be sealed with a material of equal fire rating as the material penetrated.
3. Painting: Touch up electrical equipment with factory finished surfaces as required using factory furnished paint. Coordinate field painting requirements with the Architect prior to final trim and cover installation. Do not paint screw heads, hinges, nameplates, hardware, etc. All surface-mounted raceways in finished areas will be painted as directed under the "Painting" division of the specifications. Coordinate timing of installation to minimize conflicts with painting requirements.

4. Cleaning: Promptly remove waste material and rubbish resulting from electrical work. Prior to energizing equipment, remove all chipping materials, construction dirt and debris, vacuum and wipe-down all internal areas. At completion of the project, clean all equipment and fixtures installed under this Contract.
5. All penetrations through building roofing shall be flashed by a qualified roofing contractor normally in the business of commercial roofing. Flashing shall be in accordance with NRCA standard practices.
6. No penetrations shall occur in beams with internal pre-stressed cable design or concrete floor slabs with pre-stressed cabling will be allowed without prior written analysis by a structural engineer.
7. Prevent spillage during hauling operations. In case of spills (including trenching materials) clean streets, walkways, courtyards, etc. by means of proper sweepers or other approved methods.
8. Owner dumpsters shall not be used by the contractor.

F. Existing Conditions:

1. General: Specific scope of demolition work and operating conditions to be encountered shall be verified by on-site review prior to submitting bid. Demolition work in general is noted or shown on the documents based upon available "drawings of record" and may not show the actual conditions as they presently exist. The Contractor shall be responsible for removing or modifying the existing electrical installation as required by the building alterations. The Contractor shall be responsible for protection of existing equipment and wiring to be retained or reinstalled and shall replace any equipment damaged during the process of removal and reinstallation.
2. Owner Retained Equipment: The Owner may wish to retain certain specific items scheduled for demolition. The Contractor shall carefully remove these items, provide protection and packaging as may be required to protect the equipment and turn over said equipment to the Owner at a place designated on the jobsite. Any equipment that the Owner does not desire to retain shall become the property of the Contractor and be removed from the site.
3. Existing Conduit and Wiring: No existing conduit or wiring shall be reused.
4. Unused Conduit and Wiring: All unused conductors in existing buildings shall be removed. All unused conduit shall be removed except where located in or above existing construction which is not being altered and would require removal and replacement of the existing construction.

G. Continuity of Service to and In Existing Building:

1. Continuity of Service: The Contractor shall temporarily reroute or relocate existing wiring and/or equipment which is in conflict with existing building alterations and which is required to be maintained in use during construction. The Contractor's bid shall include intercepting and relocating existing raceways in 20 different locations throughout the facility. Each location shall be assumed to have four ¾" EMT raceways (100 L.F. each), each containing seven AWG conductors which must be intercepted and relocated.
2. Premium Pay: Any overtime work required by this project to maintain the facility in continuous service without reducing its efficiency shall be included as a part of this contract. No additional payments will be authorized for work performed on weekends, holidays or other-than-normal working hours.

3.4 REMOVAL AND REPLACEMENT OF EXISTING MATERIAL:

1. Ceiling Panels: Remove and reinstall all necessary panels in existing accessible ceilings, as required for the installation of electrical work. Where existing ceiling panels are damaged, they shall be replaced with new units. After ceiling removal and reinstallation is complete, the ceiling system appearance shall match adjacent similar ceilings that have not been removed.
2. Work Caused by Removal and Reinstallation of Existing Material: Existing electrical work which is to be removed and reinstalled as a result of the installation of work by other trades shall be performed by the Electrical Contractor at no additional expense to the Owner.
3. Existing fluorescent fixture ballasts to be removed may contain PCB's and are to be treated as hazard materials. Removal and disposal of these fixtures are to comply with all local, state, and federal agency requirements. Provide documentation as required by the regulating agency as proof of proper disposal.
4. Openings in walls and floors resulting from removal of conduits and/or devices are to be patched with materials equivalent to adjacent surfaces. Materials used for patching shall maintain the fire rating of the existing area.

3.5 MISCELLANEOUS

A. Equipment Anchorage, Support and Bracing:

1. General: Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment, as required by the Uniform Building Code.
2. Conduit Crossing Structural Separations: Conduit that crosses structural or seismic separations between building units shall be installed with flexible connections, suitable to accommodate longitudinal and transverse displacements. Secure raceways each side of joint and provide minimum of 36" length flexible conduit between building units.

B. Phase Relationship: Maintain consistent phase relationship and rotation throughout the project. Check and identify proper rotation of equipment prior to energizing said equipment.

C. Housekeeping Pads: Coordinate size and location of housekeeping pads for all floor-mounted electrical equipment. Pads shall be 4 inches thick (nominal) x 2 inches larger than plan view dimensions of equipment. Provide 1-inch x 1-inch chamfer at top edges of pads.

3.6 CONSTRUCTION OBSERVATION AND FINAL ACCEPTANCE

A. Site Review: On-site meetings or reviews of construction by the Architect, Engineer 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 or Engineer and have been accepted in writing.

B. Testing: The Contractor shall test all wiring and all electrical equipment to verify absence of grounds and short circuits and verify proper operation, rotation, and phase relationship. Contractor will be responsible for scheduling of tests and demonstrations at times mutually acceptable to the Owner. All equipment shall be demonstrated to operate in accordance with the requirements of this specification and the manufacturer's recommendations. Operate every device manually and automatically in accordance with its purpose. Tests shall be performed in the presence of the Owner or his designated representative. All instruments and personnel required to conduct the test shall be provided by the Contractor. Any test not witnessed by the Owner shall be waived by written document. All such documents must become the property of the Owner upon completion of construction.

C. Commissioning:

1. Selected equipment and systems are to be commissioned per Section 019100 “General Commissioning Requirements” and Section 260816 “Commissioning for Electrical Systems.” The contractor has specific responsibilities for scheduling, coordination, startup, test development, testing and documentation. Coordinate all commissioning activities with the Commissioning Authority.
2. Provide copies of all start up documents for systems being commissioned to the Commissioning Authority prior to start of commissioning testing.
3. Provide assistance to the Mechanical Contractor and Commissioning Agent as specified in Section 019113 “General Commissioning and Section 230816 “Commissioning of Mechanical Support Sections.”

D. Instruction for Owner's Personnel:

1. Scope: Following initial operation of all electrical equipment and prior to acceptance of the electrical work, conduct demonstrations of equipment operation and instruction periods for the Owner's representatives.
2. Initial Instruction Periods: Shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings, followed by tours of equipment spaces explaining maintenance requirements, access methods, servicing and maintenance procedures, settings and available system and equipment adjustments.
3. Final Instruction Periods: 30 days after the initial instruction, a second instruction period shall be scheduled. The format and duration of the instruction periods shall be identical to the initial instruction periods.
4. 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 major equipment, the representative shall be the manufacturer's representatives with operating experience and substantial design experience on this project. Their qualifications shall be submitted to the Architect and Engineer before conducting the instruction period.
5. Minimum Duration of Instruction Periods:

    a. Electrical Distribution System: 4 Hours
    b. Lighting System: 4 hours
    c. Signal and Communications Systems: 4 Hours each
    d. Refer to other section of the specification for additional testing requirements.

6. Scheduling of Instruction Periods: Provide notice of Contractor's readiness to conduct such instruction and demonstration periods to the Owner at least two weeks prior to each instruction period and reach agreement on the date of each instruction period.
7. Attendance sheets shall be filled out for each training session listing all participants. Copies of the attendance sheets shall be provided to the Commissioning Authority.
8. Prepare a written statement of acceptance for the Owner's signature. The statement shall be substantially as follows:
"I (the Contractor), the associated factory representatives and the subcontractor, have thoroughly tested each of the following systems and have proved their normal operation to the Owner's representative and have instructed him in the operation and maintenance thereof."

System Demonstrator	Owner's Representative	Date	
Electrical Distribution	_____	_____	____
Lighting	_____	_____ _____	____

_____
Owner's Representatives Date

_____
Contractor Date

9. Send copies of this acceptance to the Architect and the Engineer and place one copy in each maintenance manual.

E. Completion of Work: When requesting final inspection, provide ten-day notice. Submit written certifications that the work has been fully completed in strict accordance with the plans and specifications.

F. Final Documentation: See STA General Conditions. All manuals, test results, and acceptances by the inspecting authorities shall be included in this final documentation.

END OF SECTION 260500

SECTION 260519 - ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide all wire and cable required for electrical systems being installed.

1.3 SUBMITTALS

A. Product Data: Submit for each of the products provided. Contractor shall verify Buy American compliance prior to submitting for engineer approval.

PART 2 – PRODUCTS

2.1 PROHIBITED MATERIALS:

A. Type MC cable, similar to Armor Cable and like material.

2.2 MATERIALS

A. All wiring shall be Copper and be rated at 600 volts. Aluminum is acceptable for feeders rated 100 amps or larger.

B. Wire sizes 12 and 10 shall be solid, Type THHN, Wire sizes 8 and larger shall be stranded, type THW,THHN/THWN. Minimum wire size shall be 12 AWG, unless noted otherwise.

C. Pre-manufactured fixture whips may be used to connect recessed light fixtures in accessible ceilings.

D. Minimum Conductor Size:

1. Neutral: #10 AWG (#12 AWG minimum for dedicated neutrals and lighting circuits).
2. Ground: #12 AWG.

E. Molded connectors with metal thread-on core shall be used for splicing 12 and 10 wire.

F. Stranded cable shall be connected to lugs using mechanical connectors and shall be wrapped with electrical tape to a thickness equal to the wire insulation connecting block.

G. Splices: For #8 and larger conductors, use molded insulated connector splice block.

2.3 MANUFACTURER

A. American Insulated Wire Corp, General Cable, Rome, Southwire, or approved equal.

2.4 TERMINATIONS AND SPLICES

A. Provide insulated screw-on type connectors on lighting and receptacle branch circuit splices; Ideal Wingnut or equal. Self-stripping crimp-pressure-type connectors such as Scotchlock 500 series are not approved. Insulated ring-tongue compression-type terminals (Burndy or T&B) for motor and equipment terminations; hydraulically set compression lugs for terminations at panel and switchboard busses; and Cadweld exothermic type for grounding systems.

B. Below-grade splices shall be made in handholes and shall be made watertight with epoxy resin type splicing kits. Scotchcast or equal.

2.5 SIGNAL AND COMMUNICATIONS WIRING

A. All signal and communications wiring is included in the appropriate signal and communications system specification sections.

2.6 CABLE TIES

A. Shall be Thomas & Betts "Ty-Rap." Provide in switchboards, wireways, panelboards, relay panels and other enclosures to neatly group and lace electrical conductors.

2.7 WIRE PULLING COMPOUND

A. Manufacturer: Ideal "Aqua-Gel II" or equal.

PART 3 – EXECUTION

3.1 BRANCH CIRCUITS

A. Branch circuits shall be no. 12 AWG minimum, color-coded as listed below. Homeruns greater than 100 feet to first outlet shall be No. 10 minimum. Use no mechanical means for pulling wire. Make no splices in home runs. Wiring from separate raceway systems shall not be intermixed in common junction boxes. Wiring shown in separate raceway systems shall not be combined unless specifically approved by the engineer.

B. All circuits shall have separate neutrals. No shared neutrals will be allowed.

C. Provide separate ground bonding conductor full length inside all conduit for new or revised feeders. For existing feeders to remain as existing, the feeder conduit may be used as the equipment grounding pathway, provided it meets the requirements of NEC 250.118.

D. Where more than three current carrying conductor are installed in a single raceway, the minmum wire size shall be increased to comply with NEC 310-16, Note 8.

3.2 FEEDERS

A. Feeders shall be sized as shown on the drawings and color-coded in accordance with list below. Make no splices unless shown on the plans or specifically approved by the Architect's representative.

B. Provide separate ground bonding conductor full length inside all conduit.

3.3 COLOR CODING REQUIREMENTS

A. 120/208-volt, 3-phase, 4-wire systems or 120/240-volt, 3-phase, 4-wire systems:

Phase A	black
Phase B	red
Phase C	blue
Neutral	white
Ground	green
Isolated ground	green with yellow stripe
Travelers	yellow (for 3- and 4-way switching)

B. 277/480-volt, 3-phase, 4-wire systems:

Phase A	brown
Phase B	orange
Phase C	yellow
Neutral	grey
Ground	green
Travelers	lavender

C. Color-coded tape may be used in lieu of color-coded insulation for conductors No. 6 AWG and larger. However, when color-coded tape is used, the conductor insulation shall be black only, and shall be taped at all terminations and junction boxes with color scheme shown above for entire length of exposed conductor. All control wiring shall be black with wire numbers on each conductor at each termination point. Wiring diagrams shall have corresponding wire numbers indicated thereon.

D. System Cabling Type and Color Standards

System	Type	Color
EMS System	Plenum	White
Lighting Controls and Occupancy Sensor	As Required	Orange
Security System	As Secified in Section 280500	Yellow

Data Cat 5e	Non-Plenum Plenum	Blue White
Intercom System	Non-Plenum Plenum	Gray Gray

E. Color coding shall be approved by the inspecting authority.

3.4 SPLICES AND TERMINATIONS

A. Lighting and receptacle branch circuit conductors up to No. 10 AWG shall be spliced with wing nut type connectors. Motor connections using wiring No. 8 AWG and larger shall be made with crimp-type sleeves or lugs insulated with heat shrink tubing. Feeders shall not be spliced, except in special situations after engineer approval.

3.5 PHASE BALANCING

A. For new panels, breakers and branch circuits shall be installed as shown in panel schedule. For existing panels to be replaced, match existing breaker and branch circuit configurations. If panel loading varies from load configurations shown, contractor is responsible to measure each phase and make necessary circuit adjustments to ensure proper balance of load on all phases.

3.6 HOME RUNS

A. Branch circuit conductors shall be home run to panelboards as shown on the drawings. Combining branch circuit home run conductors in single conduits is allowed up to three current carrying conductors per conduit.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide power grounding system and equipment grounding system in accordance with the applicable codes and ordinances and as further defined on the plans.

1.3 GROUND CONTINUITY

A. Provide through the entire electrical system. A separate green equipment grounding conductor shall be provided in all branch circuits.

1.4 BONDING

A. Insulated grounding bushings shall be installed to bond all feeder conduits to the switchboard ground bus or panel ground bus at both ends of feeder raceways. Insulated grounding bushings shall also be installed in all feeder pull boxes to bond all conduits together. Jumpers or bonds shall be copper and sized in accordance with Table 250.102(C)1 of the National Electrical Code.

1.5 NEUTRAL GROUNDING

A. The neutral point of all radically operated transformers shall be solidly grounded to the grounding system and transformer enclosure with code size ground conductors. The neutral bus in each panelboard shall be isolated from ground. The neutral shall be grounded only at a single point at the main switchboard or at separately derived system transformers.

1.6 SIZE OF GROUND WIRE

A. In all cases, shall not be less than that required under National Electrical Code requirements.

1.7 RECEPTACLE GROUNDING

A. Connect the ground terminal of all receptacles by utilizing a separate grounding conductor between the receptacle grounding screw and the ground conductor provided in the branch circuit. Integral mounting straps within the receptacle connected to the device mounting straps are not approved as a grounding method.

1.8 FLEXIBLE CONDUIT GROUNDING

A. Provide a separate grounding conductor in all flexible conduit runs including watertight flexible conduit with integral grounding straps. Install ground conductor inside conduit with ungrounded conductors.

1.9 PVC CONDUIT GROUNDING

A. Provide a code size green grounding conductor the full length of the feeder or branch circuit when PVC is used in whole or in part.

1.10 GROUND CONNECTIONS

A. Ground connections to building steel, ground rods and cable taps shall utilize an exothermic welding process.

PART 2 – PRODUCTS

2.1 GROUND CONDUCTORS:

A. Copper conductors in accordance with Section 260526 “Grounding and Bonding.”

2.2 EXOTHERMIC CONNECTIONS

A. "Cadweld Exolon," Erico Products, Inc., Burndy "Thermoweld" or approved equal.

2.3 INSULATED GROUND BUSHINGS

A. Malleable iron with insulated ring and ground clamp. Steel City or equal.

2.4 COMPRESSION CONNECTIONS

A. Non reversible comperssions – listed hydraulically-crimped fittings

2.5 GROUND RODS

A. 3/4" x 10'-0" long. Copper clad steel.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install ground rod verticallt, with top flush with ground level unless physically protected. Connect to water service on street side of main shutoff valve, building structural steel, and service transformer ground rod.

B. Install ground rod at each transformer and make connection to all exposed metal parts.

C. Provide exothermic or braze all concealed or below grade connections. Provide exothermic connections to building steel.

D. Compression connections shall be made using a hydraulic 4-way compression die. All compression connections shall be exposed.

E. Provide separate ground conductor the full length of all raceways.

3.2 GENERAL TERMINATIONS

A. Burnish to bare metal under all grounding and bonding terminations to assure good ground continuity. Terminations are to be attached with separate screw and nut. When more than one termination is required, provide a separate ground terminal strip.

3.3 DEVICE OUTLET BOX

A. Provide separate grounding conductor between the outlet box containing the device and the branch circuit grounding conductor.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide all hangers and supports required for electrical systems being installed.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IMC: Intermediate metal conduit.

C. RMC: Rigid metal conduit.

PART 2 – PRODUCTS

2.1 SUPPORT, ANCHORAGE AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line
2. Thomas & Betts
3. Unistrut

C. Metallic Coatings: Hot-dip galvanized after fabrication.

D. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating.

E. Painted Coatings: Manufacturer's standard painted coating.

F. Channel Dimensions: Selected for applicable load criteria.

G. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

H. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

I. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened Portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used. Subject to compliance with requirements, provide products by one of the following manufacturers:

   a. Hilti
   b. ITW Ramset/Red Head
   c. Simpson Strong-Tie

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use inhardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used. Subject to compliance with requirements, provide products by one of the following manufacturers:

   a. Cooper B-Line
   b. Hilti
   c. ITW Ramset/Red Head

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

PART 3 – EXECUTION

3.1 APPLICATION

A. Conduit Crossing Structural Separation: Conduit that crosses structural or seismic separations between building units shall be installed with flexible connections, suitable to accommodate longitudinal and transverse displacements. Secure raceways each side of joint and provide minimum of 36 inches length flexible conduit between building units.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 3/8 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits. Secure raceways and cables to these supports with two-bolt conduit clamps.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and low-voltage systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

B. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners. In lieu of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete four inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than four inches thick.
5. To Steel: Beam clamps.
6. To Light Steel: Sheet metal screws.

C. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 CONCRETE BASES

A. Provide four-inch high concrete pads with chamfered edges for all floor-mounted equipment including switchboards, distribution panels, transformers, motor control centers and unit substations.

B. Construct concrete bases of dimensions indicated but not less than four inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

C. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section.

D. Anchor equipment to concrete bases.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND FITTINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide complete raceway systems as shown on the drawings and/or as required for proper installation of the various electrical systems being installed under this project. Minimum raceway size shall be ½" for power and ¾" for systems and data unless noted otherwise.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Raceways: Allied, Carlon, Western or equal.

B. Fittings: Appleton, Carlon, T&B, Steel City, O-Z/Gedney or equal.

C. Conduit Straps: Appleton, Carlon, T&B, Steel City, O-Z/Gedney or equal.

D. Low-Voltage Cable Supports: Caddy or equal.

2.2 RACEWAYS

A. Rigid Aluminum Conduit: Not Permitted.

B. Rigid Metallic Conduit: Zinc-coated steel with full threaded connections.

C. Electrical Metallic Tubing (EMT): Zinc-coated steel.

D. Rigid Nonmetallic Conduit: Rigid PVC, Schedule 40, UL listed for direct burial or concrete encasement.

E. Flexible Metallic Conduit: Galvanized steel, securely interlocked.

F. Liquidtight Flexible Metallic Conduit: Galvanized steel, interlocked, with integral ground conductor and PVC jacket overall.

2.3 FITTINGS

A. Fittings for conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

B. Sweeps and bends for 1-1/4” and larger shall be manufactured.

C. Rigid Metallic Conduit:

1. Couplings: Threaded metallic type of the same material as the conduit.
2. Locknuts: Steel up to 2 inches, malleable iron for 2-1/2 inches and larger.
3. Bushings: Bakelite or plastic up to 2 inches, malleable iron with insulating collar for 2-1/2 inches and larger.
4. Unions: Zinc plated malleable iron, 3 piece conduit coupling. Running threads are not acceptable.

D. Electrical Metallic Tubing (EMT): Fittings shall be steel set-screw or compression type.

E. Rigid Nonmetallic Conduit: Slip-on, nonthreaded type of same material as conduit. Provide rigid steel bends in conduit runs.

F. Flexible Metallic Conduit: Gavlanized steel, one- or two-screw clamp type. All fittings shall be steel.

G. Liquidtight Flexible Metallic Conduit: PVC waterprrof cover over steel conduit, steel compression type. PVC waterproof flex without steel core is prohitbited.

H. Expansion Fittings: Provide exspansion fittings for all rigidly fastened conduits spanning a building exspansion joint, and for all runs 1-1/2” or larger exceeding 150 feet in length. Fittings shall be hot-dipped galvanized malleable iron with a packing ring to exclude water, a pressure ring, and a separate external copper bonding jumper.

2.4 CONDUIT STRAPS

A. Heavy-duty one- or two-hole pressed steel straps. "Nail-in" style straps shall not be used.

2.5 SURFACE RACEWAY ANCHORS

A. 2-hole strips shall utilize Powers Poly-Toggle Cat #2305.

2.6 LOW VOLTAGE OPEN CABLING SUPPORTS

A. J-Hooks: Shall comply with TIA requirements for structured cabling system. Galvanized finish. Caddy #CAT21 with CATHBA angled hanger bracket. Provide all hardware necessary for secure mounting to the structure. Follow manufacturer’s recommendations for quantity of cables supported.

B. Adjustable Cable Support: Shall comply with TIA requirements for structured cabling system. Caddy #CAT425. Follow manufacturer's recommendations for quantity of cables supported.

C. Provide all accessories and mounting hardware required for a complete and working installation of open cabling supports.

PART 3 – EXECUTION

3.1 COORDINATION

A. The Contractor shall review all drawings, details and elevations and coordinate with the Engineer prior to rough-in, all installations of wiring devices and equipment. Where equipment is furnished by others, the Contractor shall ascertain the proper voltage, load and connection requirements prior to rough-in.

3.2 MATERIALS

A. All materials of a specific type shall be provided by the same manufacturer throughout the project. These products shall be identical to those submitted for review.

3.3 RACEWAY INSTALLATION

A. Raceway Types: Install raceway types and sizes as listed below:

1. Rigid Metallic Conduit: In concrete, masonry, exposed exteriors and exposed interiors where subject to physical damage and as required by code enforcing agencies.
2. Electrical Metallic Conduit (EMT): All areas other than above. May be used for feeders with integral green ground conductor.
3. Flexible Metallic Conduit: Recessed fixture connections, interior concealed equipment connections, expansion and seismic joints and sound control. Not to be used for exposed installations within the building.
4. Liquidtight Flexible Metallic Conduit: Exterior equipment connections and exposed installation within the building.
5. Rigid Nonmetallic Conduit: Exterior underground installations; direct buried for lighting raceways,. 90° elbows to be rigid galvanized steel. Service raceways are to be concrete encased. Underground feeders; concrete encased with rigid steel conduit elbows.
6. Surface mounted raceway: Shall be used only where other routes are unavailable and where it is mutually agreed to be desirable by the contractor and owner.
7. See referenced Signal and Communications specification sections for raceways associated with these systems.

B. Installation:

1. Planning: The layout of all raceways shall be carefully planned by the Contractor to ensure an installation which is neatly done and workmanlike. Any work showing improper care in planning will be ordered removed by the Architect, and shall be replaced in a neat and proper manner, without any additional cost to the Owner.

2. Concealment: All raceways shall be concealed in finished areas unless approved otherwise by the Architect or Owner. Where existing wall surfaces are inaccessible, surface metal raceways for these exceptions may be provided when approved by the Architect or Owner. Raceways may be surface mounted in unfinished equipment spaces such as mechanical rooms, electrical rooms, elevator machine rooms, and attic spaces.
3. Cutting and Bending: Raceways shall have smooth interior, ends cut square and reamed. Bends shall be carefully made to avoid injuring or flattening raceways (no "Hickey" bends).
4. Exposed Raceways: Install exposed raceways as high as possible, above ductwork, parallel or at right angles to building lines.
5. Expansion and Earthquake Joints:

    a. Raceways shall not be installed in concrete slab or wall construction when passing through an expansion or earthquake joint.
    b. Raceways shall be installed in furred or suspended ceiling spaces with a minimum of 36 inches of flexible conduit crossing the expansion or earthquake joints. Secure raceways each side of joint.

6. Routing: All raceways shall be installed parallel or at right angles to the building construction unless prohibited by a physical obstruction. This applies to all exposed raceways as well as all raceways above suspended ceiling.
7. Raceway Supports: Raceways shall be supported with heavy-duty, one- or two-hole, pressed steel straps on interior surfaces. Support pendant-mounted raceways on 3/8-inch rod with pear-shaped hanger or trapeze-type hanger with 3/8-inch rod (minimum) and 1-5/8-inch square preformed channel and pipe clamps. Parallel, surface-mounted raceways shall be supported from 1-5/8-inch square preformed channel and pipe clamps. All fittings and supports shall be hot-dip galvanized in exterior areas. Preformed channel in areas above suspended ceilings may be standard painted finish. Multiple conduit runs shall be grouped and neatly racked on trapeze hangers.
8. Anchorage: Anchor to metal stud structures by means of sheet metal screws or manufactured spring steel clips. Fasten individual raceways supports to structural walls or slabs with steel expansion shells and bolts. Provide flush concrete insert for multiple raceway support system. Fasten to structural steel with heavy-duty beam clamps. Fasten to architectural or masonry walls with toggle bolts or molley screws.
9. Independent Support: Conduits shall not be supported from the ceiling suspension system, ducts, pipes or other systems foreign to the electrical installation. The entire electrical installation shall be kept independent from any other trade.
10. Suspended Ceiling: Branch circuit raceways and outlet boxes installed above suspended ceilings may be secured to No. 9 AWG or larger support wires that are independent of the ceiling suspension system under the following conditions:

    a. Raceways and cables are not larger than 3/4" trade size.
    b. No more than two raceways or cables are supported by a support wire.
    c. Raceways and cables are secured to the support wires by fittings designed and manufactured for the purpose.
    d. The support wires are securely fastened to the structural ceiling and to the ceiling grid system.
    e. The raceways or cables serve equipment that is located within the ceiling cavity or is mounted on or supported by the ceiling grid system.
    f. Where not prohibited by the building code officials.

11. Conduit Location: Conduit shall not be run under heavy equipment, footings or other structural elements that might adversely affect the integrity of the raceways system or building footing. All raceways installed above suspended ceilings must be kept a minimum of 6" clear above top of ceiling system.
12. Floor Slabs and Columns: Conduits installed in structural floor slabs shall be coordinated with structural steel and shall be routed to provide a maximum concrete cover. In general, conduit shall not be installed in structural columns, unless special permission is granted by the Architect.
13. Pullboxes with Covers: Shall be provided as shown on the drawings or as required by Code. All pullboxes shall be located so as to be accessible.
14. Flexible Conduit: Shall be used only for lighting fixture pigtails in accessible ceilings, flush-mounted speaker pigtails in accessible ceilings, sound control, motor connections and at building expansion joints as specified. Installations shall not exceed 6’0” in length. Any other proposed use of flexible conduit must be approved by the Architect's representative.
15. Metalic raceway shall be continous and bonded/grounded. Transitions to ceiling, crawl or tunnel spaces are to be made from a junction box on the “concealed space” side of the penetration.
16. Conduit Stubs: Conduit which stub-up through the floor shall be installed at such a depth that none of the curved section of the elbow is visible.
17. Sealing: All conduit, sleeves, blockouts or openings around raceway and cable systems that penetrate building walls, floors and ceilings shall be sealed. Sealing materials shall be fire-rated, non-combustible type, specifically designed for this type of installation and shall be approved by the authority having jurisdiction.
18. Penetrations: Raceways which pass through building roof, exterior walls of building above or below grade and floor slabs on grade shall be sealed on the interior side of the building using non-hardening sealing compound after all conductors have been installed in the raceway. Sealing material shall be specifically designed for electrical wiring systems.
19. Conduit Passing Through Building Roof: Provide a 4 lb. lead plumbing vent flashing with a counterflashing attached above using a galvanized steel clamp. Flashing shall be in accordance with NRCA standards practices.
20. Conduit Penetrating Membranes: All conduits penetrating walls or slabs with membranes shall be installed with approved membrane clamping devices in order to provide necessary seal.
21. Exterior Walls: Conduits passing through exterior walls below grade and/or bridging an area which was previously excavated and backfilled shall be rigidly supported by a structurally reinforced concrete duct bank spanning between the building wall and a bearing surface on undisturbed earth.
22. Cleaning of Raceways: The interior and exterior of all conduits and other raceways shall be thoroughly cleaned of all material. All conduits shall be capped or plugged after installation to ensure that they remain clean.
23. No section of conduit shall be longer then 100 feet or contain more than three (3) 90 degree bends between pull points or pull boxes.
24. Rigid non-metallic conduit shall not be used in above grade floor slabs, or in wall or open spaces of any type.
25. Electrical metallic tubing (EMT): EMT shall be used in concealed spaces. EMT may not be used in finished areas unless indicated on the drawings. EMT may be used for exposed work in unfinished areas where not exposed to physical damage. Raceways in traffic areas shall be considered exposed to physical damage where within 10 feet of floor.

26. Multiple rows of suspended conduits shall be supported from Trapeze style hangers, providing 20% spare room for future raceways.
27. Rigid non-metallic conduit installed underground shall be buried a minimum of 24" and a maximum of 30" under grade.
28. Utilize rigid steel conduit below all roadways. Installed at depths less then 24" conduit shall be encased in concrete. Over 24" depth, wrap with scotch insulation tape, or utilize conduit with factory applied PVC coating.
29. Raceway shall be installed with a minimum separation of 12 inches of free air from steam and hot water piping and a minimum separation of 3 inches of free air space from all other mechanical piping.

C. Dissimilar Materials: Keep electrical conduits free from contact with all other piping runs of different systems or of dissimilar metals.

3.4 RACEWAYS AND CABLE INSTALLATION PATHWAYS FOR LOW VOLTAGE SYSTEMS

A. Installation of Raceways/Pathways for intercom, clock, telecommunications and CATV systems shall be in accordance with the applicable portions of ANSI/TIA/EIA-569-A, Commercial Building Standards for Telecommunications Pathways and Spaces.

B. Conduits above lay-in ceilings: Do not install cables in conduits that are supported from the ceiling suspension system. All conduits shall be supported independently of the ceiling support system.

C. Minimum size is ¾" for systems and data, unless noted otherwise. Conduit fill shall not exceed 40%.

D. Bend radius for conduits shall meet the following requirements:

1. If the conduit has an internal diameter of 2 inches or less, the bend radius must be at least 6 times the internal conduit diameter.
2. If the conduit has an internal diameter of more than 2 inches, the bend radius must be at least 10 times the internal conduit diameter.

E. There shall be no more than two 90 degree bends between pull points in telecommunications conduit, without derating of the conduit capacity. For each additional 90 degree bend the conduit capacity shall be derated by 15 percent. Increase conduit size as required to meet conduit fill requirements of this section with the derated capacity accounted for. Or, provide pull boxes to eliminate 90 degree bends as necessary to avoid having to derate conduit. Offsets shall be considered as equivalent to a 90 degree bend. Pull boxes added to conduit runs as of result of this requirement shall be in accordance with this section.

F. Conduits which are terminated at cable trays shall be supported from structure with a maximum distance of 24" from the tray. Conduits terminated at cable trays shall be bonded to the tray.

G. Exterior conduit shall be Schedule 40 PVC for Service Entrances. Interior conduit for vertical riser cable shall be GRC, sized per ANSI/TIA/EIA-568-A-5 or as indicated on the Contract Drawings. Interior conduit for horizontal cable shall be EMT, sized per ANSI/TIA/EIA-568-A-5 standards or as indicated on the Contract Drawings.

H. Use of flexible conduit for telecommunications shall be kept to a minimum and shall be at the discretion of the Contracting Agency. Obtain prior written approval for the use of flexible conduit. Where required due to physical considerations, flexible metal conduit may be allowed in lengths not exceeding 4 feet. If used, flexible metal conduit shall be increased by one trade size for the application used.

I. Conduits entering the MDF room through the floor shall be terminated 4 inches above finished floor. Conduits entering the MDF room from above shall be terminated 4 inches below the finished ceiling, but in no case shall the conduits terminate greater than 12 inches above the cable tray or distribution frame.

J. Conduits and cut-out openings between floors shall be sealed with firestopping material which is removable and reusable, to accommodate adds, moves and changes in the cabling system.

K. All conduits used for routing of low voltage cables shall have bushings at all stubouts.

END OF SECTION 260533

SECTION 260540 - OUTLET, JUNCTION AND PULL BOXES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide all outlet, junction and pull boxes required for proper installation of electrical equipment being installed under this work.

1.3 COORDINATION

A. The Contractor shall review all drawings, details and elevations and coordinate with the Architect and equipment supplier prior to rough-in, all installations of wiring devices and equipment. Where equipment is furnished by others, the Contractor shall ascertain the proper voltage, load and connection requirements prior to rough-in.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Boxes: Appleton, Circle AW, Crouse-Hinds, Raco, Steel City, Wiremold or equal.

B. Fittings: Appleton, Circle AW, Crouse-Hinds or equal.

C. Floor Boxes: Wiremold, FSR, or equal.

2.2 OUTLET AND DEVICE BOXES

A. Interior Surface-Mounted in Unfinished Areas: One-piece pressed steel, electro-galvanized, size and depth required by Code, except 4-inch square or 4-inch octagonal minimum. Minimum 14 U.S. gauge, with return flange and screw retained cover.

B. Interior Flush-Mounted: Galvanized pressed steel, knockout type, not less the 4” square, 2-1/8” deep, minimum 14 U.S. gauge, with return flange and screw retained cover. Provide extension rings for all flush boxes. Boxes which occur in concrete block walls shall be equipped with 1 ½” square cornered tile extensions.

C. Interior Surface-Mounted, Finished Areas: Wiremold No. 5700 Series sized to fit standard wiring device, covers specified below.

D. Outlet boxes installed in surface metallic raceway systems shall be shallow boxes manufactured as part of the system.

E. Exterior Mounted: Cast, non-ferrous metal with threaded hubs required. Manufacturers as listed above.

F. Prohibited Materials: Sectional outlet boxes shall not be utilized.

2.3 JUNCTION AND PULL BOXES

A. 100 cubic inches or smaller: Standad outlet box with stamped knockouts.

B. 150 cubic inches or larger: Code gauge stell with sides formed and welded, with screw covers unless shown to have hinged doors. Hinged doors shall have locking device same as furnished for panelboards.

C. Knockouts shall be factory stamped, or formed in the field with a cutting tool to provide a clean symmetrically-cut hole.

D. Interior Areas: Steel, screw cover, Code gauge and size, baked enamel finish.

E. Exterior or Wet areas: Weatherproofed galvanized steel construction with proper gaskets and corrosion resistant fasteners.

F. Device outlets shall be a minimum of 2-1/8” inches deep, minimum 4 inches square.

G. For existing walls, use 2 ½” deep min. cut in box.

H. Prohibited materials: “Handy Boxes”

2.4 FITTINGS

A. Junction boxes or elbows may be cast conduit fittings at Contractor's option. Provide one size larger than raceway for feeders - "mogul-type." Openings accessible at all times. Exterior areas to be cast aluminum with gasketted non-ferrous covers.

PART 3 – EXECUTION

3.1 GENERAL

A. Boxes shall be supported securely and independently. Mount boxes on building surfaces or support with trapeze hanger as described in Raceway Installation. Junction boxes shall not be used unless the number of bends, pulling length, or circuit requirements necessitate their installation. Junction or pullbox openings must be accessible. All boxes must be supported independently of any other building system.

B. Coordinate and locate boxes to ensure accessibility of electrical wiring.

3.2 DEVICE BOXES

A. Outlet and device boxes mounted in stud walls shall be attached to two adjacent wall studs using blocking material behind the box to ensure that the box will remain square to the finished wall surface.

B. Outlet and device boxes mounted in masonry walls shall be set at the bottom or top of a masonry unit course.

C. Plaster rings shall be provided for all devices in walls with finished materials such as gypsum wallboard, plaster, etc. Plaster ring shall extend outlet box to within 1/8-inch of finished wall surface including all wall coverings. Coordinate with Architectural finishes prior to rough-in.

D. Grout around all outlet boxes to seal space between box and wall or ceiling materials.

E. Exterior Wall Outlets: Conduit shall not enter the bottom of exterior wall outlet boxes. Conduit shall enter the sides and top only.

F. Multiple Gang Outlet: Install two or more wiring devices shown in one location under a common plate except when outlets are of a different voltages such as telephone and duplex receptacles. Install plates with all edges in continuous contact with finished wall surfaces. Install plates vertically with alignment tolerance of 1/16-inch. Sectional plates are not permitted. No more than one device shall be installed in a single-gang position.

G. Device Locations: Locate switches 6 inches from door casing unless otherwise shown. Outlets mounted above one another shall be on the same centerline. Coordinate exact locations of any special devices with Architect. All outlet heights must comply with all handicap accessibility requirements. Heights to center of outlet mounted vertically shall be as follows unless otherwise shown:

1. Convenience Outlets: +18"
2. Above Counter Outlets: Verify height. Minimum clearance one inch above backsplash or counter as applicable.
3. Switches: 4'-0"
4. Electric Water Coolers: Conceal outlet behind equipment housing.
5. Where different type devices occur adjacent to each other, space outlet boxes so that finish plates will be spaced a minimum of one inch apart at same height.

3.3 BLANK COVERS

A. Provide blank covers or plates over all boxes that do not contain devices or are not part of an equipment connection.

3.4 LABELING

A. All junction and pull boxes in accessible ceiling spaces and exposed in unfinished areas shall be identified to indicate the branch circuit numbers, feeders, or signal and communication system contained within. Use permanent label. Fire Alarm System shall be red color. Refer to Section 270500 “Common Work Results for Communications” for requirements pertaining to Signal and Communication System.

3.5 JUNCTION OR PULL BOXES

A. No box shall be secured to the celling system, HVAC ductwork, or mechanical piping.

B. Pull and junction boxes shall be installed as shown or as necessary to facilitate pulling of wire and to limit the number of bends within code requirements. Boxes shall be permanently accessible and shall be placed only at locations approved by the Architect. Secure boxes rigidly to the building element on which they are mounted, or solidly embed boxes in concrete or mansonry. Identify all pull and junction boxes with a permanent label, neatly showing the individual feeder or electrical system. Installations shall only be above accessible ceiling, crawl spaces, tunnels and in unfinished areas only.

3.6 EXTENSION RINGS

A. A maximum of one extension ring shall be provided on each junction box.

END OF SECTION 260540

SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SUMMARY

A. Section Includes:

1. Rigid nonmetallic duct.
2. Duct accessories.
3. Precast concrete handholes.
4. Polymer concrete handholes and boxes with polymer concrete cover.

1.3 DEFINITIONS

A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.

B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.

C. Duct Bank:

1. Two or more ducts installed in parallel, with or without additional casing materials.
2. Multiple duct banks.

D. RNC: Rigid nonmetallic conduit.

E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

F. The terms duct and conduit are used interchangeably in this section and on the drawings.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include duct-bank materials, including spacers and miscellaneous components.
2. Include duct, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Include accessories for manholes, handholes, boxes, and other utility structures.
4. Include underground-line warning tape.

B. Shop Drawings:

1. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:

a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
b. Include duct entry provisions, including locations and duct sizes.
c. Include cover design.
d. Include grounding details.
e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For professional engineer and testing agency responsible for testing nonconcrete handholes and boxes.

B. Product Certificates: For concrete and steel used in precast concrete manholes and handholes, as required by ASTM C 858.

C. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

1.7 FIELD CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions, and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Owner no fewer than five days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Owner's written permission.

B. Ground Water: Assume ground-water level is at grade level unless a lower water table is noted on Drawings.

PART 2 - PRODUCTS

2.1 RIGID NONMETALLIC DUCT

A. Underground Plastic Utilities Duct: Type EPC-40-PVC RNC, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. CANTEX INC.
2. Condux International, Inc.
3. Crown Line Plastics.
4. Or Equal.

C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

D. Solvents and Adhesives: As recommended by conduit manufacturer.

1. Solvents and adhesives shall comply with the testing and product requirements of the local authority having jurisdiction."

2.2 DUCT ACCESSORIES

A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Allied Tube & Conduit; a part of Atkore International.
b. CANTEX INC.
c. IPEX USA LLC.
d. Or Equal

B. Underground-Line Warning Tape: Comply with requirements for underground-line warning tape specified in Section 26 05 53 "Identification for Electrical Systems."

2.3 PRECAST CONCRETE HANDHOLES AND BOXES

A. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Oldcastle Precast, Inc.
2. Utility Concrete Products, LLC.
3. Utility Vault Co.
4. Or Equal.

C. Comply with ASTM C 858 for design and manufacturing processes.

D. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.

E. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing bolts.

1. Cover Hinges: Concealed, with hold-open ratchet assembly.
2. Cover Handle: Recessed.

F. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

G. Cover Legend: Molded lettering, "ELECTRIC." or “COMMUNICATIONS” as indicated for each service.

H. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.

I. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.

1. Extension shall provide increased depth of 12 inches.
2. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.

J. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.

K. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus an additional 12 inches vertically and horizontally to accommodate alignment variations.

1. Splayed or Center window location.
2. Knockout panels shall be located no less than 6 inches from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
3. Knockout panel opening shall have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
4. Knockout panels shall be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
5. Knockout panels shall be 1-1/2 to 2 inches thick.

L. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

1. Type and size shall match fittings to duct to be terminated.
2. Fittings shall align with elevations of approaching duct and be located near interior corners of handholes to facilitate racking of cable.

M. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.4 POLYMER CONCRETE HANDHOLES AND BOXES WITH POLYMER CONCRETE COVER

A. Description: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Armorcast Products Company.
2. Oldcastle Enclosure Solutions.
3. Quazite: Hubbell Power Systems, Inc.
4. Or Equal.

C. Standard: Comply with SCTE 77. Comply with tier requirements in "Underground Enclosure Application" Article.

D. Color: Gray or Green.

E. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.

F. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.

G. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

H. Cover Legend: Molded lettering, "ELECTRIC." or “COMMUNICATIONS” as indicated for each service.

I. Duct Entrance Provisions: Duct-terminating fittings shall mate with entering duct for secure, fixed installation in enclosure wall.

J. Handholes 12 inches wide by 24 inches long and larger shall have factory-installed inserts for cable racks and pulling-in irons.

2.5 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

1. Strength tests of complete boxes and covers shall be by an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
2. Testing machine pressure gages shall have current calibration certification, complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.

B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by Architect.

C. Clear and grub vegetation to be removed, and protect vegetation to remain. Remove and stockpile topsoil for reapplication.

3.2 UNDERGROUND DUCT APPLICATION

A. Duct for Electrical Feeders 600 V and Less: Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.

1. Concrete encasement shall be two sack slurry with red dye and is required for all 600 V and less feeders under driveways and pathways designed for vehicular traffic, excluding emergency vehicles. Asphalt surfaced playgrounds and vehicle entry gates are not considered a path or driveway. Concrete encasement shall be a minimum of 3 inches of cover on all sides.
2. All other duct banks operating at less than 600 V shall have 3 inches of sand base and 6 inches of sand cover and compacted native soil on top.

B. Duct for Electrical Branch Circuits: Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.

1. All ducts for branch circuits shall have 2 inches of sand base and 3 inches of sand cover and compacted native soil on top.

3.3 UNDERGROUND ENCLOSURE APPLICATION

A. Handholes and Boxes for 600 V and Less:

1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-20 structural load rating.
2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.
3. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer concrete units, SCTE 77, Tier 8 structural load rating.

4. Units Subject to Light-Duty Pedestrian Traffic Only: Polymer Concrete, structurally tested according to SCTE 77 with 3000-lbf vertical loading.
5. Cover design load shall not exceed the design load of the handhole or box.

B. Manholes: Precast concrete.

1. Units Located in Roadways and Other Deliberate Traffic Paths by Heavy or Medium Vehicles: H-20 structural load rating according to AASHTO HB 17.
2. Units Not Located in Deliberate Traffic Paths by Heavy or Medium Vehicles: H-10 load rating according to AASHTO HB 17.

3.4 EARTHWORK

A. Excavation and Backfill: Do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restoration: Replace area immediately after backfilling is completed or after construction vehicle traffic in immediate area is complete.

C. Restore surface features at areas disturbed by excavation and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with division 32 specifications.

3.5 DUCT AND DUCT-BANK INSTALLATION

A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.

B. Install duct according to NEMA TCB 2.

C. Slope: Pitch duct a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from a high point between two manholes, to drain in both directions.

D. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches, both horizontally and vertically, at other locations unless otherwise indicated.

1. Duct shall have maximum of two 90 degree bends or the total of all bends shall be no more 180 degrees between pull points.

E. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.

F. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.

G. Pulling Cord: Install 200-lbf-test nylon cord in empty ducts.

H. Concrete-Encased Ducts and Duct Bank:

1. Excavate trench bottom to provide firm and uniform support for duct. Prepare trench bottoms as specified in Section 312000 "Earth Moving" for pipes less than 6 inches in nominal diameter.
2. Width: Excavate trench 12 inches wider than duct on each side.
3. Depth: Install so top of duct envelope is at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles unless otherwise indicated.
4. Support duct on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
5. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than four spacers per 20 feet of duct. Place spacers within 24 inches of duct ends. Stagger spacers approximately 6 inches between tiers. Secure spacers to earth and to duct to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
6. Minimum Space between Duct: 3 inches between edge of duct and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and communications ducts.
7. Elbows: Use manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct unless otherwise indicated. Extend encasement throughout length of elbow.
8. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
9. Concrete Cover: Install a minimum of 3 inches of concrete cover between edge of duct to exterior envelope wall, 2 inches between duct of like services, and 12 inches between power and communications ducts.
10. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.

    a. Start at one end and finish at the other, allowing for expansion and contraction of duct as its temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written instructions, or use other specific measures to prevent expansion-contraction damage.
    b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing-rod dowels extending a minimum of 18 inches into concrete on both sides of joint near corners of envelope.

11. Pouring Concrete: Comply with requirements in "Concrete Placement" Article in Section 03 30 00 "Cast-in-Place Concrete." Place concrete carefully during pours to prevent voids under and between duct and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Allow concrete to flow around duct and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-installation application.

I. Direct-Buried Duct and Duct Bank:

1. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Section 312000 "Earth Moving" for preparation of trench bottoms for pipes less than 6 inches in nominal diameter.
2. Width: Excavate trench with a minimum 3 inches wider than duct on each side.
3. Depth: Install top of duct at least 36 inches below finished grade unless otherwise indicated.
4. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
5. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet of duct. Place spacers within 24 inches of duct ends. Stagger spacers approximately 6 inches between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
6. Install duct with a minimum of 3 inches between ducts for like services and 6 inches between power and communications duct.
7. Elbows: Install manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct direction unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
8. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inches over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction.

    a. Place minimum 3 inches of sand as a bed for duct. Place sand to a minimum of 6 inches above top level of duct.
    b. Place minimum 6 inches of engineered fill above concrete encasement of duct.

J. Underground-Line Warning Tape: Bury conducting underground line specified in Section 260553 "Identification for Electrical Systems" no less than 12 inches above all concrete-encased duct and duct banks. Align tape parallel to and within 3 inches of centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

3.6 INSTALLATION OF CONCRETE MANHOLES, HANDHOLES, AND BOXES

A. Precast Concrete Handhole and Manhole Installation:

1. Comply with ASTM C 891 unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting duct, to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

B. Elevations:

1. Manhole Roof: Install with rooftop at least 15 inches below finished grade.
2. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
3. Where indicated, cast handhole cover frame integrally with handhole structure.
4. Handhole rim elevations shall be lower than building floor or equipment pad elevations that they serve. When a lower rim elevation is not possible provide drainage.

C. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.

D. Manhole Access: Circular opening in manhole roof; sized to match cover size.

1. Manholes with Fixed Ladders: Offset access opening from manhole centerlines to align with ladder.
2. Install chimney, constructed of precast concrete collars and rings, to support cast-iron frame to connect cover with manhole roof opening. Provide moisture-tight masonry joints and waterproof grouting for frame to chimney.

E. Hardware: Install removable hardware, including pulling eyes as required for installation and support of cables and conductors and as indicated.

F. Fixed Manhole Ladders: Arrange to provide for safe entry with maximum clearance from cables and other items in manholes.

G. Field-Installed Bolting Anchors in Manholes and Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.

3.7 GROUNDING AND BONDING

A. Ground and bond underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch-long mandrel equal to duct size minus 1/4 inch. If obstructions are indicated, remove obstructions and retest.
3. Test manholes and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

C. Prepare test and inspection reports.

3.9 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes and handholes, including sump.

1. Sweep floor, removing dirt and debris.
2. Remove foreign material.

END OF SECTION 260543

SECTION 260553 - IDENTIFICATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide proper identification of all electrical work specified. This shall include but not be limited to the following items: service and distribution equipment, starters, disconnects, cabinets, terminal boxes, device junction boxes, danger signs, maintenance access points, and fused switches including fuse size and type.

B. Install nameplates on all main and distribution switchboards, panelboards, disconnect switches, and miscellaneous systems junction boxes and cabinets installed under this contract.

C. Install bakelite nameplates at each protective device in switchboard and distribution centers, showing circuit service.

D. Install circuit directory cards in all panelboards. Cards shall be typed or computer printed.

E. All wiring in all outlet and junction boxes shall be properly identified as to circuit number. Type of marker shall be made with Brady ID Pro printer/labeler with ¾” lables, or approved equal. Locate label on inside of device box. Label shall be black letters on white background using Brady #42019 tape and #42011 ribbon.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Prohibited Materials

1. Dymo (or equivalent) labels shall not be utilized, unless specifically noted.

B. Schedules – provide typewritten directory for each panel, on heavy card stock, showing all circuit numbers.

2.2 EQUIPMENT NAMEPLATES

A. Nameplates shall be fabricated from white bakelite, with 3/8” engraved black letters.

B. Mounting: Nameplates shall be attached with a minimum of two 6-32 roundhead screws, lockwasher and nuts in exterior locations and contact-type permanent self-adhesive in indoor locations.

2.3 SWITCHBOARDS AND DISTRIBUTION PANELBOARDS

A. General: Provide nameplate which identifies the switchboard/distribution panel and the source panel. (Example: Distribution Panel No. 1/Fed from Main Service Switchboard - Bkr. No. 1.)

B. Overcurrent Devices: Provide nameplate at each overcurrent device that identifies the device number and the load served. (Example: Bkr. No. 1/Panel A.)

2.4 PANELBOARDS

A. Provide nameplate on the front of the panel room which identifies the panel. (Example: Panel A.) Provide a nameplate concealed behind the door which identifies the panel, and the source panel. (Example: Panel A, Fed from Distribution Panel 1-Bkr. No. 2)

2.5 DISCONNECT SWITCHES AND MOTOR STARTERS

A. Provide nameplate which identifies the source panel, load served and the fuse size where applicable. (Example: Panel A-1,3,5/Exhaust Fan No. 1/10 amp, RK1 fuses.)

2.6 JUNCTION AND PULL BOX IDENTIFICATION

A. Mark the cover of all junction boxes and pull boxes to identify the system, circuits, or feeders contained within the box. Use red color for fire alarm. Circuits shall be identified by panelboards and specific circuit numbers contained within the junction box. Refer to specification Section 260540 “Outlet, Junction and Pull Boxes” and Section 270500 “Common Work Results for Communications.”

PART 3 – EXECUTION

3.1 INSTALLATION

A. Clean all surfaces prior to installing labels. Where identification is to be applied to surfaces which require finish, install identification after completion of painting.

B. Nameplates

1. Panelboards: Mount inside door, on dead frount, above circuit breakers, unless panelboard is located in a utility-type room, then install nameplate on outside of panelboard above door.
2. Disconnect switches: Mount nameplate on outside of cabinet, near top. Omit nameplate from disconnect switches if located adjacent to equipment.

C. Schedules

1. Panelboards: Mount in frame under plastic cover, on back side of door. Schedule shall be typed or printed and show circuit service for each circuit breaker, using room numbers. Spares and spaces shall be written in pencil.

3.2 REGULATIONS

A. Comply with governing regulations and requests of governing authorities for identification of electrical work.

3.3 DANGER AND WARNING SIGNS

A. General: In addition to installation of danger signs required by governing regulations and authorities, Contractor shall be responsible for installing appropriate danger signs at locations constituting danger for persons in or about project.

B. High Voltage: Install danger signs wherever it is possible, under any circumstances, for persons to come into contact with electrical power.

END OF SECTION 260553

SECTION 260573 - SHORT CIRCUIT COORDINATION & ARC FLASH STUDY

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 and the following Division 26 specification sections:

1. 26 0553 Identification for Electrical Systems
2. 26 2200 Low Voltage Transformers
3. 26 2413 Switchboards
4. 26 2416 Panelboards

1.2 SUMMARY

A. This Section includes computer-based, fault-current, overcurrent protective device selective coordination and arc flash protection studies.

B. Protective devices shall be set based on results of the protective device coordination study.

C. The results of the Arc Flash Hazard study shall determine the Flash Protection markings required for each switchboard and panelboard on the power distribution system to meet the requirement of NFPA 70E and WAC.

1.3 SUBMITTALS

A. Product Data: For computer software program to be used for studies.

B. Product Certificates: For coordination-study and fault-current-study computer software programs, certifying compliance with IEEE 399.

C. Qualification Data: For coordination-study specialist.

D. Coordinate first paragraph below with qualification requirements retained in "Quality Assurance" Article.

E. Preliminary Study Report: Submit preliminary copies of the study prior to releasing electrical distribution equipment for manufacturer. The studies must be sufficiently complete to ensure that the selected devices have ratings and characteristics that will be satisfactory to provide selective coordination.

F. Other Action Submittals: The following submittals shall be made after the approval process for system protective devices has been completed. Submittals shall be in written and digital form.

1. Coordination-study input data, including completed computer program input data sheets.

2. Study and Equipment Evaluation Reports.
3. Coordination-Study Report.
4. Recommended circuit breaker & relay settings.
5. Arc Flash calculations and equipment label information.

1.4 QUALITY ASSURANCE

A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are not acceptable.

B. Coordination-Study Specialist Qualifications: An entity experienced in the application of computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.

1. Professional engineer, licensed in the state where Project is located, shall be responsible for the study. All elements of the study shall be performed under the direct supervision and control of engineer.

C. Comply with IEEE 242 for short-circuit currents and coordination time intervals.

D. Comply with IEEE 399 for general study procedures.

1.5 INFORMATION FOR O&M MANUAL

A. Final Study Report: Include final copies of the completed power system study, taking into account modifications to the distribution system undertaken as a result of the preliminary studies.

1.6 REGULATORY REQUIREMENTS

A. Utility Company Approval: Copies of the preliminary study report shall be submitted to the Electric Power Utility Company for their review and approval. An approval letter from the Utility Company shall be included with the preliminary study report submitted to the Engineer for review.

PART 2 - PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS

A. Computer Software Developers: Subject to compliance with requirements, provide products by one of the following:
1. CGI CYME.

2. EDSA Micro Corporation.
3. ESA Inc.

4. Operation Technology, Inc.
5. SKM Systems Analysis, Inc.

2.2 COMPUTER SOFTWARE PROGRAM REQUIREMENTS

A. Comply with IEEE 399.

B. Analytical features of fault-current-study computer software program shall include "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

C. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.

D. The report shall also include the following sections:

1. Project description, purpose, basis and scope of the study
2. Fault current calculations
3. Tabulations of circuit breaker, fuse and other protective device ratings versus calculated short circuit duties, and commentary regarding the same.
4. Copies of manufacturer’s time-current curves for the devices studies.
5. Protective device time versus current coordination curves.
6. Tabulations of relay and circuit breaker trip settings, fuse selections, and commentary regarding the same.
7. Arcing faults and Arc-Flash requirements for each switchboard and panelboard on the power distribution system.
8. Optional Features:

    a. Simultaneous faults.
    b. Explicit negative sequence.
    c. Mutual coupling in zero sequence.

E. A preliminary copy of the study report shall be submitted for review. The final report shall include such additions or changes as required by the reviewer.

F. The results of the power system studies shall be summarized in a bound study report. Multiple copies of the final report shall be furnished and included in the O&M Manuals.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings.

1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

3.2 POWER SYSTEM DATA

A. Gather and tabulate the following input data to support coordination study:
   1. Product Data for overcurrent protective devices specified in other Division 26 Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.

   2. Impedance of utility service entrance.
   3. Electrical Distribution System Diagram: In hard-copy and electronic-copy formats, showing the following:

      a. Circuit-breaker and fuse-current ratings and types.
      b. Relays and associated power and current transformer ratings and ratios.
      c. Transformer kilovolt amperes, primary and secondary voltages, connection type, impedance, and X/R ratios.
      d. Generator kilovolt amperes, size, voltage, and source impedance.
      e. Cables: Indicate conduit material, sizes of conductors, conductor material, insulation, and length.
      f. Busway ampacity and impedance.
      g. Motor horsepower and code letter designation according to NEMA MG 1.
         1) Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:

      h. Special load considerations, including starting inrush currents and frequent starting and stopping.
      i. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
      j. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
      k. Generator thermal-damage curve.
      l. Ratings, types, and settings of utility company's overcurrent protective devices.
      m. Special overcurrent protective device settings or types stipulated by utility company.
      n. Time-current-characteristic curves of devices indicated to be coordinated.
      o. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.
      p. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.
      q. Panelboards, switchboards, and interrupting rating in amperes rms symmetrical.

3.3 FAULT-CURRENT STUDY

A. Calculate the maximum available short-circuit current in amperes rms symmetrical at circuit-breaker positions of the electrical power distribution system. The calculation shall be for a current immediately after initiation and for a three-phase bolted short circuit at each of the following:

1. Switchboard.
2. Distribution panelboard.
3. Branch circuit panelboard.

B. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Include studies of system-switching configurations and alternate operations that could result in maximum fault conditions.

C. Calculate momentary and interrupting duties on the basis of maximum available fault current.

D. Calculations to verify interrupting ratings of overcurrent protective devices shall comply with IEEE 141, IEEE 241 and IEEE 242.
1. Transformers:

a. ANSI C57.12.10.
b. ANSI C57.12.22.
c. ANSI C57.12.40.
d. IEEE C57.12.00.
e. IEEE C57.96.
1) Medium-Voltage Circuit Breakers: IEEE C37.010.
2) Low-Voltage Circuit Breakers: IEEE 1015 and IEEE C37.20.1.
3) Low-Voltage Fuses: IEEE C37.46.

E. Study Report:

1. Show calculated X/R ratios and equipment interrupting rating (1/2-cycle) fault currents on electrical distribution system diagram.

F. Equipment Evaluation Report:
1. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

2. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.
3. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
4. Arc fault calculations.
5. Flash protection requirements based on arc fault calculations.

3.4 COORDINATION STUDY

A. Perform coordination study using approved computer software program. Prepare a written report using results of fault-current study. Comply with IEEE 399.

1. Calculate the maximum and minimum 1/2-cycle short-circuit currents.
2. Calculate the maximum and minimum interrupting duty (5 cycles to 2 seconds) short-circuit currents.
3. Calculate the maximum and minimum ground-fault currents.

B. Comply with IEEE 141, IEEE 241, IEEE 242 recommendations for fault currents and time intervals.

C. Transformer Primary Overcurrent Protective Devices:
1. Device shall not operate in response to the following:

a. Inrush current when first energized.
b. Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.
c. Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.
1) Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.

D. Motors served by voltages more than 600 V shall be protected according to IEEE 620.

E. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and conductor melting curves in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.

F. Coordination-Study Report: Prepare a written report indicating the following results of coordination study:

1. Tabular Format of Settings Selected for Overcurrent Protective Devices:

a. Device tag.
b. Relay-current transformer ratios; and tap, time-dial, and instantaneous-pickup values.
c. Circuit-breaker sensor rating; and long-time, short-time, and instantaneous settings.
d. Fuse-current rating and type.
e. Ground-fault relay-pickup and time-delay settings.
f. Flash protection requirements.

G. Coordination Curves: Prepared to determine settings of overcurrent protective devices to achieve selective coordination. Include ground fault settings. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's

upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:

1. Device tag.
2. Voltage and current ratio for curves.
3. Three-phase and single-phase damage points for each transformer.
4. No damage, melting, and clearing curves for fuses.
5. Cable damage curves.
6. Transformer inrush points.
7. Maximum fault-current cutoff point.

H. Completed data sheets for setting of overcurrent protective devices.

END OF SECTION 260573

SECTION 260800 - COMMISSIONING OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. The purpose of this section is to specify the Contractor's responsibilities relative to Division 26 and participation in the commissioning process. See Division 1, Section 01 9113, “General Commissioning Requirements,” for Contractor-related commissioning requirements.

1. Organization of the commissioning program is primarily the responsibility of the Commissioning Authority. Execution of the program is primarily the responsibility of the Contractor with support from the Division 26 for:

a. Testing and start-up of the electrical equipment.
b. Completion and endorsement of pre-functional test checklists provided by the Commissioning Authority to assure that Division 26 equipment and systems are fully operational and ready for functional testing.
c. Providing qualified personnel to assist the Commissioning Authority with functional testing to verify equipment/system performance.
d. Providing equipment, materials, and labor necessary to correct deficiencies found during the commissioning process which fulfill contract and warranty requirements.
e. Providing training for the systems specified in Division 26 with coordination of Owner by the Commissioning Authority.

B. Division 26 shall cooperate with the Commissioning Authority in the following manner:

1. Allow sufficient time before final completion dates so that electrical testing, lighting control checkout, and functional testing can be accomplished.
2. Provide labor and material to make corrections when required without undue delay.
3. Put all electrical systems and equipment into full operation and continue the operation of the same during each working day of commissioning.

C. Related Sections

1. General Commissioning Requirements
2. Division 26 – Electrical
3. Division 28 – Systems

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. Standard certified test equipment for commissioning will be provided by the Commissioning Authority.

B. Proprietary test equipment required by the manufacturer shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist the Commissioning Authority in the commissioning process.

PART 3 - EXECUTION

3.1 WORK PRIOR TO COMMISSIONING

A. Specific pre-commissioning responsibilities of Division 26 are as follows:

1. Normal start-up services required to bring each system into a fully operational state.
2. Complete pre-functional test checklists for all equipment and systems to be commissioned
3. Portions of mechanical equipment start-up requiring electrical connections and metering.
4. Factory start-up services for key equipment and systems specified in Division 26. The Division 26 Contractor shall coordinate this work with the manufacturer and the Commissioning Authority.
5. Demonstrate system readings as requested by the Commissioning Authority and adjust units to achieve specified operation.

3.2 PARTICIPATION IN COMMISSIONING

A. The Division 26 Contractor shall provide skilled technicians to start-up and debug all systems within the Division 26 work (particularly with lighting equipment). These same technicians shall be made available to assist the Commissioning Authority in completing the commissioning program as it relates to each system and their technical specialty. Work schedules, time required for testing, etc., will be requested by the Commissioning Authority and coordinated by the Contractor. Contractor will ensure the qualified technician(s) are available and present during the agreed upon schedules, and of sufficient duration to complete the necessary tests, adjustments, and/or problem resolutions.

B. The Commissioning Authority reserves the right to judge the appropriateness and qualifications of the technicians relative to each item of equipment, system, and/or sub-system. Qualifications of technicians include expert knowledge relative to the specific equipment involved, adequate documentation and tools to service/commission the equipment, and an attitude/willingness to work with the Commissioning Authority to get the job done. A liaison or intermediary between the Commissioning Authority and qualified factory representatives does not constitute the availability of a qualified technician for purposes of this work.

C. Provide skilled technicians to manipulate the following equipment and systems to be commissioned for functional testing:

1. Lighting control systems
2. Day lighting control system

3.3 WORK TO RESOLVE DEFICIENCIES

A. Maladjustments, misapplied equipment, and/or deficient performance under varying loads will result in a system that does not meet Acceptable Performance. Correction of work will be completed under the direction of the Owner/Architect, with input from the Contractor, Equipment Supplier, and Commissioning Authority. Whereas, all members will have input and the opportunity to discuss, debate, and work out problems, the Architect/Engineer-of-Record will have final jurisdiction on the necessary work to be done to achieve performance and/or design intent.

3.4 ELECTRICAL SYSTEM TESTING

A. Electrical system testing as required in other sections of this specification shall be coordinated with the Commissioning Authority. The Commissioning Authority may witness testing performed by the Division 26 Contractor.

B. All testing documentation related to Division 26 equipment and systems, as specified in other sections of this specification, will be provided to the Commissioning Authority for use and review.

3.5 SEASONAL COMMISSIONING AND OCCUPANCY VARIATIONS

A. Seasonal commissioning pertains to testing under full-load conditions during peak heating and peak cooling seasons, as well as part-load conditions in the spring and fall. Initial commissioning will be done as soon as contract work is completed regardless of season. All equipment and systems will be tested and commissioned in a peak season to observe full-load performance. Heating equipment will be tested during winter design extremes. Cooling equipment will be tested during summer design extremes, with a fully occupied building. The Contractor will be responsible to participate in the initial and the alternate peak season test of the systems required demonstrating performance.

B. Subsequent commissioning may be required under conditions of minimum and/or maximum occupancy or use. All equipment and systems affected by occupancy variations will be tested and commissioned at the minimum, and at peak loads to observe system performance. The Contractor will be responsible to participate in the occupancy sensitive testing of systems to provide verification of adequate performance.

C. Daylighting testing must be done during peak daylight times (as close to the summer solstice as possible) to ensure proper lighting levels during peak daylight down to minimum daylight amounts.

3.6 TRAINING

A. The Division 26 Contractor will be required to participate in the training of the Owner's engineering and maintenance staff for each electrical system and the related components. Training may be conducted in a classroom setting, with system and component documentation, and suitable classroom training aids, or in the field with the specific equipment. The type of training will be per the Owner's option.

END OF SECTION 260800

SECTION 262200 – LOW-VOLTAGE TRANSFORMERS

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes the following types of dry-type transformers rated 600V and less, with capacities up to 1000 kVA:

1. Distribution transformers
2. Buck-boost transformers

1.2 OVERVIEW

A. Low voltage transformers are typically not used inside WSU facilities. Service transformers are provided at both 208Y/120V and 480Y/277V and thus eliminate the need for additional low voltage transformers. In the few cases where they are needed, the following applies:

B. Selection of indoor transformers rated greater than 75 kVA shall require review and approval by WSU Engineering Services.

C. Indoor transformers are to be air cooled, totally enclosed with ventilated openings.

D. Use copper windings only.

E. Consider HVAC requirements and provide an exhaust fan and/or adequate cooling for the space in which the transformer is installed.

F. Consider transformer size and the ability to get it in/out of the building for replacement.

G. Use pad mounted transformers in dedicated electrical rooms only.

H. Do not mount transformers to walls or to anything other than the floor.

I. Consider the potential need for electrostatic shielding.

J. Strictly adhere to clearance requirements.

K. Provide grounding electrode conductor at the transformer secondary and bond to nearest grounding electrode.

L. Provide primary overcurrent protection rated or set at transformer primary full load current, use next higher rating or setting where not available at primary full load current. Do not protect primary at more than 125% of primary full load current.

1. Observe these same overcurrent protection rules for transformer secondaries.

M. Do not use delta secondary transformers.

N. All transformer secondaries are to be grounded.

O. Use K factor rated transformers where non sinusoidal loads are served.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Eaton Electrical Inc.; Cutler-Hammer Products

B. General Electric Company

C. Siemens Energy & Automation, Inc.

D. Square D; Schneider Electric

2.2 DISTRIBUTION TRANSFORMERS

A. Shall comply with NEMA ST 20.

B. Transformer enclosure finish: Comply with NEMA 250.

1. Finish color: Gray.

C. Taps for transformers smaller than 3 kVA: One 5 percent tap above normal full capacity.

D. Taps for transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

E. Taps for transformers 25 kVA and Larger: Two 2.5% taps above and two 2.5% taps below normal full capacity.

F. Insulation class: 220 deg C, UL-component-recognized insulation system with a maximum of 150 deg C rise above 40 deg C ambient temperature.

G. Energy efficiency for transformers rated 15 kVA and larger:

1. Complying with NEMA TP 1, Class 1 efficiency levels.
2. Tested according to NEMA TP 2.

H. K-factor rating: Design Engineer shall specify K-factor transformers at locations where the majority of loads are non-sinusoidal.

I. Electrostatic shielding: Specify electrostatically shielded transformers where solid-state devices or computers constitute a significant portion of the load. Selection of electrostatically shielded transformers shall require review and approval by WSU Engineering Services.

2.3 BUCK-BOOST TRANSFORMERS

A. A. Description: Self cooled, two winding dry type, rated for continuous duty and with wiring terminals suitable for connection as autotransformer. Transformers shall comply with NEMA ST 1.

END OF SECTION 262200

SECTION 262413 - SWITCHBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Specification section 26 0573 Short Circuit Device Coordination and Arc Flash Study.

C. SUMMARY

D. Section Includes:

1. Service and distribution switchboards rated 600V and less.
2. Disconnecting and overcurrent protective devices.
3. Instrumentation.
4. Control power.
5. Accessory components and features.
6. Identification.

1.2 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Switchboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified.

1.3 SUBMITTALS

A. Product Data: For each type of switchboard, overcurrent protective device ground-fault protector, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

B. Confirm equipment values comply with the results of the short circuit & arc flash report values prior to submitting the equipment provided under this section.

C. Shop Drawings: For each switchboard and related equipment.

D. Include dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings.

E. Detail enclosure types for types other than NEMA 250, Type 1.

F. Detail bus configuration, material type, current, and voltage ratings.

G. Detail short-circuit current rating of switchboards and overcurrent protective devices.

H. UL listing for switchboards suitable for use as service equipment (SUSE).

1. Include descriptive documentation of optional barriers specified for electrical insulation and isolation.
2. Include evidence of NRTL listing for rating of installed devices.
3. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
4. Detail utility company's metering provisions with indication of approval by utility company.
5. Include schematic and wiring diagrams for power, signal, and control wiring.

I. Shop Drawings. Provide the following:

1. Include plan and elevation drawings indicating the equipment layout for the intended installation location. The shop drawings shall include all panelboards, transformers, transfer switches, etc., which are also located in the intended space.
2. The design documents indicate a general equipment layout only and are not intended to be a detailed installation plan. The design layout does not take into account the equipment dimensional differences between all of the listed approved manufacturers.
3. It shall be the contractor's responsibility to ensure that the equipment purchased for installation will fit in the space available and to insure compliance with all applicable code required working clearances.
4. Should it be determined that the space available is not sufficient for the manufacturer's equipment, the contractor shall develop a plan which is acceptable to the Owner, Architect and Engineer for placing the equipment in a satisfactory layout which meets all required working clearances.
5. No equipment shall be purchased without the contractor's verification that the space available is adequate for the intended manufacturer's equipment.

J. Contractor's Review: Prior to submitting the required material for the engineer's review the contractor shall review all documentation received from the manufacturer and make notations to correct non-compliant items. Prior to forwarding the reviewed documentation to for the Engineer's review; the contractor shall stamp the documents as 'Accepted' or 'Accepted as Noted'. Submittals which have not been pre-reviewed by the contractor or marked as previously stated shall be rejected by the reviewing Engineer.

K. Field Quality-Control Reports:
1. Test procedures used.

2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

L. Operation and Maintenance Data: For switchboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Routine maintenance requirements for switchboards and all installed components.
2. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers qualified as defined in NEMA PB 2.1 and trained in electrical safety as required by NFPA 70E.

B. Testing Agency Qualifications: Member company of NETA or an NRTL.

C. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

D. Source Limitations: Obtain switchboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

E. Product Selection for Restricted Space: Drawings indicate maximum dimensions for switchboards including clearances between switchboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

G. Comply with NEMA PB 2.

H. Comply with NFPA 70.

I. Comply with UL 891.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver switchboards in sections or lengths that can be moved past obstructions in delivery path.

B. Remove loose packing and flammable materials from inside.

C. Handle and prepare switchboards for installation according to NEMA PB 2.1.

1.6 PROJECT CONDITIONS

A. Installation Pathway: Remove and replace access fencing, doors, lift-out panels, and structures to provide pathway for moving switchboards into place.

B. Environmental Limitations:
1. Do not deliver or install switchboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above switchboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:

a. Ambient Temperature: Not exceeding 104 deg F (40 deg C).
b. Altitude: Not exceeding 6600 feet (2000 m).

C. Service Conditions: NEMA PB 2, usual service conditions, as follows:
1. Ambient temperatures within limits specified.

2. Altitude not exceeding 6600 feet (2000 m).

1.7 COORDINATION

A. Coordinate layout and installation of switchboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace defective materials or workmanship within specified warranty period.

1. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

A. 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. ABB

2. Eaton
3. Siemens
4. Square D; Schneider Electric.

B. Front-Connected, Front-Accessible Switchboards:
1. Main Devices: Panel mounted.

2. Branch Devices: Panel mounted.
3. Sections front and rear aligned.
4. Removal of side or rear plates shall not be required for installation of switchboard or field connection of internal wiring.

C. Switchboards shall meet Underwriter's Laboratories enclosure requirements and be furnished with an Underwriter's Laboratories label. The Main Service Switchboard shall be UL listed as suitable for use as service equipment (SUSE),

D. Main-Bus Continuous: Amperage rating as indicated on the schedule or drawings.

E. Seismic Requirements: Fabricate and test switchboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

F. Indoor Enclosures: Steel, NEMA 250, Type 1.

G. Enclosure Finish for Indoor Units: Factory-applied finish in manufacturer's standard gray finish over a rust-inhibiting primer on treated metal surface.

H. Barriers: Between adjacent switchboard sections.

I. Insulation and isolation for main and vertical buses of feeder sections.

J. Customer Metering Compartment: A separate customer metering compartment for indicated metering, and current transformers for each meter. Current transformer secondary wiring shall be terminated on shorting-type terminal blocks.

K. Buses and Connections: Three phase, four wire unless otherwise indicated.
1. Phase- and Neutral-Bus Material: Hard-drawn copper or tin-plated, high-strength, electrical-grade aluminum alloy with tin-plated aluminum circuit-breaker line connections.
2. Load Terminals: Insulated, rigidly braced, runback bus extensions, of same material as through buses, equipped with compression connectors for outgoing circuit conductors. Provide load terminals for future circuit-breaker positions at full-ampere rating of circuit-breaker position.
3. Main Phase Bus: Uniform capacity, fully rated for switchboard ampacity for entire length of switchboard's main and distributions sections. Tapered bus is not allowed.
4. Vertical Distribution Phase Bus: Uniform capacity, fully rated for section ampacity equal to the sum of all devices within the section including the maximum ampacity rating of all future devices.
5. Ground Bus: Minimum-size required by UL 891, hard-drawn copper of 98 percent conductivity, equipped with compression connectors for feeder and branch-circuit ground conductors. For busway feeders, extend insulated equipment grounding cable to busway ground connection and support cable at intervals in vertical run.
6. Equipment Ground Bus: Uniform capacity for entire length of switchboard's main and distribution sections. Tapered bus is not allowed. Provide for future extensions from both ends. Pre-drilled bus for extension with standard splice plates.
7. Neutral Buses: 100 percent of the ampacity of phase buses unless otherwise indicated, equipped with compression connectors for outgoing circuit neutral cables. Brace bus extensions for busway feeder neutral bus.
8. Coordinate and provide lugs sized for the conductors specified.

L. AIC Ratings:

1. The switchboard and their overcurrent protection devices shall be fully rated for the interrupting capacity (AIC) indicated on the panel schedules [without the use of series rating] [series rating is acceptable provided the manufacturer provides series rating calculations and labeling as required by code.
2. The available fault current (AFC) values indicated at the switchboard connection points, on the One-Line Diagram are the Engineer's calculated value and are shown for information only. The equipment shall meet or exceed the minimum required amperage interrupting capacity (AIC) value indicated on the schedules.

M. Future Devices: Equip compartments with mounting brackets, supports, bus connections, and appurtenances at full rating of circuit-breaker compartment.

2.2 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
   a. Standard frame sizes, trip ratings, and number of poles.
   b. Lugs: Compression or mechanical style, suitable for number, size, trip ratings, and conductor material.
   c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
   d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
   e. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.

2.3 INSTRUMENTATION

A. Instrument Transformers: IEEE C57.13, NEMA EI 21.1, and the following:
1. Current Transformers: IEEE C57.13; 5 A, 60 Hz, secondary; wound, bushing, bar or window type; single or double secondary winding and secondary shorting device. Burden and accuracy shall be consistent with connected metering and relay devices.
2. Current Transformers for Neutral and Ground-Fault Current Sensing: Connect secondary wiring to ground overcurrent relays, via shorting terminals, to provide selective tripping of main and tie circuit breaker. Coordinate with feeder circuit-breaker, ground-fault protection.
3. Factory installed, UL (or other NRTL) listed.
4. Basis of design: Square D Power Logic.

B. Multifunction Digital-Metering: Microprocessor-based unit capable of monitoring the quantity of loads indicated on the drawings, suitable for three- or four-wire systems, and with the following features:

1. Monitoring and Metering:

    a. Phase Current: Ia, Ib, Ic, In
    b. Voltage: Va, Vb, Vc, Vab, Vbc, Vca
    c. Power: Hz, Watts, VA, VAR
    d. Demand: Record high demand (A, W, Va, VAR), 15-minute intervals
    e. Power Factor (A,B,C & total)
    f. THD voltage and current
    g. K Factor
    h. Harmonic Analysis through 63RD
    i. Wh, Vah, VARh
    j. Voltage and current unbalance
    k. Date & Time stamping
    l. Data & event log

2. Communication:

    a. RS-485 Modbus
    b. Optional Ethernet connectability
    c. RS-232 (front accessible)

3. Display

    a. Front
    b. Selectable
    c. Digital LCD

C. Network Communications: the metering shall provide Modbus communications and solid state KY pulse output for communications with the building energy management system.

D. Multi-Protocol Gateway: External DDCS interface gateway device to provide Modbus to BACnet communications. One for each meter as required. Basis of design: FieldServer Technologies ProtoNode RER.

E. Provide addressable branch monitoring modules and cable connected to meter for analysis of each branch where noted.

2.4 IDENTIFICATION

A. Service Equipment Label: NRTL labeled for use as service equipment for switchboards with one or more service disconnecting and overcurrent protective devices.

B. Field installed switchboard nameplate indicating equipment identification acronym, voltage, phase and ampacity ratings.

C. Field installed main and branch device 4equipment identification.

D. NEC and WAC required flash protection labels.

2.5 CONCRETE HOUSEKEEPING PADS

A. Concrete shall meet the requirements of Division 03, 'Cast-in-Place Concrete'.

B. Concrete housekeeping pads; 4-inch (100-mm) minimum nominal thickness.

2.6 TVSS

A. TVSS Devices shall be Type 2 with 10 kA nominal discharge current and meeting UL1449.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Receive, inspect, handle, and store switchboards according to NEMA PB 2.1.

B. Examine switchboards before installation. Reject switchboards that are moisture damaged or physically damaged.

C. Examine elements and surfaces to receive switchboards for compliance with installation tolerances and other conditions affecting performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

E. The switchboard must fit in the allotted space shown on drawings and meet all NEC required working clearances. All vendors bidding the project are required to verify spatial limitations prior to bid.

F. Acceptance of the manufacturers listed above is conditional upon compliance with the electrical and spatial requirements of the project.

3.2 INSTALLATION

A. Install switchboards and accessories according to NEMA PB 2.1.

B. Equipment Mounting: Furnish and install switchboards on concrete housekeeping base, including the area for 'future' sections. Comply with requirements for concrete base specified in Division 03 Section 'Cast-in-Place Concrete'.

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
2. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
4. Install anchor bolts to elevations required for proper attachment to switchboards.

C. Comply with NECA 1.

3.3 CONNECTIONS

A. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.

B. Energy Metering

1. Install energy source and end-use demand meter(s) and metering devices per meter manufacturer specifications.
2. Electrical contractor is responsible to provide conduit and cable for connection to building management system, via compatible communications protocol. System programming changes for meter implementation is by others.

3.4 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

B. Switchboard Nameplates: Label each switchboard compartment with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

C. Device Nameplates: Label each disconnect, and overcurrent protective device and each meter and control device mounted in compartment doors with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.
1. Perform tests, inspections and make adjustments per the manufacturer's instruction and as specified.

2. Manufacturer's Field Service: Engage a factory-authorized service representative for technical support and to assist in testing.

B. Acceptance Testing Preparation:
1. Test insulation resistance for each switchboard bus, component, connecting supply, feeder, and control circuit.

2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
4. The Contractor shall obtain the services of a testing service approved by the State of Washington Department of Labor and Industries to perform all testing of the ground fault protection system to verify compliance with NEC 230.95c requirements.
5. Confirm that the neutral is grounded only at the service equipment by removing the service neutral grounding conductor and meggering the neutral bus. If additional neutral grounds are detected, locate the source and retest until the neutral is clear of grounds. Other conductors shall not be energized while performing this test.

D. Switchboard will be considered defective if it does not pass tests and inspections.

3.6 ADJUSTING

A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges as specified in Division 26 Section "Overcurrent Protective Device Coordination Study."

3.7 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain switchboards, overcurrent protective devices, instrumentation, and accessories.

END OF SECTION 262413

SECTION 262416 - PANELBOARDS

PART 1 – GENERAL

1.1 SCOPE

A. Provide all required panelboard equipment as shown on the drawings and specified herein.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. General Electric (ABB), Square D, Eaton, and Siemens. All catalog numbers refer to Square D to establish minimum standards for quality and performance.

2.2 DISTRIBUTION PANELS

A. 120/208 volt and 277/480 volt, 3 phase, 4 wire. Provide bolt-on circuit breakers and spaces as indicated on the drawings. Circuit breakers shall have a minimum interrupting rating of 22,000 amperes symmetrical. Square D "I-Line" series.

2.3 277/480-VOLT PANELS

A. 277/480-volt, 3-phase, 4-wire. Provide bolt-on circuit breakers and spaces as indicated on the drawings. Minimum cabinet size: 20 inches wide x 5-3/4 inches deep. Circuit breakers shall have a minimum interrupting rating of 14,000 amperes symmetrical. Square D NF series.

2.4 120/208-VOLT PANELS

A. 120/208-volt, 3-phase, 4-wire. Provide bolt-on circuit breakers and spaces as indicated on the drawings. Minimum cabinet size: 20 inches wide x 5-3/4 inches deep. Circuit breakers shall have a minimum interrupting rating of 10,000 amperes symmetrical. Square D NQOD series.

2.5 BUSSING

A. Panelboard bussing shall be copper or tin-plated aluminum.

2.6 SPACE FOR FUTURE CIRCUIT BREAKERS OR FUSED SWITCHES

A. Provide as indicated on the drawings. Spaces shall be completely equipped for the future addition of a circuit breaker or fused switch, including all mounting hardware and buss connections. Unless otherwise noted, spaces shall be sized to accommodate the following future circuit breaker or fused switch:

Panel Rating	Minimum Space Ampacity
100 amps	70 Amps
225 Amps	125 Amps
400 Amps	250 Amps
600 Amps	400 Amps
800 Amps	600 Amps
1200 Amps	800 Amps

2.7 MULTIPLE-POLE BREAKERS

A. Shall have common trip with single handle.

2.8 BREAKER LOCK-OFF DEVICES

A. Lock-off device shall mount on breaker handle to allow pad locking breaker in off position. Provide for breakers noted on drawings.

2.9 PANELBOARD CIRCUIT NUMBERING

A. Odd numbers on left side of panel, even numbers on right.

2.10 IDENTIFICATION

A. Provide nameplates to identify all cabinets and index cards to identify each circuit in the panelboards.

B. Label all conductors in panels with circuit number adjacent to the circuit breaker. Utilize plastic sleeve markers. T&B SM series or equal.

C. Panel designations shall be laminated phenolic plastic with white letters. Provide black background for normal service panelboards and red background for panelboards automatically served by the emergency generator. Refer to Section 260553.

D. Circuit indexes shall be typewritten and identify locations using the final room numbers established by the Owner, not the room numbers shown on the Architect's floor plan. Indexes are to be located on the inside of each panel door in the space provided. Include a copy of all indexes in the Operations and Maintenance Manual.

2.11 GROUND BUS

A. Provide one in each panelboard for terminating branch circuit ground conductors and feeder ground conductors. Multiple ground busses utilizing panelboard enclosures for continuity will not be accepted. Burnish area where ground connection is made to panelboard enclosure.

2.12 SPACE ONLY

A. Means that complete provisions have been made so that only the adding and connection of the circuit breaker will complete the installation.

2.13 CABINETS

A. All panelboards shall be provided with hinged door construction.

B. Size of cabinets shall be in accordance with National Electrical Code, minimum size 20 inches wide x 5-3/4 inches deep, or as sized on drawings, sufficiently large to accommodate all equipment and conduit entering the top and bottom. No conduit shall enter sides or back.

C. Cabinet fronts in finished areas shall be flush type, with smooth face and concealed trim clamps and hinges. Finish shall be ANSI 61 light gray. There shall be no monograms or trademarks visible on the face of the cabinet.

D. Cabinet doors shall be tight closing without play when latched. Cabinet doors shall have flush retractable latch mechanisms. All cabinets shall be keyed alike.

2.14 METERING

A. Meters monitoring the whole panel shall be integral to the panel, Square D Powerlogic PM820 or equal. Meter shall have an RS-485 Modbus output.

B. Meters monitoring panel feeders shall be stand-alone type in it’s own enclosure, Square D Powerlogic E4800 or equal. Meter shall have capacity to separately monitor seven or more individual feeders. Meter shall have an RS-485 Modbus output for each monitored load. Meter shall include current transformers, terminal blocks, and other parts required for the metering function.

C. Meters shall monitor the following values:

1. Line-to-neutral voltage for all phases
2. Line-to-neutral average voltage
3. Line-to-line voltage for all phases
4. Line-to-line average voltage
5. Current on each phase
6. Average current
7. Neutral current
8. kVA, kW for all phases, kWh for all phases
9. kW Demand
10. kVAR, kVARh for all phases

11. Power Factor
12. Thd
13. Frequency

D. Instantaneous values for these parameters shall be accessible via local indications, and through the remote I/O link, equipped with smart communications card.

2.15 SURGE PROECTION DEVICE (SPD OR TVSS)

A. SPDs: Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 1449, Type 2

1. SPDs with the following features and accessories:

a. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
b. Indicator light display for protection status.
c. The 5 A and 250-V ac rating of the Form-C contacts is suitable for remote annunciators using Class 1 control circuits. Insert other ratings when monitoring is performed by Ethernet communications protocol used by building power monitoring and control system.
d. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status.
e. Surge counter.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 240 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground:700 V for 208Y/120 V.
3. Line to Line:1000 V for 208Y/120 V.

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

PART 3 – EXECUTION

3.1 MOUNTING

A. Where panelboards are to be installed against plasterboard walls, provide separate support channels secured to blocking between steel studs. Coordinate blocking work with the Gypsum Wallboard Contractor. Panels shall not be secured directly to gypsum wallboard material. Unless noted otherwise, mount top of panel at 6' 0" above finished floor.

3.2 CLEAN-UP

A. After construction is complete, vacuum the interior of all new and existing panel enclosures and provide touch-up paint on factory finished surfaces.

3.3 TESTING

A. After all wiring is complete, all feeder and branch circuit terminations shall be checked with a torque wrench. Torque levels shall be in accordance with NETA Standard ATS unless otherwise specified by the Manufacturer. A test report which gives the following information for each panelboard shall be submitted to the Engineer two weeks prior to final inspection:

1. Size and insulation type of the phase, neutral and ground conductors.
2. Phase-to-Phase and Phase-to-Neutral operating load voltage.
3. Operating load current (each phase, neutral and ground).
4. Phase-to-Phase and Phase-to-Neutral conductor insulation resistance. Test shall be made with a DC "Megger" (500V minimum) type tester. If tests indicate faulty insulation (less than 8 megohms) the conductors shall be replaced and retested.
5. A copy of the test report shall be included in the Commissioning Field Notebook and the Operations and Maintenance Manual.
6. Lace all conductors within panelboards utilizing tie-wraps

END OF SECTION 262416

SECTION 262726 - WIRING DEVICES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SCOPE

A. Provide all wiring devices complete with device plates shown on the drawings or specified within the specifications.

1.3 SUBMITTALS

A. Product Data: Submit for each of the products provided. Contractor shall verify Buy American compliance prior to submitting for engineer approval.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Bryant, Cooper Wiring Devices, Hubbell, P & S, or Leviton. All part numbers refer to Hubbell to establish minimum standards for quality and performance.

2.2 GENERAL

A. All devices shall be specification grade. Color shall be ivory for normal services and red for all services automatically fed from the emergency generator.

2.3 SWITCHES

A. Single-Pole: 20-ampere, 120/277-volt, Hubbell No. 1221 Series.

B. Three-Way: 20-ampere, 120/277-volt, Hubbell No. 1223 Series.

C. Locking: 20-ampere, 120/277-volt, Hubbell No. 1221L (1-pole) series or No. 1223L (3-way) series. Provide two keys with each switch. Cover plate shall be stainless steel with on/off labels.

2.4 RECEPTACLES

A. Duplex Receptacles, Specification-Grade: 20-ampere, 125-volt, 2-pole, 3-wire grounding, NEMA Type 5-20R Hubbell No. CR5362I (Ivory Color).

B. Duplex Receptacles originating from emergency panels, Specification-Grade: 20-ampere, 125-volts, 3-wire grounding. NEMA Type 5-20R Hubbell No. CR5362R (Red Color).

C. Duplex Receptacles originating from surge protected panels, Specification-Grade: 20-ampere, 125-volts, 3-wire grounding. NEMA Type 5-20R Hubbell No. CR5362GY (Gray Color).

D. Duplex Receptacles, Safety Type, Specification-Grade: Safety-type, specification-grade device, rated at 20-ampere, 125-volt, grounded type, NEMA Type 5-20R; Hubbell No. SG-63 or approved equal. Receptacles must be capable of accepting double bladed plugs without ground pin.

E. Ground Fault Circuit Interrupter (GFCI) Receptacles: Specification grade, weather resistant, 20-ampere, 125-volt, Class A, 5-milliampere sensitivity, standard or feed-through model and as shown on the drawings. Hubbell No. GF 5262 or approved equal.

F. Faceless GFI Module: Specification-grade, 20 ampere, 125 volt, Class A, 5 milliampere sensitivity. Hubbell No. GF53501A or approved equal.

G. Weatherproof Receptacles: Weather-resistant, GFCI-type receptacle with in-use, weatherproof, low-profile, lockable, diecast metallic alloy cover. Greenfield No. WIUVPS or equal.

H. Special Receptacles: For other special receptacles, see drawings.

I. Cord Caps: Cord caps on all cords shall be plastic insulated type.

2.5 SURFACE RACEWAY ASSEMBLIES

A. Assemblies shall be as manufactured by Wiremold, of type 700, 2000 or 4000 series (including devices) as noted on the drawings. Color shall be ivory.

B. Provide all required mounting hardware, miscellaneous fittings, end caps, etc. ans manufactured by Wiremold.

C. One gang device boxes for use with Wiremold 700 product shall be Wiremold part #V5748. Two gang device boxes for use with Wiremold 700 product shall be Wiremold part #V5748-2.

D. One gang device boxes for use with Wiremold 2000 product shall be Wiremold part #V2048. Two gang device boxes for use with Wiremold 2000 product shall be Wiremold part #V2048-2.

E. One gang device boxes for use with Wiremold 4000 product shall be Wiremold part #V4007C-1. One gang GFCI receptacle mounting cover for Wiremold 4000 product shall be Wiremold part #V4007C-1R.

2.6 VERITCAL MULTI-OULETS

A. Free-standing multi-outlet assemblies shall be Walkerduct#5PA 10-4, equipped with single grounded type receptacles.

B. Each unit shall be equipped with T-bar hangers, carpet or tile pad as required, power fed junction box, and ceiling trim plate.

C. All receptacles shall be pre-wired (with ground wire) to power fed junction box.

D. Length of each unit shall be selected to match ceiling height.

E. Color of unit shall be ivory.

F. Acceptable Manufacturers

G. Wiremold equipment which is the approved equal of the equipment specified above is considered acceptable.

H. Substitutions may be considered only when submitted in conformance with Section 260500 “Common Work Results.”

2.7 DEVICE PLATES

A. Prohibited materials

B. Sectional plates shall not be utilized.

C. All devices shall be equipped with stainless steel 0.04” thick with #302 satin finish, except for audiovisual devices which may be plastic.

D. All junction boxes in finished areas shall be provided with stainless steel plates.

2.8 INSTALLATION

A. Install two or more wiring devices shown in one location under a common plate except when outlets are of a different voltages such as telephone and duplex receptacles. Install plates with all edges in continuous contact with finished wall surfaces. Install plates vertically with alignment tolerance of 1/16 inch. Sectional plates are not permitted. No more than one device shall be installed in a single-gang position.

B. Wiring: Branch circuit conductors shall be terminated either in side of or in back of specification-grade devices with screw clamped terminations. Spring-type pressure connections not approved. Wiring devices are not to be used for maintaining circuit continuity. Wiring devices are not to be used for maintaining circuit continuity. Removal of wiring device shall not effect downstream devices.

C. Barrel type key switch shall be used to control lighting in corridors, gyms, cafeterias and restrooms (not required for single occupant restrooms).

D. Orient receptacles so that ground pin is at bottom or to the right.

E. Outlet height to meet ADA requirements or 16 inches minimum above floor.

F. Attach surface raceway assemblies to wall surface by method recommended by manufacturer for the particular wall construction. Use anchos similar to Powers Poly-toggle, catalog #2305 with 1-1/2" screw minimum.

G. Wiremold raceway shall be ivory factory color and shall not be painted. Any raceway attached to the Wiremold product in an unconcealed area which does not come pre-painted from the manufacturer shall properly be prepared for painting and shall be Wiremold #IWE-S ivory spray enamel.

PART 3 – EXECUTION (NOT USED)

END OF SECTION 262726

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.1 SCOPE

A. Provide all fuses shown on drawings and specified herein including spare fuses mounted in a fuse cabinet.

1.2 DESCRIPTION

A. Provide fuses as indicated on the drawings, sized per NEC, and as required for a fully operational system.

B. All fuses shall be of the same manufacturer.

C. All fuses shall be installed by the Electrical Contractor at jobsite and only when equipment is to be energized. Fuses shall not be installed during shipment.

D. Spare Fuse Cabinet: Provide a surface mounted spare fuse cabinet with locking door and shelves. Install within the Main Electrical Room. Provide three spare fuses of each type used on the project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Bussman, Ferraz Shawmut or Littlefuse.

2.2 FUSES

A. Provide 200,000 AIC, current limiting, UL, time delay fuses.

B. Feeders 601-6000 Amps: Class L, KRP-C Time Delay.

C. Feeders 600 Amps and Less:

1. Class RK-1, LPN-RK for 250-volt, dual element
2. Class RK-1, LPS-RK for 600-volt, dual element.

D. For motor circuit 600 volts and below: Class RK-1 or Class J sized at 125% FLC of motor.

PART 3 - EXECUTION

3.1 SPARE FUSES

A. At the completion of the project, provide (1) spare fuse of each different type and size used on the project. Any spare fuses utilized during testing must be replaced in order to leave the Owner with the proper amount of spare fuses at completion of the project.

B. Install fuses in fuse holder with fuse rating visible

C. Provide typewritten directory card indicating all fusible devices, together with associated fuse size and type.

END OF SECTION 262813

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Division 01 and Division 26 General Requirements for submittal requirements and formats.

1.2 SUBMITTALS

A. Product Data: Submit for each of the products provided. Contractor shall verify Buy American compliance prior to submitting for engineer approval.

1.3 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with the requirements, provide products by one of the following:

1. Square D
2. General Electric
3. Siemens
4. Eaton

2.2 FUSIBLE AND NONFUSIBLE SWITCHES

A. Fusible Switch-600A and Smaller: NEMA KS 1, Type HD with clips or bolt pads to accommodate specified fuses, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.

B. Nonfusible Switch-600A and Smaller: NEMA KS 1, Type HD, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.

2.3 MOLDED-CASE CIRCUIT BREAKERS AND SWITCHES

A. Molded-Case Circuit Breaker: NEMA AB 1 with interrupting capacity to meet available fault currents. Provide with the following features and accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Mechanical style with compression lug kits suitable for number, size, trip ratings, and conductor material.
3. Application Listing: Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.

B. Molded-Case Switches: Molded-case circuit breaker with fixed, high-set instantaneous trip only, and short-circuit withstand rating equal to equivalent breaker frame size interrupting rating. Provide with the following features and accessories:

1. Lugs: Mechanical style with compression lug kits suitable for number, size, trip ratings, and material of conductors.
2. Application Listing: Type HACR for heating, air-conditioning, and refrigerating equipment.

2.4 ENCLOSURES

A. Rated for environmental conditions at installed locations.

1. Outdoor, wet or damp locations; NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other wet or damp indoor locations; NEMA 250, Type 4.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Control Equipment Mounted to Walls: Mount adjacent units at uniform height. Bolt units to wall or mount on lightweight structural-steel channels bolted to wall. Provide freestanding racks complying with Section 260529 "Hangers and Supports," for controllers not located on walls.

B. Floor-Mounted Control Equipment: Anchor to concrete base.

C. Install fuses in each fusible switch.

3.2 IDENTIFICATION DEVICES

A. Label each switch and circuit breaker on engraved laminated plastic as specified in Section 260553 "Identification."

3.3 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges.

3.4 TESTING

A. After all wiring to each unit is complete, the Electrical Contractor shall cooperate with the Mechanical Contractor in testing equipment for proper operation and correct wiring as required for proper operation. All connections shall be checked with a torque wrench. Torque levels shall be in accordance with NETA Standard ATS unless otherwise specified by the manufacturer. A test report which gives the following information for each motor shall be submitted to the Engineer two weeks prior to final inspection:

1. All nameplate data (voltage, phase, full-load current, locked motor current, NEMA design, code letter, RPM, etc.)
2. Measured no-load voltage at motor terminals (all phases)
3. Measured full-load voltage at motor terminals (all phases)
4. Full load operating current (all phases)
5. Motor starter manufacturer and overload heater number (attach the manufacturer's table of overload heater numbers and corresponding motor nameplate ranges)
6. Fuse size and type
7. Motor phase-to-phase and phase-to-ground winding resistance (motors five-HP and larger)

B. A copy of the test report shall be included in the Operations and Maintenance Manuals.

END OF SECTION 262816