



## INVITATION FOR BIDS

### Small Works Bid No. 22683

**PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY, WASHINGTON**, invites bids to be received at the District's office at 1151 Valley Mall Parkway, East Wenatchee, Washington, 98802, on or before July 6, 2018, no later than 1:00 p.m. Pacific Time, to provide everything specified in **Small Works Bid No. 22683** dated June, 2018, and entitled: **Remodel Memorial Park Restroom, Pateros, Washington.**

The Bid Document, including plans and specifications, may be obtained by emailing [accountspayable@dcpud.org](mailto:accountspayable@dcpud.org), attention Derek Browning, Purchasing Agent. The email request must include the Small Works Bid and title and your contact information including mailing and physical addresses, contact person, phone numbers and email addresses. Contractors wishing to bid and perform such work for the District must register with MRSC at [www.mrscrosters.org](http://www.mrscrosters.org). For registration questions, please contact MRSC Rosters at [mrscrosters@mrsc.org](mailto:mrscrosters@mrsc.org) or 206-436-3798. Only those Contractors registered with MRSC and meeting the minimum requirements of RCW 39.04.350 are eligible to be placed on the Small Works Roster.

Pursuant to RCW 39.04.155, the bids received shall be open to public inspection and telephone inquiry immediately after award. All bids must strictly conform to the entire Bid Document.

**BIDDERS PLEASE NOTE THAT PART I, "INSTRUCTIONS TO BIDDERS," PARAGRAPH 3.3, (IB 3.3) SETS OUT THE PROCEDURE THAT BIDDERS MUST FOLLOW TO ADDRESS ANY QUESTIONS ABOUT THE REQUIREMENTS OF THIS BID DOCUMENT.**

The District reserves the right to reject any and all bids.

**DATED:** June, 2018.

**PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY**

**EAST WENATCHEE, WASHINGTON**

**SMALL WORKS BID NO. 22683**

**For**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

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**PART I**  
**INSTRUCTIONS TO BIDDERS**

**IB-1            PREPARATION AND SUBMISSION OF BIDS**

The District will make available to each bidder a copy of the Bid Document and a copy of the Bid Forms. Bidder must submit its bid on the forms provided. Bidder shall properly execute, in ink or typewritten, all forms, fill in all blank spaces, and initial and explain in writing any interlineations, alterations or erasures. Each bid shall be properly signed and shall include the following:

- Original of the fully executed Small Works Bid Form including bidders full legal name, business and mailing address and acknowledgement of any Addendums
- Bidder's Data Sheet (if applicable)
  - Bids by partnerships shall include the partnership name followed by the signature of one or more of the general partners who has full authority to bind the partnership and a list of the names and addresses of all other partners.
  - Bids by corporations or limited liability companies shall include the legal name of the corporation or limited liability company, followed by the signature and designation of the corporate officer(s) who has/have full authority to bind the corporation or the member(s) who has/have full authority to bind the limited liability company and a designation of the state of incorporation/formation.
  - The name of each person who signs shall be typed or clearly printed below the signature. Each person who signs represents to the District that he/she has full authority to bind bidder. On request, bidder shall furnish to the District Satisfactory evidence of the authority of each person who signs to bind the partnership, corporation, or limited liability company on behalf of which he/she signs.

Each bidder must quote on all items in the Bid Schedule, if any, including options and addenda, unless the Bid Document expressly authorizes otherwise. The District will not entertain partial bids, unless the Bid Document expressly so provides. If the Bid Document states that certain items are optional, bidder shall insert the words "no bid" in the space provided for any optional item for which it makes no bid.

**Each bidder must enclose its bid in an envelope distinctly labeled "Bid Proposal." The envelope shall indicate the Small Works Bid Number and Name.** Each bidder has sole responsibility for timely delivery of its bid. Bidder shall carefully and completely follow the delivery directions contained in the Invitation for Bids regarding address, date and hour. A bidder may either mail or deliver its bid. The District will accept bids transmitted by facsimile or email if the original Bid Proposal is simultaneously sent to the District by mail. If mailed, bidder shall address the bid to:

**Public Utility District No. 1 of Douglas County**  
**Attention: Mr. Derek S. Browning, Purchasing Agent**  
**1151 Valley Mall Parkway**

## **East Wenatchee, Washington, 98802**

If delivered in person, the bid must be delivered to the District's office at the above address. The District will mark any bid received after the time set for receipt of bids with the date and time received and return it unopened.

The District reserves the right to extend the time for receiving and opening bids. The District will use best efforts to give, prior to bid opening, notice of any such extension to those entities that requested a copy of the Bid Document.

### **IB-2 QUALIFICATIONS OF BIDDER**

Only those Contractors meeting the minimum requirements of RCW 39.04.350 and that are on the District's Small Works Roster with MRSC are eligible to submit bids. Each bidder shall submit with its bid (i) any and all factors that might preclude it from meeting any part of the contract schedule including, if applicable, (ii) its proposed method of conducting the Work, and (iii) the list of equipment and other materials that it will use (see Part II, Bid/Contract Forms, "Data To Be Submitted with Bid"). This submittal data must be sufficiently complete and detailed to demonstrate to the District's Satisfaction bidder's full compliance with all time and other requirements of the Bid Document.

The District reserves the right to reject any bid if the District's review of the above submittals and its investigation fail to establish to its Satisfaction that bidder possesses the qualifications necessary to fully, properly and timely carry out all obligations of the Bid Document.

### **IB-3 EXAMINATION OF DOCUMENTS**

Each bidder, before submitting its bid, must carefully examine the complete Bid Document and any addenda and all documents and/or information referred to in these. Each bidder must fully investigate and fully inform itself about all conditions that may in any way affect performance or cost of the Work. Bidder's submission of its bid shall constitute its unqualified representation, on which bidder warrants to the District that the District may rely, that bidder has made all such examinations and investigations and that it understands all requirements for the performance of the Work. By submitting its bid, bidder warrants that it:

- (1) Has fully informed itself about the nature, requirements, and location of the Work;
- (2) Has thoroughly investigated and fully satisfied itself about all conditions that may affect the Work, all costs involved in performing the Work and the time necessary for its performance, including but not limited to:
  - (a) Conditions relating to acquisition, transportation, disposal, handling and storage;
  - (b) The availability of labor, materials, water, power, and access;

- (c) Uncertainties of weather, river stages, water tables and all other physical conditions at the site;
  - (d) All conditions and/or constraints at the site(s) of the Work; and
  - (e) The equipment and facilities needed to properly, efficiently, and timely perform;
- (3) Has, by careful and thorough inspection of the site(s) of the Work, careful and thorough review of the Bid Document, careful and thorough review of all information referenced in the Bid Document, and careful and thorough investigation and review of all other information relating to the site(s) of the Work and the Work satisfied itself as to the nature, quality and quantity of obstacles or conditions that it may encounter; and
- (4) Has satisfied itself as to the adequacy of time allowed to complete the Work.

Bidder's failure to take any of the actions described above shall not relieve it from its responsibility for estimating properly the difficulty and cost of successfully, efficiently, properly and timely performing the Work or from proceeding to fully and timely perform the Work, without any additional charge to or time extensions by the District. Bidder agrees that the District shall not be liable for any claim for additional payment or additional time if any claim directly or indirectly results from bidder's failure to thoroughly and carefully investigate and familiarize itself with all of the above and all conditions that may affect the Work. Prior to submitting its bid, each bidder must fully familiarize itself with all federal, state, tribal and local laws, ordinances and regulations that apply to the Work during the time of its performance.

The Bid Document consists of:

Invitation for Bids	
Part I	Instructions to Bidders
Part II	Bid Forms/Contract
Part III	Addendum, Change Order, and Payment Forms
Part IV	Special Conditions
Part V	Specifications - Technical Provisions
Part VI	Prevailing Wage Rates
Part VII	Contract Drawings

The form of the Contract that the successful bidder must sign is included in the Bid Forms/Contract (Part II, titled "Small Works Contract). Each bidder shall carefully examine it prior to submitting its bid.

If bidder believes that any omission or any discrepancy exists in the Bid Document, or if bidder deems the intent or meaning of the Bid Document or any of its contents unclear, obscure or ambiguous, or if bidder wishes to qualify any term, condition or provision in the Bid Document, bidder must promptly, before submitting its bid, forward to the District a written request for correction, clarification, interpretation, explanation or qualification. A bidder that makes such a request is solely responsible for its timely receipt by the District. No interpretation, clarification, correction, qualification, amendment, or modification shall be valid or bind the District unless expressly set forth in a written

addendum signed by the District. The District shall neither be bound by, nor responsible for, any correction, clarification, interpretation, or explanation of the Bid Document unless a District issued and signed written addendum expressly includes it. **A BIDDER'S FAILURE TO FOLLOW THE PROCEDURE DESCRIBED IN THIS PARAGRAPH MAY BE A BASIS FOR REJECTING THE BID.** The District shall not be bound by, and hereby objects to, any term, condition or other provision that differs from or adds to or subtracts from that which the Bid Document or addenda contain. **EACH BIDDER IRREVOCABLY AGREES THAT THE DISTRICT SHALL HAVE THE UNQUALIFIED RIGHT TO TREAT ANY ATTEMPT BY ANY BIDDER TO QUALIFY ITS BID PROPOSAL BY SUBMITTING WITH IT BIDDER'S STANDARD CONDITIONS, STANDARD TERMS, SALES POLICY, CLARIFICATIONS, EXCEPTIONS, MODIFICATIONS TO THE GENERAL AND/OR SPECIAL CONDITIONS, AND/OR SPECIFICATIONS – TECHNICAL PROVISIONS AND/OR CONTRACT DRAWINGS OR THE LIKE, AS NULL, VOID AND OF NO EFFECT IN THE AWARD OF THE CONTRACT.**

Bidder shall direct all questions about this Bid Document in writing to Public Utility District No. 1 of Douglas County, 1151 Valley Mall Parkway, East Wenatchee, Washington, 98802, Attention: Derek Browning, Purchasing Agent. Bidder may email any question(s) to [accountspayable@dcpud.org](mailto:accountspayable@dcpud.org), Attention: Derek Browning.

#### **IB-4                    ADDITIONAL INFORMATION**

Before submitting its bid, Bidder shall make all arrangements necessary to fully inform itself about all existing and potential conditions, circumstances and matters that may in any way affect the performance, time requirements of, and cost of the Work.

Before submitting its bid, bidder must thoroughly examine and thoroughly familiarize itself with the site(s) where the Work will take place and/or the site(s) to which delivery will be made, work will take place, or that which is supplied will be put to use. By submitting its proposal, bidder warrants to the District that it has done so.

##### Site Inspection/Pre-bid Conference

A site inspection/pre-bid conference is scheduled to occur at 1:00 p.m. at 113 Lakeshore Drive, Pateros, WA on June 20, 2018. All who wish to submit a bid are encouraged to attend.

A bidder's failure to attend a site inspection/pre-bid conference, if scheduled, or to fully investigate the site shall not relieve it from full responsibility for the entire scope of the Work, including but not limited to, any difficulty, cost, or expense involved in performing all the Work.

**State of Washington sales tax shall not be included in the bid price(s).** However, for work consisting of constructing and/or repairing new or existing buildings or other structures on real property, sales tax paid by the Contractor or Subcontractor for the purchase and/or rental of tools, machinery, equipment and consumable supplies that are primarily for the Contractor's use rather than for resale as a component part of the finished structure shall be included in the bid price(s). WAC 458-20-170.



## **IB-5 DISTRICT'S MODIFICATION OF BID DOCUMENT**

The District reserves the right to modify any part of the Bid Document at any time prior to bid opening. Modifications, if any, will be issued only in written addenda. The District will use best efforts to forward any addendum to each entity that has obtained from the District copies of the Bid Document. However, a bidder's failure to receive any addendum shall not relieve it from the obligation of submitting its bid in full compliance with the Bid Document and all addenda to the Bid Document. Thus, prior to submitting its bid proposal, bidder must independently verify that it has received all addenda.

## **IB-6 MODIFICATION OF BIDS**

Bidder may modify its bid at any time before the closing time for receipt of bids, specified in paragraph 1 of the Invitation For Bids, provided that before that closing time bidder delivers to the District at the place of bid opening the complete modification in writing. Bidder may submit a modification of its bid by facsimile or email by transmitting that modification to the attention of Derek Browning, Purchasing Agent. (Fax: 509-884-0553; email: [accountspayable@dcpud.org](mailto:accountspayable@dcpud.org)). Any modification transmitted by facsimile or email must be received by the Purchasing Agent no later than one hour before the closing time for receipt of bids, and it shall show only the increase or decrease in the Total for Bid Comparison listed in bidder's Proposal (not the amount of the modified Total for Bid Comparison), and it shall be of no effect unless the District also receives by the third day after closing time and date written confirmation, signed by the bidder and postmarked before the bid closing time and date. Any modification by a bidder of its bid, including but not limited to any modification transmitted by facsimile or email pursuant to provisions of IB-1, must be received in the room in which bids are to be opened before the time specified in the Invitation for Bids.

Bidder is solely responsible for timely receipt by the District of any modification of its bid. The unavailability for any reason of any facsimile or email equipment for receipt of bidder's transmission of its modification shall not relieve bidder of the responsibility set out in the preceding sentence.

## **IB-7 WITHDRAWAL OF BIDS**

A bidder may withdraw its bid either personally, by facsimile or email communication or by written notification, provided that the District receives bidder's notice of bid withdrawal prior to the scheduled closing time for receipt of bids and, in the case of facsimile or email communication, provided that the District also receives by the third day after the closing date written confirmation signed by the bidder and postmarked before the closing time and date.

Bidder is solely responsible for timely receipt by the District of any withdrawal of its bid. The unavailability for any reason of any facsimile or email equipment for receipt of bidder's transmission of its withdrawal shall not relieve bidder of the responsibility set out in the preceding sentence.

## **IB-8 REJECTION OF BIDS**

The District reserves the right to reject any bid or all bids, or to waive any informality in bids received. The District may consider irregular and reject bids if: (1) the bid contains any unit price that is unbalanced, either above or below the amount that the District deems reasonable for a particular unit; (2) the bid does not contain a unit price for every item bid; or (3) the bid contains qualifications, unauthorized additions, deletions, or conditions. (See IB-3)

## **IB-9 BONDS, INSURANCE CERTIFICATES AND STATEMENTS**

Unless this provision is expressly waived by the District in writing, the bidder that receives notice of award of the Contract must supply a Performance and Payment Bond executed as surety by a corporation authorized to issue surety bonds in the State of Washington with sureties Satisfactory to the District, for One Hundred percent (100%) of the contract price. Each bidder shall include the entire cost of the Performance & Payment Bond in its bid price. Part II includes the form of the Performance and Payment Bond that the successful bidder must supply. If bidder provides a Bid Bond or a Performance and Payment Bond or a retainage bond on forms other than those contained in the Contract Documents, bidder and its surety irrevocably agree that the terms and conditions of the bond forms contained in the Bid Forms/Contract, Part II, control in the event of conflict between those terms and conditions and the terms and conditions that the bonds supplied contain.

For insurance that the Contract Documents require the successful bidder to provide, the successful bidder must, at or before the time of execution of the Contract, deliver to the District an approved Insurance Certificate OR one (1) copy of the Certificate of Insurance included in Part II, Bid Forms/Contract, completed by bidder's insurance representative certifying that the minimum insurance coverages and endorsements are in effect and certifying that the District is, as the Contract Documents require, an additional insured under the insurance policy.

For any work subject to RCW 39.12 "Prevailing Wages on Public Works," the successful bidder, in full compliance with RCW 39.12.040, must file the "Statement(s) of Intent to Pay Prevailing Wages" that the Industrial Statistician of the Department of Labor & Industries has approved. The successful bidder must also deliver the Department of Labor and Industries approved Statement(s) of Intent to the District. No payment will be made by the District until the District has received the approved Statement(s) of Intent to Pay Prevailing Wages from the Contractor and any sub-contractor. See RCW 39.12 (Prevailing Wages on Public Works) and GC-17 (Wage Paid by the Contractor).

## **IB-10 EVALUATION OF BIDS**

The District will evaluate bids, based on bidder's furnishing that which the Bid Document specifies in full compliance with the Bid Document. The unit price, if applicable, will govern if an error occurs in arithmetic extension. The correct result governs in the case of arithmetic errors.

The District, in evaluating bids, will consider all factors, whether specifically listed or not, that will affect the final cost and benefits to the District. These factors include but are not limited to: price; bidder's ability to perform within the time specified; the ability, capacity, and skill of the bidder to

perform in full compliance with the bid document; bidder's experience; bidder's past record in meeting commitments; qualifications of bidder's personnel who will perform the Work; equipment that bidder will use to perform the Work; bidder's ability, financial and otherwise, to properly, timely, and safely perform the Work; bidder's integrity, reputation, judgment, and efficiency; bidder's prior performance; bidder's claim submittal history; bidder's ability to promptly and efficiently perform any warranty work; and all anticipated District expenses that may vary between bidders. If the bid includes furnishing manufactured equipment, the District will also consider: the design and construction of the equipment; its performance; the anticipated cost of operation and maintenance; and, if applicable, the character and location of bidder's service facilities.

The Commission of the District has final authority to decide if a bidder's bid is responsive to the District's call for bids and to decide if a bidder qualifies as a responsible bidder for the Work that bidder's proposal covers.

## **IB-11            AWARD OF CONTRACT**

The District will award the contract as a whole, as soon as practicable, to the lowest responsive bidder, price and other factors considered, provided that the District deems the bid reasonable and that the District deems it in its best interest to award it. The District will not, under any circumstances, be responsible for the reimbursement of any costs that any bidder incurs in the preparation of its bid.

The District will notify the successful bidder in writing of the award of Contract within thirty (30) days after bid opening. The District will forward the Contract and Performance and Payment Bond (if required) forms to the successful bidder with the notification. Within ten (10) calendar days after the District's transmittal of written notice of award, the successful bidder shall deliver to the District one executed copy of the Contract, the Performance and Payment Bond, and an approved Insurance Certificate or one completed copies of the Certificate of Insurance. In addition, the successful bidder, in compliance with RCW 39.12.040 and applicable law, must file all required "Statements of Intent to Pay Prevailing Wages" that the Industrial Statistician of the Department of Labor & Industries has approved and timely deliver these to the District in compliance with applicable law. [See RCW 39.12 "Prevailing Wages on Public Works" and GC-17 (Wages Paid by Contractor)].

**PART II**

**BID FORMS/CONTRACT**

**FOR**

**SMALL WORKS BID NO. 22683**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**SMALL WORKS BID FORM**

NAME OF BIDDER: \_\_\_\_\_  
(Full Legal Name)

TO: Public Utility District No. 1 of Douglas County  
1151 Valley Mall Parkway,  
East Wenatchee, WA 98802

Gentlemen:

The undersigned has examined the site, plans and specifications, laws and ordinances governing the improvements contemplated. In accordance with the terms and provisions in the foregoing, the following price is tendered as an offer to perform the work, complete in place and ready for satisfactory operation.

The Total Bid Price shall be used in the Bid Evaluation.

Description	Total Bid Price
	\$

Prices quoted include the cost of the Payment and Performance Bond required by the Small Works Bid Documents but do not include Washington State and Local Taxes.

If the Contract term is more than thirty (30) days in duration, Contractor may submit monthly invoices for work satisfactorily completed as determined by the District Representative. Acceptance, Release of Retainage and Final payment will be made in compliance with GC-12 and GC-14.

Invoices shall be submitted to the contracting office detailed in Instructions to Bidders, IB-1.

All Bidders are invited to attend a site visit at 1:00 p.m. on June 20, 2018.

**Work shall not begin until after September 3, 2018.** All work at the Memorial Park Restroom

shall be completed by October 31, 2018. Yes\_\_\_No\_\_\_\_\_.

Please see Instructions to Bidders, IB-10.

Please

**(CHECK ONE)** We shall\_\_\_shall not\_\_\_\_\_be using Subcontractors. Listing of Subcontractors, if any, must be specified below.

The Subcontractors listed below are proposed to be employed on portions of the work. If you require additional space to list Subcontractors, please attach a separate sheet.

Name	Address	Phone No.	Type of Work	Percent of Bid

Bidder has been disqualified from bidding on any public works contracts under RCW 39.06.010 or 39.12.065(3). Yes \_\_\_ No \_\_\_ **MUST BE FILLED IN**

Attached hereto is a properly executed and notarized Signature Certification Form. Attached hereto is the Bid proposal and all Bidder's Data required in support of this Bid.

Addendum Nos. (list all individually) \_\_\_\_\_ have been received and have been considered in preparing this Bid.

BIDDER: \_\_\_\_\_  
Full Legal Name

STREET ADDRESS: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

CITY & STATE: \_\_\_\_\_

PHONE NO.: \_\_\_\_\_

EMAIL: \_\_\_\_\_

State of Incorporation: \_\_\_\_

If not Washington, does Bidder have a physical office located in the state of Washington?

Yes \_\_\_\_\_ No \_\_\_\_ N/A \_\_\_\_

Washington Registration Certificate No. \_\_\_\_\_

Washington State Unified Business Identifier (UBI) Number \_\_\_\_\_

Washington State Employment Security Department Number \_\_\_\_\_

We hereby certify that we are not required to have a Washington State Sales Tax Identification Number for this work.

Signed by: \_\_\_\_\_

Name (Print): \_\_\_\_\_

Authorized Representative

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Note: Failure to sign the Bid Form above shall result in rejection of the Bid. Digital signatures are not allowed.**

**DATA TO BE SUBMITTED WITH BID**

**(1) Bidder certifies that it has the following experience and qualifications:**

1.1 Bidder's experience in this type and magnitude of Work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1.2 Bidder's qualifications, including technical qualifications, to properly, timely and efficiently perform the Work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**(2) Bidder's References:**

2.1 Financial: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

2.2 Name and provide the current addresses, current telephone numbers and current email addresses of at least three persons that the District may contact to obtain information about bidder's prior work of this type:

(i) \_\_\_\_\_  
\_\_\_\_\_

(ii) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(iii) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**(3) Performance Schedule (See SC-2):**

3.1 List any and all factors that might preclude bidder from meeting any part of the contract schedule specified in SC-2: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(None, unless stated otherwise here.)

**(4) Facilities/equipment that bidder will use to perform the Work:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**(5) Location and address of entity that will perform warranty/service/repair activities:**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**(6) Bidder certifies the following:**

6.1 It has in place a proper safety and accident prevention program that for this Work fully complies with all safety orders, rules, regulations, codes and requirements of all federal, state, and local governmental agencies that have jurisdiction over safety relating to the Work, including but not limited to federal OSHA and state WISHA.

6.2 It will require each of its subcontractors of any tier (if any) to have in place a proper safety and accident prevention program that meets or exceeds all requirements listed in 6.1 above.

6.3 It will strictly enforce all requirements of safety and accident prevention programs throughout the entire Work, including but not limited to all requirements relating to safety equipment, work rules, worker safety, written site specific safety plans, safety meetings, safety inspections and all requirements to assure the safety of all work sites, all workers, all District employees and/or representatives, and the general public.

6.4 It will strictly comply with and ensure that all subcontractors and suppliers of any tier will strictly comply with all requirements of GC-19.

6.5 In compliance with GC-6, it will defend, indemnify and hold the District harmless from any and all consequences of any failure by it or any of its subcontractors to fully comply with the above certification.

**I represent and warrant that the data provided above is true and accurate.**

**Name (print):** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Safety Representative's Name (if other than above):** \_\_\_\_\_

**Safety Representative's Telephone Number:** \_\_\_\_\_



**SMALL WORKS CONTRACT WITH GENERAL CONDITIONS**

THIS AGREEMENT, made and entered into on the \_day of \_\_\_\_\_, \_\_\_\_ by and between

PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY,  
WASHINGTON,  
hereinafter called "the

District," and

---

hereinafter called "the Contractor",

W I T N E S S E T H:

The parties hereto agree as follows:

The terms and conditions contained herein shall apply to all work performed and all Contracts issued by the District to the Contractor pursuant to the District's Small Works Roster Procedures.

**GENERAL CONDITIONS:**

**GC-1 FORM OF CONTRACT**

The form of the Contract shall be lump sum type unless specified otherwise.

**GC-2 DEFINITIONS**

Whenever these words occur in the Contract Documents or Small Works Bid Documents, they shall have the following meanings:

“BID” - The written proposal submitted by the Bidder on the Bid Form provided in the Small Works Bid Documents, a sample of which is provided as Exhibit “A” in these Contract Documents.

“BID EVALUATION” - The criteria for determining the lowest responsive Bid received in response to the Small Works Bid Documents.

“BID ITEM” - A line item on the Bid Form provided in the Small Works Bid Documents, a sample of which is included in these Contract Documents as Exhibit “A”.

“BID ITEM PRICE” - The correctly calculated (extended) price of all units of each Bid Item (Bid Unit Price times Quantity).

“BID UNIT PRICE” - The price per unit on a specific Bid Item, if

applicable. “BIDDER” - Any person or entity who submits a Bid.

“CONTRACT AWARD” - Contract Award is defined as the date the successful Bidder is first notified verbally or in writing by issuance of the Small Works Notice to Proceed, a sample of which is attached as Exhibit “B”, that the District has accepted the Contractor's Bid. Contract Award, if any, shall be made within forty-five (45) days after the date of Bid opening.

“CONTRACT DOCUMENTS” - The Contract Documents shall include all sections of these Small Works Contract Documents.

“CONTRACT PRICE” - The Total Bid Price plus any optional Bid Items included in the Contract Award and any properly approved Change Orders approved subsequent to Contract Award.

“CONTRACTOR” - The successful Bidder who is awarded the Contract to perform the work covered by these Contract Documents.

“DISTRICT” OR “OWNER” - Public Utility District No. 1 of Douglas County, Washington.

“DISTRICT REPRESENTATIVE” - The employee designated by the District as its representative during the progress of the work.

“FINAL ACCEPTANCE” - Acceptance of the work by the District in writing. Final Acceptance shall not constitute an acceptance by the District of any work performed or goods supplied which are not in strict compliance with the Contract Documents.

“SMALL WORKS BID DOCUMENT” - A request for Bids on a Small Works Project issued pursuant to the Small Works Roster Procedure.

“SMALL WORKS PROJECT” - Work as described in a Small Works Bid Document for a Public Works project.

“SUBCONTRACTOR” - A contractor hired by the Contractor to perform a portion of the work covered by the Small Works Bid Documents.

“TOTAL BID PRICE” - The properly calculated total of the Bid Items on the Bid Form.

### GC-3 SUSPENSION OF WORK/TERMINATION OTHER THAN DEFAULT

The District may, at its sole option, by notice in writing to the Contractor suspend or terminate at any time the performance of all or any portion of work to be performed under the Small Works Bid Documents. Upon such notice of suspension or termination of work, the District shall designate the amount and type of plant, labor, and equipment to be committed to the work site during the period of suspension or termination. The Contractor shall use its best efforts to utilize its plant, labor, and equipment in such a manner as to minimize costs associated with suspension or termination.

A. Upon receipt of any such notice, the Contractor shall:

1. Immediately discontinue work as specified in the notice;
2. Place no further orders or subcontracts for material, services, or equipment with respect to suspended or terminated work;
3. Promptly suspend or terminate all orders, subcontracts, and rental agreements to the extent they relate to performance of work suspended or terminated; and
4. Continue to protect and maintain the work, including those portions on which work has been suspended;
5. Assist District Representative or District in the maintenance, protection, and disposition of work in progress, plant, tools, equipment property, and materials acquired by Contractor or furnished by Contractor under the Small Works Bid Documents; and
6. Complete performance of the work which is not terminated.

B. As full compensation for such suspension the Contractor shall be reimbursed for the following costs, reasonably incurred, without duplication of any item, to the extent that such costs directly result from such suspension of work:

1. A standby charge, as determined to be equitable by the District Representative, to be paid to the Contractor during a period of suspension of work sufficient to compensate the Contractor for keeping, to the extent required in the notice, its organization and equipment committed to the work in a standby status;
2. All reasonable costs, as determined to be equitable by the District Representative, associated with any demobilization and remobilization of the Contractor's plant, forces, and equipment;
3. Any claim on the part of the Contractor for additional time or compensation shall be made within ten (10) days after receipt, by Contractor, of a notice to suspend work. Failure to submit a claim within the ten (10) day period shall constitute a waiver of any such claim;
4. In no event however, shall the amount to be paid the Contractor pursuant to this section exceed the Contract Price.

C. Upon receipt of notice to resume suspended work, the Contractor shall immediately resume performance of the suspended work to the extent required in the notice. Any claim on the part of the Contractor for time or compensation shall be made within ten (10) days after receipt of notice to resume work and the Contractor shall submit a

revised project schedule for review.

- D. Upon delivery of a written notice to the Contractor, the District may, without cause and without prejudice to any other right or remedy, elect to terminate the Small Works Project. Upon receipt of any such notice, the Contractor shall take all appropriate steps in part A of this section.

Upon any such termination, Contractor shall waive any claims for damages including Contractor's overhead, loss of anticipated profits, and all other inconvenience, expenses, damages, costs and lost profits whatsoever.

If such termination is effected after Contract Award but prior to the District issuing Notice to Proceed to the Contractor, the District shall pay the reasonable, verifiable and directly attributable costs incurred by the Contractor in the preparation of his Bid plus fifteen percent (15%) of such costs. If such termination is effected after the District has issued Notice to Proceed and the Contractor has commenced performance hereunder, the District shall pay the reasonable, verifiable and directly attributable costs incurred by the Contractor as determined by the physical progress of the work satisfactorily completed to date plus costs of removing equipment and materials and otherwise demobilizing, plus twelve percent (12%) of the sum of all such costs; provided, said payment shall not in any event exceed the Contract Price of the Small Works Bid Documents. The payment of the District shall constitute full and complete satisfaction and settlement for the Contractor's overhead, anticipated profits, and all other inconvenience, expenses, damages, costs and lost profits whatsoever. The Contractor shall be entitled to no further payments whatsoever for the work. Amounts retained and accumulated under RCW Chapter 60.28 shall be held and disbursed as provided therein.

Contractor shall submit within thirty (30) days after receipt of notice of termination, a request for adjustment to the Contract Price in accordance with the above provisions. District Representative shall review, analyze, and verify such request, and upon District Representative's approval, the Small Works Bid Documents shall be amended in writing accordingly.

Those provisions of the Contract or Small Works Bid Documents that by their nature survive Final Acceptance under the Contract Documents shall remain in full force and effect after such termination.

#### GC-4 TERMINATION FOR DEFAULT/NONCOMPLIANCE

A. Acts of Default

If Contractor fails in any material way to comply with any of the conditions or provisions of these Contract Documents or any Small Works Bid Documents or is unable to pay its debts as they mature or authorizes or takes any action under bankruptcy or reorganization, readjustment of debt, insolvency, liquidation or other similar laws or proceedings it shall be considered an act of default.

B. Consequences of Default

In the event of default, the District may immediately, without limiting any other remedy available to it in law or equity, withhold any amount otherwise due under any Small Works Bid Documents. The District shall provide written notice of default. In the event the default can be cured, and Contractor fails to correct the default within ten (10) days after written notice of default, the District may terminate the Contractor's right to proceed with all or any portion of the work. The District's right to liquidated damages shall not in any manner limit any other remedy available to the District, including but not limited to, the District's right to terminate the Contractor's right to proceed.

C. Noncompliance

The Contractor shall, upon receipt of written notice of noncompliance with any provision of this Contract, or any Small Works Bid Documents and the action to be taken, immediately correct the conditions to which attention has been directed. Such notice, when served on the Contractor or its representative at the site of the work, shall be deemed sufficient. If the Contractor fails or refuses to comply promptly, the District Representative may issue an order to suspend all or any part of the work. When satisfactory corrective action is taken, an order to resume work shall be issued. No part of the time lost due to any such suspension order shall entitle the Contractor to any extension of time for the performance of any Small Works Bid Documents or to reimbursement for excess costs or damages.

GC-5 ASSIGNMENT

The Contractor shall not assign this Contract, or any Small Works Bid Documents they may be awarded, or any interest in or part thereof, or any monies due or to become due hereunder, without the prior written approval of the District. Any costs to the District associated with the assignment may be deducted from amounts due to the Contractor.

GC-6 INDEMNITY

- A. Contractor shall be responsible for any and all damage, loss or injury of any kind or nature whatsoever, direct or indirect, to person or property arising out of or in any manner connected with or caused by or resulting from or suffered in connection with the execution of the work provided for in this Contract, any Small Works Bid Documents or in connection therewith. Contractor agrees to defend, indemnify and hold harmless the District and its representatives (which terms shall be deemed to include directors, officers, employees, agents, and servants, and any other persons directly or indirectly engaged in any activity connected with the performance of the work under any Small Works Bid Documents) from and against any and all liabilities, claims, losses, damages or expenses, including reasonable attorney's fees, and expert witness fees, which may be incurred or sustained by the District or any of their respective employees,

by reason of any act, omission, misconduct, negligence, or default on the part of the Contractor or any Subcontractor of the Contractor, and any employees of the Contractor or Subcontractor and except as may otherwise be provided by applicable law. Contractor specifically assumes liability for actions brought by Contractor's own employees against the District and for that purpose Contractor specifically waives any immunity under the Workers Compensation Act, RCW Title 51. The indemnification obligation under this Contract shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable to or for any third party under workers' compensation acts, disability benefits acts, or other employee benefits acts; provided Contractor's waiver of immunity by the provisions of this paragraph extends only to claims against Contractor by District, and does not include, or extend to, any claims by Contractor's employees directly against Contractor.

- B. The District shall not be responsible or be held liable for any damage to person or property consequent upon the use, misuse or failure of any crane, hoist, rigging, blocking, scaffolding or other equipment used by the Contractor or any of his Subcontractors, even though the said crane, hoist, rigging, blocking, scaffolding, or other equipment be furnished or loaned to the Contractor by the District. The acceptance and/or use of any such crane, hoist, rigging, blocking, scaffolding or other equipment by the Contractor or his Subcontractors shall be construed to mean that the Contractor accepts all responsibility for any claims for damages whatsoever resulting from the use, misuse or failure of such apparatus whether such damages by his own employees or property or to the employees or property of other contractors, the District, or otherwise.
- C. Contractor's indemnification obligation shall not apply to liability for damages arising out of bodily injury to persons or damage to property caused by the negligence of the District or its agents or employees and not attributable to any act or omission on the part of the Contractor. In the event of damages to person or property caused by or resulting from the concurrent negligence of District or its agents or employees and the Contractor or its agents or employees, the Contractor's indemnity obligation shall apply only to the extent of the Contractor's (including that of its agents and employees) negligence. Contractor acknowledges that by entering into a contract with the District, he has mutually negotiated the above indemnity provisions with the District. Contractor's indemnity and defense obligations shall survive the termination or completion of this Contract or any Small Works Bid Documents and remain in full force and effect until satisfied in full.

## GC-7 LAWS, REGULATIONS, PERMITS

The Contractor represents that it is familiar with, and shall be governed by and comply with, all Federal, State and local statutes, laws, ordinances, and regulations including amendments and changes as they occur. The Contractor and any Subcontractors shall be responsible for ensuring that its employees fully comply with the District's Code of Ethics, a copy of which is available at the District's offices.

All written instruments, agreements, specifications and other writing of whatsoever nature which relate to or are a part of this Contract shall be construed, for all purposes, solely and exclusively in accordance and pursuant to the laws of the State of Washington. The rights and obligations of the District and Contractor shall be governed by the laws of the State of Washington. Venue of any action filed to enforce or interpret the provisions of this Contract shall be exclusively in the Superior Court, County of Douglas, State of Washington or the Federal District Court for the Eastern District of Washington at the District's sole option. In the event of litigation to enforce the provisions of this Contract, the prevailing party shall be entitled to reasonable attorney's fees in addition to any other relief allowed.

Contractor shall comply with all applicable sanitation and safety regulations and shall supply and maintain such equipment and facilities as are deemed necessary for such compliance, including traffic control, barricades and warning devices. Coordination must and shall be responsibility of the Contractor.

Unless the Small Works Bid Documents provide otherwise, all permits and licenses necessary to the prosecution of the work shall be secured by the Contractor at its own expense, and Contractor shall give all notices necessary and incident to the due and lawful prosecution of the work.

#### GC-8 DAMAGES

Any claims arising under any Small Works Bid Documents by the Contractor shall be made in writing to the District Representative no later than ten (10) days after the beginning of the event or occurrence giving rise to the claim. Failure to make written claim prior to the time specified in the Small Works Bid Document shall constitute waiver of any such claim.

#### GC-9 INDEPENDENT CONTRACTOR, SUPERINTENDENT, AND EMPLOYEES

It is understood and agreed that in all work covered by any Small Works Bid Documents, the Contractor shall act as an independent contractor, maintaining complete control over his employees and all of his Subcontractors. The Contractor shall perform the work in accordance with his own methods, subject to compliance with the Small Works Bid Documents. The Contractor shall perform the work in an orderly and workmanlike manner, enforce strict discipline and order among his employees and assure strict discipline and order by his Subcontractors, and shall not employ or permit to be employed on the work any unfit person or anyone unskilled in the work assigned to them.

The Contractor shall designate in writing before starting work competent, authorized site representative(s) who shall be authorized to represent and act for the Contractor in all matters relating to the Small Works Bid Documents. The Contractor's letter designating representative(s) shall clearly define the scope of his authority to act for the Contractor and define any limitations of this authority. Said authorized representative(s) shall be present at the site of the work at all times when work is in progress. Arrangements acceptable to the District shall be made for any emergency work which may be required. The Contractor's authorized representative(s) shall be supported by competent assistants

as necessary, and the authorized representative(s) and assistants shall all be satisfactory to the District. All directions given to the authorized representative(s) by the District shall be binding as if given to the Contractor.

The Contractor and his Subcontractors shall employ only orderly workers. Employees deemed by the District to be incompetent, subversive, or disorderly shall be removed from the performance of the work, and such removal shall not form the basis of any claim for compensation or damage upon the District.

The Contractor and Subcontractor shall be responsible for ensuring that its employees fully comply with all applicable federal, state and local laws and support the District's commitment to provide a safe healthy drug free work environment. The Contractor and Subcontractor shall immediately remove any employee from further work when it is determined that they are not fit for duty. Furthermore, the Contractor and Subcontractor shall immediately remove any employee from further work if it is determined by the District, at its discretion, that the employee is not fit for duty for any reason. Failure on the part of the Contractor or Subcontractor to comply with any of the above shall be considered an act of default in accordance with Section GC-4.

#### GC-10 CORRECTION OF WORK/WARRANTY

All materials and equipment incorporated into any work under the Small Works Bid Documents shall be new and of the most suitable grade of their respective kinds for their intended uses unless otherwise specified. All workmanship shall be in accordance with sound work practices acceptable to District Representative. Contractor warrants all equipment, materials and labor it furnishes or performs under the Small Works Bid Documents against defects in design, materials, and workmanship. Contractor's warranty shall remain in effect for a period of three hundred sixty-five (365) days after Final Acceptance.

If at any time prior to the expiration of the warranty period, Contractor or District discovers any defect in such design, materials or workmanship, the Contractor shall, upon written notice from the District given within a reasonable time after discovery, correct such defects to the satisfaction of the District by redesigning, repairing or replacing the defective work at a time acceptable to District. All costs incidental to such corrective action including removal, disassembly, reinstallation, re-work, re-testing and re-inspection as may be necessary to correct the defect or demonstrate that the previously defective work conforms to the requirements of the Contract shall be borne by the Contractor.

Contractor warrants any and all corrective action against defects in design, materials, and workmanship for a period of twelve (12) months following acceptance by District of the corrected work.

If, after due notice, the Contractor shall refuse or persistently neglect to make corrections so as to meet the requirements of the Contract, the District may proceed to make such corrections as they may be required and Contractor shall reimburse District for all cost and expenses incurred in connection therewith. The warranty requirements in this section



are the minimum requirements for materials, equipment and work under this Contract. Any other warranty requirements specified in the Small Works Bid Documents, including the Technical Specifications, are in addition to, and not in lieu of the minimum requirements specified herein.

## GC-11 CHANGES IN WORK

Without invalidating the Contract, the District may make changes by altering, adding or deducting from the work, and/or make changes in the drawings and specifications requiring changes in the work and/or materials and equipment to be furnished under any Small Works Bid Documents; provided such additions, deductions or changes are within the general scope of the Documents. No architect, engineer, District Representative, Observer, official, or representative or employee of the District has authority to issue or approve any change to the contract, and Contractor bears sole and exclusive responsibility, before proceeding with any change or anything that Contractor asserts constitutes a change, to verify that the District's Board of Commissioners has authorized in writing a change order. Contractor proceeds at its own risk by failing to do so.

Charges or credits for the work covered by the approved changes shall be determined by one or more, or a combination of the following methods, at the District's option:

- A. Unit prices specified in the unit prices for changes in work submitted with the Contractor's Bid proposal, if any.
- B. An agreed lump sum. When requested, Contractor shall provide a detailed proposal for evaluation by the District, including, as applicable:
  - 1. Detailed proposed labor categories, hours, and rates.
  - 2. Specific materials and quantities.
  - 3. Equipment and equipment hours.
- C. The actual cost of:
  - 1. Labor, including foreman, only for employees who will work directly on the work covered by the Change Order.
  - 2. Materials entering permanently into the work.
  - 3. The ownership or rental cost of plant and equipment during the time of use on the project.
  - 4. Power and consumable supplies for the operation of power equipment.
  - 5. Insurance.
  - 6. Social Security and old age and unemployment contributions.
  - 7. To the sum of Items 1, 2, 4, 5, and 6 inclusive, there shall be added a fixed fee of twelve percent (12%). The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

When a change is ordered by the District, as provided herein, a Change Order shall be executed by the District and the Contractor before any Change Order work is performed. The District shall not be liable for any payment to Contractor, or claims arising

therefrom, for Change Order work which is not first authorized in writing as set forth in this section. All terms and conditions contained in the Contract Documents and Small Works Bid Documents shall be applicable to Change Order work. Change Orders shall be issued on the form attached in Part III, Section 3 “Change Order” and shall specify any change in time required for completion of the work caused by the Change Order and, to the extent applicable, the amount of any increase or decrease in the Contract Price.

If any such change or alteration in the work shall result in a decrease of the work to be performed or materials, equipment, and apparatus to be furnished, no allowance shall be made to the Contractor in computing any resulting decrease in the Contract Price for loss of anticipated profits, but if the Contractor, before receiving the District's notice of intention pursuant to this Section, shall have incurred any expense in connection with the proper performance of the Small Works Bid Documents which shall be rendered unnecessary by such change or alteration, such allowance shall be made therefore to the Contractor as the District shall determine to be fair and reasonable.

The District Representative may instruct the Contractor to make minor changes in the work where such changes are not inconsistent with the purposes of the Small Works Bid Documents, do not involve any additional cost and shall not require an extension of the Small Works Bid Document completion date. The Contractor shall make no such changes without receipt of a District Instruction, Exhibit “E”, setting forth the changes to be made. Contractor's compliance therewith shall constitute its acknowledgment that such changes shall not result in any claim for additional payment or extension of the Small Works Bid Document completion date. If the Contractor believes the instruction shall result in additional costs or time extensions, Contractor shall promptly notify the District of the same and not proceed with the changes. District Instructions, when issued, shall be in writing and signed by the District Representative.

No waiver of any provision of this Contract or the Small Works Bid Documents, and no consent to departure there from, by either party, shall be effective unless in writing and signed by the waiving or consenting party, and no such waiver or consent shall extend beyond the particular case and purpose involved.

## GC-12 PAYMENT/RETAINAGE

Contractor shall submit an invoice for approval and payment by District upon satisfactory completion of all work. Payment shall be made in accordance with the prices specified on the Bid Form. The District Representative shall make the determination of satisfactory completion for payment purposes. If the requested completion date is more than thirty (30) days after the Contractor's Acceptance of the Notice to Proceed, the Contractor may submit invoices monthly for work satisfactorily completed during the previous month, as determined by the District Representative.

Invoices shall clearly identify the Small Works Bid Document No. (22683) and be addressed as indicated in the Small Works Bid Documents.

The District shall withhold the sum of five percent (5%) of the amount of each progress

payment to the Contractor as retainage in accordance with Chapter 60.28 of the Revised Code of the State of Washington.

If the District is requested in writing by the Contractor, the monies reserved hereunder (retainage) shall be placed in escrow with a bank or trust company by the District and interest on such escrowed funds shall be paid to the Contractor as said interest accrues, all as more fully provided in RCW Chapter 60.28. However, any payments made to the Contractor hereunder shall not relieve the Contractor from responsibility under provision of the Contract and warranties. Payment is not to be construed as acceptance by District or certification that the Contractor has performed the work correctly or according to Small Works Bid Documents.

#### GC-13 PAYMENTS WITHHELD

In addition to the above percentage retained, the District may withhold the whole or part of any payment to such extent as may be reasonably necessary to protect itself from loss on account of:

- A. Defective or damaged work not remedied or warranties not met.
- B. Claims filed or reasonable evidence indicating filing of claims against the Contractor.
- C. Failure of the Contractor to make payments properly to Subcontractors or for materials, labor, or equipment.
- D. A reasonable doubt that the work in the Small Works Bid Document can be completed for the balance then unpaid.
- E. Damage to another Contractor.
- F. Damage to or loss of District-furnished materials or District property.
- G. Contractor's failure to meet any performance warranties required by the Contract Documents or the Small Works Bid Documents.

The Contractor shall provide a contact name, address, and email address to facilitate notification if any payment, or portion of any payment, is withheld for any of the reasons above, or for missing documentation or items incorrectly invoiced. Notification shall be made via email, or shall be mailed, properly addressed and stamped with the required postage to the person designated by the Contractor.

#### GC-14 ACCEPTANCE AND FINAL PAYMENT

When the Contractor has completed all work in accordance with the terms of the Contract Documents, the Contractor shall properly execute and submit final invoice to the Contract Officer. Once final invoice has been processed, the District's Purchasing

Department will issue the Certificate of Completion and Release to be executed by the Contractor and returned to the Contract Officer. The Certificate of Completion and Release shall constitute a waiver of all claims by the Contractor except for unsettled claims specifically stated, if any.

The Certificate of Completion and Release shall warrant that the Contractor has fully completed its work included in the Contract and has fully paid for labor, materials, equipment, services, taxes and all other costs and expenses of every nature and kind whatsoever resulting from this Contract. If any dispute exists between the Contractor and any person, firm or corporation to which the Contractor might be obligated in connection with this Contract, the Contractor shall state the name of claimant and amount and general nature of claim against the Contractor. The Certificate of Completion and Release shall state the amount and nature of all present and future claims that the Contractor may have against the District relative to this Contract. The Contract work shall not be complete until after the Contractor has returned to the Contract Officer a properly completed Certificate of Completion and Release.

Upon receipt of Certificate of Completion and Release by the Contract Officer, the District Representative provides a recommendation relative to Final Acceptance. The District shall, within a reasonable time, take action on Final Acceptance. Such action shall be subject to the condition of the Payment and Performance Bond, legal rights of the District, required warranties, and correction of faulty work discovered after final payment. The District shall have the right to retain from any payment then due the Contractor, so long as any bills or claims remain unsettled and outstanding, a sum sufficient, in the opinion of the District, to provide for the payment of the same. It is also understood and agreed that, in the case of any breach or damage by the Contractor of the provisions hereof, the District may retain from any payment or payments a sufficient sum in the opinion of the District which may become due under any obligation of the District.

Sixty (60) days after Final Acceptance, retainage may be released to the Contractor; provided, however, that there are no claims filed of materialmen or laborers and that the District has received the certificate of the Washington State Department of Revenue of payment in full of all taxes, Employment Security Department release, the approved Washington State Department of Labor and Industries Certificate of Release of the State's Lien on Public Works Contracts form and the approved affidavit showing payment of prevailing wages for the Contractor and any Subcontractors. If any liens remain unsatisfied from the retainage, the Contractor shall refund to the District such amounts as the District may have been compelled to pay in discharging such liens including all costs and reasonable legal fees.

#### GC-15 DISTRICT REPRESENTATIVE'S STATUS, AUTHORITY AND PROTEST PROCEDURE

The District Representative shall represent the District. The District Representative has authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the Contract. The District Representative shall also have authority to reject all work, equipment, and materials which do not conform to the Contract and to decide questions which arise in the execution of his work.

Approval by the District Representative signifies favorable opinion and qualified consent. It does not carry with it certification, assurance of completeness, assurance of quality, nor assurance of accuracy concerning details, dimensions, and quantities. It is not an acceptance by the District or certification that Contractor has performed the Contract work correctly or according to Contract Documents and the Small Works Bid Document. Such approval shall not relieve the Contractor from responsibility for errors or for deficiencies within his control.

All claims of the Contractor and all questions relating to the interpretation of the Small Works Bid Document, including all questions as to the acceptable fulfillment of the Contract on the part of the Contractor and all questions as to compensation, shall be submitted in writing to the District Representative for determination within the applicable time period specified in the Small Works Bid Document.

All such determination and other instructions of the District Representative shall be final unless the Contractor shall file with the District Representative a written protest, stating clearly and in detail the basis thereof, within ten (10) days after the District Representative notifies the Contractor of such determination or instruction. The protest shall be forwarded by the District Representative to the District's General Manager, who shall issue a decision upon each such protest, and its decision shall be final. Pending such decision, the Contractor, if required by the District Representative, shall proceed with the work in accordance with the determination or instructions of the District Representative.

The District Representative may appoint assistants and inspectors to assist in determining that the work performed and materials furnished comply with Contract requirements. Such assistants and inspectors shall have authority to reject defective material and suspend any work that is being done improperly, subject to the final decisions of the District Representative, or to exercise such additional authority as may be delegated to them by the District Representative. All work done and all materials furnished shall be subject to inspections by the District Representative or inspector at all times during the work.

#### GC-16 COOPERATION WITH OTHERS

There may be other contractors or forces of the District working the same area where work under the Small Works Bid Document shall be performed. The Contractor shall fully cooperate with such other contractors and the District's employees and carefully fit his work with the other work consistent with orderly and expeditious performance and completion of the project as a whole.

#### GC-17 WAGES PAID BY THE CONTRACTOR

Contractor and its Subcontractors shall comply with all provisions of RCW Chapter 39.12 and Section 2.5 of the Collective Bargaining Agreement (hereinafter referred to as Section 2.5) between the District and IBEW Local No. 77. A copy of Section 2.5 is attached hereto as Exhibit "G". Contractor and its Subcontractor shall pay all laborers,

workmen, or mechanics employed by it or them in the performance of the Small Works Bid Document the greater of: (1) the applicable state prevailing wage rate required by (RCW Chapter 39.12); or (2) the applicable wage rate required by Section 2.5. In the event the applicable wage rate(s) required to be paid by the Contractor or its Subcontractors change during the performance of the Small Works Bid Document, Contractor and its Subcontractors shall make any required adjustment so as to fully comply with any applicable state prevailing wage rate law (RCW Chapter 39.12) and Section 2.5. Notwithstanding the foregoing, the District shall not be required to make any adjustment in the Contract Price as a result of changes in either the state prevailing wage rate law or Section 2.5, except as provided in WAC 29-127-023.

Prior to any payments being made to Contractor, the Contractor and each and every Subcontractor shall file a "Statement of Intent to Pay Prevailing Wages" which has been approved by the Department of Labor and Industries as required by RCW 39.12.040.

Current minimum hourly prevailing wage rates for all classifications in all Counties are available through the Washington Department of Labor and Industries.

## GC-18 INSURANCE

- A. Prior to the commencement of any work under any Small Works Bid Document, and at all times during the term of the Small Works Bid Document, Contractor shall obtain and maintain continuously, at its own expense a policy, or policies of insurance with reliable insurance companies satisfactory to the District and authorized to do business in the State of Washington. All insurance required by the Small Works Bid Document shall be primary insurance with respect to any insurance carried by the District. Contractor shall have no right to call upon or seek contribution from any insurance carried by the District. Any significant deductible, self-insured retention or coverage via captive must be disclosed and is subject to approval by District's Risk Manager. The cost of any claim payments falling within the deductible or self-insured retention shall be the responsibility of the Contractor.

Contractor shall ensure that all policies of insurance that Contractor carries as insurance shall include a waiver of the insurer's right of subrogation to the benefit of the District. Minimum Insurance requirements follow. Specific Small Works Projects may require additional types of coverage or higher limits depending on the scope of work.

### Contractor Required Insurance

1. **General Liability Insurance:** Commercial general liability insurance, covering all operations by or on behalf of Contractor against claims for bodily injury (including death) and property damage (including loss of use). Such insurance shall provide coverage for:
  - a) Premises and Operations;

- b) Products and Completed Operations;
- c) Contractual Liability;
- d) Personal Injury Liability (with deletion of the exclusion for liability assumed under Contract);
- e) Independent Contractor's Contingent Liability;
- f) Territorial Extension for the area in which the work will be performed;
- g) Pollution Liability (sudden and accidental); (Include if working on site with a low pollution risk present)
- h) Such insurance shall provide coverage for action-over liability claims. (Include if working on site, particularly at the power plants, near live lines or other higher risk areas where non-contractor employees may be present)
- i) Broad Form Property Damage (including Completed Operations); (Include if working on site)
- j) Explosion (X), Collapse (C) and Underground Hazards (U); including XCU coverage under both Premises/Operations and Contractual Liability; (Include if the work has the potential for explosion risk, if there will be any drilling or boring, etc.)
- k) When applicable, Cargo Legal Liability adequate to the full value of transported items (if the contract requires moving high value items i.e. a transformer)
- l) When applicable, coverage for liability resulting from the consumption of food prepared or served by the Contractor or its Subcontractor; (Catering services...)

with a **minimum limit of \$1,000,000 per occurrence** for bodily injury and property damage combined, provided that policy aggregates, if any, shall apply separately to each annual policy period.

**Worker's Compensation and Stop Gap Employers Liability:** Worker's Compensation Insurance, including Occupational Disease coverage, as required by law for all employees. Employer's Liability Insurance, including Occupational Disease coverage, in the amount of **\$1,000,000 for Each Accident, Each Employee, and Policy Limit**. The Contractor expressly agrees to comply with all provisions of the Workers' Compensation Laws of the states or countries where the work is being performed, including the provisions of Title 51 of the Revised Code of Washington for all work occurring in the State of Washington.

- 2. **Automobile Liability Insurance:** Automobile Liability insurance against claims of bodily injury (including death) and property damage (including loss of use) covering all owned, rented, leased, non-owned, and hired vehicles used in the performance of the work, with a **minimum limit of \$1,000,000 per accident** for bodily injury and property damage combined and containing appropriate uninsured motorist and No-Fault insurance provision, when applicable.

B. Evidence of Insurance - Prior to performing any services, and within ten (10) days after receipt of the Contract Award, the Contractor shall file with the District a

Certificate of Insurance showing the Insuring Companies, policy numbers, effective dates, limits of liability and deductibles with a copy of the endorsement naming the District as an Additional Insured (AI not required for Workman's Comp).

Failure of the District to demand such certificate or other evidence of compliance with these insurance requirements or failure of the District to identify a deficiency from the provided evidence shall not be construed as a waiver of the Contractor's obligation to maintain such insurance. Acceptance by the District of any certificate or other evidence of compliance does not constitute approval or agreement by the District that the insurance requirements have been met or that the policies shown in the certificates or other evidence are in compliance with the requirements.

The District shall have the right but not the obligation of prohibiting the contractor or subcontractor from entering the project site until such certificates or other evidence of insurance has been provided in full compliance with these requirements. If the Contractor fails to maintain insurance as set forth above, the District may purchase such insurance at the Contractor's expense. The Contractor's failure to maintain the required insurance may result in termination of the Small Works Bid Document at the District's option.

- C. Subcontractors - Contractor shall ensure that each Subcontractor meets the applicable insurance requirements and specifications of this Contract, or as required by the Small Works Bid Document. All coverage for Subcontractors shall be subject to all the requirements stated herein and applicable to their profession. Contractor shall furnish the District with copies of certificates of insurance evidencing coverage for each Subcontractor.
- D. Cancellation of Insurance - The Contractor shall not cause any insurance policy to be canceled or permit any policy to lapse. All policies shall provide thirty (30) days' advance written notice to the District for cancellation or any material change in coverage or condition, ten (10) days' notice for non-payment. Should the Named Insured receive any notice of cancellation or notice of nonrenewal from its insurer(s), Contractor shall provide immediate notice to the District, but in any event, no later than two (2) days following receipt of such notice from the insurer. Notice to the District shall be delivered by facsimile or email.

#### GC-19 SAFETY

The Contractor and Subcontractor's attention is alerted to the strict enforcement and requirements of the "Occupational Safety and Health Act" (OSHA) and the "Washington Industrial Safety and Health Act" (WISHA). The Contractor and Subcontractor shall comply with all provisions thereof and make such reports and maintain records as the Acts requires. Any accidents requiring medical attention or damage to District property shall be reported immediately to the District Representative.

The Contractor shall furnish the District a copy of all MSD sheets for all Contractors and Subcontractor supplied chemicals requiring such documentation as stated in OSHA



and/or WISHA regulations. In addition, the Contractor shall maintain access to all MSD sheets at the work site as required by law. The Contractor and Subcontractor may obtain MSD sheets from the District for any District chemicals by contacting the District Representative.

The Contractor and Subcontractors shall comply with all applicable building and construction codes.

The District requires as mandatory, the use of hard hats by all persons on the work site.

The Contractor and Subcontractor shall comply with all traffic and flagger regulations in accordance with DOT and WAC regulations. If work is performed where significant traffic hazards are identified, the District may require additional pedestrian safety rules.

Nothing herein shall be deemed to impose any duty or obligation on the District to determine the adequacy or sufficiency of the Contractor and Subcontractor's safety program. Contractor's and Subcontractor's remain solely responsible for safety of the general public and employees, as provided herein.

#### GC-20 INSPECTION

The District Representative, assistants and inspectors shall have access to all places where work is being done or where materials are being manufactured or prepared for use under the Small Works Bid Documents and they shall have full access to facilities for unrestricted inspection during working hours of such materials, equipment and work. The District Representative, assistants and inspectors shall be authorized to record their observations in any manner reasonable, including but not limited to recording by photographs.

The District Representative shall be kept informed of the production schedules so that inspections may be adequately performed. The Contractor shall give timely notice of any inspections required or desirable. Re-examination of questioned work may be ordered by the District Representative, and, if so ordered, the work must be uncovered by the Contractor. If such work be found in accordance with the Small Works Bid Documents, the District shall pay the costs of re-examination and replacement. If such work be found not in accordance with the Small Works Bid Documents, the Contractor shall bear such cost and expedite such necessary corrections.

#### GC-21 CONFLICT AND PRECEDENCE/INTENT

- A. In the event there are any conflicting provisions or requirements in the component parts of this Contract and the Small Works Bid Documents, the Documents shall take precedence in the following order:
1. Change Orders
  2. Notice to Proceed
  3. Addenda
  4. Small Works Bid Documents - Specific Requirements

5. Small Works Contract - General Conditions
6. Small Works Bid Documents - Technical Specifications
7. Small Works Bid Documents - Contract Drawings
8. Small Works Bid Documents - Instructions to Bidders
9. Payment and Performance Bond
10. Bid Proposal

- B. The intent of the Small Works Bid Documents is to prescribe a complete work. Contractor shall furnish all labor, tools, equipment, transportation, supplies and incidentals required to complete all work. The Contract Price, whether lump sum or unit prices or a combination thereof, shall be full pay for all work and equipment required to fully complete the Small Works Bid Document work.

#### GC-22 PRE-WORK CONFERENCE

The Contractor, upon notification by the District, may be required to attend a pre-work conference prior to starting any work. The purpose of the conference is to discuss, among other considerations, the responsibility of the Contractor and his Subcontractors in the prosecution and progress of the work. The conference, if any, shall be held on a date mutually agreed upon by the Contractor and the District Representative.

#### GC-23 PROGRESS MEETINGS

Progress review meetings shall be held at regular intervals as deemed necessary by the District Representative. Progress meetings shall be utilized to review the work schedule and discuss any delays, unusual conditions, or critical items which have affected or could affect the progress of the work.

Time is of the essence of any Small Works Project. If at any time during the progress of work, the Contractor's actual progress, in the opinion of the District Representative, is inadequate to meet the Contract completion dates, the District may issue a written notice of noncompliance to the Contractor who shall thereupon take such steps as may be necessary to improve its progress. If within a reasonable period as determined by the District Representative, the Contractor does not improve performance to meet the work schedule, the District may direct the Contractor to accelerate the work through an increase in the Contractor's labor force, the number of shifts, overtime operations, additional days of work per week and/or an increase in the amount of plant; all without additional cost to the District. Neither such notice by the District nor the District's failure to issue such notice shall relieve the Contractor of its obligation to achieve the quality of work and rate of progress required by the Small Works Bid Document.

Failure of the Contractor to comply with the instructions of the District may be grounds for determination by the District that the Contractor is not prosecuting its work with such diligence as shall assure completion within the times specified. Upon such determination, the District may terminate the Contractor's right to proceed with the performance of the Small Works Bid Document, or any separable part thereof in accordance with Section GC-4.

## GC-24 DELAYS AND EXTENSIONS OF TIME

If the Contractor is delayed at any time in the progress of work by any unforeseeable causes beyond the control of the Contractor, the Contract time shall be extended for such reasonable time as the District Representative shall determine. The Contractor agrees to complete the work within the Small Works Bid Document time as thus extended. Such extensions shall postpone the beginning of period for payment of liquidated damages but they and the events producing them shall not be grounds for claim by the Contractor of damages or for additional costs, expenses, overhead or profit or other compensation. Except for delays caused by the acts or omissions of the District or persons acting for it, extensions of time granted by the District Representative to the Contractor shall be the Contractor's sole and exclusive remedy for any delays due to causes beyond the control of the Contractor.

All claims for extension of time shall be made in writing to the District no more than three (3) days after the Contractor knows or by reasonable diligence should know of the event causing or likely to cause the delay; otherwise, they shall be waived. In the case of a continuing cause of delay only one claim is necessary. Contractor's failure to give such notice promptly and within such time limit shall be deemed sufficient reason by the District Representative for denial of any time extension request.

Avoidable delays in the prosecution or completion of the work, for which no time extension shall be granted, shall include all delays which in the opinion of the District Representative could have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor or his Subcontractors. Additionally, delays in the prosecution of parts of the work which may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of other parts of the work nor the completion of the whole work within the time herein specified shall constitute avoidable delays for which no time extension shall be granted.

All changes of the time or changes of the schedule shall be made by Change Orders to the Contract pursuant to Section GC-11.

## GC-25 AUDIT OF RECORDS

Contractor shall maintain records and accounts in accordance with Generally Accepted Accounting Principles (GAAP) in connection with the performance of the Small Works Project which shall accurately document incurred costs both direct and indirect, of whatever nature. If District Representative establishes uniform codes of accounts for the project, Contractor shall use such codes in identifying its records and accounts. District Representative or their representatives shall have the right to examine and copy at all reasonable times, with advance notification, Contractor's records and accounts for the limited purpose of verifying requests for payment when costs are the basis of such payment and for evaluating the reasonableness of proposed Contract Price adjustments and claims. Contractor shall make all records and accounts available to the District for inspection and copying at the District's main offices in East Wenatchee, Washington.

## GC-26 DISTRICT'S USE OF CONSTRUCTION AND/OR EQUIPMENT

- A. The District shall have the right to take possession of, use and collect revenues from any completed, partially completed, satisfactory or unsatisfactory portions of the work after the time for completion of the work has expired, but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Small Works Bid Document.
- B. The District shall be responsible for damages incurred as a result of use of the work except when such damages occur as a result of uncompleted work or faulty workmanship or materials. Prior to using any portion of the work, the District may notify the Contractor of inventory of work yet to be completed.
- C. During the progress of the work it may be necessary for the District to have access to the facilities to install certain material.
- D. The District shall have the right to operate all equipment as soon and as long as it is in operational condition, whether or not such equipment has been accepted as complete and satisfactory, except that this shall not be construed to permit operation of any equipment which may be materially damaged by such operation before any required alterations or repairs have been made. All repairs or alterations required by the Contractor shall be made by the Contractor at such times as directed and in such manner as shall cause the minimum interruption in the use of the equipment by the District.

#### GC-27 ENVIRONMENTAL CONTROL

The Contractor and Subcontractors shall comply with all applicable state and federal environmental regulations. Contractor shall take suitable measures and provide suitable facilities to prevent pollution, oil and chemical spills, soil erosion and the introduction of any substances or materials into any stream, river, lake or any other body of water which may pollute or silt the water or constitute substances or materials deleterious to fish or wildlife. Further, Contractor shall use all reasonable efforts to maintain the site of the work free from fugitive dust (i.e. dust that becomes airborne or visual). Contractor shall be responsible for all cost of corrective measures required as a result of any pollution, erosion or siltation, including its effects on adjacent properties.

#### GC-28 TAXES

- A. Except for the Washington State retail sales and use taxes as may be levied upon the Small Works Bid Document, pursuant to RCW Chapters 82.08 and 89.12, the Contract Price includes and the Contractor shall have the full exclusive liability for the payment of all taxes, levies, duties and assessments of every nature due and payable in connection with this Contract or its employees and Subcontractors performing works related to any Small Works Project.
- B. Washington State retail sales tax and use taxes levied upon the Small Works Bid Document pursuant to RCW Chapters 82.08 and 82.12 shall be excluded from the

Total Bid Price and paid/reimbursed as follows:

1. If the Contractor has, or is required to have a valid Washington State sales tax identification number, the identification number shall be furnished to the District on the Bid Form. The Contractor shall make payment of said Washington State retail sales and use taxes and Contractor shall be reimbursed by the District for the same. Contractor shall be solely responsible for any interest or penalties arising from late or untimely payment of said taxes.
2. If the Contractor is not required to have a valid Washington State sales tax identification number, it shall specify the same on the Bid Form. In such event, the District, after receiving proper invoices from Contractor, shall make payment of said Washington State retail sales and use taxes levied upon this Contract to the Washington State Department of Revenue.

#### GC-29 BOND IN LIEU OF RETAINAGE

Pursuant to RCW Chapter 60.28, the Contractor may submit a bond in lieu of the retainage that the District would otherwise keep under the terms of the Small Works Bid Document and pursuant to applicable law. Any such bond submitted in lieu of retainage must be on the Retainage Bond Form, a sample of which is provided with these Contract Documents (see Part II, Bid Forms/Contract). In the event the Contractor fails at any time to pay persons protected under RCW Chapter 60.28 or the District has reason to believe that the District or other obligee under the bond has a claim against the retainage or for other good cause, the District may, at its option, resume retaining from monies earned by the Contractor in such amount as it would otherwise be entitled to retain had the bond not been accepted. Notwithstanding the District's resuming such retainage, said bond shall remain in full force and effect to the extent of its penal sum, limited to the amount of retainage released to the Contractor. After the Contractor has paid protected persons or otherwise cured any default, the District may, at its option, again release retainage pursuant to the terms of the Bond.

#### GC-30 NON-WAIVER

No waiver of any provision of this Contract, or any rights or obligations of either Party under this Contract, shall be effective, except pursuant to a written instrument signed by the Party or Parties waiving compliance, and any such waiver shall be effective only in the specific instance and for the specific purpose stated in such writing. The failure of either Party to require the performance of any term of this Contract or the waiver of either Party of any breach under this Contract shall not operate or be construed as a waiver of any other provision hereof, nor shall it be construed as a waiver of any subsequent breach by the other Party hereto.

#### GC-31 PAYMENT AND PERFORMANCE BOND

Unless this provision is expressly waived by the District in writing, to assure compliance with the terms of the Contract Document and Small Works Bid Document, the Contractor

shall furnish a Payment and Performance Bond in an amount equal to one hundred percent (100%) of the amount of any Contract Award, excluding Washington State Sales Tax, with surety or sureties who are acceptable to the District. This Payment and Performance Bond shall remain in force for a period of 365 days after Final Acceptance. The Payment and Performance Bond must be on the form provided with the Small Works Bid Document in Part II, Bid Forms/Contract titled "Performance and Payment Bond", a sample of which is included with these Contract Documents.

GC-32 AUTHORITY TO SIGN

A fully executed and properly notarized Signature Certification Form, confirming the authority of the person signing this Contract Document is required to be completed.

IN WITNESS WHEREOF, the parties hereto have executed this Contract under their several seals the day and year first above written; the name and corporate seal of each corporate party hereto being hereto affixed and these presents being duly executed in two counterparts by the proper officers of each thereunto duly authorized, each of which counterparts shall without proof or accounting for the other counterparts, be deemed an original Contract.

Contractor acknowledges that by signing below Contractor is expressly agreeing that all terms and conditions contained in this Small Works Contract shall be applicable to any work awarded to Contractor by the District pursuant to the District's Small Works Roster Program.

PUBLIC UTILITY DISTRICT NO. 1 \_\_\_\_\_  
OF DOUGLAS COUNTY, WASHINGTON(Print full legal name of Contractor)

BY: \_\_\_\_\_

Gary R. Ivory, General Manager

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

**SIGNATURE CERTIFICATION**

**(FOR CORPORATION)**

STATE OF \_\_\_\_\_)

County of \_\_\_\_\_)

On this day personally appeared before me, (name) \_\_\_\_\_, to me known to be the (title) \_\_\_\_\_ of (company) \_\_\_\_\_, the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he or she is authorized to execute the said instrument, and that the statements contained in said instrument and in the attachments thereto are true and correct to the best of his or her knowledge.

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_ .

(Seal or Stamp)

\_\_\_\_\_  
Signature of Notary Public

\_\_\_\_\_  
Title  
My Appointment Expires \_\_\_\_\_

**(FOR PARTNERSHIP OR PROPRIETORSHIP)**

STATE OF \_\_\_\_\_)

County of \_\_\_\_\_)

On this day personally appeared before me, (name) \_\_\_\_\_, to me known to be the individual(s) described in and who executed the foregoing instrument, and on oath swore that he or she executed the foregoing instrument at his or her free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he/she/they are authorized to execute said instrument and that the statements contained in said instrument and in the attachments thereto are true and correct to the best of his or her knowledge.

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_ .

(Seal or Stamp)

\_\_\_\_\_  
Signature of Notary Public

\_\_\_\_\_  
Title  
My Appointment Expires \_\_\_\_\_

**SMALL WORKS BID NO. 22683**

**FOR**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**PERFORMANCE AND PAYMENT BOND**

\_\_\_\_\_, herein Principal, and \_\_\_\_\_  
\_\_\_\_\_, herein Surety, jointly and severally obligate ourselves, our heirs, executors,  
administrators, assigns and successors, for payment to Public Utility District No. 1 of Douglas County,  
Washington, in the sum of \_\_\_\_\_  
\_\_\_\_\_ (\$\_\_\_\_\_).

Surety irrevocably agrees that the laws of the state of Washington bind it and that it is subject to the jurisdiction of the state of Washington.

**THE CONDITION** of the obligation of this bond is that:

1. On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_. Principal executed a contract with the District obligating itself to fully perform all terms, conditions and undertakings of that contract in strict compliance with the Contract Documents. This Performance and Payment Bond incorporates the Contract Documents in their entirety by reference.

2. If the Principal shall fully, properly, and timely perform and fulfill all the obligations, undertakings, agreements, terms, conditions, guarantees, and warranties of the contract in strict compliance with the Contract Documents and within the time(s) set therein, and shall indemnify and hold the District harmless from all costs and damages (including reasonable attorney fees) that the District may incur by reason of any failure of Principal to do so, and shall fully reimburse and repay the District for any and all expenses that it may incur in making good any such failure of performance by Principal, and shall promptly make payment to all persons, firms, partnerships, corporations, limited liability companies or others that shall supply labor, materials, services, goods, tools, supplies, equipment, transportation, supervision, utilities or other items for use in the Work and shall fully reimburse the District for any excess in cost of performance over the price set in the Contract Documents and any amendments thereto, occasioned by any default of the Principal under the contract and any amendments thereto, then these obligations shall be null and void, but otherwise the obligations shall remain in full force and effect.

No prepayment or delay in payment and no change, extension, addition, or alteration of any provision of the Contract agreed to between Contractor and the District, and no forbearance on the part of the District, shall operate to relieve surety from any liability on this bond, and Surety hereby consents to any such alterations without further notice to or consent by Surety.

Dated this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.



**"PRINCIPAL"**

\_\_\_\_\_

By: \_\_\_\_\_

**"SURETY"**

\_\_\_\_\_

By: \_\_\_\_\_

Address of local office and agent,  
and home offices of Surety Company:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SMALL WORKS BID NO. 22683**

**FOR**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**CERTIFICATE OF INSURANCE**

**INSURED:** \_\_\_\_\_

**PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY, WASHINGTON, IS AN  
ADDITIONAL INSURED ON EACH POLICY HEREIN**, for all activities of the above-named  
insured relating to: Contract No. \_\_\_\_\_

Purchase Order No. \_\_\_\_\_

**COMPANIES PROVIDING COVERAGE:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**POLICY NO.:** \_\_\_\_\_

**COVERAGES (see GC-18)**

<u>Type</u>	<u>Limits</u>	<u>Policy Expiration Date</u>
COMMERCIAL GENERAL LIABILITY		
_____ Owners/Contractor's Protective Liability	\$ _____	_____
_____ Premises and Operations	\$ _____	_____
_____ Products Liability	\$ _____	_____
_____ Completed Operations	\$ _____	_____
_____ Broad Form Blanket Contractual Liability	\$ _____	_____
_____ Broad Form Property Damage	\$ _____	_____
_____ Explosion, Collapse/Underground (XCU)		
_____ Hazards	\$ _____	_____
_____ Watercraft Liability	\$ _____	_____
_____ Aircraft Liability	\$ _____	_____
_____ Personal Injury Liability	\$ _____	_____
_____ Hostile Fire Pollution Liability	\$ _____	_____

**COVERAGES**

<u>Type</u>	<u>Limits</u>	<u>Policy Expiration Date</u>
AUTOMOBILE LIABILITY This insurance covers all owned, non-owned, leased and hired automobiles, vehicles and equipment)	\$ _____	_____
EXCESS LIABILITY	\$ _____	_____
_____ Umbrella Form	\$ _____	_____
_____ Other Than Umbrella Form	\$ _____	_____
EMPLOYERS' LIABILITY	\$ _____	_____

**DESCRIPTION OF RESTRICTIONS/SPECIAL ITEMS** (if any): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

All the insurance policies above, except Worker’s Compensation and Automobile Liability provide a Severability of Interest or Cross Liability Clause, provide that the insurance shall be primary and not excess to or contributing with the insurance or self-insurance maintained by the District and name the District, its officers and employees as additional insureds.

All the insurance policies above provide for Waiver of Subrogation in favor of the District.

**CANCELLATION:** If any of the above described policies are canceled before the stated expiration date, the issuing company shall, not less than 10 business days prior to cancellation, deliver written notice of intended cancellation to Public Utility District No. 1 of Douglas County, Washington, 1151 Valley Mall Parkway, East Wenatchee, Washington, 98802.

**AUTHORIZED REPRESENTATIVE:**

\_\_\_\_\_ Date: \_\_\_\_\_

**SMALL WORKS BID NO. 22683**

**FOR**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**CONTRACTOR'S REQUEST FOR HANDLING OF RETAINAGE**

Contractor requests that amounts retained as RCW 60.28 provides be:  
(Please check one)

- 1. Retained in a fund by the District
- 2. Deposited by the District in an interest-bearing account in a bank, mutual savings bank, or savings and loan association
- 3. Placed in escrow with a bank or trust company by the District
- 4. Contractor plans to submit, for the District's acceptance, a retainage bond (See IB 9.2)

If the District does not receive this request from the contractor, it will handle the retainage in compliance with 1 above.

If Contractor plans to submit a bond in lieu of retained funds (Retainage Bond), (see Part IV, Section 5) it must do so in full compliance with all requirements of RCW 60.28.011(6), and it shall so notify the District in writing. Until the District accepts from Contractor a Retainage Bond, the District will handle amounts retained in compliance with the terms of this request.

Contractor is to forward this request for handling of retainage to the following:

Public Utility District No. 1 of Douglas County, Washington  
1151 Valley Mall Parkway  
East Wenatchee, Washington 98802

Attention: Purchasing Department

**"CONTRACTOR"**

\_\_\_\_\_  
(Company Name)

**By:**

\_\_\_\_\_  
(Typed/Printed Name and Title)

**SMALL WORKS BID NO. 22683**

**FOR**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**RETAINAGE BOND FORM**

Principal and Surety, jointly and severally obligate ourselves, our heirs, executors, administrators, assigns, and successors for payment to Public Utility District No. 1 of Douglas County, Washington ("District"), and to claimants eligible to file a claim against amounts earned by the Principal and retained by the District in accordance with RCW 60.28 (the District and all persons authorized by law to make claims against the retainage are collectively referred to herein as "Obligees"), in the amount stated below, together with additional amounts equal to five percent (5%) of any additive Change Order(s) to the Contract.

The condition of the obligation of this Bond follows:

- (A) On the \_\_\_ day of \_\_\_\_\_, 20\_\_, Principal executed a Contract \_\_\_\_\_ ("Contract") with the District for a public improvement.
- (B) As authorized by RCW 60.28 and the Contract, the District has retained or will retain funds for monies earned or to be earned by the Principal, whether this Bond is submitted before the Principal begins performance under the Contract, during performance, or after completion of performance.
- (C) Principal has submitted to the District this bond executed by itself and Surety, in the amount of \_\_\_\_\_ and 00/100 Dollars (\$\_\_\_\_\_), together with additional amounts equal to five percent (5%) of additive Change Order(s) to the Contract, if any, which amounts total five percent (5%) of the Contract Price.

If the Principal shall fully indemnify all Obligees from all losses which Obligees may sustain by virtue of release of retainage to Principal and shall pay any amounts which Obligees may recover on claims, together with costs of suit, attorney fees and interest to which Obligees may be entitled, then this obligation shall become null and void; otherwise it shall remain in full force and effect.

1. Surety represents that it is authorized to issue surety bonds in the state of Washington. Surety submits to the exclusive jurisdiction of the courts of the state of Washington and agrees that it is bound by the laws of the state of Washington. Venue for any action to enforce or interpret this Retainage Bond shall, at the District's option, be exclusively in a court of competent jurisdiction for Douglas County, Washington, or the United States District Court for the Eastern District of Washington.
  
2. The aggregate liability of the Surety under this bond for claims against this bond shall not exceed the amount of this bond unless Change Order(s), changes in quantities of work or materials provided or amendments to the Contract increase the amount the District is required to retain, in which case the aggregate liability of the Surety shall increase by a sum equaling the increase in the Contract Price multiplied by five percent (5%). Surety acknowledges that increases in Contract Price may occur and hereby waives any defense of lack of notice of such increases.

The person signing this bond on behalf of Principal and the person signing on behalf of Surety each have full authority from their respective governing bodies to bind Principal and Surety by their signatures.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

"PRINCIPAL"

\_\_\_\_\_

By: \_\_\_\_\_

"SURETY"

\_\_\_\_\_

By: \_\_\_\_\_

Address of local office and agent,  
and home offices of Surety Company:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PART III**  
**ADDENDUM, CHANGE ORDER, AND PAYMENT FORMS**

**SECTION 1**

**FOR**

**SMALL WORKS BID NO. 22683**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

DEFINITIONS

The following forms are to be used as follows:

ADDENDUM – This form is used only by the District to make an interpretation, clarification, correction, qualification, or modification prior to the Bid Opening, in accordance with Part I, IB-3 “Examination of Documents”.

CHANGE ORDER – This form will be used by the District to make a change in the contract in accordance with GC-11 “Changes in Work”, in the “Small Works Contract” in Part II. The Contractor will be required to document the cost of any changes on the “Change Order Worksheet.”

PROGRESS PAYMENT REQUEST – This form is to be used by the Contractor to request a progress payment when allowed by GC-12 “Payment/Retainage” in the “Small Works Contract” in Part II and Part IV, SC-3 “Payment.”

REQUEST FOR FINAL PAYMENT, CERTIFICATE AND RELEASE – This form is used by the Contractor to request a one-time payment on a lump sum contract or to request payment of the funds retained by the District (retainage) on a progress payment contract. In the case where the Contractor has a retainage bond, this form shall be submitted along with the last Progress Payment Request indicating zero dollars are owing.

**SECTION 2**

**FOR**

**SMALL WORKS BID NO. 22683**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**ADDENDUM**

**PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY, WASHINGTON**

Addendum No.: \_\_\_\_\_

Date: \_\_\_\_\_

**DESCRIPTION OF ADDENDUM**

**AGREEMENT**

All the terms and conditions of the Bid Document, except to the extent expressly modified by this and previous addenda (if any), remain in full force.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PUBLIC UTILITY DISTRICT NO. 1 OF  
DOUGLAS COUNTY, WASHINGTON**

By: \_\_\_\_\_  
Gary R. Ivory, General Manager



**SECTION 3**  
**FOR**  
**SMALL WORKS BID NO. 22683**  
**REMODEL MEMORIAL PARK RESTROOM,**  
**PATEROS, WASHINGTON**

**CHANGE ORDER**

PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY, WASHINGTON

Contract \_\_\_\_\_

Change Order No. \_\_\_\_\_

Date: \_\_\_\_\_

1. Detailed description of each change (include each additive change and each deductive change):

Description of Each Change	Price of Each Change

2. Total Change Order Price (increase or decrease in payment stated in § 3 of Contract Agreement): \_\_\_\_\_

(For any change for which there is an increase or a decrease in the payment specified in § 3 of the Contract Agreement, unless the change order price is set as provided in GC 11, Appendix A to this Change Order must be completed.)

3. Change Order Modification of Time: The \_\_\_\_\_ date called for in Section \_\_\_\_\_ of the contract is changed from \_\_\_\_\_ to \_\_\_\_\_.

4. Agreement

For good and valuable consideration, and in consideration of payment of the Change Order Amount (if any) stated in Section 2 above and of the modification of time (if any) stated in Section 3 above, Contractor agrees to the terms of this Change Order. By signing this Change Order, Contractor relinquishes any and all claims and/or damages, of any nature whatsoever, direct or indirect, known or unknown, it has or may have against the District, its employees or agents, arising out of any change described in § 1 above, except for claims for payment of that amount specified in § 2 above, (if any), and modification of time, (if any), listed in § 3 above.

All other terms, conditions, and provisions of the above specified Contract, except as expressly modified by this and previous change orders, remain in full force and effect.

**DATED** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**“CONTRACTOR”**

\_\_\_\_\_

(Company Name)

By: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

(Typed/Printed Name and Title)

**PUBLIC UTILITY DISTRICT NO. 1 OF  
DOUGLAS COUNTY, WASHINGTON**

By: \_\_\_\_\_

Title: \_\_\_\_\_

**SECTION 3**

**FOR**

**SMALL WORKS BID DOCUMENT NO. 22683**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**CHANGE ORDER WORKSHEET**

1. For each change described in § 1 of the Change Order, the Contractor shall provide the following:

1.1

<b>LIST ALL LABOR, INCLUDING SOCIAL SECURITY &amp; REQUIRED EMPLOYMENT CONTRIBUTIONS</b>				
<b>Number of Laborers</b>	<b>Job Classification</b>	<b>Hours</b>	<b>Rate</b>	<b>Total</b>
				\$
				\$
				\$
				\$
				\$
				\$
				\$
				\$
				\$
				\$
				\$
				\$
			<b>Total Labor Cost</b>	\$

1.2

<b>LIST ALL MATERIALS</b>			
<b>Quantity</b>	<b>Material Description</b>	<b>Unit Price</b>	<b>Amount</b>
			\$
			\$
			\$
			\$
			\$
			\$
			\$
			\$
			\$
			\$
			\$
			<b>Total Material Cost</b>

1.3

<b>LIST ALL EQUIPMENT</b>		
<b>Description</b>	<b>Unit Price</b>	<b>Amount</b>
		\$
		\$
		\$
		\$
		\$
		\$
		\$
		\$
		\$
		\$
<b>Total Equipment Cost</b>		<b>\$</b>

1.4

<b>LIST ALL CONSUMABLES</b>		
<b>Description</b>	<b>Unit Price</b>	<b>Amount</b>
		\$
		\$
		\$
		\$
		\$
		\$
		\$
		\$
		\$
<b>Total Consumables Cost</b>		<b>\$</b>

1.5 Insurance (if any): \_\_\_\_\_

1.6 Fee (See GC – 11) \_\_\_\_\_

2. **Total Change Order Amount (increase or decrease)** \_\_\_\_\_

**For Unit Price Contracts, all amounts above must agree with the amounts originally bid as required by IB-10. For all other Contracts, the change in cost must be detailed above and support the cost of each change described in the Change Order. See GC-11.**

**SECTION 4**

**FOR**

**SMALL WORKS BID NO. 22683**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**PROGRESS PAYMENT REQUEST**

Date: \_\_\_\_\_

Progress Payment Number: \_\_\_\_\_

For the Period: \_\_\_\_\_

1. Original Contract Amount \_\_\_\_\_

2. Net Change Orders \_\_\_\_\_

3. Total Contract Amount to Date (#1 + #2) \_\_\_\_\_

4. Earned Prior to This Request (w/o Sales Tax) \_\_\_\_\_

5. Amount of this Request (w/o Sales Tax) \_\_\_\_\_

6. Balance of Contract to Date (#3 - #4 - #5) \_\_\_\_\_

7. Retainage on this Request (5% of #5) \_\_\_\_\_

8. Sales Tax (on #5) \_\_\_\_\_

9. Total amount Requested (#5 - #7 + #8) \_\_\_\_\_

Contractor warrants to Public Utility District No. 1 of Douglas County (“District”) that:

A. All persons, firms, corporations and other entities furnishing labor, employee benefits, materials, equipment and/or services in connection with the Work, at the request of and for or on behalf of Contractor, or any of its subcontractors, have been or will be paid in full in compliance with the Contract Agreement between Contractor and the District and all applicable laws through the entire period stated above from funds already received or to be received from this payment. Neither Contractor nor any person, firm, corporation or other entity that has furnished labor, employee benefits, materials, equipment and/or services related to the Work, has any right to file a claim against the District or to file a claim or a lien against the retainage or bond, except as follows:

\_\_\_\_\_  
\_\_\_\_\_

(None, unless otherwise stated).

B. There exist no federal, state or municipal taxes, warrants, levies or other charges, unpaid or delinquent, that constitute an encumbrance, claim or lien against or on the retainage, the bond, or the District, relating to the Work. No government agency has any basis for filing a warrant, lien, levy or other encumbrance against the retainage, the bond, or the District in any way relating to the Work except as follows:

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(None, unless otherwise stated).

C. All persons who have performed work in connection with the Work for which applicable law requires payment of prevailing wage have been properly paid in full compliance with the applicable prevailing wage rates and the approved Statement(s) of Intent to Pay Prevailing Wages on file with the District.

D. Contractor agrees to indemnify and hold the District harmless from any and all claims; liens, or suits that might be filed contrary to the warranties made in paragraphs A, B, and C above and to defend any such claims, liens, or suits without any cost, expense or damages to the District.

E. Except as expressly listed in paragraphs A and B above, the undersigned Contractor, in consideration for the Payment Amount stated in No. 9 above, hereby forever releases the District from any and all claims related to or connected with the Work during and preceding the above-stated period (with the exception of claims for retainage) and accepts the Payment Amount stated in No. 9 above as full compensation and consideration (except for retainage) for all Work through the above-stated period, including, but not limited to, payment for any and all change orders, miscellaneous charges, extra work, delays, loss of profits, loss of business opportunity, schedule disruption, impact costs, direct or indirect amounts, and any and all claims of any and every nature whatsoever.

F. The undersigned submits this request and release with a full understanding of its contents, and for the purpose of inducing the District to make payment on the assurance that there exist no retainage claims, no bond claims, no liens, no claims of any sort and no other encumbrances, except any expressly described in A and/or B above, arising from anything furnished by Contractor, any of its subcontractors, or by any persons, firms, corporations or others through Contractor, that may be asserted in any way against the retainage, bond, or against the District related to the Work.

G. Contractor and the person signing this progress payment request, regardless of whether he/she is signing in a representative capacity, specifically represent that Contractor and he/she have reviewed the records of Contractor and have personal knowledge that the contents of this Progress Payment Request are true, accurate, and complete. Contractor and the undersigned also represent that the undersigned has full authority to sign this request and to bind Contractor to its contents and to the warranties and representations that it contains.

The undersigned declares under penalty of perjury of the laws of the state of Washington that the preceding statements are true, accurate, complete, and correct.

**“CONTRACTOR”**

(Company Name)

By: \_\_\_\_\_  
(Name, Title)

\_\_\_\_\_  
(Typed/Printed Name, Title)

\_\_\_\_\_  
(Place of Signing)

Contractor WA State License No. \_\_\_\_\_

Contractor WA State UBI No. \_\_\_\_\_

**SECTION 5**

**FOR**

**SMALL WORKS BID DOCUMENT NO. 22683**

**REMODEL MEMORIAL PARK RESTROOM,  
PATEROS, WASHINGTON**

**REQUEST FOR FINAL PAYMENT, CERTIFICATE AND RELEASE**

1. Contractor warrants to the District that:

- (a) Contractor has fully and properly completed all Work.
- (b) Contractor has fully paid, in complete compliance with applicable law, for all labor, materials, equipment, services, taxes and all other costs and expenses relating to the Work. All persons who have performed work in connection with the Work for which applicable law requires payment of prevailing wage have been properly paid in compliance with the applicable prevailing wage rate(s) and the approved Statement(s) of Intent to Pay Prevailing Wages on file with the District.
- (c) The total amount due the Contractor from the District that remains unpaid is \$\_\_\_\_\_.
- (d) The following constitutes a complete itemization of all claims or potential claims of any and every nature whatsoever that Contractor, any entity claiming through Contractor, any governmental entity, or any other person/entity has or may have against the retainage, any bond, the District, or Contractor related to or connected with the Work:

<u>CLAIM</u>	<u>NATURE OF CLAIM</u>	<u>AMOUNT OF CLAIM</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Itemize all claims and amounts due. None unless otherwise stated.)

2. Contractor acknowledges and warrants to the District that this certificate and release constitutes a waiver of all claims that Contractor or any person or entity claiming through Contractor has or may have against the retainage, any bond, or the District arising out of or related to or connected with the Work except for unsettled claims that Contractor has specifically and expressly identified in Paragraph 1(d) above. In consideration of the payment of the amount stated in Paragraph 1(c) above, Contractor hereby releases the District from any and all claims, causes of action, and damages, of any and every nature whatsoever, whether known or unknown, it has or may have against the District, arising out of, related to or



connected with the Work, except those amounts specifically and expressly listed in Paragraph 1(d) above. Contractor warrants that payment of the amount designated in Paragraph 1(c) above releases the District from any and all claims of any and every nature whatsoever arising out of or related to the Work. If for any reason the District does not pay in full the amount designated in Paragraph 1(c) above, any deduction by the District shall not affect the validity of this release, but the amount deducted shall be automatically included under Paragraph 1(d) above as an amount that the Contractor has not released but will release on payment of that amount.

3. Contractor agrees to indemnify and hold the District harmless from any and all claims, liens, or suits that might be filed contrary to the representations and warranties made herein and to defend any such claims, liens, or suits, without any cost, expense, or damages to the District.
4. Contractor and the person signing this request for final payment, certificate and release, regardless of whether he/she is signing in a representative capacity, specifically represent that Contractor and he/she have reviewed the records of Contractor and have personal knowledge that the contents of this request for final payment, certificate and release are true, accurate, and complete. Contractor and the undersigned also represent that the undersigned has full authority to sign this request certificate and release and to bind Contractor to its contents and to the warranties and representations that it contains.

The undersigned declares under penalty of perjury of the laws of the state of Washington that the preceding statements are true, accurate, complete, and correct.

**DATED** this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**“CONTRACTOR”**

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Name, Title)

\_\_\_\_\_  
(Typed/Printed Name, Title)

\_\_\_\_\_  
(Place of Signing)

\_\_\_\_\_  
(Contractor WA State UBI No.)

**PART IV**  
**SPECIAL CONDITIONS**  
**FOR**  
**SMALL WORKS BID NO. 22683**  
**REMODEL MEMORIAL PARK RESTROOM,**  
**PATEROS, WASHINGTON**

**SC-1            DESCRIPTION OF THE WORK**

The Work which Contractor shall perform includes, but is not limited to those items shown in the project plans and specified in contract documents. Partial description of the work is as follows:

Memorial Park Restroom: Remove and replace restroom fixtures, lighting, partitions, and other components as described in the project plans. Remove and replace windows, paint building exterior, install drinking fountain, replace exterior lighting, etc.

Note: The hot water tank (including strap and pad) was recently replaced. However, accessories such as expansion tank, circulation pump, and other plumbing components shall be installed or replaced as shown in the project plans.

**SC-2            PERFORMANCE SCHEDULE**

Contractor shall begin, perform and complete the Work in full compliance with the following schedule:

Date by which Work shall begin: On-site work shall begin **after September 3, 2018**.

Date by which Work shall be finally complete:

- All work at the Memorial Park restroom shall be complete by October 31, 2018.

On request, Contractor shall supply to the District its performance schedule and any updated performance schedule(s).

**SC-3            PAYMENT**

Progress payments will be made during the performance of the Work and will be based upon the amount of Work Satisfactorily completed. These payments will be made in accordance with the requirements of GC-12 and GC-13. Final payment will be made in compliance with GC-14. Acceptance/release of retainage will be made in compliance with GC-14.

**SC-4            MODIFICATIONS OF GENERAL CONDITIONS**

There are no modifications to the General Conditions.

#### **SC-5           LIMITATION OF LIABILITY**

Except to the extent of (a) Contractor's insurance, (b) liquidated damages assessed, (if applicable) or (c) breach of Contractor's patent indemnity obligations (if applicable), Contractor shall not be liable to the District either in contract or in tort (including negligence or strict liability) for consequential damages and/or indirect damages consisting of loss of profits, loss of revenue, or cost of replacement power, resulting from defects in Contractor's performance of its Work.

#### **SC-6   DRAWINGS AND PERTINENT DATA**

Drawings and data included within PART X – CONTRACT DRAWINGS are not intended to be nor shall they constitute representations or warranties. They are furnished for information only. It is expressly agreed that the District shall have no responsibility for the accuracy of these drawings and data, or for any deductions, interpretations, or conclusions that Contractor draws from them. Contractor shall not be relieved of any responsibility under this contract nor shall the District or any of its representatives be liable for any claim of any nature whatsoever that stems from any difference between such drawings and data and the actual conditions encountered during the progress of the work.

#### **SC-7   DUST AND SMOKE CONTROL**

Contractor shall maintain the entire work area free from dust and smoke which causes any hazard or nuisance to the District or to the public. No separate payment will be made for dust control that the Contractor is required to provide. The cost for dust control shall be included in Contractor's price.

#### **SC-8   EXISTING UTILITIES**

Contractor bears sole responsibility for determining the exact locations of all utilities within the work area including but not limited to overhead or underground power, fiber and/or telephone lines, water lines (either domestic or irrigation), sewer lines and the like, and for any and all damage to these resulting from its activities. The Contractor shall, at its own expense, repair or replace such items encountered and shall bear sole responsibility for any damage that any such encounter causes.

#### **SC-9   FIRE PREVENTION**

Contractor shall conform to all federal, state, county and municipal governmental regulations pertaining to burning, fire prevention and control within or adjacent to the Work. In addition, Contractor shall take all appropriate precautions to prevent any fire either within or adjacent to the Work, and it shall bear sole responsibility for all damage from fires caused directly

or indirectly by its activities, or by those of its employees or of its subcontractors, or their employees.

#### **SC-10 ILLUMINATION OF WORK**

When any work is performed at night or where daylight is shut off or obscured, Contractor shall, at its sole expense, provide artificial light sufficient to permit the work to be carried on properly and safely, and to permit thorough observation and inspection. Contractor shall also properly illuminate the access to any place where it conducts any activities.

#### **SC-11 DIFFERING SITE CONDITIONS**

If during performance of the Work, Contractor encounters preexisting latent, unknown, physical conditions, differing materially from those specified in the Contract Documents, or preexisting, latent, unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work called for in the Contract Documents, Contractor shall immediately, provide written notice to the District, detailing the specific differing site condition that it has encountered, before any disturbance of that condition and before any affected work is performed. Contractor's failure, within no later than three calendar days of the time if first discovers or should have discovered (whichever occurs first) that which it claims constitutes a differing site condition, to give written notice to the District in full compliance with the Contract Documents shall irrevocably waive any claim to a change order for anything that Contractor claims constitutes a differing site condition. Contractor's detailed written notice must include at a minimum all of the following:

- a) A detailed factual description of the condition encountered, together with a thorough explanation of why the condition encountered qualifies as a differing site condition.
- b) The date and time that Contractor first discovered that which Contractor claims constitutes a differing site condition.
- c) The specific provisions in the Contract Documents (if any) that serves as the basis for Contractor's claim that the condition encountered constitutes a differing site condition.
- d) A statement of any time impacts and/or monetary impacts that Contractor claims the condition causes to Contractor, together with calculations and documents on which Contractor bases its claim of time impacts and/or monetary impacts.

Upon written notification, the District will investigate the condition(s). If the District determines that the condition(s) materially differ and cause an increase or decrease in the cost or time required for Contractor's performance, the District will issue a change order in compliance with GC-11. Contractor irrevocably waives any entitlement to any change order by not timely giving the written notice that this paragraph requires or by failing to strictly comply with all requirements of GC-24 and GC-11.

No contract adjustment which results in an increase in payment or a time extension to the Contractor will be allowed unless the Contractor has timely provided all required written notices and the District has authorized in advance the work and the increase in payment and/or a time extension. Failure to fully comply with all requirements of this section or failure to strictly comply with all requirements of GC-11 shall constitute an irrevocable waiver by Contractor of any claim for increase in payment or a time extension.

Any increase in payment or any time extension will be by agreement between Contractor and the District. However, if the Contractor and the District do not agree, the District will determine the amount of the adjustment in accordance with Section GC-11. Extensions of time will be evaluated in accordance with Section GC-24.

If the District determines that differing site conditions do not exist and no adjustment in payment or time is warranted, such determination shall be final, subject to GC-15.

No claim by the Contractor shall be allowed unless the Contractor has fully and timely complied with all notification and claim submittal procedures specified in the Contract Documents.

## **SC-12 ON-SITE STORAGE**

During the term of this contract, the District will allow Contractor, at Contractor's sole risk, to store at Memorial Park on a space available basis, equipment and materials that Contractor must use to perform that which is specified in the Contract Documents. Contractor shall be solely and exclusively responsible for properly locating and storing all equipment and materials in a neat and safe manner, in full compliance with all applicable federal and state laws, regulations and codes. The District shall neither be responsible for the safety or security of any equipment or materials stored on its premises nor for any loss, damage or destruction of the equipment or materials. Contractor shall be solely and exclusively responsible for assuring that Contractor, subcontractors, their employees, agents or designees in no way compromise the security or safety of any equipment or materials that Contractor stores on the District's premises. If Contractor fails to comply with any of the provisions contained in this paragraph, the District shall have the right to require Contractor to store such equipment and materials on property other than the District's, and Contractor shall have no claim against the District based on its utilizing storage elsewhere. Upon completion of its work, Contractor shall remove all equipment and materials stored on District property and shall leave the District's property in a clean, safe and neat condition, Satisfactory to the District.

## **SC-13 PROTECTION OF ENVIRONMENT AND NATURAL RESOURCES**

Contractor must comply with all laws, rules, and regulations relating to environmental protection and preservation of public natural resources. Contractor bears sole responsibility of familiarizing itself with and complying with all such laws, rules, and regulations.

## **SC-14 PUBLIC SAFETY AND OTHER PROPERTY**

Contractor shall conduct its operations so that it does not close or obstruct any portion of any highway, road, railroad, or other property until it has obtained from the proper entities all appropriate permits. If any highway, road, railroad or other property is required to be kept open and/or is damaged or rendered unsafe by Contractor's operations, Contractor shall, at its own sole expense, supply all temporary devices, guards, lights, signals, flagging, and anything else necessary or appropriate for public safety and in addition shall repair any damage caused by Contractor's operations. Contractor's actions must be acceptable to the authorities having jurisdiction, including the State Highway Department, the appropriate county road departments, the railroad, and any federal, state or local entity exercising jurisdiction.

Unless otherwise specifically provided in the Contract Documents, Contractor shall not do any work that will damage any irrigation ditch or piping, or other structure, nor enter upon the right-of-way of lands of another until having secured prior authorization from the proper entity. Before Contractor begins work, it shall give all appropriate entities timely notice of its intention to do so.

The Contractor shall preserve and protect all cultivated and planted areas and vegetation including but not limited to trees, shrubs and grass outside the limits of land specifically designated as the work area and replace the same inside those limits.

## **SC-15 WATER POLLUTION**

Contractor shall bear exclusive responsibility to investigate and comply with all regulations relating to prevention of pollution and/or contamination of any river, stream, or other water. All work shall be conducted in a manner to avoid any pollution and to prevent any contamination. Pumping of contaminated water into any river or stream is prohibited.

## **SC-16 WORK PROGRAM**

Each Bidder shall submit with its bid a detailed proposed work schedule, method of work, and list of equipment, Satisfactory to the District, all as described below:

a. **Work Method and Equipment List.** Contractor shall describe its proposed work method for all phases of the work, giving detailed planned methods of excavation and disposal of material. Contractor shall supply a construction equipment list, with a description of all major items of machinery and equipment that it plans to use in performing the Work, which description details the capacities of each item listed.

b. **Schedule Changes.** If, during construction, actual progress varies from the proposed schedule, or if the contractor proposes to change the schedule for any reason whatsoever, it shall submit to the District for approval the revised schedule that it intends to follow in a form Satisfactory to the District. The proposed original and any revised schedules shall be Satisfactory to timely achieve proper completion of all Work described in these Contract Documents.

## **SC-17 CONTRACT AVAILABILITY TO OTHER PUBLIC ENTITIES**

Contractor agrees that it shall perform Work specified herein for any other public agency or municipality, under the terms and conditions of these Contract Documents, provided that the other public agency or municipality has entered into an agreement with the District as provided under Chapter 39.34 RCW, the Interlocal Cooperative Act. Any Work performed for any other public agency or municipality under the terms and conditions of this contract shall be by purchase order or work order issued by the public agency or municipality that has signed the agreement referenced in the preceding sentence.

The District shall in no way whatsoever bear any liability related to or arising out of any Work that Contractor performs for any government agency or municipality other than itself.

**PART V**  
**SPECIFICATIONS AND TECHNICAL PROVISIONS**  
**FOR**  
**SMALL WORKS BID NO. 22683**  
**REMODEL MEMORIAL PARK RESTROOM,**  
**PATEROS, WASHINGTON**  
**SECTION 02 41 00**  
**DEMOLITION**

**PART 1 –GENERAL**

**1.01 SUMMARY**

- A. Section includes: Requirements for demolition and/or removal work. This work shall include the abatement, removal, encapsulation and disposal of Asbestos Containing Materials.

**1.02 REFERENCE**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. Code of Federal Regulations (CFR):
  - 1. 29 CFR 1910: Occupational Safety and Health Standards
  - 2. 29 CFR 1926: Occupational Safety and Health Regulations for Construction
- C. Washington State Department of Labor and Industries:
  - 1. WAC 296-24: General Safety and Health Standards Construction.
  - 2. WAC 296-65: Asbestos Removal and Encapsulation
- D. Building Survey for Asbestos, Location: Memorial Park Restroom, dated February 16, 2018 by Asbestos Central (see attached).

**1.03 GENERAL REQUIREMENTS**

- A. Do not begin demolition until authorization is received from the District. Remove rubbish and debris from the project site daily. Store materials that cannot be removed daily in areas specified by the District.
- B. All demolition materials are the responsibility of the Contractor unless noted on the approved plans that the item is to be preserved and delivered to plan designated location.
- C. Any and all work associated with asbestos abatement shall be performed by a



Washington State Certified Asbestos Supervisor and/or a Washington State Certified Asbestos Worker.

- D. All items and utilities that are not scheduled for removal shall be protected.

#### 1.04 SUBMITTALS

- A. Submit the following to Owner:
  - 1. Project proposed Demolition Plan, delineating demolition and removal procedures. Plan shall include coordination with other work in progress, disconnection schedule of utility service, and a detail description of methods and equipment to be used for each operation and the sequence of operations.
  - 2. Asbestos Plan.
    - a. Site-specific plan of work procedures to be used in the removal of materials containing asbestos.
    - b. Name and address of asbestos landfill.
    - c. Documentation of a valid Asbestos Contractor License, worker certifications and supervisor certification for the State of Washington.

#### 1.05 REGULATORY REQUIREMENTS

- A. Comply with federal, state, and local hauling and disposal regulations.
- B. Perform all asbestos abatement, removal, encapsulation and disposal work in accordance with all applicable requirements of governing authorities and applicable rules and regulations of WAC 296-62-077 and 296-65.
- C. Perform all excavation work in accordance with all applicable requirements of governing authorities and applicable rules and regulations of 29 CFR 1926, 29 CFR 1929 and WAC 296-24.

#### 1.06 DELIVERY AND STORAGE

- A. The Owner reserves the right to salvage certain construction materials, fixtures, or other existing items of value (as may be encountered). Items selected by the City for salvage under the Contract shall be removed with particular care and delivered to storage location as designated by the City. Materials not claimed by the City for salvage, scheduled to be reused or to remain, shall become the property of the Contractor, and shall be removed promptly from the site.

#### 1.07 DUST AND DEBRIS CONTROL

- A. Prevent the spread of dust and debris to occupied portions of the building, on pavements, and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris.

## 1.08 PROTECTION

- A. Traffic Control Signs: Where pedestrian, and driver, safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement. Notify the Owner prior to beginning such work.
- B. Existing Work: Protect existing work, which is to remain in place, be reused, or remain the property of the Owner. Repair items, which are to remain and which are damaged during performance of the work to their original condition, or replace with new. Do not overload structural elements or pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have Owner approval.
- C. Facilities: Protect utility services. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections to utilities.

## 1.09 RELOCATIONS

- A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated, which are damaged or replace damaged items with new undamaged items as approved by the Owner.

## **PART 2 – PRODUCTS**

NOT USED

## **PART 3 – EXECUTION**

### 3.01 EXISTING FACILITIES TO BE REMOVED

- A. Contact the Utility Notification Center @ 811 or 800-424-5555 for utility location at or near public right-of-ways. The contractor shall pay for fees and cost associated with utility discounts, capping of line and meter removal within the Public Right-of-Way. Do not shut off or cap utilities without 48 hours notice.
- B. Structures: Remove indicated existing structures and foundations.
- C. Utilities and Related Equipment: Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Owner. If utility lines are encountered that are not shown on drawings, contact the Owner for further instructions.
- D. Paving and Slabs: Provide neat sawcuts at limits of pavement removal as indicated.

Remove sawcut concrete and asphaltic concrete paving and slabs as indicated.

### 3.02 FILLING

- A. Fill holes, open basements, and other hazardous openings.
- B. Irrigation System
  - 1. Irrigation Heads: Locate all existing irrigation heads within the limits of grading or as otherwise indicated on the contract drawings by performing an Irrigation Coverage Test
    - a. Note location of operation irrigation head and their respective Control Zones and the Record Drawings.
    - b. Consult with the City to locate additional heads that may not be visible during test. Locate by hand digging as necessary.
    - c. Remove irrigation head carefully.
    - d. Cap reaming raisers or swing joints.
  - 2. Irrigation Pipe: Existing irrigation pipe shall be abandoned in the ground in locations where pipe does not conflict with approved plans. In area of conflict the pipe shall be cut and removed completely and disposed of per project specifications.

### 3.03 DISPOSITION OF MATERIALS

- A. Title to Materials: Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be legally removed from property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Owner of the Contractor's demolition and removal procedures, and authorization by the Owner to begin demolition. The Owner will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

### 3.04 CLEANUP

- A. Debris and Rubbish: Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets, or adjacent areas. Clean up spillage from pavements, streets, and adjacent areas.

END OF SECTION 02 41 00

SECTION 07 92 00  
JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Sealants:
  - 1. Silicone Joint Sealants
  - 2. Urethane Joint Sealants
  - 3. Latex Joint Sealants
- B. Related Sections:
  - 1. 08 80 00 – Glazing for glazing sealants.
- C. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply.

1.2 PERFORMANCE REQUIREMENTS

- A. Preconstruction Field-Adhesive Testing: Before installing sealants, field test their adhesion to Project joint substrates. Conduct field test for each kind of sealant and joint substrate.
- B. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

1.3 SUBMITTALS:

- A. Product Data and Certificates: For each joint-sealant product indicated.
- B. Joint-Sealant Schedule:
  - 1. Joint-sealant application, joint location and designation.
  - 2. Joint-sealant manufacturer and product name.
  - 3. Joint-sealant formulation.
  - 4. Joint-sealant color.
- C. Test Reports based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- D. Warranties: Sample of special warranties.

## 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

## 1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## 1.7 WARRANTY

- A. General: Refer to Division 1 for additional requirements.
- B. Special Installer's Warranty: Manufacturer's standard form in which installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.
- C. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  - 1. Architectural Sealants: 250 g/L.
  - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
  - 3. Sealant Primers for Porous Substrates: 775 g/L.

- C. Colors of Exposed Joint Sealants: As selected by Architect from Manufacturer's full range.

## 2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
- B. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASMT C 920, Type S, Grade NS, Class 25, for Use NT.

## 2.3 URETHANE JOINT SEALANTS

- A. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.

## 2.4 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

## 2.5 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer base on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed cell material with a surface skin) or any of the preceding types, as approved in writing by joint sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

## 2.6 MISCELLANEOUS MATERIALS.

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

## PART 3 - EXECUTION

### 3.1 INSTALLATION:

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

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include concrete.
  - 3. Remove laitance and form-released agents from concrete.
  - 4. Clean nonporous joint substrate surfaces and chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates including the following:
    - a. Metal
    - b. Glass
    - c. Porcelain Enamel
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealants backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed.
  - 1. Place sealants so the directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

### 3.4 CLEANING

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



### 3.5 PROTECTION

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

### 3.6 JOINT-SEALANT SCHEDULE

- A. Seal, caulk, and weatherstrip in accordance with Washington State Energy Code paragraph 1314, Air Leakage and as noted herein.
- B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
  - 1. Joint Locations: Isolation and contraction joints in cast-in-place concrete slabs.
  - 2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing.
- C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces.
  - 1. Joint Locations:
    - a. Construction joints in cast-in-place concrete.
    - b. Junctions between walls and foundations, between walls and building corners, between walls and structural floors and roofs.
    - c. Framing and foundations.
    - d. Joints between different materials.
    - e. Perimeter joints between materials and frames of doors, windows and louvers.
    - f. Other joints indicated.
  - 2. Urethane Joint Sealant: Single component, nonsag, Class 100/50.
  - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces.
  - 1. Joint Locations:
    - a. Control and expansion joints on exposed interior surfaces of exterior walls.
    - b. Perimeter joints of exterior openings where indicated.
    - c. Perimeter joints between interior wall surfaces and frames of windows and doors.
    - d. Other joints as required.

- E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.
1. Joint Sealant Location:
    - a. Joints between plumbing fixtures and adjoining walls, floors and counters.
    - b. Other joints as required.
  2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, Silicone.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 92 00

SECTION 08 11 13  
HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Section includes hollow-metal work.

1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI 250.8.

1.3 SUBMITTALS:

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Amweld International, LLC
  - 2. Ceco Door Products; an Assa Abloy Group Company
  - 3. Curries Company; an Assa Abloy Group Company
  - 4. Steelcraft; an Ingersoll-Rand Company
  - 5. Steward Steel; Door Division

2.2 EXTERIOR HOLLOW METAL DOORS AND FRAMES

- A. Heavy-Duty Doors and Frames: SDI A250.8, Level 2.
  - 1. Physical Performance: Level B according to SDI A250.4.
  - 2. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4"
    - c. Face: Metallic-coated steel sheet, minimum thickness of 0.060 inch, with minimum A40 coating.
    - d. Edge Construction: Model 1, Full Flush.

- e. Core: Manufacturer's standard insulation material.
  - 3. Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than U=.6 when tested according to ASTM C 1363.
  - 4. Frames:
    - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.075 inch, with minimum A40 coating.
    - b. Construction: Full profile welded.
  - 5. Exposed Finish: Prime.
- B. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASMT C 920, Type S, Grade NS, Class 25, for Use NT.

## 2.3 FRAME ANCHORS

### A. Jamb Anchors:

- 1. Masonry Anchor Type: Welded to back of frames; not less than 0.042 inch thick.

## 2.4 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Frame Anchors: ASTM A 879/A 879M Commercial Steel (CS), 04Z coating designation; mill phosphatized.
- C. Inserts, Bolts and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M

## 2.5 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  - 2. Provide countersunk, flat or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

3. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Masonry Type: Locate anchors not more than 16" from top and bottom of frame. Space anchors not more than 32" o.c., to match coursing, and as follows:
      - 1) Two anchors per jamb up to 60 inches high.
      - 2) Three anchors per jamb from 60 to 90 inches high.
      - 3) Four anchors per jamb from 90 to 120 inches high.
      - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
  4. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
  2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

## 2.6 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  1. Shop Primer: SDI A250.10

## PART 3 - EXECUTION

### 3.1 INSTALLATION:

- A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA840 as required by standards specified.
  1. Set frames accurately in position; plumbed, aligned and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. Install frames with removable stops located on secure side of opening.
    - b. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - c. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

2. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
3. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
  - a. Squareness: Plus or minus 1/16", measured at door rabbet on a line 90 degrees from jam perpendicular to frame head.
  - b. Alignment: Plus or minus 1/16", measured at jambs on a horizontal line parallel to plane of wall.
  - c. Twist: Plus or minus 1/16", measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - d. Plumbness: Plus or minus 1/16", measured at jambs at floor.

### 3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 08 11 13

SECTION 08 41 13  
ALUMINUM-FRAMED STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
1. Glazing systems at exterior of building.
  2. Internal steel reinforcing in mullions if required to meet specified "Performance Requirements".
  3. Shop applied fluoropolymer coating of aluminum mullions, panels, copings, enclosures and trim members.
  4. Field water testing after erection.
- B. Related Sections:
1. 07 92 00 – Joint sealers.
  2. 08 80 00 – Glass and glazing.
- C. Substitutions: Substitute products will be considered only under terms and conditions specified in Division 01.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-sized details, and attachments to other work.
1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
    - a. Joinery, including concealed welds.
    - b. Anchorage.
    - c. Expansion provisions.
    - d. Glazing.
    - e. Flashing and Drainage.
  3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- C. Samples for Initial Selection: For units with factory-applied color finishes.

- D. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12" lengths of full-size components and showing details of the following:
  - 1. Joinery, including concealed welds.
  - 2. Anchorage.
  - 3. Expansion provisions.
  - 4. Glazing.
  - 5. Flashing and drainage.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed storefronts to include in maintenance manuals.
- B. Maintenance Data for Structural Sealant: For structural-sealant-glazed storefronts to include in maintenance manuals. Include ASTM C 1401 recommendations for post-installation-phase quality-control program.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer shall have had successful experience with installation of the same or similar units required for the project and be trained and approved by manufacturer.
- B. Manufacturer's Qualifications: Provide aluminum entrances and storefront systems produced by a firm experienced in manufacturing systems similar to those indicated for this project.
- C. Source Limitations: Obtain aluminum framed storefront system through one source from a single manufacturer.
- D. Design Criteria: Drawings indicate size, profiles, and dimensional requirements of aluminum framed storefront systems and are based on the specific system indicated. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval.

#### 1.6 DELIVERY, HANDLING AND STORAGE

- A. General: Comply with requirements specified in Division 01.

#### 1.7 PROJECT CONDITIONS

- A. Verification of Measurements: Verify actual dimensions of openings in construction work by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress as directed by the Contractor to avoid delay of work. Where necessary, proceed with fabrication without field measurements and coordinate fabrication tolerances to ensure proper fit.



## 1.8 WARRANTY

- A. General: Refer to Division 1 for additional requirements.
- B. Manufacturer's Warranty: Warrant aluminum framed storefront system jointly and severally, on a single document, by the manufacturer, Installer, and General Contractor agreeing to repair or replace aluminum framed storefront system components that fail in materials and/or workmanship for a period of 10 years from date of Substantial Completions.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Structural Loads:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Other Design Loads: As indicated on Drawings.

### 2.2 MANUFACTURERS

- A. General: Aluminum storefront framing members detailed on the drawings shall be an outside glazed system with pressure plates and snap-on covers attached to the tongue of back mullion. Except as otherwise indicated, glass shall be captured both vertically and horizontally on all four (4) sides with no exposed fasteners.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide Oldcastle Series 3000 or comparable product by one of the following:
  - 1. Kawneer North America
  - 2. United States Aluminum
- C. Source Limitations: Obtain all components of aluminum-framed entranced and storefront system, including framing venting windows, and accessories, from single manufacturer.
- D.
  - 1. Glazing Method: Framing system shall be capable of accepting 1 inch insulated glass units and aluminum window shade devices as detailed.
  - 2. Sizes (Face Dimensions): Typical horizontal and vertical mullions shall be as indicated in 1.01 of this Section.
  - 3. Product substitution is subject to compliance with the above design requirements. Comparable system of other manufacturers are acceptable per 01630.

## 2.3 MATERIALS

- A. Framing Members: Manufacturer's extruded – or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
  - 1. Construction: 4 1/2", thermally broken.
  - 2. Glazing System: Retained mechanically with gaskets on four sides.
  - 3. Glazing Plane: Front (exterior).
  - 4. Finish: Factory painted Kynar 500 finish; color as selected by Architect from Manufacturer's full color range.
  - 5. Fabrication Method: Field-fabricate stick system.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Materials:
  - 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
    - a. Sheet and Plate: ASTM B 209
    - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221
    - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
    - d. Structural Profiles: ASTM B 308/B 308M.
  - 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.0; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC Standard.
    - a. Structural Shapes, Plates and Bars: ASTM A36/A36 M.
    - b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
    - c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1101M.

## 2.4 GLAZING

- A. Glazing: Comply with Section 08 80 00 "Glazing".
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
- C. Glazing Sealants: As recommended by manufacturer.
- D. Sealants used inside the weatherproofing system shall have a VOC content of 250 g/L.

## 2.5 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
  - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
  - 2. Reinforce members as required to receive fastener threads.
  - 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system, fabricated from 300 series stainless steel.
- B. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- C. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30 mil thickness per coat.

## 2.6 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Physical and thermal isolation of glazing from framing members.
  - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 5. Provisions for field replacement of glazing from exterior.
  - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Storefront Framing: Fabricate components for assembly using shear-block system.
- E. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

## 2.7 SOURCE QUALITY CONTROL

- A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

## PART 3 - EXECUTION

### 3.1 INSPECTION AND PREPARATION

- A. Embedded Steel Edge Angles: Storefront contractor shall coordinate placement of all required embedded items.
- B. Examine openings, substrates, structural support, anchorage, and conditions with installer present for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure coordinated, weather tight framed aluminum storefront system installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Comply with drawings, shop drawings, and manufacturer's written instructions for installing aluminum framed storefront system, accessories and other components.
- B. Welding: Comply with requirements of AWS D1.1. Protect adjacent surfaces from damage due to weld splatter, smoke staining, or excessive heat that can lead to spalling; use non-combustible heat shields as necessary.
- C. Aluminum Isolation: Isolate aluminum from dissimilar metals other than stainless steel.
- D. Installation Tolerances: Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction. Install system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

### 3.3 REPAIR AND TOUCH-UP

- A. General: Field touch-up shall be limited to repairing minor abraded or scratched surfaces. Repair minor scratches and blemishes with coating manufacturer's recommended products or system. Such repairs shall match the original finish for color and gloss and shall adhere to original finish when tested as per AAMA 2605. Touch-up work must be approved by the Architect and Owner's Representative.

### 3.4 FIELD QUALITY CONTROL

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
  - 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.

2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
  3. Alignment:
    - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
    - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
    - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
  4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.
- B. Field Water Tests: Conduct field water tests on completed portions of the curtain wall. Field tests shall result in no water leakage within the building.

### 3.5 ADJUSTING, CLEANING AND PROTECTION

- A. Clean aluminum surfaces immediately after installing aluminum framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt and other substances.
- B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 08 41 13

SECTION 08 71 00  
DOOR HARDWARE

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes:
  - 1. Mechanical door hardware for swing doors.
  - 2. Automatic Operators.
  - 3. Cylinders for door hardware provided by others.
  
- B. Related Sections:
  - 1. 08 11 13 – Hollow Metal Doors and Frames
  
- C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
  
- D. Standards: All hardware specified herein shall comply with the following industry standards:
  - 1. ANSI/BHMA Certified Product Standards - A156 Series
  - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.2 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
  
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
  - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
  - 3. Content: Include the following information:

- a. Type, style, function, size, label, hand, and finish of each door hardware item.
  - b. Manufacturer of each item.
  - c. Fastenings and other pertinent information.
  - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
  - e. Explanation of abbreviations, symbols, and codes contained in schedule.
  - f. Mounting locations for door hardware.
  - g. Door and frame sizes and materials.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.
- D. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.
- E. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

### 1.3 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 3 years documented experience installing both standard and electrified builders hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying mechanical

installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor in good standing by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

1. Scheduling Responsibility: Preparation of door hardware and keying schedules.

D. Source Limitations: Obtain each type and variety of Door Hardware specified in this Section from a single source, qualified supplier unless otherwise indicated.

E. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the model building code including, but not limited to, the following:

1. NFPA 70 "National Electrical Code", including electrical components, devices, and accessories listed and labeled as defined in Article 100 by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
2. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1 as follows:
  - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
  - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
    - 1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
    - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
  - c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.

F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Preliminary key system schematic diagram.
2. Requirements for key control system.
3. Address for delivery of keys.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.



- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

## 1.5 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

## 1.6 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Twenty five years for manual surface door closers.
4. Two years for electromechanical door hardware.

1.7 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Continuing Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

PART 2 – PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
  1. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
    - a. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
  1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
    - a. Two Hinges: For doors with heights up to 60 inches.
    - b. Three Hinges: For doors with heights 61 to 90 inches.
    - c. Four Hinges: For doors with heights 91 to 120 inches.
    - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
  2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

- a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
- b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
- 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
  - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
- 4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
  - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
    - 1) Out-swinging lockable doors.
- 5. Acceptable Manufacturers:
  - a. Hager Companies (HA).
  - b. McKinney Products (MK).
  - c. Bommer Industries, Inc.
  - d. Stanley Commercial Hardware; Div. of The Stanley Works

### 2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Deadbolts: Minimum 1 inch bolt throw.
- C. Mortise Locks: OFCI
- D. Lock Backset: 2-3/4 inches (70 mm) unless otherwise indicated.
  - 1. Escutcheons (Roses): Forged.
  - 2. Dummy Trim: Match lever lock trim and escutcheons.
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
  - 1. Basis-of-Design: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    - a. Best Access Systems; Div of Stanley Security Solutions, Inc.
    - b. SARGENT Manufacturing Company; an Assa Abloy Group

### 2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years' experience designing secured master key systems and have on record a published security keying system policy.

- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Standard Lock Cylinders: BHMA A156.5; Grade 1; permanent cores that are removable; face finished to match lockset.
- D. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction Master Keys.
- E. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Best Access Systems; Div of Stanley Security Solutions, Inc.
  - 2. Falcon Lock; and Ingersoll-Rand Company
- F. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
  - 1. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key. Key to Owner's existing system.
  - 2. Keyed Alike: Key all cylinders to same change key.
  - 3. Brass Keys: Permanently inscribe each key with a visual key control number and include the following notation:
    - a. Notation: Information to be furnished by Owner.
- G. Key Quantity: In addition to on extra key blank for each lock, provide the following:
  - 1. Cylinder Change Keys: Three
  - 2. Master Keys: Five
  - 3. Grand Master Keys: Five
  - 4. Great-Grand Master Keys: Five
- H. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".
- I. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

## 2.5 SURFACE CLOSERS

- A. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or

aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units.

1. Basis-of-Design: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
  - a. LCN Closers; an Ingersoll-Rand Company
  - b. Norton Door Controls; an Assa Abloy Group Company.
2. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
  - a. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics. Provide drop plates or other accessories as required for proper mounting.
3. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates, and through-bolt or security type fasteners as specified in the door Hardware Sets

## 2.6 AUTOMATIC DOOR OPERATORS

- A. General: Provide operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.
- B. Electrohydraulic Door Operators: Self-contained low-pressure units with rack and pinion design contained within a cast aluminum housing. Door closing speed controlled by independent hydraulic adjustment valves in the sweep and latch range of the closing cycle. Operator is to provide conventional door closer opening and closing forces unless the power operator motor is activated. Unit is to include an adjustable hydraulic backcheck valve to cushion the door speed if opened violently. Non-handed units for both push and pull side applications.
- C. Basis-of-Design: Norton, 6000 Series, Low Energy Power Operator, 6060/6070, Heavy Duty Double Lever Arm.
- D. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.
- E. Standard: Certified ANSI/BHMA A156.19.
  1. Performance Requirements:
    - a. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
    - b. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.

- c. Door Operator shall be both Automatically Activated (by slight push or pull in the direction of opening swing) and Selectively Activated (by external initiating device).
  - d. Unit shall include “E-saver” feature to automatically recognize abled body traffic and immediately trigger door to close after sensing no forces on door.
  
- F. Configuration: Surface mounted. Door operators to control single swinging doors.
  
- G. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19. When not in automatic mode, door operator to function as manual door closer with fully adjustable opening and closing forces, with or without electrical power.
  - 1. On-off switch to control power to be key switch operated.
  
- H. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.
  
- I. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.
  
- J. Activation Devices: Provide activation devices in accordance with ANSI/BHMA A156.19 standard, for condition of exposure indicated and for long term, maintenance free operation under normal traffic load operation. Coordinate activation control with electrified hardware and access control interfaces.
  - 1. Basis-of-Design: Norton 531, Activating Door Switches, 9 volt battery operated, Surface Mounted, Stainless Steel.
  
- K. Signage: As required by cited ANSI/BHMA A156.19 standard for the type of operator.
  - 1. Acceptable Manufacturers:
    - a. Norton (NO) – 6000 Series.
    - b. Besam Automated Entrance Systems (BE) – SW200i Series.

## 2.7 ARCHITECTURAL TRIM

### A. Metal Protective Trim Units:

- 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
- 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop

- side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Metal Protection Plates: ANSI/BHMA A156.6 certified metal protection plates (kick and mop), beveled on four edges (B4E), fabricated from the following:
    - a. Stainless Steel: 300 series, 050-inch thick, with countersunk screw holes (CSK).
  4. Fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets.
  5. Basis-of-Design: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    - a. Rockwood Manufacturing (RO).
    - b. Baldwin Hardware Corporation
    - c. IVES Hardware
    - d. Trimco

## 2.8 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers, polished cast brass, bronze, or aluminum base metal. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
  1. Basis-of-Design: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    - a. Architectural Builders Hardware Mfg.
    - b. Baldwin Hardware Corporation
    - c. Trimco
    - d. Rockwood Manufacturing (RO).
    - e. Stanley Commercial Hardware

## 2.9 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

- C. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot or crack length for gasketing other than for smoke control, as tested according to ASTM E 283;
  - 1. Basis-of-Design: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    - a. Hager Companies
- D. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
  - 1. Basis-of-Design: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    - a. Hager Companies
    - b. Pemko Manufacturing (PE).
    - c. Zero International

## 2.10 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
  - 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicating, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156 18.
- C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow metal door and frames construction, provide sleeves for each through bolt.

## 2.11 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.



- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
  - 1. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within on-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### 3.2 PREPARATION

- A. Hollow Metal Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6

### 3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: ANSI/SDI A250H8I
  2. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
- C. Power Operator products and accessories are required to be installed through current members of the manufacturer's "Power Operator Preferred Installer" program.
- D. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- G. Lock Cylinders: Install construction cores to secure building and areas during construction period.
- H. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- I. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- J. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- K. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

#### 3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

### 3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

### 3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

### 3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

### 3.8 DOOR HARDWARE SCHEDULE

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. Schedule:

Hinges	Hager
Closers	Norton
Automatic Door Operator	Norton
Thresholds	Pemko

Gasketing	Pemko
Sweeps	Pemko
Pulls/Pushes	Hager
Lever Locks	Yale
Kick Plates	Hager
Wall/Floor Stops	Hager
Deadbolt	Yale

**Set: HW-1**

Doors: 101A, 102 A

1ea	Continuous Hinge	790-904	32D	
1ea	Automatic Door Operator	6060/6070	689/AL	
1 ea	Activating Door Switch	531	689/AL	Square Surface Mont box
1 ea	Pull	33G 4x16	32D	
1 ea	Push	30S 4x16	32D	
1 ea	Deadbolt	D232	26D	
2 ea	Kick Plate	190S – 12x34	32D	
1 ea	Threshold	273X4AFG	A	
1 set	Gasketing	303AS	A	
1 ea	Sweeps	3151CN	N	
1 ea	Wall Stop	254S	26D	

**Set: HW-2**

Doors: 103A

1 ea	Continuous Hinge	790-904	32D
1 ea	Mortise Lock	OFCI	26D
1 ea	Threshold	273X4AFG	A
1 set	Gasketing	303AS	A
1 ea	Sweeps	3151CN	N
2 ea	Kick Plate	190S – 12x34	32D
1 ea	Wall Stop	230W	26D

END OF SECTION 08 71 00

SECTION 08 80 00  
GLASS AND GLAZING

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Glass and glazing materials for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.

B. Related Sections:

1. 08411 – Aluminum Framed Entrances and Storefronts.

C. Substitutions: Substitute products will be considered only under terms and conditions specified in Section 01630.

1.2 DEFINITIONS

A. Deterioration of Coated Glass: Defects developed from normal uses that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's directions.

B. Deterioration of Insulating Glass: Failure of the hermetic seal under normal use due to causes other than breakage and improper practices for maintaining and cleaning glass.

C. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

D. Interspace: Space between lites of an insulating-glass unit.

1.3 GLASS PERFORMANCE CRITERIA

A. General: Provide glazing systems that are produced, fabricated and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure, including glass breakage.

B. Performance Criteria: Provide glass lites for the various size openings in the thicknesses and strengths (annealed or heat-treated) to meet the following criteria:

1. Wind Load: Positive and negative (inward and outward) wind pressures shall be determined by Building Code criteria utilizing a basic wind speed of

- 110 miles per hour, exposure B. Minimum pressures where code allows for less shall be 20 psf positive and negative.
2. Temperature Change (Range): 120 degrees F ambient; 180 degrees F material surfaces. Base calculations on materials actual surface temperature due to both solar heat gain and nighttime sky heat loss.
  3. Center Deflection. Maximum deflection shall not exceed L/100 or 3/4 inch, whichever is less.
  4. Minimum Glass Thickness: detailed and specified herein.
- C. Glass Analysis: Glass manufacturer shall be responsible for the following:
1. Verify that glass thicknesses and strengths as scheduled are capable of meeting the above criteria.
  2. Determine whether glass lites making up the exterior insulated glass units with low-emission coating requires full tempering to resist the structural and thermal stresses for each glazing condition.
  3. Determine minimum thickness of annealed glass according to ASTM E1300. For heat-treated, spandrel glass, determine thickness per glass manufacturer's standard method of analysis including applying adjustment factors to ASTM E1300 based on type of glass.
- D. Structural Silicone Adhesive Glazing System: Structural silicone glazing system must have been designed to comply with the above wind load criteria. Stress on structural silicone adhesive shall not exceed 20 pounds per square inch under wind loads.

#### 1.4 SUBMITTALS

- A. Product Data: Submit Manufacturer's technical data for each glazing material and fabricated glass product; include the following:
1. Low-emission coating, including data and table on performance criteria verifying compliance with this specification.
  2. Laminated Glazing.
  3. Satin Etch Finish.
  4. Structural silicone glazing adhesive and tape; include adhesion test criteria, cure times, and application instructions.
- B. Glazing Instructions: Submit detailed instructions for the installation of glass.
- C. Certifications from Glass Manufacturers: Submit certificates from respective manufacturer's attesting that glass and glazing materials furnished for project complies with specified requirements.
- D. Certification from Structural Silicone Glazing Manufacturer: Submit written certification from the silicone adhesive manufacturer stating the following:

1. That they have reviewed and approved all glazing details, materials, and conditions, including type of glass and glass bite and glue line dimension with reasonable tolerances.
  2. That they have verified compatibility with back-up materials in accordance with ASTM C1087.
  3. That they have verified adhesion with coated aluminum and glass surfaces in accordance with ASTM C794.
- F. Samples for Verification Purposes: Submit the following 12 inch square samples:
1. Insulating glass units.
  2. Laminated glass units with Satin Etch finish.
  3. 12” long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.
- G. Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual specified in Division 1.
- H. Contract Closeout Submittal: Include the following at time of Project Closeout:
1. Submit executed warranties; include in “Warranties Manual” specified in Section 01740.

## 1.5 QUALITY ASSURANCE

- A. Glaziers Qualifications: Engage an experienced glazer who has completed glazing similar in material, design, and extent to that indicated for Project with a record of successful in-service performance.
- B. Single Source: Only one (1) manufacturer’s low-emission coating shall be used for glass units required. Obtain glass from one source for each of the following:
1. Primary glass of each (ASTM C 1036) type and class indicated.
  2. Insulating glass of each construction indicated.
  3. Laminated glass with Satin Etch finish of each (ASTM C1172) kind indicated.

## 1.6 DELIVERY, HANDLING AND STORAGE

- A. General: Comply with requirements specified in Section 01600.
- B. Do not deliver glass to site until areas to be glazed are ready to receive glass and job conditions are satisfactory. Deliver glass in manufacturer’s storage cases with interleaving between lights. Provide cushions at edges of glass to prevent impact damage during shipment and storage.

## 1.7 PROJECT CONDITIONS

- A. Verification of Measurements: Before fabrication, verify measurements to ensure proper fit. Sizes shown on drawings are for estimating purposes only. Allow sufficient time for taking accurate field dimensions so that fabrication and installation are within construction schedule.
- B. Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.

## 1.8 WARRANTY

- A. General: Refer to Division 1 for additional requirements. Replace all installed units which fail under use.
- B. Special Warranty on Structural Failure: Warrant glass units jointly and severally, on a single document, by the Installer and General Contractor, agreeing to replace all glass units broken by temperature changes, flaws in materials, environmental conditions (excluding fire and impact), and normal deflection up to specified limits for a period of five (5) years from date of Substantial Completion. No allowances for statistical probability of breakage under anticipated loading conditions will be made in consideration of failure of glass materials under load. This warranty shall include all labor and materials for replacements of failed unit(s).
- C. Special Warranty on Coated Glass: Provide written warranty signed by coated glass manufacturer agreeing to furnish FOB project site replacements for those coated glass units that deteriorate as defined in article "Definitions" in this Section. Warranty shall be for a period of 10 years from date of Substantial Completion.
- D. Special Warranty on Insulating Glass: Provide written warranty signed by manufacturer of insulating glass, agreeing to furnish FOB Project site replacements for insulating glass units which have deteriorated as defined in article "Definitions" in this Section. Warranty shall be for a period of 10 years from date of Substantial Completion.
- E. Special Warranty of Laminated glass: Submit written warranty signed by insulating glass manufacturer agreeing to furnish replacements for those laminated glass units that have deteriorated as defined in article "Definitions". Warranty covers only deterioration due to normal conditions of use and not handling, installing and cleaning practices contrary to glass manufacturer's published instructions. Warranty shall be for a period of 10 years from date of Substantial completion.

## PART 2 - PRODUCTS

### 2.1 GLASS PRODUCTS



- B. Float Glass (Clear): ASTM C1036, Type 1 (transparent glass flat), Class 1 (clear), quality q3 (glazing select). Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include but are not limited to the following:
1. Pilkington
  2. PPG
- C. Insulating Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
1. Sealing System: Dual seal, with manufacturer’s standard primary and secondary.
  2. Spacer: Manufacturer’s standard spacer material and construction.
  3. Desiccant: Molecular sieve or silica gel, or blend of both.
- D. Low-emission coating: Low-emissivity coated glass produced by sputter coating technology applied in a vacuum chamber. Coating shall be applied to the surface specified by the glass manufacturer. Low-emissivity coated glass shall meet the following performance values; values listed have been based on PPG Solarban Solar Control Low E, Solargreen+ Solarban 55. Exterior and interior lites ¼ inch glass with ½ inch air space.

Performance Values

Shading Coefficient	0.37
Daylight Reflectance (out)	16%
Daylight Reflectance (in)	11%
Solar Heat Gain Coefficient	0.32
U-Value	
Winter Night-time	0.34
Summer Day-time	0.39

- E. Laminated Glass Products: Comply with ASTM C1172 for kinds of laminated glass indicated and other requirements specified. Refer to primary and heat-treated glass requirements relating to properties of glass products comprising laminated glass products. Laminate lites with polyvinyl butyral interlayer in autoclave with heat plus pressure.
1. Interlayer Material: Polyvinyl butyral sheets, clear as manufactured by Saflex, Monsanto Co.; Butacite, EI du Pont de Nemours & Co., Inc. or approved equal.

## 2.2 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
1. Neoprene complying with ASTM C 864.
  2. EPDM complying with ASTM C 864.
  3. Silicone complying with ASTM C 1115.
  4. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene EPDM silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing
- C. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock-strips, complying with ASTM C 542, black.

## 2.3 GLAZING TAPES

- A. Back-bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 804.3 tape, where indicated.
  2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
  2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.4 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.7 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lite to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

## 2.8 INSULATING GLASS TYPES

- A. Glass Type: Lowe-E coated, insulating glass.
  - 1. Overall Unit Thickness: 1 inch.
  - 2. Thickness of Each Glass Lite: 1/4 inch.
  - 3. Outdoor Lite: Laminated Glass, clear.
  - 4. Indoor Lite: Laminated Glass, Satin Etch Finish.
  - 5. Low-E Coating: Pyrolytic on third surface.
  - 6. Visible Light Transmittance: 36 percent
  - 7. Winter Nighttime U-Factor: 0.38 maximum.
  - 8. Summer Daytime U-Factor: 0.38 maximum.
  - 9. Solar Heat Gain Coefficient: .40 maximum.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. General: Prior to starting work, carefully inspect installed work of other trades and verify that work is complete to the point where work of this Section may properly commence.
- B. Examine framing, glazing channels, and stops, with installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep systems.
  - 3. Minimum required face and edge clearances.
  - 4. Effective sealing between joints of glass-framing members.

### 3.2 PREPARATION

- A. Clean glazing channels and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

### 3.3 GLAZING, GENERAL

- A. Comply with combined printed recommendations of glass manufacturers, of manufacturers of gaskets, sealants and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches.
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in reference glazing publication.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

### 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in on continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and to the heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape inserting dense compression gaskets formed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.4 GLAZING

- A. Weeps: Take special care to ensure that weep holes, drainage channels and weep baffles are unobstructed and free of dirt and other foreign materials.
- B. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but no closer than 6 inches, unless otherwise required. Permanently adhere setting blocks in thin course of sealant which is acceptable for heel bead use. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- C. Provide spacers inside and out, of correct size and spacing to preserve required face clearance for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8 inch minimum bite of spacers on glass and use thickness slightly less than final compressed thickness of tape.
- D. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass manufacturer. Permanently adhere edge blocks to frame.
- E. Set glass tightly in position with proper clearances in accordance with referenced standards. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- F. Glazing in Aluminum Glass Stop Assembly: Glaze in glazing channels, and compression seals in accordance with manufacturer's instructions to obtain a weatherproof and waterproof installation. Center glass lites in openings on setting blocks.
  - 1. Miter-cut at corners and install in manner recommended by gasket manufacturer to prevent pull-away at corners; seal bead of sealant at corners, completely sealing against water penetration.
- G. Structural Glazing:
  - 1. Before applying silicone adhesive, clean substrate in accordance with adhesive manufacturer's instructions. Remove coatings which are not firmly bonded. Provide primers and techniques of installation as recommended by adhesive manufacturer.
  - 2. Install glazing tape as detailed or required, maintaining proper bond line for silicone adhesive; install tape with tight butt joints; no overlaps. Position glass uniformly sealing against tape. Mask adjoining surfaces as required to maintain a clean and neat appearance.
  - 3. Apply specified silicone adhesive on both sides (between mullion and glass), completely filling cavity; tool joint with light pressure before a skin begins to form; tool adhesive to form straight flush surface with edge of glass.

4. On exterior side, install sealant backer rod and apply specified silicone adhesive. Apply silicone adhesive with sufficient pressure to expel all air and provide a solid, continuous bead. Tool joint immediately in one continuous stroke, leaving a slightly concave surface.
- H. Vertical Butt Joint Glazing: Provide joint width of 3/8 inch plus or minus 1/8 inch. Apply sealant backer rod to serve as a back-up dam. Diameter of backer rod shall be 30 percent greater than width of joint. Leave backer rod in place until the sealant has cured.
1. Apply specified sealant with sufficient pressure to expel all air and provide a solid, continuous bead. Run bead starting from the bottom and work up. Tool joint immediately in one continuous stroke, leaving a slightly concave surface.
  2. Remove backer rod and apply sealant on opposite side in the same manner.

### 3.5 PROTECTION AND CLEANING

- A. Protect glass from contact with contaminating substances resulting from construction operations. If contaminating substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.
- B. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than one a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 08 80 00

SECTION 09 29 00  
GYPSUM BOARD

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior gypsum board.
- B. Related Sections include the following:
  - 1. Division 06 Section "Rough Carpentry" for wood framing and furring that supports gypsum board.
  - 2. Division 09 painting Sections for primers applied to gypsum board surfaces.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.



## PART 2 – PRODUCTS

### 2.1 PANELS, GENERAL

- A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### 2.2 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. American Gypsum Co.
    - b. BPB America Inc.
    - c. G-P Gypsum.
    - e. National Gypsum Company.
    - h. USG Corporation.
- B. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.
  - 1. Moisture and mold resistant.
  - 2. Thickness: 1/2 inch.
  - 3. Long Edges: Tapered.

### 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Paper-faced galvanized steel sheet.
  - 2. Shapes:
    - a. Cornerbead.
    - b. Bullnose bead.
    - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
    - d. L-Bead: L-shaped; exposed long flange receives joint compound.
    - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
    - f. Expansion (control) joint.
    - g. Curved-Edge Cornerbead: With notched or flexible flanges.

### 2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.

- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

## 2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
  - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

## 2.6 TEXTURE FINISHES

- A. Primer: As recommended by textured finish manufacturer.
- B. Aggregate Finish: Water-based, job-mixed, aggregated, drying-type texture finish for spray application.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. G-P Gypsum; Georgia-Pacific Ceiling Textures/Vermiculite.
    - b. USG Corporation; SHEETROCK Wall and Ceiling Spray Texture (Aggregated).
  - 2. Texture: Spatter knock-down.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

- H. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members, or provide control joints to counteract wood shrinkage.
- I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

### 3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
  - 1. Ceiling Type: Ceiling surfaces.
- B. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
  - 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

### 3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners, unless otherwise indicated.
  - 2. Curved-Edge Cornerbead: Use at curved openings.

### 3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 2: Panels that are substrate for tile.
  - 3. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in other Division 09 Sections.
- E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

### 3.6 APPLYING TEXTURE FINISHES

- A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.
- B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.
- C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

### 3.7 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 91 13  
EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
  - 1. Fiber-cement board.
  - 2. Steel and iron.
  - 3. Galvanized metal.
- B. Related Requirements:
  - 1. Section 05 50 00 "Metal Fabrications" for shop priming metal fabrications.
  - 2. Section 05 52 13 "Pipe and Tube Railings" for shop priming pipe and tube railings.
  - 3. Section 09 93 00 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on exterior wood substrates.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
  - 1. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches square.
  - 2. Apply coats on Samples in steps to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

#### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

#### 1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become



part of the completed Work if undisturbed at time of Substantial Completion.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 degree F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

## 1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degree F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degree F above the dew point; or to damp or wet surfaces.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Sherwin-Williams Company (The).
- B. Products: Subject to compliance with requirements, provide product listed in the Exterior Painting Schedule for the paint category indicated.

### 2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
  - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- C. Colors: As selected by Architect from manufacturer's full range.

### 2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  1. Fiber-Cement Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied

protection.

- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
  - 1. SSPC-SP 3.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
  - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut

in sharp lines and color breaks.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 EXTERIOR PAINTING SCHEDULE

- A. Cement Board Substrates
  - 1. Latex System MPI EXT 3.3A:
    - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
      - 1) SW A82W00620 PrepRite ProBlock .
    - b. Intermediate Coat: Latex, exterior, matching topcoat.
    - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
      - 1) SW A82W00151 – A100 Exterior Latex Satin Extra White.
- B. Steel and Iron Substrates:
  - 1. Water-Based Light Industrial Coating over Epoxy System MPI EXT 5.1R:
    - a. Prime Coat: Epoxy, high build, low gloss MPI #108.
      - 1) SW B58W00610 Macropoxy 646 Fast Cure Epoxy Part A Mill White.
    - b. Topcoat: Polyurethane, two component Pigmented (MPI Gloss Level 5), MPI #174.

- 1) SW B65W00351 Hi-Solids Polyurethane Semi-gloss Extra White/Tint Base.
- 2) Existing SW A82W00151- A100 Exterior Latex Satin Extra White.

END OF SECTION 09 91 13

SECTION 09 91 23  
INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
  - 1. Concrete masonry units (CMUs).
  - 2. Steel.
  - 3. Gypsum board.
- B. Related Requirements:
  - 1. Section 05 50 00 "Metal Fabrications" for shop priming metal fabrications.
  - 2. Section 09 93 00 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
  - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
  - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches square.
  - 2. Apply coats on Samples in steps to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

#### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

#### 1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically

- approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

## 1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  1. Sherwin-Williams Company (The).
- B. Products: Subject to compliance with requirements, provide product listed in the Interior Painting Schedule for the paint category indicated.

### 2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
  1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. Colors: As selected by Architect from manufacturer's full range.
  1. Twenty percent of surface area will be painted with deep tones.



## 2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  2. Testing agency will perform tests for compliance with product requirements.
  3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Masonry (Clay and CMUs): 12 percent.
  2. Wood: 15 percent.
  3. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 3.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- H. Wood Substrates:
  - 1. Scrape and clean existing painted surfaces and knots, and apply coat of knot sealer before applying primer.
  - 2. Sand surfaces that will be exposed to view, and dust off.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
1. Paint the following work where exposed in equipment rooms:
    - a. Panelboards.
  2. Paint the following work where exposed in occupied spaces:
    - a. Panelboards.
  3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces. Paint flat black.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
1. Contractor shall touch up and restore painted surfaces damaged by testing.
  2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered

paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 INTERIOR PAINTING SCHEDULE

#### A. CMU Substrates:

- 1. High-Performance Architectural Latex System MPI INT 4.2D:
  - a. Block Filler: Block filler, latex, interior/exterior, MPI #4.
    - 1) SW PrepRite Int/Ext Block Filler B25W00025.
  - b. Prime Coat: Primer, alkali resistant, water based, MPI #3.
    - 1) SWvPrepRite ProBlock Int/Ext Latex Primer/Sealer White B51W00620.
  - c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
  - d. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.
    - 1) SW Pro Industrial PreCatalyzed Waterbased Semi-Gloss Epoxy Extra White K46W00151.

#### B. Steel Substrates:

- 1. High-Performance Architectural Latex System MPI INT 5.1R:
  - a. Prime Coat: Primer, alkyd, anti-corrosive, for metal, MPI #79.
    - 1) SW Kem Kromik Universal Metal Primer Off White B50WZ0001.
  - b. Prime Coat: Shop primer specified in Section where substrate is specified.
  - c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
  - d. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.
    - 1) SW Pro Industrial PreCatalyzed Waterbased Semi-Gloss Epoxy Extra White K46W00151.

#### C. Gypsum Board Substrates:

- 1. High-Performance Architectural Latex System MPI INT 9.2B:
  - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
    - 1) SW ProMAr 200 Zero VOC Interior Latex Primer White.
  - b. Intermediate Coat: Latex, interior, high performance architectural,

matching topcoat.

- c. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.
  - 1) SW Pro Industrial PreCatalyzed Waterbased Semi-Gloss Epoxy Extra White K46W00151.

END OF SECTION 09 91 23

SECTION 10 14 23  
PANEL SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

1. Panel signs.
2. Room-identification signs.
3. Section 22 05 53 "Identification for Plumbing Piping and Equipment" for labels, tags, and nameplates for plumbing systems and equipment.
4. Section 23 05 53 "Identification for HVAC Piping and Equipment" for labels, tags, and nameplates for HVAC systems and equipment.
5. Section 26 05 53 "Identification for Electrical Systems" for labels, tags, and nameplates for electrical equipment.
6. Section 26 52 19 "Emergency and Exit Lighting" for illuminated, self-luminous, and hotoluminescent exit sign units.

1.3 DEFINITIONS

- A. Accessible: In accordance with the accessibility standard.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For panel signs.
  1. Include fabrication and installation details and attachments to other work.
  2. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
  3. Show message list, tpestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.
  4. Include diagrams for power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
  1. Include representative Samples of available tpestyles and graphic symbols.

- D. Sign Schedule: Use same designations specified or indicated on Drawings or in a sign schedule.

## 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

## 1.6 FIELD CONDITIONS

- A. Field Measurements: Verify locations of embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

## 1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Deterioration of finishes beyond normal weathering.
    - b. Deterioration of embedded graphic image.
    - c. Separation or delamination of sheet materials and components.
  - 2. Warranty Period: Five years from date of Substantial Completion.

## PART 2 – PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.

### 2.2 SIGNS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Advance Corporation; Braille-Tec Photopolymer ADA signs or a comparable product by one of the following:
  - 1. ASI Sign Systems, Inc.
  - 2. Cosco.
  - 3. InPro Corporation (IPC).
- B. Panel Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
  - 1. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated to manufacturer's standard backing sheet to produce composite

- sheet.
- a. Composite-Sheet Thickness: 0.25 inch.
- 2. Sign-Panel Perimeter: Finish edges smooth.
  - a. Edge Condition: Square cut.
  - b. Corner Condition in Elevation: Square.
- 3. Mounting: Surface mounted to wall with two-face tape.
- 4. Surface Finish and Applied Graphics:
  - a. Photo-Image Graphics: Manufacturer's standard multicolor, halftone or dotscreen image.
- 5. Text and Typeface: Accessible raised characters and Braille typeface as selected by Architect from manufacturer's full range and variable content as scheduled. Finish raised characters to contrast with background color, and finish Braille to match background color.

## 2.3 ACCESSORIES

- A. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch thick, with adhesive on both sides.

## 2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
  - 1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
  - 2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
  - 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
  - 4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
  - 5. Internally brace signs for stability and for securing fasteners.
  - 6. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
- B. Subsurface-Applied Graphics: Apply graphics to back face of clear face-sheet material to produce precisely formed image. Image shall be free of rough edges.
- C. Signs with Changeable Message Capability: Fabricate signs to allow insertion of changeable messages as follows:
  - 1. For slide-in changeable inserts, fabricate slot without burrs or constrictions that inhibit function. Furnish initial changeable insert. Subsequent



changeable inserts are by Owner.

## 2.5 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Verify that anchor inserts are correctly sized and located to accommodate signs.
- D. Verify that electrical service is correctly sized and located to accommodate signs.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Install signs so they do not protrude or obstruct according to the accessibility

- standard.
3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
  4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Room-Identification Signs and Other Accessible Signage: Install in locations on walls as indicated and according to accessibility standard.
- C. Mounting Methods:
1. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.
- D. Signs Mounted on Glass: Provide opaque sheet matching sign material and finish onto opposite side of glass to conceal back of sign.

### 3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 10 14 23

SECTION 10 21 13  
TOILET COMPARTMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Solid-plastic toilet compartments configured as toilet enclosures and urinal screens.

- B. Related Requirements:

- 1. Division 3 Section “Cast-in-Place Concrete: for compartment anchorage to concrete substrates.
  - 2. Division 04 Section “Unit Masonry” for compartment anchorage to masonry substrates.
  - 3. Section 10 28 00 "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories mounted on toilet compartments.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.

- B. Shop Drawings: For toilet compartments.

- 1. Include plans, elevations, sections, details, and attachment details.
  - 2. Show locations of cutouts for compartment-mounted toilet accessories.
  - 3. Show locations of centerlines of toilet fixtures.
  - 4. Show locations of floor drains.
  - 5. Show overhead support or bracing locations.

- C. Samples for Initial Selection: For each type of toilet compartment material indicated.

- 1. Include Samples of hardware and accessories involving material and color selection.

- D. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
  - 1. Each type of material, color, and finish required for toilet compartments, prepared on 6-inch-square Samples of same thickness and material indicated for Work.
  - 2. Each type of hardware and accessory.
- E. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of toilet compartment.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents and source.
  - 1. Door Hinges: Two hinge(s) with associated fasteners.
  - 2. Latch and Keeper: Two latch(es) and keeper(s) with associated fasteners.
  - 3. Door Bumper: Two bumper(s) with associated fasteners.
  - 4. Door Pull: Two door pull(s) with associated fasteners.
  - 5. Fasteners: Two fasteners of each size and type.

#### 1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver toilet compartments to site until building is enclosed and HVAC systems are in operation.
  - 1. Deliver toilet compartments in manufacture's original packaging.
  - 2. Store in an upright condition.

#### 1.9 WARRANTY

- A. Special Manufacturer's Warranty: Provide manufacturer's standard form in which

manufacturer agrees to repair or replace products that fail in materials or workmanship during the following period after substantial completion:

1. Phenolic Core Toilet Partitions: Against delamination: 3 years.

## PART 2 – PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  1. Flame-Spread Index: 30 or less.
  2. Smoke-Developed Index: 110 or less.
- B. Regulatory Requirements: Comply with applicable provisions in ICC A117.1 for toilet compartments designated as accessible.

### 2.2 PHENOLIC CORE TOILET COMPARTMENTS

- A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of Bradley Corporation, Mills Metal Division. Or equal product by one of the following:
  1. General Partitions Mfg. Corp.
  2. Global Partitions; ASI Group.
  3. Hadrian Manufacturing Inc.
- B. Toilet-Enclosure Style: Floor braced, Floor anchored.
- C. Entrance-Screen Style: Overhead braced, Floor anchored.
- D. Urinal-Screen Style: Wall hung, Floor anchored.
- E. Door, Panel, Screen, and Pilaster Construction: Phenolic Core, compressed cellulose impregnated with phenolic resins. Provide smooth material, without creases or ripples.
  1. Door, Panel and Pilaster Construction, General: Form edges with 15 degree bevel without crown molding. Finish edges smooth.
    - a. Provide exposed surfaces free of pitting, visible seams and fabrication marks, stains, telegraphing of core material, or other imperfections.
    - b. Core Material: Manufacturer's standard solid resin core of thickness required to provide finish thickness for doors, panels, and pilasters.

Provide pilaster with mechanically fastened leveling bar reinforcement with zin-plated jack bolt for leveling.

2. Door Construction: 3/4 inch thick.
  3. Panel Construction: 1/2 inch thick.
  4. Pilaster Construction: 3/4 inch thick.
  5. Phenolic Core Finish: Manufacturer's standard impregnated, with one color in each room. Color as selected by Architect from manufacturer's full line.
- F. Pilaster Shoes, Sleeves, and Caps: Manufacturer's standard design, Type 304 stainless steel with No. 4 satin brushed finish. Provide concealed retainer clips to attach to pilaster.
- G. Urinal-Screen Post: Manufacturer's standard post design of 1-3/4-inch-square, aluminum tube with satin finish with shoe, sleeve, and cap matching that on the pilaster.
- H. Brackets (Fittings):
1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

## 2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's heavy-duty stainless steel castings, including stainless steel tamper-resistant fasteners:
1. Hinges: Self-closing surface mounted, through bolted, with gravity cams, adjustable to hold doors open at any angle up to 90 degrees, with emergency access by lifting door. Mount with stainless steel through bolts.
  2. Latch and Keeper: Surface-mounted slide latch with flat rubber-faced combination door strike and keeper, with provision for emergency access, meeting requirements for accessibility at accessible compartments.
  3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless-steel hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment mounted accessories. Mount with stainless steel through-bolts.
  4. Door Bumper: Manufacturer's heavy-duty rubber-tipped cast-stainless-steel bumper at out-swinging doors and entrance-screen doors. Mount with through-bolts.
  5. Door Pull: Standard unit on outside of inswing doors. Provide pulls on both sides of outswing doors.
- B. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- C. Door Size and Swings: Unless otherwise indicated, provide 26-inch wide, in-swing doors for standard toilet compartments and 36-inch wide doors with a minimum 32-inch wide clear opening for compartments designated as accessible.

- D. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sextype bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

## 2.4 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M.
- B. Aluminum Extrusions: ASTM B 221.
- C. Brass Castings: ASTM B 584.
- D. Brass Extrusions: ASTM B 455.
- E. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- F. Stainless-Steel Castings: ASTM A 743/A 743M.
- G. Zamac: ASTM B 86, commercial zinc-alloy die castings.

## 2.5 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at bottoms of posts. Provide shoes and sleeves at posts to conceal anchorage.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
  - 1. Confirm location and adequacy of blocking and supports required for installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
1. Maximum Clearances:
    - a. Pilasters and Panels: 1/2 inch.
    - b. Panels and Walls: 1 inch.
  2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full height brackets.
    - a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
    - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- D. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

## 3.3 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out swinging doors to return doors to fully closed position.

END OF SECTION 10 21 13



SECTION 10 28 00  
TOILET AND BATH ACCESSORIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
  - 1. Public-use washroom accessories.
  - 2. Warm-air dryers.
  - 3. Under lavatory guards.
- B. Related Requirements:
  - 1. Section 09 30 13 "Ceramic Tiling" for ceramic toilet and bath accessories.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
  - 2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
  - 3. Include electrical characteristics.
- B. Samples: Full size, for each exposed product and for each finish specified.
  - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify accessories using designations indicated.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

## 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

## 1.7 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, visible silver spoilage defects.
  2. Warranty Period: 15 years from date of Substantial Completion.

## PART 2 – PRODUCTS

### 2.1 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Materials: N/A.

### 2.2 PERFORMANCE REQUIREMENTS

- A. 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.

### 2.3 PUBLIC-USE WASHROOM ACCESSORIES

- A. Toilet Tissue Dispenser Surface-Mounted Multi-Roll:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Surface Mounted Multi-Roll Toilet Tissue Dispenser B-4288 or a comparable product by one of the following:
    - a. American Specialties, Inc.
    - b. Bradley Corporation.
  2. Description: Multi-Roll Unit.
  3. Mounting: 16 gauge stainless steel mounting plate. Surface mounted, partition mounted.
  4. Capacity: two standard-core toilet tissue rolls up to 5 1/4" diameter.
  5. Material and Finish: 22 gauge stainless steel with satin finish.
  6. Lockset: Tumbler type.

B. Automatic Foam-Soap Dispenser:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Automatic Wall-Mounted Foam Soap Dispenser B-2013 or comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Description: Automatic dispenser with infrared sensor to detect presence of hands; battery powered; designed for dispensing foam soap, concentrated foam soap, or cartridge type of foam soap.
3. Mounting: Concealed wall-mounting.
4. Capacity: 800 ml. (27 fl. oz.).
5. Materials: 18 gauge stainless steel with satin finish, corrosion-resistant valve, and refillable plastic reservoir.
6. Lockset: Tumbler type.
7. Refill Indicator: Clear acrylic refill-indicator window.
8. Low Battery Indicator: LED indicator.

C. Grab Bar:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Mounting: Flanges with Concealed fasteners.
3. Material: Stainless steel, 0.05 inch thick.
  - a. Finish: Smooth, No. 4 finish satin on ends and slip-resistant texture in grip area.
4. Outside Diameter: 1-1/2 inches.
5. Configuration and Length: As indicated on Drawings.

D. Mirror Unit:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bradley Corporation; 748 Stainless Steel Mirror or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bobrick Washroom Equipment, Inc.
2. Construction: 20 guage stainless steel with No. 8 architectural finish.
  - a. Unit shall have 1/4" return to conceal 1/4" tempered Masonite backing bonded to mirror with adhesive.
  - b. Model: 748-24"W x 48"H
3. Integral Shelf: None.
4. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.

- a. Secure to wall with tamper-resistant mounting screws at holes provided.

F. Surface-Mounted Seat-Cover Dispenser:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Surface-Mounted Seat-Cover Dispenser B-4221 or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Description: Dispenser holds single or half-fold paper toilet-seat covers. Dispenser fills from bottom through concealed opening.
3. Capacity: 250 toilet seat covers.
4. Material and Finish: 18-8, Type-304, 20 gauge stainless steel with satin finish. Drawn, one-piece, seamless construction.

G. Surface-Mounted Sanitary Napkin Disposal:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Surface-Mounted Sanitary Napkin Disposal B-270 or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Mounting: Surface mounted, partition mounted.
3. Description: Cover shall be drawn, one-piece, seamless construction and secured to container with a continuous full-length stainless steel piano-hinge. Container shall have integral finger depression for opening.
4. Material and Finish: 18-8, Type-304, 22 gauge stainless steel with satin finish.

H. Solid Phenolic Folding Shower Seat:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Reversible Solid Phenolic Folding Shower Seat B-5181 or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Seat: One-piece, 1/2" thick, solid phenolic with matte-finish, antique white-colored, melamine surface and black phenolic-resin core. Integral slots for water drainage.
3. Frame: 18-8, Type-304, 3/16" thick stainless steel with satin finish. 3" diameter with three mounting screw holes.
4. Mounting Plate: 18-8, Type-304, Heavy-gauge stainless steel.
5. Spring: 17-7, Type-301, 24 gauge stainless steel. Spot-welded to baseplate.
6. Guide Bracket: 18-8, Type-304, 16 gauge stainless steel with satin finish.

I. Heavy-Duty Clothes Hook

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Surface Mounted Heavy-Duty Clothes Hook with Exposed Mounting B-211 or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Description: One-piece brass casting with satin nickel-plated finish. Withstands 300-lb downward pull.

J. Stainless Steel Shelf:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; Stainless Steel Shelf B-295 x 24 or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Description: 24" x 5" Stainless Steel Shelf, 18-8, type-304, 18 gauge stainless steel with satin finish. 3/4" return edges for maximum rigidity. Hemmed front edge.
3. Mounting: 18-8, Type-304, 16 gauge stainless steel with satin finish mounting brackets welded to back return of shelf and secured inside front hem of shelf.

K. Baby Changing Station:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Koala Kare KB208 Baby Changing Station or a comparable product as approved by Architect.
2. Description: Wall Surface-Mounted, Oval Baby Changing Table. Changing Station Body shall be durable, high-density polyethylene. Unit shall be equipped with a pneumatic cylinder for controlled opening and closing of bed.
3. Mounting: According to Manufacturer's recommendations.

2.4 WARM-AIR DRYERS

A. Warm-Air Dryer:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick Washroom Equipment, Inc; QuietDry TerraDry Surface-Mounted Hand Dryer B- 7185 or a comparable product by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
2. Description: Standard-speed, warm-air hand dryer.
3. Mounting: Surface mounted, with low-profile design.
4. Operation: Electronic-sensor activated with timed power cut-off switch.

- a. Operation Time: 90 seconds.
- 5. Cover Material and Finish: Brushed Aluminum
- 6. Electrical Requirements: 115 V, 13 A, 1500 W.

## 2.5 UNDERLAVATORY GUARDS

### A. Under lavatory Guard:

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Plumberex Specialty Products, Inc.; or a comparable product by one of the following:
  - a. Truebro by IPS Corporation.
- 2. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
- 3. Material and Finish: Antimicrobial, molded plastic, white.

## 2.6 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (18 gauge) minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

## 2.8 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of 6 keys to Owner's representative.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION 10 28 00

SECTION 26 05 00  
ELECTRICAL GENERAL REQUIREMENTS

PART 1 – GENERAL

1.2 DESCRIPTION

A. Scope

1. This section specifies general requirements for electrical work. Detailed requirements for specific electrical items are specified in other sections, but are subject to the general requirements of this section. The electrical drawings and schedules included in this project manual are functional in nature and do not specify exact locations of equipment or equipment terminations.
2. The Contractor shall examine all Mechanical and Architectural drawings and Specifications to determine actual locations, sizes, materials, and ratings of all equipment provided by others.
3. Items of Work shown on drawings and not specified, or mentioned in the specifications and not shown on the drawings, shall be considered required as if they had been both specified and show on the Drawings. In the event of conflicting specified or drafted requirements the more stringent requirement shall govern. Any work or material omitted from the description of the work but which is clearly implied shall be provided by the Contractor as though specifically stated. The Drawings and Specifications contemplate a finished piece of Work of such character and quality as described in and reasonably inferred from them, and fitting with the Work of other Contractors and the Owner. The Contractor agrees that the failure to show details or repeat on any drawings the figures or notes given on another shall not be cause for additional charges or claims.
4. When record drawings are provided with the contract drawing set, they constitute the best available information pertaining to the relevant systems at the time of design. Their accuracy is specifically not guaranteed and they are provided only for the Contractor's convenience. It is the Contractor responsibilities to field verify these record drawings prior to use. Actual field conditions are specifically and entirely the responsibility of the Contractor. Deviation of the record drawings provided from actual field conditions shall not constitute a basis for any increase in time allowed for completion or compensation for the Contractor.
5. The Contractor shall notify the Engineer in writing of perceived discrepancies, errors, or omissions in the Contract Documents prior to bid. The Engineer shall provide clarification to resolve these issues prior to bid. The Contractor shall resolve his questions regarding the perceived inconsistency, errors, or omissions in the Contract Documents prior to bid. Failure of the contractor to resolve his questions prior to bid shall result in the residual issues of the aforementioned kind providing no basis of claim for an increase in compensation for the Work or the time allowed for the completion of the contract and the Engineer's interpretation shall govern.

B. Definitions

1. Provide: Furnish and install.



2. Contractor: The party who furnishes and installs all tools, materials, and equipment to complete the work shown and implied in the drawings and these Specifications. This includes the Prime Contractor, the Electrical Contractor, Control System Integrator, and all other Contractors and Subcontractors.
3. Elementary or Schematic or Control Diagram: Shows, by means of graphic symbols, the electrical connections and functions of a specific circuit arrangement. The schematic diagram shows all circuit functions without regard to the actual physical size, shape, or location of the component devices or parts.
4. Single-Line Diagram/ One-Line Diagram: Shows, by means of lines and graphical symbols, the course of the electrical distribution system and the components, devices, or parts used therein.
5. Arrangement, Layout, or Outline Drawings: Shows the physical space and mounting requirements of a piece of equipment. Diagrams may also indicate ventilation requirements and space provided for connections or the location to which connections are to be made.

### 1.3 GENERAL DESCRIPTION OF WORK

- A. The Contractor shall provide all labor, material, tools, equipment and services required to complete the furnishing, installation, wiring, connection, calibration, adjustment, testing and operation of all electrical equipment, devices and components as indicated and implied by the plans and these Specifications. General descriptions include:
  1. Complete the procurement, installation, wiring, connection, calibration, adjustment, testing and operation of all electrical devices, components, accessories and equipment that is not shown or specified but which is nonetheless required to make the systems shown and specified function properly.
  2. Complete the wiring to, connection to, adjustment and calibration of, and testing of furnished electrical components.
  3. Install all equipment so it shall be readily accessible for maintenance. Installations shall have electrical clearances in accordance with NEC and shall be installed in locations that will provide adequate cooling.
  4. Check electrical equipment prior to installation so that defective equipment is not installed.
  5. Provide field services of qualified technicians to supervise and check out the installation of the equipment, to supervise and check out interconnecting wiring, to conduct start-up of operation of the equipment, and to correct any problems that occur during start-up.
  6. Provide circuit breakers, conduit, wire and installation for all items that require electrical power.

### 1.4 PROJECT DESCRIPTION

#### A. General

In general, the project shall consist of all electrical construction required to make a complete and fully operational system. The following is a general description of the work anticipated to be provided by the Electrical Contractor:

1. Provide new electrical service equipment per Specification 26 27 00.
2. Provide new power distribution including feeders, branch circuits, panels, and other equipment.
3. Provide new interior and exterior lighting systems.
4. Provide power and control connections for all mechanical equipment required for the project.
5. Additional electrical work as shown on the drawings and specifications.

#### 1.4 TEMPORARY OPERATION AND CONSTRUCTION POWER

- A. The Contractor shall provide a separately metered temporary power service for construction power. The temporary service shall provide:
  1. Power for operation of all equipment during testing.
  2. Power for operation of all equipment including lighting and HVAC equipment until certificate of occupancy is obtained.
- B. All coordination with the utility and associated construction costs for temporary construction power shall be paid for by the Contractor. The Contractor shall pay for the energy costs as billed by the utility on the construction power meter.
- C. The Contractor may use existing power feeder if coordinated and agreed to by the District.

#### 1.5 TEMPERATURE RATINGS OF EQUIPMENT TERMINATIONS

- A. All materials shall conform to the National Electrical Code Article 110-14C. Wiring and circuit breakers on this project are designed for 75 deg C operation above 100 amperes; 60 deg C for 100 amperes and below. All products furnished on this project shall have electrical terminations rated for 60 deg C for ampacities of 100 amperes and below, and rated for 75 deg C for ampacities above 100 amperes.
- B. These requirements cover all electrical equipment provided under this Contract.

#### 1.6 STANDARDS AND CODES

The Contractor shall provide all permits, licenses, approvals and other arrangements for work on this project and all fees shall be paid for by the Contractor. The Contractor shall include these fees in the bid price.

##### A. References

This section contains references to the following documents. They are part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

1. National Electrical Code (NEC)
2. Underwriters' Laboratories, Inc. (UL)
3. National Electrical Manufacturers Association (NEMA)
4. Canadian Standards Association (CSA)

5. Electrical Testing Laboratories (ETL)
6. Factory Mutual (FM)

B. Identification of Listed Products

1. All materials and equipment specified herein shall be within the scope of Nationally Recognized Testing Laboratory (NRTL) examination services, be approved by the NRTL for the purpose for which they are used, and shall bear the appropriate listing label.
2. Equipment listed/labeled by an NRTL shall be as dictated by the latest printing of the *Electrical Testing Laboratories Accreditation Report* available from the State of Washington Department of Labor and Industries, Electrical Inspection Division. Any NRTL listing/labeling shall be as accepted by the local authority having jurisdiction.
3. When a product is not available with a testing laboratory listing for the purpose for which it is to serve, the product may be required by the inspection authority to undergo a special inspection at the manufacturer's place of assembly. All costs and expenses incurred for such inspections shall be included in the original contract price.

1.7 SITE FAMILIARIZATION

The Contractor shall become familiar with all features of the site which may affect the execution of the work prior to submitting a bid. The Contractor shall take all field measurements necessary for the work and shall assume full responsibility for their accuracy. The Contractor shall take full responsibility for locating and avoiding all substructures and utilities. Any damage to existing equipment or utilities shall be repaired or replaced by the Contractor at the Contractors expense.

1.8 AREA CLASSIFICATIONS

The following classification of areas shall be used as a reference in determining application of material covered by this Section unless specifically shown otherwise on the drawings. Areas that fall under two or more of the following classifications shall conform to the minimum requirements of all of the area classifications listed for that area.

A. General Purpose Areas:

Exposed raceways shall be GRS. Raceways concealed in walls or ceilings for general purpose lighting and receptacle circuits shall be EMT. Exposed boxes shall be NEMA 12. Concealed boxes may be NEMA 1. Boxes poured in concrete shall be cast copper free aluminum.

1.9 ELECTRICAL SUBMITTALS

- A. Electrical submittals shall be submitted to the Project Engineer.

## PART 2 - PRODUCTS

### 2.1 EQUIPMENT AND MATERIALS

#### A. General

Equipment and materials shall be new and free from defects. All material and equipment of the same or a similar type shall be of the same manufacturer throughout the work. Standard production materials shall be used wherever possible.

#### B. Equipment Finish

Unless otherwise specified, electrical equipment and materials shall be painted by the manufacturer.

#### C. Galvanizing

Where specified, galvanizing shall be in hot dipped.

### 2.2 NAMEPLATES

A. Nameplates shall be provided on all electrical devices. This includes, but is not limited to: motor control equipment, MCC cubicles, control stations, junction boxes, panels, motors, instruments, switches, indicating lights, meters, and all electrical equipment enclosures.

B. Nameplates shall also be provided on all electrical panel interior equipment. This includes but is not limited to: relays, circuit breakers, power supplies, terminals, contactors, and other devices.

C. Nameplates shall be made of 1/16" thick machine engraved laminated phenolic having engraved black filled letters not less than 3/16" high on white background or as shown on the drawings or other sections of the Specifications. Nameplates on the interior of panels shall be white polyester with printed thermal transfer lettering and permanent pressure sensitive acrylic; Tyton 822 or equal. All nameplates shall include the equipment name and number (and function, if applicable).

D. Warning nameplates shall be provided on all panels and equipment which contain multiple power sources or which may have energized circuits with the main disconnecting means in the off position. Lettering shall be white on red background.

E. All nameplates shall be secured to equipment with stainless steel screws/fasteners. Epoxy glue may be used where fasteners are not practical as determined by the Engineer.

## PART 3 - EXECUTION

### 3.1 GENERAL

A. Storage and Installation Environment

1. The Contractor shall store all electrical equipment in a dry environment free from dust, moisture, sprays or vapors which may be detrimental to their new condition. After installation of equipment, the Contractor shall take care to protect all equipment from all dust, moisture, paint and other spray, harmful vapors.
2. Equipment shall not be installed in indoor areas until the area is covered, dry and finished to the point that other work will not create dust, vapors, or moisture. Equipment with integral heaters and fans shall not be installed until power is available at the location, and the heater and fan shall be energized within 6 hours of the equipment being installed.

B. Housekeeping

1. The premises shall be kept free of accumulated materials, rubbish and debris at all times. Surplus material, tools and equipment must not be stored at the job site. Upon completion of the project, all equipment and fixtures shall be cleaned and in proper condition for their intended use.

3.2 TESTS

- A. The Contractor shall conduct testing for installed feeder cables and motors in accordance with Sections 26 05 19. Grounding shall be tested in accordance with Section 26 05 26.
- B. Functional testing shall be performed for all new work. Prior to functional testing, all protective devices shall be adjusted and made operative. Prior to energization of equipment, the Contractor shall perform a functional checkout of the control circuit. Checkout shall consist of energizing each control circuit and operating each control, alarm or malfunction device and each interlock in turn to verify that the specified action occurs. The Contractor shall submit a description of the proposed functional test procedures prior to the performance of the functional checkout.
- C. The Contractor shall verify motors are connected to rotate in the correct direction. Verification may be accomplished by momentarily energizing the motor, provided the Contractor confirms that neither the motor nor the driven equipment will be damaged by reverse operation.

3.3 FINAL ACCEPTANCE

- A. Prior to final acceptance, the Engineer will perform one or more site observation trips to develop a “punch list” of items deemed incomplete. The Electrical Contractor shall be present while these inspections are taking place and shall be available for opening cabinets and operating and adjusting the system as is necessary for the Engineer to verify all equipment is installed and operates to the requirements of the contract documents.
- B. The Contractor shall complete all items of work, including wire markers, nameplates, final tests and final test reports prior to requesting final acceptance inspections. All equipment

shall be checked for proper operation and all signals verified for correct calibration and wiring. Fixtures shall have been cleaned, and burned out or defective lamps shall have been replaced.

### 3.4 TRAINING

A. The Contractor shall provide training in accordance with the specific requirements in other sections of these Specifications. In addition to training required in other Sections of the Specifications, the Contractor shall conduct specifically organized training sessions in the overall operation and maintenance of the electrical system for personnel employed by the Owner. The training sessions shall be conducted to educate and train the personnel in operation and maintenance of all components of the electrical system outside the training requirements in the other sections of these Specifications. Training shall include, but not be limited to, the following:

1. Preventative maintenance procedures
2. Trouble-shooting
3. Calibration
4. Testing
5. Replacement of components
6. Equipment operation

At least one training sessions, each at least two (2) hours in duration, or as deemed necessary by the Owner, shall be conducted at the facility after start-up of the system. The Contractor shall prepare and assemble specific instruction materials for each training session and shall supply such materials to the Owner at least one (1) week prior to the time of the training.

END OF SECTION 26 05 00

SECTION 26 05 19  
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

- 1. Copper building wire rated 600 V or less.
- 2. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

- A. RoHS: Restriction of Hazardous Substances.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA.
  - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 2 – PRODUCTS

2.1 BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Manufacturers:

1. Alpha Wire Company
2. Belden Inc.
3. General Cable Technologies
4. Service Wire Co.
5. Southwire Company
6. Wesco
7. Or Engineer approved equal

C. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

E. Conductor Insulation:

1. Type NM: Comply with UL 83 and UL 719.
2. Type RHH and Type RHW-2: Comply with UL 44.
3. Type USE-2 and Type SE: Comply with UL 854.
4. Type TC-ER: Comply with NEMA WC 70/ICEA S-95-658 and UL 1277.
5. Type THHN and Type THWN-2: Comply with UL 83.
6. Type THW and Type THW-2: Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
7. Type UF: Comply with UL 83 and UL 493.
8. Type XHHW-2: Comply with UL 44.

## 2.2 METAL-CLAD CABLE, TYPE MC

- A. Metal-clad cable, type MC shall not be allowed.

## 2.3 ARMORED CABLE, TYPE AC

- A. Armored cable, type AC shall not be allowed.

## 2.4 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

B. Manufacturers:

1. 3M Electrical Products



2. Hubble Power Systems Inc.
  3. O-Z/Gedney
  4. Service Wire Co.
  5. Thomas & Betts
  6. Or Engineer approved equal.
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
1. Material: Copper.
  2. Type: One with standard barrels.
  3. Termination: Compression.

## PART 3 - EXECUTION

### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Feeders: Copper for feeders smaller than No. 4 AWG; copper for feeders No. 4 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- D. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.
- E. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

### 3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN/THWN-2, single conductors in raceway.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.

- D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway.
- E. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.
- F. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

### 3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

### 3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

### 3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

### 3.6 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

### 3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

- B. Perform tests and inspections.

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
2. After installing conductors and cables and before electrical circuitry has been energized, test branch circuit and feeder conductors.
3. Perform each of the following visual and electrical tests:
  - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
  - b. Test bolted connections for high resistance using one of the following:
    - 1) A low-resistance ohmmeter.
    - 2) Calibrated torque wrench.
    - 3) Thermographic survey.
  - c. Inspect compression-applied connectors for correct cable match and indentation.
  - d. Inspect for correct identification.
  - e. Inspect cable jacket and condition.
  - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
  - g. Continuity test on each conductor and cable.
  - h. Uniform resistance of parallel conductors.
4. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.
  - a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
  - b. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

- C. Cables will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports to record the following:
  - 1. Procedures used.
  - 2. Results that comply with requirements.
  - 3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 26 05 19

SECTION 26 05 26  
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency and testing agency's field supervisor.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Certified by NETA.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. 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.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 MANUFACTURERS

- A. Alpha Wire Company
- B. Belden Inc.
- C. General Cable Technologies

- D. Service Wire Co.
- E. Southwire Company
- F. Wesco
- G. Or Engineer approved equal

## 2.3 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Stranded Conductors: ASTM B 8.
  - 3. Tinned Conductors: ASTM B 33.
  - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
  - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
  - 6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
  - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches (6.3 by 100 mm) in cross section, with 9/32-inch (7.14-mm) holes spaced 1-1/8 inches (28 mm) apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

## 2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Bus-Bar Connectors: Compression type, copper or copper alloy, with two wire terminals.
- E. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.

- F. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- G. Cable Tray Ground Clamp: Mechanical type, zinc-plated malleable iron.
- H. Conduit Hubs: Mechanical type, terminal with threaded hub.
- I. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
- J. Straps: Solid copper. Rated for 600 A.
- K. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.
- L. Water Pipe Clamps:
  - 1. Mechanical type, two pieces with zinc-plated bolts.
    - a. Material: Die-cast zinc alloy.
    - b. Listed for direct burial.
  - 2. U-bolt type with malleable-iron clamp and copper ground connector rated for direct burial.

## 2.5 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet (19 mm by 3 m).
- B. Ground Plates: 1/4 inch (6 mm) thick, hot-dip galvanized.

## PART 3 - EXECUTION

### 3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 6 AWG and smaller, and stranded conductors for No. 4 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.
  - 1. Bury at least 24 inches (600 mm) below grade.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus horizontally, on insulated spacers 2 inches (50 mm) minimum from wall, 6 inches (150 mm) above finished floor unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

### 3.2 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

### 3.3 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Flexible raceway runs.

- C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

- D. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

- E. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

- F. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate



conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

- G. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

### 3.4 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 12 inches (300 mm) below finished grade when buried in direct earth or 2 inches (50 mm) below finished floor or final grade when encased or covered by concrete or asphalt unless otherwise indicated.
  - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
  - 2. Use exothermic welds for all below-grade connections.
  - 3. For grounding electrode system, install at least two rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
  - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- D. Grounding and Bonding for Piping:
  - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
  - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.

3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- E. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- F. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart. Retain one of two "Concrete-Encased Grounding Electrode (Ufer Ground)" paragraphs below to require concrete-encased grounding electrode. Concrete shall be in direct contact with the earth. Concrete installed with insulation, vapor barriers, films, or similar items separating the concrete from the earth is not considered to be in "direct contact" with the earth.
- G. Concrete-Encased Grounding Electrode (Ufer Ground): Fabricate according to NFPA 70; using electrically conductive coated steel reinforcing bars or rods, at least 20 feet (6.0 m) long. If reinforcing is in multiple pieces, connect together by the usual steel tie wires or exothermic welding to create the required length.
- H. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
  1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
  2. Make connections with clean, bare metal at points of contact.
  3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

### 3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
  1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
  2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
  3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal. Make tests at ground rods before any conductors are connected.

- a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
  - b. Perform tests by fall-of-potential method according to IEEE 81.
  4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Report measured ground resistances that exceed the following values:  
Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
- F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 26 05 26

SECTION 26 05 29  
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Steel slotted support systems
- 2. Conduit and cable support devices.
- 3. Support for conductors in vertical conduit.
- 4. Structural steel for fabricated supports and restraints.
- 5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
  - a. Slotted support systems, hardware, and accessories.
  - b. Clamps.
  - c. Hangers.
  - d. Sockets.
  - e. Eye nuts.
  - f. Fasteners.
  - g. Anchors.
  - h. Saddles.
  - i. Brackets.
- 2. Include rated capacities and furnished specialties and accessories.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Suspended ceiling components.
  2. Ductwork, piping, fittings, and supports.
  3. Structural members to which hangers and supports will be attached.
  4. Size and location of initial access modules for acoustical tile.
  5. Items penetrating finished ceiling, including the following:
    - a. Luminaires.
    - b. Air outlets and inlets.
    - c. Sprinklers.
    - d. Access panels.
- B. Seismic Qualification Data: Certificates, for hangers and supports for electrical equipment and systems, accessories, and components, from manufacturer.
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
  2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
  3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- C. Welding certificates.

## 1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M.
  2. AWS D1.2/D1.2M.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Hangers and supports shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
1. The term "withstand" means "the supported equipment and systems will remain in place without separation of any parts when subjected to the seismic forces specified."
  2. Component Importance Factor: 1.0.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Flame Rating: Class 1.
  2. Self-extinguishing according to ASTM D 635.

## 2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch- (10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.
  - 1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
  - 2. Material for Channel, Fittings, and Accessories: Galvanized steel.
  - 3. Channel Width: 1-5/8 inches (41.25 mm).
  - 4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  - 5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
  - 6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
  - 7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- C. 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 made of malleable iron.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.
- E. 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.
  - 2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
  - 3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
  - 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are 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. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:
  - 1. NECA 1.
  - 2. NECA 101
  - 3. NECA 102.
- B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- E. 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.
  - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- F. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings, and for fastening raceways to trapeze supports.

### 3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, according to NFPA 70.
- C. 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 (90 kg).

- D. 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.
  5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
  6. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69.
  7. To Light Steel: Sheet metal screws.
  8. 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.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

### 3.3 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."
- C. Anchor equipment to concrete base as follows:
1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  2. Install anchor bolts to elevations required for proper attachment to supported equipment.
  3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.



### 3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 26 05 29

SECTION 26 05 33  
RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Metal wireways and auxiliary gutters.
4. Surface raceways.
5. Boxes, enclosures, and cabinets.
6. Handholes and boxes for exterior underground cabling.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.
2. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.
3. Section 270528 "Pathways for Communications Systems" for conduits, wireways, surface pathways, innerduct, boxes, faceplate adapters, enclosures, cabinets, and handholes serving communications systems.

1.3 DEFINITIONS

- A. ARC: Aluminum rigid conduit.
- B. GRC: Galvanized rigid steel conduit.
- C. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:
  - 1. Structural members in paths of conduit groups with common supports.
  - 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
- B. Qualification Data: For professional engineer.
- C. Source quality-control reports.

## PART 2 - PRODUCTS

### 2.1 METAL CONDUITS AND FITTINGS

- A. Metal Conduit:
  - 1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  - 2. GRC: Comply with ANSI C80.1 and UL 6.
  - 3. IMC: Comply with ANSI C80.6 and UL 1242.
  - 4. EMT: Comply with ANSI C80.3 and UL 797.
  - 5. FMC: Comply with UL 1; zinc-coated steel.
  - 6. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- B. Metal Fittings:
  - 1. Comply with NEMA FB 1 and UL 514B.
  - 2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  - 3. Fittings, General: Listed and labeled for type of conduit, location, and use.
  - 4. Fittings for EMT:
    - a. Material: Steel.
    - b. Type: Setscrew.
  - 5. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
  - 6. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.
- C. Joint Compound for IMC, or GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

## 2.2 NONMETALLIC CONDUITS AND FITTINGS

### A. Nonmetallic Conduit:

1. Listing and Labeling: Nonmetallic conduit shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

### B. Nonmetallic Fittings:

1. Fittings, General: Listed and labeled for type of conduit, location, and use.
2. Solvents and Adhesives: As recommended by conduit manufacturer.

## 2.3 BOXES, ENCLOSURES, AND CABINETS

### A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

### B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

### C. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

### D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

### E. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

### F. Device Box Dimensions: 4 inches square by 2-1/8 inches deep (100 mm square by 60 mm deep).

### G. Gangable boxes are prohibited.

### H. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

### I. Cabinets:

1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.

5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.4 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

### A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

### B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

1. Standard: Comply with SCTE 77.
2. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC".
6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
7. Handholes 12 Inches Wide by 24 Inches Long (300 mm Wide by 600 mm Long) and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

### C. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with frame and covers of polymer concrete.

1. Standard: Comply with SCTE 77.
2. Color of Frame and Cover: Gray.
3. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
6. Cover Legend: Molded lettering, "ELECTRIC".
7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
8. Handholes 12 Inches Wide by 24 Inches Long (300 mm Wide by 600 mm Long) and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

## 2.5 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

- A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
  - 1. Tests of materials shall be performed by an independent testing agency.
  - 2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
  - 3. 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 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
  - 1. Exposed Conduit: GRC.
  - 2. Concealed Conduit, Aboveground: EMT.
  - 3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
  - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
  - 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
  - 1. Exposed, Not Subject to Physical Damage: EMT.
  - 2. Exposed, Not Subject to Severe Physical Damage: EMT.
  - 3. Exposed and Subject to Severe Physical Damage: GRC.
  - 4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
  - 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  - 6. Damp or Wet Locations: GRC.
  - 7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 1/2-inch (16-mm) trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
  - 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  - 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting

manufacturer and apply in thickness and number of coats recommended by manufacturer.

3. EMT: Use setscrew, steel fittings. Comply with NEMA FB 2.10.
  4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- 
- E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.
  - F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
  - G. Install surface raceways only where indicated on Drawings.
  - H. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F (49 deg C).

### 3.2 INSTALLATION

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- C. Do not install raceways or electrical items on any "explosion-relief" walls or rotating equipment.
- D. Do not fasten conduits onto the bottom side of a metal deck roof.
- E. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- F. Complete raceway installation before starting conductor installation.
- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches (300 mm) of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

- K. Support conduit within 12 inches (300 mm) of enclosures to which attached.
- L. Raceways Embedded in Slabs:
  - 1. Run conduit larger than 1-inch (27-mm) trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot (3-m) intervals.
  - 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
  - 3. Arrange raceways to keep a minimum of 1 inch (25 mm) of concrete cover in all directions.
  - 4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.
  - 5. Change from ENT to GRC before rising above floor.
- M. Stub-Ups to Above Recessed Ceilings:
  - 1. Use EMT, IMC, or RMC for raceways.
  - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- N. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- O. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
- P. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- Q. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- R. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- S. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- T. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- U. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at



each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

V. Surface Raceways:

1. Install surface raceway with a minimum 2-inch (50-mm) radius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches (1200 mm) and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

W. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Conduit extending from interior to exterior of building.
4. Conduit extending into pressurized duct and equipment.
5. Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
6. Where otherwise required by NFPA 70.

X. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

Y. Expansion-Joint Fittings:

1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F (17 deg C) and that has straight-run length that exceeds 25 feet (7.6 m). Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F (55 deg C) and that has straight-run length that exceeds 100 feet (30 m).
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
  - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F (70 deg C) temperature change.
  - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F (86 deg C) temperature change.
  - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F (70 deg C) temperature change.
  - d. Attics: 135 deg F (75 deg C) temperature change.
3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F (0.06 mm per meter of length of straight run per deg C) of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight

run per deg F (0.0115 mm per meter of length of straight run per deg C) of temperature change for metal conduits.

4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
  5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- Z. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
  2. Use LFMC in damp or wet locations not subject to severe physical damage.
- AA. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to bottom of box unless otherwise indicated.
- BB. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- CC. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- DD. Locate boxes so that cover or plate will not span different building finishes.
- EE. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- FF. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

### 3.3 INSTALLATION OF UNDERGROUND CONDUIT

#### A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Section 312000 "Earth Moving" for pipe less than 6 inches (150 mm) in nominal diameter.
2. Install backfill as specified in Section 312000 "Earth Moving."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled

backfill to within 12 inches (300 mm) of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."

4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
  - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches (75 mm) of concrete for a minimum of 12 inches (300 mm) on each side of the coupling.
  - b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches (1500 mm) from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
6. Warning Planks: Bury warning planks approximately 12 inches (300 mm) above direct-buried conduits but a minimum of 6 inches (150 mm) below grade. Align planks along centerline of conduit.
7. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

### 3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch (25 mm) above finished grade.
- D. Install handholes with bottom below frost line below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.
- F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

### 3.5 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

### 3.6 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
  - 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 26 05 33

SECTION 26 05 53  
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Color and legend requirements for raceways, conductors, and warning labels and signs.
2. Labels.
3. Bands and tubes.
4. Tapes and stencils.
5. Tags.
6. Signs.
7. Cable ties.
8. Paint for identification.
9. Fasteners for labels and signs.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with NFPA 70.
- B. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- C. Comply with ANSI Z535.4 for safety signs and labels.
- D. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

## 2.2 COLOR AND LEGEND REQUIREMENTS

### A. Raceways and Cables Carrying Circuits at 600 V or Less:

- 1. Black letters on an orange field.
- 2. Legend: Indicate voltage.

### B. Color-Coding for Phase Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.

- 1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
- 2. Colors for 208/120-V Circuits:
  - a. Phase A: Black.
  - b. Phase B: Red.
  - c. Phase C: Blue.
- 3. Colors for 240-V Circuits:
  - a. Phase A: Black.
  - b. Phase B: Red.
- 4. Colors for 480/277-V Circuits:
  - a. Phase A: Brown.
  - b. Phase B: Orange.
  - c. Phase C: Yellow.
- 5. Color for Neutral: White.
- 6. Color for Equipment Grounds: Green.
- 7. Colors for Isolated Grounds: Green with white stripe.

### C. Warning Label Colors:

- 1. Identify system voltage with black letters on an orange background.

### D. Warning labels and signs shall include, but are not limited to, the following legends:

- 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
- 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)."

### E. Equipment Identification Labels:

- 1. Black letters on a white field.

## 2.3 LABELS

- A. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- (0.08-mm-) thick, vinyl flexible label with acrylic pressure-sensitive adhesive.
  - 1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
  - 2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
  - 3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
  
- B. Self-Adhesive Labels: Vinyl, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
  - 1. Minimum Nominal Size:
    - a. 1-1/2 by 6 inches (37 by 150 mm) for raceway and conductors.
    - b. 3-1/2 by 5 inches (76 by 127 mm) for equipment.
    - c. As required by authorities having jurisdiction.

## 2.4 TAPES AND STENCILS

- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
  
- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide; compounded for outdoor use.
  
- C. Tape and Stencil: 4-inch- (100-mm-) wide black stripes on 10-inch (250-mm) centers placed diagonally over orange background and are 12 inches (300 mm) wide. Stop stripes at legends.
  
- D. Floor Marking Tape: 2-inch- (50-mm-) wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.
  
- E. Underground-Line Warning Tape:
  - 1. Tape:
    - a. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical utility lines.
    - b. Printing on tape shall be permanent and shall not be damaged by burial operations.
    - c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
  - 2. Color and Printing:

- a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
  - b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE".
  - c. Inscriptions for Orange-Colored Tapes: "TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE".
- F. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch (25 mm).

## 2.5 TAGS

- A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped legend, punched for use with self-locking cable tie fastener.
- B. Nonmetallic Preprinted Tags: Polyethylene tags, 0.015 inch (0.38 mm thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

## 2.6 SIGNS

- A. Laminated Acrylic or Melamine Plastic Signs:
  - 1. Engraved legend.
  - 2. Thickness:
    - a. For signs up to 20 sq. in. (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
    - b. For signs larger than 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick.
    - c. Engraved legend with black letters on white face.
    - d. Punched or drilled for mechanical fasteners with 1/4-inch (6.4-mm) grommets in corners for mounting.
    - e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

### 3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop



Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.

- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
  - 1. Secure tight to surface of conductor, cable, or raceway.
- H. System Identification for Raceways and Cables over 600 V: Identification shall completely encircle cable or conduit. Place adjacent identification of two-color markings in contact, side by side.
  - 1. Secure tight to surface of conductor, cable, or raceway.
- I. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer].
- K. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- L. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:
  - 1. "EMERGENCY POWER."
  - 2. "POWER."
- M. Vinyl Wraparound Labels:
  - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
  - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.

- N. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- O. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- P. Self-Adhesive Labels:
  1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
  2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
- Q. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.
- R. Heat-Shrink, Preprinted Tubes: Secure tight to surface at a location with high visibility and accessibility.
- S. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.
- T. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
  1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- U. Tape and Stencil: Comply with requirements in painting Sections for surface preparation and paint application.
- V. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- W. Underground Line Warning Tape:
  1. During backfilling of trenches, install continuous underground-line warning tape directly above cable or raceway at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches (400 mm) overall.
  2. Limit use of underground-line warning tape to direct-buried cables.
  3. Install underground-line warning tape for direct-buried cables and cables in raceways.
- X. Baked-Enamel Signs:
  1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on minimum 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use signs minimum 2 inches (50 mm) high.

Y. Laminated Acrylic or Melamine Plastic Signs:

1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use labels 2 inches (50 mm) high.

Z. Cable Ties: General purpose, for attaching tags, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

### 3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Accessible Raceways, 600 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive raceway labels.
  1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- D. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. System legends shall be as follows:
  1. "EMERGENCY POWER."
  2. "POWER."
- E. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use vinyl wraparound labels to identify the phase.
  1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.

- F. Auxiliary Electrical Systems Conductor Identification: Self-adhesive vinyl tape that is uniform and consistent with system used by manufacturer for factory-installed connections.
  - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
- G. Locations of Underground Lines: Underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.
- H. Workspace Indication: Apply floor marking tape to finished surfaces. Show working clearances in the direction of access to live parts. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- I. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.
- J. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.
  - 1. Apply to exterior of door, cover, or other access.
  - 2. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:
    - a. Power-transfer switches.
    - b. Controls with external control power connections.
- K. Equipment Identification Labels:
  - 1. Indoor Equipment: Baked-enamel signs.
  - 2. Outdoor Equipment: Laminated acrylic or melamine sign.
  - 3. Equipment to Be Labeled:
    - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a engraved, laminated acrylic or melamine label.
    - b. Enclosures and electrical cabinets.
    - c. Access doors and panels for concealed electrical items.

END OF SECTION 26 05 53

SECTION 26 09 23  
LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Photoelectric switches.
2. Indoor occupancy and vacancy sensors.
3. Lighting contactors.

B. Related Requirements:

1. Section 26 27 26 "Wiring Devices" for wall-box dimmers, non-networkable wall-switch occupancy sensors, and manual light switches.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Interconnection diagrams showing field-installed wiring.
2. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's warranties.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each type of lighting control device to include in operation and maintenance manuals.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.

2. Program Software Backup: On USB media. Provide names, versions, and website addresses for locations of installed software.
3. Device address list.
4. Printout of software application and graphic screens.

## 1.6 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace lighting control devices that fail(s) in materials or workmanship within specified warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Faulty operation of lighting control software.
    - b. Faulty operation of lighting control devices.
  2. Warranty Period: Two year(s) from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 OUTDOOR PHOTOELECTRIC SWITCHES

- A. Manufacturer:
  1. Tork
  2. Engineer approved equal
- B. Description: Solid state, with SPST dry contacts rated for 600 VA LED, to operate connected relay, contactor coils, or microprocessor input; complying with UL 773A, and compatible with ballasts and LED lamps.
  1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  2. Light-Level Monitoring Range: 1 to 5 fc (10.8 to 54 lux), with an adjustment for turn-on and turn-off levels within that range.
  3. Time Delay: Fifteen-second minimum, to prevent false operation.
  4. Surge Protection: Metal-oxide varistor.
  5. Mounting: Twist lock complies with NEMA C136.10, with base-and-stem mounting or stem-and-swivel mounting accessories as required to direct sensor to the north sky exposure.
  6. Failure Mode: Luminaire stays ON.

### 2.2 INDOOR OCCUPANCY SENSORS

- A. Manufacturer:
  1. Hubbell
  2. Engineer approved equal

B. General Requirements for Sensors:

1. Ceiling-mounted, solid-state indoor occupancy sensors.
2. Dual technology.
3. Integrated or Separate power pack.
4. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
5. Operation:
  - a. Occupancy Sensor: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
6. Sensor Output: Sensor is powered from the power pack.
7. Power: Line voltage.
8. Power Pack: Dry contacts rated for 20-A LED load at 120-V ac, Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
9. Mounting:
  - a. Sensor: Suitable for mounting in any position on a standard outlet box.
  - b. Relay: Externally mounted through a 1/2-inch (13-mm) knockout in a standard electrical enclosure.
  - c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
10. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
11. Bypass Switch: Override the "on" function in case of sensor failure.
12. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc (21.5 to 2152 lux); turn lights off when selected lighting level is present.
13. Sensitivity Adjustment: Separate for each sensing technology.
14. Detector Sensitivity: Detect occurrences of 6-inch- (150-mm-) minimum movement of any portion of a human body that presents a target of not less than 36 sq. in. (232 sq. cm), and detect a person of average size and weight moving not less than 12 inches (305 mm) in either a horizontal or a vertical manner at an approximate speed of 12 inches/s (305 mm/s).
15. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. (93 sq. m) when mounted on a 96-inch- (2440-mm-) high ceiling.

### 2.3 LIGHTING CONTACTORS

A. Manufacturer:

1. Eaton
2. Schneider Electric
3. Rockwell Automation
4. Engineer approved equal

B. Description: Electrically operated and electrically held, combination-type lighting contactors with nonfused disconnect, complying with NEMA ICS 2 and UL 508.

1. Current Rating for Switching: Listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballast with 15 percent or less THD of normal load current).
2. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
3. Enclosure: Comply with NEMA 250.
4. Provide with hand-off-auto switch on front panel of contactor enclosure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine lighting control devices before installation. Reject lighting control devices that are wet, moisture damaged, or mold damaged.
- B. Examine walls and ceilings for suitable conditions where lighting control devices will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 SENSOR INSTALLATION

- A. Comply with NECA 1.
- B. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies.
- C. Install and aim sensors in locations to achieve not less than 90-percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.

### 3.3 CONTACTOR INSTALLATION

- A. Comply with NECA 1.
- B. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration unless contactors are installed in an enclosure with factory-installed vibration isolators.

### 3.4 WIRING INSTALLATION

- A. Comply with NECA 1.
- B. Wiring Method: Comply with Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 1/2 inch (13 mm).



- C. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.
- D. Size conductors according to lighting control device manufacturer's written instructions unless otherwise indicated.
- E. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

### 3.5 IDENTIFICATION

- A. Identify components and power and control wiring according to Section 260553 "Identification for Electrical Systems."
  - 1. Identify controlled circuits in lighting contactors.
  - 2. Identify circuits or luminaires controlled by photoelectric and occupancy sensors at each sensor.
- B. Label time switches and contactors with a unique designation.

### 3.6 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Lighting control devices will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

### 3.7 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting lighting control devices to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.
  - 1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.
  - 2. For daylighting controls, adjust set points and deadband controls to suit Owner's operations.

### 3.8 DEMONSTRATION

- A. Coordinate demonstration of products specified in this Section with demonstration requirements for low-voltage, programmable lighting control systems specified in Section 260943.16 "Addressable-Luminaire Lighting Controls" and Section 260943.23 "Relay-Based Lighting Controls."
- B. Train Owner's maintenance personnel to adjust, operate, and maintain lighting control devices.

END OF SECTION 26 09 23

SECTION 26 51 19  
LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes the following types of LED luminaires:

- 1. Strip light.
- 2. Surface mount, linear.

- B. Related Requirements:

- 1. Section 260923 "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. LED: Light-emitting diode.
- F. Lumen: Measured output of lamp and luminaire, or both.
- G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Arrange in order of luminaire designation.
  - 2. Include data on features, accessories, and finishes.
  - 3. Include physical description and dimensions of luminaires.

4. Include life, output (lumens, CCT, and CRI), and energy-efficiency data.

- B. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of luminaire.
- B. Product Test Reports: For each type of luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.
- C. Sample warranty.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

#### 1.7 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. Provide luminaires from a single manufacturer for each luminaire type.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

#### 1.9 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: Five year(s) from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Ambient Temperature: 41 to 104 deg F (5 to 40 deg C).

1. Relative Humidity: Zero to 95 percent.
- B. Altitude: Sea level to 1000 feet (300 m).

## 2.2 LUMINAIRE REQUIREMENTS

- A. 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.
- B. Recessed luminaires shall comply with NEMA LE 4.

## 2.3 PRODUCTS

- A. See lighting fixture schedule in drawings for basis of design manufacturer and model number.

## 2.4 MATERIALS

- A. Metal Parts:
  1. Free of burrs and sharp corners and edges.
  2. Sheet metal components shall be steel unless otherwise indicated.
  3. Form and support to prevent warping and sagging.
- B. Steel:
  1. ASTM A 36/A 36M for carbon structural steel.
  2. ASTM A 568/A 568M for sheet steel.
- C. Stainless Steel:
  1. 1. Manufacturer's standard grade.
  2. 2. Manufacturer's standard type, ASTM A 240/240 M.
- D. Galvanized Steel: ASTM A 653/A 653M.
- E. Aluminum: ASTM B 209.

## 2.5 METAL FINISHES

- A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

## 2.6 LUMINAIRE SUPPORT

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 TEMPORARY LIGHTING

- A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

### 3.3 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

### 3.4 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

### 3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.

- B. Luminaire will be considered defective if it does not pass operation tests and inspections.
- C. Prepare test and inspection reports.

### 3.6 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to two visits to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.
  - 1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
  - 2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
  - 3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION 26 51 19

**PART VI**  
**PREVAILING WAGE RATES**  
**FOR**  
**SMALL WORKS BID NO. 22683**  
**REMODEL MEMORIAL PARK RESTROOM,**  
**PATEROS, WASHINGTON**

Okanogan County – Journey Level Rates – Effective (July 6, 2018)

These rates and the benefit key code are available on the Washington State Department of Labor & Industry's website at:

<https://fortress.wa.gov/lni/wagelookup/PrvWageLookUp.aspx>

The rate schedules are also available for viewing in the Purchasing Department located at the District's Office in East Wenatchee, WA. Further, the District will mail a hard copy of these rates upon written request.



**PART X**  
**CONTRACT DRAWINGS**  
**FOR**  
**BID DOCUMENT NO. 22683**  
**REMODEL MEMORIAL PARK RESTROOM,**  
**PATEROS, WASHINGTON**

See attached drawings titled PUD No. 1 of Douglas County, Pateros Parks Restroom Improvements.