CITY OF SELAH

WELL NO. 6 AND ZONE 3 PUMP
STATION REBUILD

HLA PROJECT NO. 19148

JANUARY 2020
CITY OF SELAH, WASHINGTON

CONTRACT DOCUMENTS

FOR

WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD

HLA PROJECT NO. 19148

OWNER:
City of Selah
115 West Naches Avenue
Selah, WA 98942

ENGINEER:
HLA Engineering and Land Surveying, Inc. (HLA)
2803 River Road
Yakima, WA 98902

JANUARY 2020
CITY OF SELAH
YAKIMA COUNTY, WASHINGTON

CONTRACT DOCUMENTS
FOR

WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD

HLA PROJECT NO. 19148

TABLE OF CONTENTS

SECTION 1 - ADVERTISEMENT FOR BIDS ................................................................. 1-1
  ADVERTISEMENT FOR BIDS ....................................................................................... 1-2
SECTION 2 - INFORMATION FOR BIDDERS ........................................................ 2-1
  INFORMATION FOR BIDDERS .................................................................................. 2-2
SECTION 3 - BID PACKAGE ...................................................................................... 3-1
  BIDDER'S CHECKLIST ............................................................................................... 3-2
  BID PROPOSAL ............................................................................................................ 3-3
  UNIT PRICE BID PROPOSAL ....................................................................................... 3-4
  BID PROPOSAL SIGNATURE PAGE .......................................................................... 3-5
  BID DEPOSIT .............................................................................................................. 3-6
  BID BOND .................................................................................................................. 3-6
  NON-COLLUSION AFFIDAVIT .................................................................................. 3-7
  SURETY ....................................................................................................................... 3-8
  LIST OF REFERENCES ............................................................................................... 3-9
  CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES ............. 3-10
  BIDDER'S RESPONSIBILITY STATEMENT ............................................................... 3-11
SECTION 4 - CONTRACT AND RELATED MATERIALS ............................................. 4-1
  CONTRACT ............................................................................................................... 4-2
  CONTRACT BOND ..................................................................................................... 4-4
  SCHEDULE OF WORKING HOURS ....................................................................... 4-6
SECTION 5 - LABOR STANDARDS AND WAGE RATE CONDITIONS .................. 5-1
  PREVAILING WAGE RATES ..................................................................................... 5-2
  DLI (YAKIMA COUNTY) EFFECTIVE 01/21/2020 ................................................ 5-3
  BENEFIT CODE KEY EFFECTIVE 08/31/2019 ...................................................... 5-3
  DLI SUPPLEMENTAL TO WAGE RATES EFFECTIVE 08/31/2019 ..................... 5-3
SECTION 6 - TECHNICAL SPECIFICATIONS ............................................................ 6-1

APPENDIX A – CITY OF SELAH WELL NO. 6 AND ZONE 3 PUMP STATION RECORD DRAWINGS, DATED 10/29/2009
SECTION 1 - ADVERTISEMENT FOR BIDS
ADVERTISEMENT FOR BIDS

City of Selah
115 West Naches Avenue
Selah, WA 98942

The City of Selah invites separate sealed BIDS for the construction of the WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD, HLA Project No. 19148 including the following approximate major quantities of work:

Rebuilding a portion of the existing 960 SF pump station building roof structure, including misc. electrical, HVAC, and control equipment replacement.

This contract has forty (40) working days to complete the work.

Bids will be received by the City Clerk at City Hall, 115 West Naches Avenue, Selah, Washington 98942, until 11:00 a.m., January 21, 2020, and then shortly thereafter will be publicly opened and read aloud at the City of Selah Public Work’s office, located at 222 South Rushmore, Selah, Washington 98942.

Electronic copies of the CONTRACT DOCUMENTS may be obtained at no cost at the following website: https://www.hlacivil.com/bid/. Physical copies may be obtained at the office of HLA Engineering and Land Surveying, Inc. (HLA), 2803 River Road, Yakima, Washington 98902, (509-966-7000) upon payment of $70.00 for each set, non-refundable. Planholder list and addenda will be available on the website. Bidders are encouraged to register as planholders on the website, whom will be added to the Planholder list and will receive automatic addenda notification.

Each bid or proposal must be accompanied by bond or a certified check, payable to the order of the Treasurer of the City of Selah for the sum of not less than 5% of said bid or proposal and none will be considered unless accompanied by such deposit, to be forfeited to the City of Selah in the event the successful bidder shall fail or refuse to enter into a Contract with the City for the making and construction of the aforesaid improvement. All bids or proposals must be in writing on the form bound in the Specifications, sealed and filed with the Clerk on or before the day and hour above mentioned.

The City of Selah, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it shall affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises shall be afforded full opportunity to submit bids in response to this invitation and shall not be discriminated against on the grounds of race, color or national origin in consideration for an award.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents must be paid on this project, and that the Contractor must ensure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin.

The City of Selah reserves the right to reject any and all bids and to waive technicalities or irregularities, and after careful consideration of all bids and factors involved, make the award to best serve the interests of the City of Selah.

Dale Novobielski
City Clerk

Publish: January 5, 2020
SECTION 2 - INFORMATION FOR BIDDERS
INFORMATION FOR BIDDERS

BIDS will be received by the City of Selah (herein called the “OWNER”), at City Hall, 115 West Naches Avenue, Selah, Washington 98942, until 11:00 a.m., January 21, 2020, and then at the City of Selah Public Work’s office, at 222 South Rushmore, Selah, Washington 98942, publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to the City Clerk at 115 West Naches Avenue, Selah, Washington 98942. Each sealed envelope containing a BID must be plainly marked on the outside as BID for WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD, and the envelope should bear on the outside the BIDDER’S NAME, address, and license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at City Hall, 115 West Naches Avenue, Selah, Washington 98942.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID SCHEDULE by examination of the site and a review of the Drawings and Specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR nor relieve the CONTRACTOR from fulfilling any of the conditions of the Contract.

Each BID must be accompanied by a BID BOND payable to the OWNER for five percent of the total amount of the BID. When the Agreement is executed, the bonds of the unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the CONTRACT BOND has been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A CONTRACT BOND in the amount of 100 percent of the CONTRACT PRICE, with a corporate Surety approved by the OWNER, will be required for the faithful performance of the Contract.

Attorneys-in-fact who sign BID BONDS or CONTRACT BONDS must file with each BOND a certified and effective dated copy of their Power of Attorney.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the CONTRACT BOND within ten (10) working days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.
A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsive, responsible BIDDER or all bids will be rejected.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the Contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to its BID.

Further, the BIDDER agrees to abide by the requirement under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in these Contract Documents.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

Contract time for this project is anticipated to begin March 9, 2020.

The ENGINEER is HLA Engineering and Land Surveying, Inc. (HLA), represented by Justin L. Bellamy, PE. The ENGINEER’S address is 2803 River Road, Yakima, Washington 98902, phone (509) 966-7000, FAX: (509) 965-3800.
SECTION 3 - BID PACKAGE
BIDDER’S CHECKLIST

All forms listed below must be fully executed and submitted with the Bid:

1) BID PROPOSAL
2) UNIT PRICE BID PROPOSAL
3) BID PROPOSAL SIGNATURE PAGE
4) BID DEPOSIT or BID BOND

BID DEPOSIT - Sign the Bid Deposit in the space provided if the bid is accompanied by a certified check or cashier’s check in the amount of not less than 5% of the total amount bid.

OR

BID BOND - This form is to be executed by the bidder and Surety Company. The amount of this bond shall be not less than 5% of the total amount bid and may be shown in dollars or on a percentage basis. Provide Power of Attorney for Surety’s agent.

5) NON-COLLUSION AFFIDAVIT - Must be subscribed and sworn to before a Notary Public.
6) SURETY

The following forms must be fully executed and submitted with the Bid, or within 24 hours after the published Bid submittal time:

1) LIST OF REFERENCES
2) CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES
3) BIDDER’S RESPONSIBILITY STATEMENT - Provide supporting documentation as required.

The following forms are to be executed and/or submitted for approval to the Engineer after the Contract is awarded:

1) CONTRACT - To be executed by the successful bidder and the City of Selah.
2) CONTRACT BOND - To be executed by the successful bidder and his Surety Company. Provide Power of Attorney.
3) SCHEDULE OF WORKING HOURS
4) CERTIFICATE OF PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE must be provided by the successful bidder in accordance with the provisions of the Standard Specifications and Technical Specifications.
5) STATEMENT OF INTENT TO PAY PREVAILING WAGES to be completed by successful bidder and by any and all subcontractors.
BID PROPOSAL

A Proposal of _______________________________ (hereinafter called “BIDDER”), organized and existing under the laws of the State of Washington doing business as _______________________________. To the City of Selah, Washington, (hereinafter called “OWNER”).

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all work for the construction of the WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD, HLA Project No. 19148, in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, in the case of a joint BID each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence work under this Contract within ten (10) calendar days after NOTICE TO PROCEED and to fully complete the PROJECT within forty (40) working days of such NOTICE TO PROCEED.

BIDDER further agrees to pay as liquidated damages the sum specified for each working day thereafter as provided in Section 1-08.9 of the Standard Specifications.

BIDDER acknowledges receipt of the following ADDENDA:

Addenda will be posted on the Engineer’s website: https://www.hlacivil.com/bid/. Bidders are encouraged to register as planholders on the website, whom will be added to the Planholder list and will receive automatic addenda notification.

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices or lump sum amounts:

1 Insert “a corporation,” “a partnership,” or “an individual” as applicable.
UNIT PRICE BID PROPOSAL

(NOTE: Unit prices for all items, all extensions, and total amount of bid must be shown. Any changes/corrections to the bid must be initialed by the signer of the bid, in accordance with Section 1-02.5.)

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM DESCRIPTION</th>
<th>PAYMT SPEC</th>
<th>UNIT</th>
<th>QUANTITY</th>
<th>UNIT PRICE DOLLARS-CTS</th>
<th>AMOUNT DOLLARS-CTS</th>
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<td>FA</td>
<td>EST.</td>
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<td>Mobilization</td>
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<td>3</td>
<td>Existing Building Demolition, Complete</td>
<td>1-09.3(1)</td>
<td>LS</td>
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<td>4</td>
<td>Roof Structure Rebuild, Complete</td>
<td>1-09.3(1)</td>
<td>LS</td>
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<td>X</td>
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<td>5</td>
<td>Electrical and Control System, Complete</td>
<td>1-09.3(1)</td>
<td>LS</td>
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BID SUBTOTAL

8.2% STATE SALES TAX

BID TOTAL
CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

BIDDER (CONTRACTOR) DATE

BY
AUTHORIZED OFFICIAL’S SIGNATURE TITLE

(Please print or type name)

Address:

_________________________ Phone: _______________________

_________________________ Fax: _______________________

E-mail address: _______________________

CONTRACTOR LICENSE NUMBER _______________________________

CONTRACTOR DUNS NUMBER ________________________________

CONTRACTOR UBI NUMBER ________________________________

CONTRACTOR FEDERAL TAX I.D. NUMBER ______________________

CONTRACTOR EMPLOYMENT SECURITY DEPARTMENT NUMBER ______________________

CONTRACTOR INDUSTRIAL INSURANCE ACCOUNT NUMBER ______________________

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

________________________________________________________

________________________________________________________

PROJECT MANAGER ____________________ CELL PHONE: ____________________

NOTES:

1) If the bidder is a co-partnership, so state, giving firm name under which business transacted. If the bidder is a corporation, this proposal must be executed by its duly authorized officials.

2) Bidders shall acknowledge receipt of all addenda, if any, in the space provided on the first page of this proposal.
BID DEPOSIT

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

Herewith find deposit in the form of a certified check or cashier’s check in the amount of $______________________________, which amount is not less than five percent (5%) of our total bid for this project.

Sign Here _________________________________

OR

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we ________________________________________, as Principal, and __________________________________________, as Surety, are held and firmly bound unto the CITY OF SELAH, as Obligee, in the penal sum of ____________________________________ Dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD, HLA Project No. 19148, according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a Contract with the Obligee in accordance with the terms of said proposal or bid and award and shall give bond for the faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure so to do, pay and forfeit to the Obligee the penal amount of the deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED, AND DATED THIS _________ DAY OF ________________, 2020.

Principal

______________________________, 2020

Surety
NON-COLLUSION AFFIDAVIT

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

STATE OF WASHINGTON )
COUNTY OF ___________ ) ss. NON-COLLUSION AFFIDAVIT

__________________________________________________________, being first
duly sworn, on oath says that the bid above submitted is a genuine and not a sham or collusive bid, or
made in the interest or on behalf of any person not therein named; and the said bidder further says that the
said bidder has not directly or indirectly induced or solicited any bidder on the above work or supplies to
put in a sham bid, or any other person or corporation to refrain from bidding; and that said bidder has not
in any manner sought by collusion to secure to themselves an advantage over any other bidder or bidders.

(Contractor's Signature)

Signed and sworn to (or affirmed) before me on _____________________, 2020, by
___________________________________________________________.

Notary Public
My Appointment Expires ___________________
SURETY

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

If the Bidder is awarded a construction Contract on this bid, the Surety who provides the Contract Bond will be

____________________________________ whose address is:

_____________________________  ___________________________  __________________  ____________
Street                               City                        State                       ZIP
LIST OF REFERENCES

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

List all projects of a similar nature completed by the BIDDER during the previous five (5) years. Similar projects are considered to be those projects with a contract amount of not less than 50 percent of the amount bid on this project with the type of construction, materials, and methods necessary for completion of this project. Provide name of contact person and phone number. Failure to complete this List of References may be cause for rejection of the BID.

<table>
<thead>
<tr>
<th>Previous Similar Projects</th>
<th>Contact Person</th>
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CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

Failure to return this certification with the Bid package or within 24 hours (not including Saturdays, Sundays and Holidays) after the time for delivery of the Bid Proposal will make this Bid nonresponsive and ineligible for Award.

I hereby certify, under penalty of perjury under the laws of the State of Washington, on behalf of the firm identified below that, to the best of my knowledge and belief, this firm has NOT been determined by a final and binding citation and notice of assessment issued by the Washington State Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of RCW chapters 49.46, 49.48, or 49.52 within three (3) years prior to the date of the Call for Bids.

OFFICIAL AUTHORIZED TO SIGN FOR BIDDER:

Bidder Name: ____________________________________________________

Name of Contractor/Bidder – Print full legal entity name of firm

________________________________________  ______________________
Signature of authorized person                     Date

________________________________________  ______________________
Print Name and Title:                             Location or Place Executed: (City, State)
BIDDER’S RESPONSIBILITY STATEMENT

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), 5017-S.SL as amended; or does not meet the following Supplemental Criteria:

1. Delinquent State Taxes
   A. **Criterion:** The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue without a payment plan approved by the Department of Revenue.
   B. **Documentation:** The Bidder shall not be listed on the Washington State Department of Revenue’s “Delinquent Taxpayer List” website: http://dor.wa.gov/content/fileandpaytaxes/latefiling/dtlwest.aspx, or if they are so listed, they must submit a written payment plan approved by the Department of Revenue, to the Contracting Agency by the deadline listed below.

2. Federal Debarment
   A. **Criterion:** The Bidder shall not currently be debarred or suspended by the Federal government.
   B. **Documentation:** The Bidder shall not be listed as having an “active exclusion” on the U.S. government’s “System for Award Management” database (www.sam.gov).

3. Subcontractor Responsibility
   A. **Criterion:** The Bidder’s standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established procedure which it utilizes to validate the responsibility of each of its subcontractors. The Bidder’s subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also “responsible” subcontractors as defined by RCW 39.06.020.
   B. **Documentation:** The Bidder, if and when required as detailed below, shall submit a copy of its standard subcontract form for review by the Contracting Agency, and a written description of its procedure for validating the responsibility of subcontractors with which it contracts.

4. Prevailing Wages
   A. **Criterion:** The Bidder shall not have a record of prevailing wage violations as determined by the Washington State Department of Labor & Industries in the five years prior to the bid submittal date that demonstrates a pattern of failing to pay workers prevailing wages, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

   Additionally, the Bidder hereby certifies that, within the three-year period immediately preceding the bid advertisement date (first of multiple bid advertisement dates), the bidder has not "willfully" violated, as defined in RCW 49.48.082, any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.
B. **Documentation**: The Bidder, if and when required as detailed below, shall submit a list of all prevailing wage violations in the five years prior to the bid submittal date, along with an explanation of each violation and how it was resolved. The Contracting Agency will evaluate these explanations and the resolution of each complaint to determine whether the violation demonstrate a pattern of failing to pay its workers prevailing wages as required.

5. **Claims Against Retainage and Bonds**

   A. **Criterion**: The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects in the three years prior to the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall submit a list of the public works projects completed in the three years prior to the bid submittal date that have had claims against retainage and bonds and include for each project the following information:

   - Name of project;
   - The owner and contact information for the owner;
   - A list of claims filed against the retainage and/or payment bond for any of the projects listed; and
   - A written explanation of the circumstances surrounding each claim and the ultimate resolution of the claim.

6. **Public Bidding Crime**

   A. **Criterion**: The Bidder and/or its owners shall not have been convicted of a crime involving bidding on a public works contract in the five years prior to the bid submittal date.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder and/or its owners have not been convicted of a crime involving bidding on a public works contract.

7. **Termination for Cause / Termination for Default**

   A. **Criterion**: The Bidder shall not have had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date; or if Bidder was terminated, describe the circumstances.

8. **Lawsuits**

   A. **Criterion**: The Bidder shall not have lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.
B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, or shall submit a list of all lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date, along with a written explanation of the circumstances surrounding each such lawsuit. The Contracting Agency shall evaluate these explanations to determine whether the lawsuits demonstrate a pattern of failing to meet of terms of construction related contracts.

The Bidder shall sign this Bidder’s Responsibility Statement as evidence that the Bidder meets the mandatory and supplemental responsibility criteria stated above and shall submit with bid. The Contracting Agency reserves the right to request further documentation as needed to assess Bidder responsibility. The Contracting Agency also reserves the right to obtain information from third-parties and independent sources of information concerning a Bidder’s compliance with the mandatory and supplemental criteria, and to use that information in their evaluation. The Contracting Agency may (but is not required to) consider mitigating factors in determining whether the Bidder complies with the requirements of the supplemental criteria.

The basis for evaluation of Bidder compliance with these mandatory and supplemental criteria shall include any documents or facts obtained by Contracting Agency (whether from the Bidder or third parties) including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Contracting Agency from others for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Contracting Agency which is believed to be relevant to the matter.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility criteria above and is therefore not a responsible Bidder, the Contracting Agency shall notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees with this determination, it may appeal the determination within two (2) business days of the Contracting Agency’s determination by presenting its appeal and any additional information to the Contracting Agency. The Contracting Agency will consider the appeal and any additional information before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Contracting Agency will not execute a contract with any other Bidder until at least two business days after the Bidder determined to be not responsible has received the Contracting Agency’s final determination.

Request to Change Supplemental Bidder Responsibility Criteria Prior To Bid: Bidders with concerns about the relevancy or restrictiveness of the Supplemental Bidder Responsibility Criteria may make or submit requests to the Contracting Agency to modify the criteria. Such requests shall be in writing, describe the nature of the concerns, and propose specific modifications to the criteria. Bidders shall submit such requests to the Contracting Agency no later than five (5) business days prior to the bid submittal deadline and address the request to the Project Engineer or such other person designated by the Contracting Agency in the Bid Documents.

_________________________________________
Contractor’s Signature
SECTION 4 - CONTRACT AND RELATED MATERIALS
CONTRACT

THIS AGREEMENT, made and entered into in triplicate, this __________ day of
____________________, 2020, by and between the City of Selah, hereinafter called the OWNER,
and __________________________________________, hereinafter called the CONTRACTOR,

WITNESSETH:

That in consideration of the terms and conditions contained herein and attached and made a part of this
Agreement, the parties hereto covenant and agree as follows:

I. The CONTRACTOR shall do all work and furnish all tools, materials, and equipment for WELL NO.
6 AND ZONE 3 PUMP STATION REBUILD, HLA Project No. 19148, in accordance with and as
described in the attached Plans and Specifications and the Standard Specifications for Road,
Bridge, and Municipal Construction, which are by this reference incorporated herein and made a
part hereof, and shall perform any alterations in or additions to the work provided under this
Contract and every part thereof.

Work shall start within ten (10) calendar days after Notice to Proceed and shall be completed within
Forty (40) working days of the date of such Notice to Proceed (see SPECIAL PROVISIONS -
Section 1-08.5).

If said work is not completed within the time specified, the CONTRACTOR agrees to pay to the
OWNER for each and every working day said work remains uncompleted after expiration of the
specified time, liquidated damages as determined in Section 1-08.9.

The CONTRACTOR shall provide and bear the expense of all equipment, work, and labor of any
sort whatsoever that may be required for the transfer of materials and for constructing and
completing the work provided for in this Contract and every part thereof, except such as are
mentioned in the Specifications to be furnished by the OWNER.

II. The OWNER hereby promises and agrees with the CONTRACTOR to employ, and does employ
the CONTRACTOR to provide the materials and to do and cause to be done the above described
work and to complete and finish the same according to the attached Plans and Specifications and
the terms and conditions herein contained; and hereby contracts to pay for the same according to
the attached Specifications and the schedule of unit or itemized prices hereto attached, at the time
and in the manner and upon the conditions provided for in this Contract.

III. The CONTRACTOR for himself, and for his/her heirs, executors, administrators, successors, and
assigns does hereby agree to the full performance of all the covenants herein upon the part of the
CONTRACTOR.

IV. It is further provided that no liability shall attach to the OWNER by reason of entering into this
Contract, except as expressly provided herein.

V. CONTRACTOR is an independent contractor and not an employee of the OWNER. The OWNER
has designated the Contract performance and the CONTRACTOR shall be responsible for the
details of that work. The parties recognize the CONTRACTOR has unique skills not otherwise
available to the OWNER to accomplish the purpose of the Contract. The CONTRACTOR shall
supply all equipment and supplies necessary to accomplish the Contract. The parties recognize
that the purpose of the Contract is not within the regular course of business of the OWNER. The
parties state that the right of control over the activities necessary to perform the Contract are with
the CONTRACTOR.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed the day
and year first herein above written.
OWNER:

City of Selah, Washington (SEAL)
By: ________________________________
ATTEST:
Name: Sherry Raymond
Title: Mayor

______________________________
Name: Dale Novobielski
Title: City Clerk

CONTRACTOR:

By: ________________________________ (SEAL)
Name: ________________________________ (Please Print or Type)
ATTEST:
Address: ________________________________
Phone: ________________________________
Fax: ________________________________
Name: ________________________________ (Please Print or Type)
CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

BOND TO CITY OF SELAH

KNOW ALL PERSONS BY THESE PRESENTS:

That we, the undersigned, ____________________________,
as principal, and ____________________________,
a corporation organized and existing under the laws of the State of ______________________, as a Surety corporation, and qualified under the laws of the State of Washington to become Surety upon bonds of contractors with municipal corporations, as Surety, are jointly and severally held and firmly bound to the City of Selah in the penal sum of $ ____________________________ for the payment of which sum on demand we bind ourselves and our successors, heirs, administrators, or personal representatives, as the case may be.

This obligation is entered into in pursuance of the statutes of the State of Washington and the Ordinances of the City of Selah.

Dated at ____________________________, Washington, this _____ day of ____________, 2020.

Nevertheless, the conditions of the above obligation are such that:

WHEREAS, under and pursuant to action of the City of Selah, on ____________________________, 2020, the Mayor of said City of Selah, has let or is about to let to the said ____________________________, the above bounden Principal, a certain Contract, the said Contract being numbered HLA Project No. 19148, and providing for the construction of WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD, which Contract is referred to herein and is made a part hereof as though attached hereto, and

WHEREAS, the said Principal has accepted, or is about to accept, the said Contract, and undertake to perform the work therein provided for in the manner and within the time set forth;

NOW, THEREFORE, if the said ____________________________ shall faithfully perform all the provisions of said Contract in the manner and within the time therein set forth, or within such extensions of time as may be granted under said Contract, and shall pay all laborers, mechanics, subcontractors and material men and all industrial insurance premiums, and all persons who shall supply said principal or subcontractors with provisions and supplies for the carrying on of said work, and shall indemnify and hold the City of Selah harmless from any damage or expense by reason of failure of performance as specified in said Contract or from defects appearing or developing in the material or workmanship provided or performed under said Contract within a period of one year after its acceptance thereof by the City of Selah, then and in that event this obligation shall be void; but otherwise it shall be and remain in full force and effect.
CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

SURETY: ____________________________ (SEAL)
By: ________________________________
Name: ________________________________ (Please Print or Type)
Agent: ________________________________
Address: ________________________________

ATTEST:

CONTRACTOR:
By: ________________________________
Name: ________________________________ (Please Print or Type)
SCHEDULE OF WORKING HOURS

CITY OF SELAH
WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD
HLA PROJECT NO. 19148

In accordance with Section 1-08.0(2) Hours of Work, the normal straight time working hours for this project will be from _____________ a.m. to _____________ p.m., ________________ days per week. It is understood that normal straight time working hours shall not exceed 40 hours per week, regardless of the number of days worked per week. All hours worked in excess of 40 hours per week shall be considered as overtime hours subject to the reimbursement provisions of Section 1-08.0(2) Hours of Work.

Overtime hours are defined as any hours in excess of or outside of the above normal straight time working hours when the Contractor and/or his subcontractors are on the project site performing work.

I hereby certify that my subcontractors have been notified of the normal straight time working hours provisions of this project and understand that Engineer/Contracting Agency costs for overtime hours will be deducted from amounts due to me for work performed on the project.

________________________________________
Contractor

________________________________________
Signature

________________________________________
Date
SECTION 5 - LABOR STANDARDS AND WAGE RATE CONDITIONS
PREVAILING WAGE RATES

The prevailing rate of wages to be paid to all workmen, laborers, or mechanics employed in the performance of any part of this Contract shall be in accordance with the provisions of Chapter 39.12 RCW, as amended. The rules and regulations of the Department of Labor and Industries and the schedule of prevailing wage rates for the locality or localities where this Contract will be performed as determined by the Industrial Statistician of the Washington State Department of Labor and Industries, are by reference made a part of this Contract. A schedule of prevailing wage rates is included in these Specifications.

Inasmuch as the CONTRACTOR will be held responsible for paying this schedule of wages, it is imperative that all contractors and subcontractors familiarize themselves with the current wage rates before submitting bids based on these Specifications.

Before any payment is made by the local government body of any sums due under this Contract, the local government body must receive from the Contractor and each subcontractor a copy of the “Statement of Intent to Pay Prevailing Wages” approved by the Washington State Department of Labor and Industries. Following the acceptance of the project, the Contracting Agency must receive from the Contractor and each subcontractor a copy of “Affidavit of Wages Paid” and, in addition, from the prime contractor a copy of “Release for the Protection of Property Owners and General Contractor,” all approved by the Washington State Department of Labor and Industries. Forms may be obtained from the Department of Labor and Industries. The Contractor and each subcontractor shall pay all fees associated with and make all applications directly to the Department of Labor and Industries. These affidavits will be required before any funds retained, according to the provisions of RCW 60.28.010, are released to the Contractor. Payment by the Contractor and subcontractor of any fees shall be considered incidental to the construction and all costs shall be included in other pay items of the project.

Pursuant to RCW 39.12.120, a contractor, subcontractor, or employer shall file a copy of its certified payroll records using the Washington State Department of Labor and Industries (L&I) online system at least once per month. If the L&I online system is not used, a contractor, subcontractor, or employer shall file a copy of its certified payroll records directly with L&I in a format approved by L&I at least once per month. A contractor, subcontractor, or employer's noncompliance with this reporting constitutes a violation of RCW 39.12.050.

Submission of certified payrolls is not required during the project, unless specifically requested by the Engineer or Owner. Certified payrolls submitted without a request from the Engineer or Owner will not be reviewed and will be returned to the Contractor. Contractors must keep accurate payroll records for three years following the date of acceptance of the project by the Contracting Agency. Payroll records must show the name, address, Social Security number, trade or occupation, straight time rate, hourly rate of usual benefits and overtime hours worked each day and week, including agreements to work up to 10-hour days, and the actual rate of wages. Upon receiving a written request by any interested party, the Contractor must, within ten days, submit Certified Payroll records to the Contracting Agency and the Department of Labor.
Washington State Prevailing Wage

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

## Journey Level Prevailing Wage Rates for the Effective Date: 1/21/20

<table>
<thead>
<tr>
<th>County</th>
<th>Trade</th>
<th>Job Classification</th>
<th>Wage</th>
<th>Holiday</th>
<th>Overtime</th>
<th>Note</th>
<th>*Risk Class</th>
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<td>4V</td>
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<td>Laborers</td>
<td>Concrete Dumper/Chute Operator</td>
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<td>4V</td>
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<td>Concrete Saw Operator/Core Driller</td>
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<td>Nozzleman (Concrete Pump, Green Cutter When Using Combination Of High Pressure Air &amp; Water On Concrete &amp; Rock, Sandblast, Gunite, Shotcrete, Water Blaster, Vacuum Blaster)</td>
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<td>Power Equipment Operators Concrete Pump: Truck Mount With Boom Attachment Over 42 M</td>
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<td>Yakima</td>
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<td>Power Equipment Operators Cranes: Friction cranes through 199 tons</td>
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<td>Power Equipment Operators Derricks, On Building Work</td>
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<td>Power Equipment Operators Dozers D-9 &amp; Under</td>
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<td>$66.05</td>
<td>3K</td>
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<td>Power Equipment Operators Drill Oilers: Auger Type, Truck Or Crane Mount</td>
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<td>Power Equipment Operators Drilling Machine</td>
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<td>Power Equipment Operators Elevator And Man-lift: Permanent And Shaft Type</td>
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<td>Power Equipment Operators Grade Engineer: Using Blue Prints, Cut Sheets, Etc</td>
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<td>Power Equipment Operators Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. &amp; Over</td>
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<td>Power Equipment Operators Loader, Overhead 8 Yards. &amp;</td>
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<td>Over</td>
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<td>Loader, Overhead, 6 Yards. But Not Including 8 Yards</td>
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<td>Power Equipment Operators</td>
<td>Mechanics, All (leadmen - $0.50 Per Hour Over Mechanic)</td>
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<td>Motor Patrol Graders</td>
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<td>Yakima</td>
<td>Power Equipment Operators</td>
<td>Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield</td>
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<td>Power Equipment Operators</td>
<td>Oil Distributors, Blower Distribution &amp; Mulch Seeding Operator</td>
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<td>Outside Hoists (Elevators And Manlifts), Air Tuggers, Strato</td>
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<td>Yakima</td>
<td>Power Equipment Operators</td>
<td>Overhead, Bridge Type Crane: 20 Tons Through 44 Tons</td>
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<td>Pavement Breaker</td>
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<td>Yakima</td>
<td>Power Equipment Operators</td>
<td>Pile Driver (other Than Crane Mount)</td>
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<td>Posthole Digger, Mechanical</td>
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<td>Power Plant</td>
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<td>Power Equipment Operators</td>
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<td>Power Equipment Operators</td>
<td>Quad 9, Hd 41, D10 And Over</td>
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<td>Quick Tower - No Cab, Under 100 Feet In Height Based To Boom</td>
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<td>7A</td>
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<td>Power Equipment Operators</td>
<td>Remote Control Operator On Rubber Tired Earth Moving Equipment</td>
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<td>7A</td>
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<td>Power Equipment Operators</td>
<td>Rigger and Bellman</td>
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<td>3K</td>
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<td>Yakima</td>
<td>Power Equipment Operators</td>
<td>Roller, Other Than Plant Mix</td>
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<td>7A</td>
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<td>Roller, Plant Mix Or Multi-lift Materials</td>
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<td>Power Equipment Operators</td>
<td>Scraper, Self Propelled Under 45 Yards</td>
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<td>7A</td>
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<td>Power Equipment Operators</td>
<td>Scrapers, Self-propelled: 45 Yards And Over</td>
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<td>7A</td>
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<td>Shotcrete/Gunite Equipment</td>
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<td>Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons</td>
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<td>7A</td>
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<td>Power Equipment Operators</td>
<td>Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons</td>
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<td>Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons</td>
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<td>Shovel, Excavator, Backhoes: Over 90 Metric Tons</td>
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<td>Slipform Pavers</td>
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<td>Spreader, Topsider &amp; Screedman</td>
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<td>Tower Bucket Elevators</td>
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<td>Tower Crane Up To 175’ In Height Base To Boom</td>
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<td>Tower Crane: over 175’ through 250’ in height, base to boom</td>
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<td>Tower Cranes: over 250’ in height from base to boom</td>
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<td>Transporters, All Track Or Truck Type</td>
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<td>3K</td>
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<td>Trenching Machines</td>
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<td>Truck Crane Oiler/driver - 100 Tons And Over</td>
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<td>Welder</td>
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<td>Power Equipment Operators</td>
<td>Wheel Tractors, Farmall Type</td>
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<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Asphalt Plant Operators</td>
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<td>Power Equipment Operators - Underground Sewer &amp; Water - Cranes friction: 200 tons and over</td>
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<td>$67.84</td>
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<td>Power Equipment Operators - Underground Sewer &amp; Water - Cranes: 20 Tons Through 44 Tons With Attachments</td>
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<td>Power Equipment Operators - Underground Sewer &amp; Water - Cranes: 200 tons- 299 tons, or 250’ of boom including jib with attachments</td>
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<td>Power Equipment Operators - Underground Sewer &amp; Water - Cranes: 300 tons and over or 300’ of boom including jib with attachments</td>
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<td>Yakima</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water - Cranes: 45 Tons Through 99 Tons, Under 150’ Of Boom (Including Jib With Attachments)</td>
<td>$67.16</td>
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<td>Power Equipment Operators - Underground Sewer &amp; Water - Cranes: A-frame - 10 Tons And Under</td>
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<td>7A</td>
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<td>7A</td>
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Overtime Codes

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

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

B. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

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

D. The first two (2) hours before or after a five-eight (8) hour workweek day or a four-ten (10) hour workweek day and the first eight (8) hours worked the next day after either workweek shall be paid at one and one-half times the hourly rate of wage. All additional hours worked and all worked on Sundays and holidays shall be paid at double the hourly rate of wage.

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

F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

G. The first ten (10) hours worked on Saturdays and the first ten (10) hours worked on a fifth calendar weekday in a four-ten hour schedule, shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

H. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions or equipment breakdown) shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

I. All hours worked on Sundays and holidays shall also be paid at double the hourly rate of wage.

J. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage.

K. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

M. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

N. All hours worked on Saturdays (except makeup days) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
Overtime Codes Continued

1. O. The first ten (10) hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays, holidays and after twelve (12) hours, Monday through Friday and after ten (10) hours on Saturday shall be paid at double the hourly rate of wage.

P. All hours worked on Saturdays (except makeup days if circumstances warrant) and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

Q. The first two (2) hours after eight (8) regular hours Monday through Friday and up to ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays (except Christmas day) shall be paid at double the hourly rate of wage. All hours worked on Christmas day shall be paid at two and one-half times the hourly rate of wage.

R. All hours worked on Sundays and holidays shall be paid at two times the hourly rate of wage.

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

U. All hours worked outside the hours of 5:00 am and 5:00 pm (or such other hours as may be agreed upon by any employer and the employee) and all hours worked in excess of eight (8) hours per day (10 hours per day for a 4 x 10 workweek) and on Saturdays and holidays (except labor day) shall be paid at one and one-half times the hourly rate of wage. (except for employees who are absent from work without prior approval on a scheduled workday during the workweek shall be paid at the straight-time rate until they have worked 8 hours in a day (10 in a 4 x 10 workweek) or 40 hours during that workweek.) All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and Labor Day shall be paid at double the hourly rate of wage.

Z. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid the straight time rate of pay in addition to holiday pay.
Overtime Codes Continued

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

   A. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

   B. All hours worked on Sundays shall be paid at two times the hourly rate of wage.

   C. All hours worked on holidays shall be paid at two times the hourly rate of wage.

   F. The first eight (8) hours worked on holidays shall be paid at the straight hourly rate of wage in addition to the holiday pay. All hours worked in excess of eight (8) hours on holidays shall be paid at double the hourly rate of wage.

   G. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.

   H. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

   O. All hours worked on Sundays and holidays shall be paid at one and one-half times the hourly rate of wage.

   R. All hours worked on Sundays and holidays and all hours worked over sixty (60) in one week shall be paid at double the hourly rate of wage.

   U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked over 12 hours in a day or on Sundays and holidays shall be paid at double the hourly rate of wage.

   W. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The first eight (8) hours worked on the fifth day shall be paid at one and one-half times the hourly rate of wage. All other hours worked on the fifth, sixth, and seventh days and on holidays shall be paid at double the hourly rate of wage.

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

   A. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal shift, and all work on Saturdays shall be paid at time and one-half the straight time rate. Hours worked over twelve hours (12) in a single shift and all work performed after 6:00 pm Saturday to 6:00 am Monday and holidays shall be paid at double the straight time rate of pay. Any shift starting between the hours of 6:00 pm and midnight shall receive an additional one dollar ($1.00) per hour for all hours worked that shift. The employer shall have the sole discretion to assign overtime work to employees. Primary consideration for overtime work shall be given to employees regularly assigned to the work to be performed on overtime situations. After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

   C. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays shall be paid at double the hourly rate of wage. After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.
3. E. All hours worked Sundays and holidays shall be paid at double the hourly rate of wage. Each week, once 40 hours of straight time work is achieved, then any hours worked over 10 hours per day Monday through Saturday shall be paid at double the hourly wage rate.

F. All hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.

H. All work performed on Sundays between March 16th and October 14th and all Holidays shall be compensated for at two (2) times the regular rate of pay. Work performed on Sundays between October 15th and March 15th shall be compensated at one and one half (1 1/2) times the regular rate of pay.

J. All hours worked between the hours of 10:00 pm and 5:00 am, Monday through Friday, and all hours worked on Saturdays shall be paid at a one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

K. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the eight (8) hours rest period.

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

A. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.

B. All hours worked over twelve (12) hours per day and all hours worked on holidays shall be paid at double the hourly rate of wage.

C. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay. On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay. All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.
EXCEPTION:
On all multipole structures and steel transmission lines, switching stations, regulating, capacitor stations, generating plants, industrial plants, associated installations and substations, except those substations whose primary function is to feed a distribution system, will be paid overtime under the following rates:

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

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

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

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

F. All hours worked between the hours of 6:00 pm and 6:00 am, Monday through Saturday, shall be paid at a premium rate of 20% over the hourly rate of wage. All hours worked on Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

G. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

H. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, and all hours on Sunday shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

I. The first eight (8) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) per day on Saturdays shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

J. The first eight (8) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) hours on a Saturday shall be paid at double the hourly rate of wage. All hours worked over twelve (12) in a day, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

K. All hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked over twelve (12) in a day Monday through Saturday, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

L. The first twelve (12) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on a Saturday in excess of twelve (12) hours shall be paid at double the hourly rate of pay. All hours worked over twelve (12) in a day Monday through Friday, and all hours worked on Sundays shall be paid at double the hourly rate of wage. All hours worked on a holiday shall be paid at one and one-half times the hourly rate of wage, except that all hours worked on Labor Day shall be paid at double the hourly rate of pay.
Benefit Code Key – Effective 8/31/2019 thru 4/1/2020

4. M. All hours worked on Sunday and Holidays shall be paid at double the hourly rate. Any employee reporting to work less than nine (9) hours from their previous quitting time shall be paid for such time at time and one-half times the hourly rate.

N. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays, and all work performed between the hours of midnight (12:00 AM) and eight AM (8:00 AM) every day shall be paid at double the hourly rate of wage.

O. All hours worked between midnight Friday to midnight Sunday shall be paid at one and one-half the hourly rate of wage. After an employee has worked in excess of eight (8) continuous hours in any one or more calendar days, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of six (6) hours or more. All hours worked on Holidays shall be paid at double the hourly rate of wage.

P. All hours worked on Holidays shall be paid at one and one-half times the hourly rate of wage.

Q. The first four (4) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday shall be paid at double the hourly rate. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

R. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

S. All hours worked on Saturdays and Holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays shall be paid at double the hourly rate of wage.

T. The first two (2) hours of overtime for hours worked Monday-Friday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. For work on Saturday which is scheduled prior to the end of shift on Friday, the first six (6) hours work shall be paid at one and one-half times the hourly rate of wage, and all hours over (6) shall be paid double the hourly rate of wage. For work on Saturday which was assigned following the close of shift on Friday, all work shall be paid at double the hourly rate of wage.

U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

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

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

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

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.
4. W. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

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

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

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

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

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

**Holiday Codes**


Benefit Code Key – Effective 8/31/2019 thru 4/1/2020


Holiday Codes Continued


Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.
Benefit Code Key – Effective 8/31/2019 thru 4/1/2020

7. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a regular work day.

B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

C. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Unpaid Holidays: President’s Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.


H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
7.  L. Holidays: New Year’s Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

M. Paid Holidays: New Year's Day, The Day after or before New Year’s Day, President’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, And the Day after or before Christmas Day (10). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.


Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

R. Paid Holidays: New Year's Day, the day after or before New Year’s Day, President’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day after or before Christmas Day (10). If any of the listed holidays fall on Saturday, the preceding Friday shall be observed as the holiday. If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

T. Paid Holidays: New Year's Day, the Day after or before New Year’s Day, President’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and The Day after or before Christmas Day (10). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

V. Holidays: New Year's Day, President’s Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year’s Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

W. Holidays: New Year's Day, Day After New Year’s, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year’s Day, and a Floating Holiday.

X. Holidays: New Year's Day, Day before or after New Year’s Day, Presidents’ Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken
on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.

7. **Y.** Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.

**Z.** Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

**Holiday Codes Continued**

15. **A.** Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the day before Christmas Day and Christmas Day. (8) Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.


**C.** Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the day before Christmas Day and Christmas Day. (8)


**Note Codes**

8. **D.** Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

**L.** Workers on hazmat projects receive additional hourly premiums as follows -Level A: $0.75, Level B: $0.50, And Level C: $0.25.

**M.** Workers on hazmat projects receive additional hourly premiums as follows: Levels A & B: $1.00, Levels C & D: $0.50.

**N.** Workers on hazmat projects receive additional hourly premiums as follows -Level A: $1.00, Level B: $0.75, Level C: $0.50, And Level D: $0.25.

**P.** Workers on hazmat projects receive additional hourly premiums as follows -Class A Suit: $2.00, Class B Suit: $1.50, Class C Suit: $1.00, And Class D Suit $0.50.

**Q.** The highest pressure registered on the gauge for an accumulated time of more than fifteen (15) minutes during the shift shall be used in determining the scale paid.
8. S. Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

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

U. Workers on hazmat projects receive additional hourly premiums as follows – Class A Suit: $2.00, Class B Suit: $1.50, And Class C Suit: $1.00. Workers performing underground work receive an additional $0.40 per hour for any and all work performed underground, including operating, servicing and repairing of equipment. The premium for underground work shall be paid for the entire shift worked. Workers who work suspended by a rope or cable receive an additional $0.50 per hour. The premium for work suspended shall be paid for the entire shift worked. Workers who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation receive an additional $0.50 per hour.

V. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.

Depth premiums apply to depths of fifty feet or more. Over 50’ to 100’ - $2.00 per foot for each foot over 50 feet. Over 101’ to 150’ - $3.00 per foot for each foot over 101 feet. Over 151’ to 220’ - $4.00 per foot for each foot over 220 feet. Over 221’ - $5.00 per foot for each foot over 221 feet.

Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25’ to 300’ - $1.00 per foot from entrance. 300’ to 600’ - $1.50 per foot beginning at 300’. Over 600’ - $2.00 per foot beginning at 600’.

W. Meter Installers work on single phase 120/240V self-contained residential meters. The Lineman/Groundmen rates would apply to meters not fitting this description.

X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: $2.00, Class B Suit: $1.50, Class C Suit: $1.00, and Class D Suit: $0.50. Special Shift Premium: Basic hourly rate plus $2.00 per hour.

When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.

Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.
8. Z. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

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

Note Codes Continued

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

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

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

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

(A) – 130’ to 199’ – $0.50 per hour over their classification rate.
(B) – 200’ to 299’ – $0.80 per hour over their classification rate.
(C) – 300’ and over – $1.00 per hour over their classification rate.

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

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

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

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

Below is the department's (State L&I's) list of criteria to be used in determining whether a prefabricated item is "standard" or "non-standard". For items not appearing on WSDOT's predetermined list, these criteria shall be used by the Contractor (and the Contractor's subcontractors, agents to subcontractors, suppliers, manufacturers, and fabricators) to determine coverage under RCW 39.12. The production, in the State of Washington, of non-standard items is covered by RCW 39.12, and the production of standard items is not. The production of any item outside the State of Washington is not covered by RCW 39.12.

1. Is the item fabricated for a public works project? If not, it is not subject to RCW 39.12. If it is, go to question 2.

2. Is the item fabricated on the public works jobsite? If it is, the work is covered under RCW 39.12. If not, go to question 3.

3. Is the item fabricated in an assembly/fabrication plant set up for, and dedicated primarily to, the public works project? If it is, the work is covered by RCW 39.12. If not, go to question 4.

4. Does the item require any assembly, cutting, modification or other fabrication by the supplier? If not, the work is not covered by RCW 39.12. If yes, go to question 5.

5. Is the prefabricated item intended for the public works project typically an inventory item which could reasonably be sold on the general market? If not, the work is covered by RCW 39.12. If yes, go to question 6.

6. Does the specific prefabricated item, generally defined as standard, have any unusual characteristics such as shape, type of material, strength requirements, finish, etc? If yes, the work is covered under RCW 39.12.

Any firm with questions regarding the policy, WSDOT's Predetermined List, or for determinations of covered and non-covered workers shall be directed to State L&I at (360) 902-5330.
Below is a list of potentially prefabricated items, originally furnished by WSDOT to Washington State Department of Labor and Industries, that may be considered non-standard and therefore covered by the prevailing wage law, RCW 39.12. Items marked with an X in the "YES" column should be considered to be non-standard and therefore covered by RCW 39.12. Items marked with an X in the "NO" column should be considered to be standard and therefore not covered. Of course, exceptions to this general list may occur, and in that case shall be evaluated according to the criteria described in State and L&I's policy statement.

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Metal rectangular frames, solid metal covers, herringbone grates, and bi-directional vaned grates for Catch Basin Types 1, 1L, 1P, and 2 and Concrete Inlets. See Std. Plans.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2. Metal circular frames (rings) and covers, circular grates, and prefabricated ladders for Manhole Types 1, 2, and 3, Drywell Types 1, 2, and 3 and Catch Basin Type 2. See Std. Plans.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. Prefabricated steel grate supports and welded grates, metal frames and dual vaned grates, and Type 1, 2, and 3 structural tubing grates for Drop Inlets. See Std. Plans.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes smaller than 60 inch diameter.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes larger than 60 inch diameter.</td>
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<td>X</td>
</tr>
<tr>
<td>6. Corrugated Steel Pipe - Steel lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, 1 thru 5.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7. Corrugated Aluminum Pipe - Aluminum lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, #5.</td>
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<td>X</td>
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<tr>
<td>ITEM DESCRIPTION</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>8. Anchor Bolts &amp; Nuts - Anchor Bolts and Nuts, for mounting sign structures, luminaries and other items, shall be made from commercial bolt stock. See Contract Plans and Std. Plans for size and material type.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>9. Aluminum Pedestrian Handrail - Pedestrian handrail conforming to the type and material specifications set forth in the contract plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10. Major Structural Steel Fabrication - Fabrication of major steel items such as trusses, beams, girders, etc., for bridges.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>11. Minor Structural Steel Fabrication - Fabrication of minor steel items such as special hangers, brackets, access doors for structures, access ladders for irrigation boxes, bridge expansion joint systems, etc., involving welding, cutting, punching and/or boring of holes. See Contact Plans for item description and shop drawings.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>12. Aluminum Bridge Railing Type BP - Metal bridge railing conforming to the type and material specifications set forth in the Contract Plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>13. Concrete Piling--Precast-Prestressed concrete piling for use as 55 and 70 ton concrete piling. Concrete to conform to Section 9-19.1 of Std. Spec..</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>14. Precast Manhole Types 1, 2, and 3 with cones, adjustment sections and flat top slabs. See Std. Plans.</td>
<td></td>
<td>X</td>
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<tr>
<td>15. Precast Drywell Types 1, 2, and with cones and adjustment Sections. See Std. Plans.</td>
<td></td>
<td>X</td>
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<tr>
<td>ITEM DESCRIPTION</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>17. Precast Concrete Inlet - with adjustment sections,</td>
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<td>X</td>
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<tr>
<td>See Std. Plans</td>
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<tr>
<td>18. Precast Drop Inlet Type 1 and 2 with metal grate supports.</td>
<td></td>
<td>X</td>
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<tr>
<td>See Std. Plans</td>
<td></td>
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<tr>
<td>19. Precast Grate Inlet Type 2 with extension and top units.</td>
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<td>X</td>
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<tr>
<td>See Std. Plans</td>
<td></td>
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<tr>
<td>20. Metal frames, vaned grates, and hoods for Combination Inlets. See Std. Plans</td>
<td></td>
<td>X</td>
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<tr>
<td>21. Precast Concrete Utility Vaults - Precast Concrete utility vaults of</td>
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<td>X</td>
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<tr>
<td>various sizes. Used for in ground storage of utility facilities and controls.</td>
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<tr>
<td>See Contract Plans for size and construction requirements. Shop drawings are</td>
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<td>to be provided for approval prior to casting</td>
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<tr>
<td>22. Vault Risers - For use with Valve Vaults and Utilities</td>
<td></td>
<td>X</td>
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<tr>
<td>Vaul ts.</td>
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<tr>
<td>23. Valve Vault - For use with underground utilities.</td>
<td></td>
<td>X</td>
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<tr>
<td>See Contract Plans for details.</td>
<td></td>
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<tr>
<td>24. Precast Concrete Barrier - Precast Concrete Barrier for use as new barrier</td>
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<td>X</td>
</tr>
<tr>
<td>or may also be used as Temporary Concrete Barrier. Only new state approved</td>
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<tr>
<td>barrier may be used as permanent barrier.</td>
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<tr>
<td>25. Reinforced Earth Wall Panels – Reinforced Earth Wall Panels in size and</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>shape as shown in the Plans. Fabrication plant has annual approval for methods</td>
<td></td>
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<tr>
<td>and materials to be used. See Shop Drawing. Fabrication at other locations may</td>
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</tr>
<tr>
<td>be approved, after facilities inspection, contact HQ. Lab.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Precast Concrete Walls - Precast Concrete Walls - tilt-up wall panel in size</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>and shape as shown in Plans. Fabrication plant has annual approval for methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and materials to be used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM DESCRIPTION</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>27. Precast Railroad Crossings - Concrete Crossing Structure Slabs.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>28. 12, 18 and 26 inch Standard Precast Prestressed Girder – Standard Precast</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>29. Prestressed Concrete Girder Series 4-14 - Prestressed Concrete Girders for</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>30. Prestressed Tri-Beam Girder - Prestressed Tri-Beam Girders for use in</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>31. Prestressed Precast Hollow-Core Slab – Precast Prestressed Hollow-core slab</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>32. Prestressed-Bulb Tee Girder - Bulb Tee Prestressed Girder for use in</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>33. Monument Case and Cover</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ITEM DESCRIPTION</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>34. Cantilever Sign Structure - Cantilever Sign Structure fabricated from steel tubing meeting AASHTO-M-183. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>35. Mono-tube Sign Structures - Mono-tube Sign Bridge fabricated to details shown in the Plans. Shop drawings for approval are required prior to fabrication.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>36. Steel Sign Bridges - Steel Sign Bridges fabricated from steel tubing meeting AASHTO-M-138 for Aluminum Alloys. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>37. Steel Sign Post - Fabricated Steel Sign Posts as detailed in Std Plans. Shop drawings for approval are to be provided prior to fabrication</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>38. Light Standard-Prestressed - Spun, prestressed, hollow concrete poles.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>39. Light Standards - Lighting Standards for use on highway illumination systems, poles to be fabricated to conform with methods and materials as specified on Std. Plans. See Special Provisions for pre-approved drawings.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>40. Traffic Signal Standards - Traffic Signal Standards for use on highway and/or street signal systems. Standards to be fabricated to conform with methods and material as specified on Std. Plans. See Special Provisions for pre-approved drawings</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>41. Precast Concrete Sloped Mountable Curb (Single and DualFaced) See Std. Plans.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ITEM DESCRIPTION</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>42. Traffic Signs - Prior to approval of a Fabricator of Traffic Signs, the sources of the following materials must be submitted and approved for reflective sheeting, legend material, and aluminum sheeting. <strong>NOTE:</strong> *<strong>Fabrication inspection required. Only signs tagged &quot;Fabrication Approved&quot; by WSDOT Sign Fabrication Inspector to be installed</strong></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>43. Cutting &amp; bending reinforcing steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. Guardrail components</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>45. Aggregates/Concrete mixes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. Asphalt</td>
<td></td>
<td></td>
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<tr>
<td>47. Fiber fabrics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Electrical wiring/components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. treated or untreated timber pile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50. Girder pads (elastomeric bearing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51. Standard Dimension lumber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. Irrigation components</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Covered by WAC 296-127-018
<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>53. Fencing materials</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>54. Guide Posts</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>55. Traffic Buttons</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>56. Epoxy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>57. Cribbing</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>58. Water distribution materials</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>59. Steel &quot;H&quot; piles</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>60. Steel pipe for concrete pile casings</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>61. Steel pile tips, standard</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>62. Steel pile tips, custom</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Prefabricated items specifically produced for public works projects that are prefabricated in a county other than the county wherein the public works project is to be completed, the wage for the offsite prefabrication shall be the applicable prevailing wage for the county in which the actual prefabrication takes place.

It is the manufacturer of the prefabricated product to verify that the correct county wage rates are applied to work they perform.

See RCW 39.12.010
(The definition of "locality" in RCW 39.12.010(2) contains the phrase "wherein the physical work is being performed." The department interprets this phrase to mean the actual work site.)
WSDOT’s List of State Occupations not applicable to Heavy and Highway Construction Projects

This project is subject to the state hourly minimum rates for wages and fringe benefits in the contract provisions, as provided by the state Department of Labor and Industries. The following list of occupations, is comprised of those occupations that are not normally used in the construction of heavy and highway projects. When considering job classifications for use and/or payment when bidding on, or building heavy and highway construction projects for, or administered by WSDOT, these Occupations will be excepted from the included "Washington State Prevailing Wage Rates For Public Work Contracts" documents.

- Building Service Employees
- Electrical Fixture Maintenance Workers
- Electricians - Motor Shop
- Heating Equipment Mechanics
- Industrial Engine and Machine Mechanics
- Industrial Power Vacuum Cleaners
- Inspection, Cleaning, Sealing of Water Systems by Remote Control
- Laborers - Underground Sewer & Water
- Machinists (Hydroelectric Site Work)
- Modular Buildings
- Playground & Park Equipment Installers
- Power Equipment Operators - Underground Sewer & Water
- Residential *** ALL ASSOCIATED RATES ***
- Sign Makers and Installers (Non-Electrical)
- Sign Makers and Installers (Electrical)
- Stage Rigging Mechanics (Non Structural)

The following occupations may be used only as outlined in the preceding text concerning "WSDOT's list for Suppliers - Manufacturers - Fabricators"

- Fabricated Precast Concrete Products
- Metal Fabrication (In Shop)

Definitions for the Scope of Work for prevailing wages may be found at the Washington State Department of Labor and Industries web site and in WAC Chapter 296-127.
Coverage and exemptions of workers involved in the production and delivery of gravel, concrete, asphalt, or similar materials.

(1) The materials covered under this section include but are not limited to: Sand, gravel, crushed rock, concrete, asphalt, or other similar materials.

(2) All workers, regardless of by whom employed, are subject to the provisions of chapter 39.12 RCW when they perform any or all of the following functions:

(a) They deliver or discharge any of the above-listed materials to a public works project site:

(i) At one or more point(s) directly upon the location where the material will be incorporated into the project; or

(ii) At multiple points at the project; or

(iii) Adjacent to the location and coordinated with the incorporation of those materials.

(b) They wait at or near a public works project site to perform any tasks subject to this section of the rule.

(c) They remove any materials from a public works construction site pursuant to contract requirements or specifications (e.g., excavated materials, materials from demolished structures, clean-up materials, etc.).

(d) They work in a materials production facility (e.g., batch plant, borrow pit, rock quarry, etc.,) which is established for a public works project for the specific, but not necessarily exclusive, purpose of supplying materials for the project.

(e) They deliver concrete to a public works site regardless of the method of incorporation.

(f) They assist or participate in the incorporation of any materials into the public works project.
(3) All travel time that relates to the work covered under subsection (2) of this section requires the payment of prevailing wages. Travel time includes time spent waiting to load, loading, transporting, waiting to unload, and delivering materials. Travel time would include all time spent in travel in support of a public works project whether the vehicle is empty or full. For example, travel time spent returning to a supply source to obtain another load of material for use on a public works site or returning to the public works site to obtain another load of excavated material is time spent in travel that is subject to prevailing wage. Travel to a supply source, including travel from a public works site, to obtain materials for use on a private project would not be travel subject to the prevailing wage.

(4) Workers are not subject to the provisions of chapter 39.12 RCW when they deliver materials to a stockpile.

(a) A "stockpile" is defined as materials delivered to a pile located away from the site of incorporation such that the stockpiled materials must be physically moved from the stockpile and transported to another location on the project site in order to be incorporated into the project.

(b) A stockpile does not include any of the functions described in subsection (2)(a) through (f) of this section; nor does a stockpile include materials delivered or distributed to multiple locations upon the project site; nor does a stockpile include materials dumped at the place of incorporation, or adjacent to the location and coordinated with the incorporation.

(5) The applicable prevailing wage rate shall be determined by the locality in which the work is performed. Workers subject to subsection (2)(d) of this section, who produce such materials at an off-site facility shall be paid the applicable prevailing wage rates for the county in which the off-site facility is located. Workers subject to subsection (2) of this section, who deliver such materials to a public works project site shall be paid the applicable prevailing wage rates for the county in which the public works project is located.

[Statutory Authority: Chapter 39.12 RCW, RCW 43.22.051 and 43.22.270. 08-24-101, § 296-127-018, filed 12/2/08, effective 1/2/09. Statutory Authority: Chapters 39.04 and 39.12 RCW and RCW 43.22.270. 92-01-104 and 92-08-101, § 296-127-018, filed 12/18/91 and 4/1/92, effective 8/31/92.]
SECTION 6 - TECHNICAL SPECIFICATIONS
CITY OF SELAH
YAKIMA COUNTY, WASHINGTON

SPECIAL PROVISIONS
FOR

WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD

HLA PROJECT NO. 19148

TABLE OF CONTENTS

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 11 00 – SUMMARY OF WORK
SECTION 01 11 50 – SPECIAL PROVISIONS
  1-01 DEFINITIONS AND TERMS
  1-02 BID PROCEDURES AND CONDITIONS
  1-03 AWARD AND EXECUTION OF CONTRACT
  1-04 SCOPE OF THE WORK
  1-05 CONTROL OF WORK
  1-06 CONTROL OF MATERIAL
  1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC
  1-08 PROSECUTION AND PROGRESS
    REQUEST TO SUBLET
  1-09 MEASUREMENT AND PAYMENT
SECTION 01 33 00 – SUBMITTALS PROCEDURE
SECTION 01 45 11 – TESTING, INSPECTIONS, SUPERVISION

DIVISION 02 – EXISTING CONDITIONS

SECTION 02 41 00 – DEMOLITION

DIVISION 05 – METALS

SECTION 05 50 11 – MISCELLANEOUS METALS

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

SECTION 06 10 00 – ROUGH CARPENTRY
SECTION 06 17 00 – SHOP-FABRICATED STRUCTURAL WOOD
SECTION 06 20 00 – FINISH CARPENTRY

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 07 21 00 – THERMAL INSULATION
SECTION 07 41 11 – METAL ROOF AND WALL PANELS
SECTION 07 62 00 – SHEET METAL FLASHING AND TRIM
SECTION 07 92 00 – JOINT SEALANTS

DIVISION 08 - OPENINGS

SECTION 08 11 13 – HOLLOW METAL DOORS AND FRAMES
SECTION 08 71 00 – DOOR HARDWARE
DIVISION 09 – FINISHES

SECTION 09 90 00 – PAINTING AND COATING

DIVISION 10 – SPECIALTIES

SECTION 10 44 00 – FIRE PROTECTION SPECIALITIES

DIVISION 22 – PLUMBING

SECTION 22 00 00 – PLUMBING

DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

SECTION 23 00 00 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

DIVISION 26 - ELECTRICAL

SECTION 26 00 00 – ELECTRICAL
SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL
SECTION 26 05 19 – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
SECTION 26 05 26 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
SECTION 26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
SECTION 26 27 26 – WIRING DEVICES
SECTION 26 28 16 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS
SECTION 26 51 00 – INTERIOR LIGHTING
DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 11 00 – SUMMARY OF WORK

Work on this project includes, but is not necessarily limited to, the following approximate major quantities and facility components:

    Rebuilding a portion of the existing 960 SF pump station building roof structure, including misc. electrical, HVAC, and control equipment replacement.

Refer to 1-09.3(1) of Section 01 11 50 – Special Provisions for further descriptions of unit price bid items of the proposal.

The quantities of work indicated in the proposal are to be considered as estimates and are for comparative bidding purposes only. All payments will be made on the basis of actual field measurement of Contract work completed.

All work on this project shall be completed in accordance with the Plans, the Technical Specifications, the Standard Specifications for Road, Bridge, and Municipal Construction, 2018 Edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter (hereafter "Standard Specifications"), as modified or supplemented by the Amendments to the Standard Specifications and the Special Provisions, all of which are made a part of the Contract Documents.

Also incorporated into the Contract Documents by reference are the Manual on Uniform Traffic Control Devices for Streets and Highways, currently adopted edition, with Washington State modifications, if any, and Standard Plans for Road, Bridge and Municipal Construction, WSDOT/APWA, current edition. The Contractor shall obtain copies of these publications, at his/her own expense.

END OF SECTION 01 11 00
SECTION 01 11 50 – SPECIAL PROVISIONS

INTRODUCTION

These Special Provisions are made up of both General Special Provisions (GSPs) from various sources, which may have project-specific fill-ins; and project-specific Special Provisions. Each Provision either supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

The project-specific Special Provisions are not labeled as such. The GSPs are labeled under the headers of each GSP, with the effective date of the GSP and its source. For example:

(March 8, 2013  APWA GSP)
(April 1, 2013  WSDOT GSP)

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions
(January 4, 2016 APWA GSP)

Delete the heading Completion Dates and the three paragraphs that follow it, and replace them with the following:

Dates

Bid Opening Date
The date on which the Contracting Agency publicly opens and reads the Bids.

Award Date
The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

Contract Execution Date
The date the Contracting Agency officially binds the Agency to the Contract.

Notice to Proceed Date
The date stated in the Notice to Proceed on which the Contract time begins.

Substantial Completion Date
The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

Physical Completion Date
The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

Completion Date
The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

Final Acceptance Date
The date on which the Contracting Agency accepts the work as complete.
Supplement this Section with the following:

All references in the Standard Specifications, Amendments, or WSDOT General Special Provisions, to the terms “Department of Transportation”, “Washington State Transportation Commission”, “Commission”, “Secretary of Transportation”, “Secretary”, “Headquarters”, and “State Treasurer” shall be revised to read “Contracting Agency”.

All references to the terms “State” or “state” shall be revised to read “Contracting Agency” unless the reference is to an administrative agency of the State of Washington, a State statute or regulation, or the context reasonably indicates otherwise.

All references to “State Materials Laboratory” shall be revised to read “Contracting Agency designated location”.

All references to “final contract voucher certification” shall be interpreted to mean the Contracting Agency form(s) by which final payment is authorized, and final completion and acceptance granted.

Additive
A supplemental unit of work or group of bid items, identified separately in the Bid Proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

Alternate
One of two or more units of work or groups of bid items, identified separately in the Bid Proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

Business Day
A business day is any day from Monday through Friday except holidays as listed in Section 1-08.5.

Contract Bond
The definition in the Standard Specifications for “Contract Bond” applies to whatever bond form(s) are required by the Contract Documents, which may be a combination of a Payment Bond and a Performance Bond.

Contract Documents
See definition for “Contract”.

Contract Time
The period of time established by the terms and conditions of the Contract within which the Work must be physically completed.

Notice of Award
The written notice from the Contracting Agency to the successful Bidder signifying the Contracting Agency’s acceptance of the Bid Proposal.

Notice to Proceed
The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the Work and establishing the date on which the Contract time begins.

Traffic
Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

The terms defined in Section 1-01.3 of the Standard Specifications shall be further described by the following:

Contracting Agency
City of Selah
115 West Naches Avenue
Selah, WA 98942
The terms “Contracting Agency”, “Agency” and “Owner” are interchangeable.

Engineer
HLA Engineering and Land Surveying, Inc. (HLA)
2803 River Road
Yakima, WA 98902

Inspector
The Contracting Agency’s designated Inspector (Resident Engineer) who observes the Contractor’s performance.

Working Drawings
Working drawings are further defined as electrical diagrams, catalog cut sheets, manufacturer’s informational sheets describing salient features, performance curves, or samples of fabricated and manufactured items (including mechanical and electrical equipment) required for the construction project.

1-02 BID PROCEDURES AND CONDITIONS

1-02.1 Prequalification of Bidders
Delete this section and replace it with the following:

1-02.1 Qualifications of Bidder
(January 24, 2011 APWA GSP)

Before award of a public works contract, a bidder must meet at least the minimum qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to be awarded a public works project.

1-02.2 Plans and Specifications
Delete this section and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed will be found in the Call for Bids (Advertisement for Bids) for the work. During the bid period, electronic PDF plans and specifications, including any addenda will be available to download at https://hlacivil.com/bid. Following bid period, electronic PDF plans and specifications will only be available upon request. No paper copies will be provided.

1-02.4 Examination of Plans, Specifications, and Site of Work

1-02.4(1) General
(August 15, 2016 APWA GSP Option B)

The first sentence of the last paragraph is revised to read:

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing by close of business four (4) days preceding the bid opening to allow a written reply to reach all prospective Bidders before the submission of their Bids.

Add the following paragraph:

No pre-bid approval on any proposed substitute equipment shall be granted prior to the bid opening unless specified otherwise in these Specifications.
1-02.4(2) Subsurface Information
(March 8, 2013 APWA GSP)

The second sentence in the first paragraph is revised to read:

The Summary of Geotechnical Conditions and the boring logs, if and when included as an appendix to the Special Provisions, shall be considered as part of the contract.

1-02.5 Proposal Forms
(July 31, 2017 APWA GSP)

Delete this section and replace it with the following:

The Proposal Form will identify the project and its location and describe the work. It will also list estimated quantities, units of measurement, the items of work, and the materials to be furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that call for, but are not limited to, unit prices; extensions; summations; the total bid amount; signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda; the bidder’s name, address, telephone number, and signature; the bidder’s UDBE/DBE/M/WBE commitment, if applicable, a State of Washington Contractor’s Registration Number; and a Business License Number, if applicable. Bids shall be completed by typing or shall be printed in ink by hand, preferably in black ink. The required certifications are included as part of the Proposal Form.

The Contracting Agency reserves the right to arrange the proposal forms with alternates and additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all alternates and additives set forth in the Proposal Form unless otherwise specified.

1-02.6 Preparation of Proposal
(July 11, 2018 APWA GSP)

Supplement the second paragraph with the following:

4. If a minimum bid amount has been established for any item, the unit or lump sum price must equal or exceed the minimum amount stated.

5. Any correction to a bid made by interlineation, alteration, or erasure, shall be initialed by the signer of the bid.

Delete the last two paragraphs, and replace them with the following:

If no Subcontractor is listed, the Bidder acknowledges that it does not intend to use any Subcontractor to perform those items of work.

The Bidder shall submit with their Bid a completed Contractor Certification Wage Law Compliance form, provided by the Contracting Agency. Failure to return this certification as part of the Bid Proposal package will make this Bid Nonresponsive and ineligible for Award. A Contractor Certification of Wage Law Compliance form is included in the Proposal Forms.

The Bidder shall make no stipulation on the Bid form, nor qualify the Bid in any manner.

A bid by a corporation shall be executed in the corporate name, by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign).

A bid by a partnership shall be executed in the partnership name and signed by a partner. A copy of the partnership agreement shall be submitted with the Bid Form if any UDBE requirements are to be satisfied through such an agreement.

A bid by a joint venture shall be executed in the joint venture name and signed by a member of the joint venture. A copy of the joint venture agreement shall be submitted with the Bid Form if any UDBE requirements are to be satisfied through such an agreement.
Supplement this section with the following:

Any bid item which has a unit price but no extension column amount shall have the extension amount determined by multiplying the unit price times the unit quantity. Any bid item which does not have a unit price but does have an extension column amount shall have the unit price determined by dividing the extension amount by the unit quantity. Should both the unit price and the extension column amount be left blank, then the entire bid shall be considered non-responsive.

1-02.7 Bid Deposit
(March 8, 2013 APWA GSP)

Supplement this section with the following:

Bid bonds shall contain the following:

1. Contracting Agency-assigned number for the project;
2. Name of the project;
3. The Contracting Agency named as obligee;
4. The amount of the bid bond stated either as a dollar figure or as a percentage which represents five percent of the maximum bid amount that could be awarded;
5. Signature of the bidder’s officer empowered to sign official statements. The signature of the person authorized to submit the bid should agree with the signature on the bond, and the title of the person must accompany the said signature;
6. The signature of the surety’s officer empowered to sign the bond and the power of attorney.

If so stated in the Contract Provisions, bidder must use the bond form included in the Contract Provisions.

If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

1-02.9 Delivery of Proposal

Delete this section and replace it with the following:

Each BID shall be submitted in a sealed envelope, with the Project Name and Project Number as stated in the Information for Bidders clearly marked on the outside of the envelope, or as otherwise required in the Bid documents, to ensure proper handling and delivery.

The Bidder shall submit to the Contracting Agency a signed “Certification of Compliance with Wage Payment Statutes” document where the Bidder under penalty of perjury verifies that the Bidder is in compliance with responsible bidder criteria in RCW 39.04.350 subsection (1) (g), as required per Section 1-02.14. The “Certification of Compliance with Wage Payment Statutes” document shall be received either with the Bid Proposal or as a Supplement to the Bid. The document shall be received no later than 24 hours (not including Saturdays, Sundays and Holidays) after the time for delivery of the Bid Proposal.

If submitted after the Bid Proposal is due, the document(s) shall be submitted as follows:

1. By facsimile to the following FAX number: (509) 965-3800, or
2. By e-mail to the following e-mail address: info@hlacivil.com and jbellamy@hlacivil.com

All other information required to be submitted with the Bid Proposal must be submitted with the Bid Proposal itself, at the time stated in the Information for Bidders.
The Contracting Agency will not open or consider any Bid Proposal that is received after the time specified in the Information for Bidders for receipt of Bid Proposals or received in a location other than that specified in the Information for Bidders. The Contracting Agency will not open or consider any “Supplemental Information” that is received after the time specified above or received in a location other than that specified in the Information for Bidders.

1-02.10 Withdrawing, Revising, or Supplementing Proposal
(July 23, 2015 APWA GSP)

Delete this section, and replace it with the following:

After submitting a physical Bid Proposal to the Contracting Agency, the Bidder may withdraw, revise, or supplement it if:

1. The Bidder submits a written request signed by an authorized person and physically delivers it to the place designated for receipt of Bid Proposals, and
2. The Contracting Agency receives the request before the time set for receipt of Bid Proposals, and
3. The revised or supplemented Bid Proposal (if any) is received by the Contracting Agency before the time set for receipt of Bid Proposals.

If the Bidder's request to withdraw, revise, or supplement its Bid Proposal is received before the time set for receipt of Bid Proposals, the Contracting Agency will return the unopened Proposal package to the Bidder. The Bidder must then submit the revised or supplemented package in its entirety. If the Bidder does not submit a revised or supplemented package, then its bid shall be considered withdrawn.

Late revised or supplemented Bid Proposals or late withdrawal requests will be date recorded by the Contracting Agency and returned unopened. Mailed, emailed, or faxed requests to withdraw, revise, or supplement a Bid Proposal are not acceptable.

1-02.13 Irregular Proposals
(June 20, 2017 APWA GSP)

Delete this section and replace it with the following:

1. A Proposal will be considered irregular and will be rejected if:
   a. The Bidder is not prequalified when so required;
   b. The authorized Proposal form furnished by the Contracting Agency is not used or is altered;
   c. The completed Proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;
   d. The Bidder adds provisions reserving the right to reject or accept the award, or enter into the Contract;
   e. A price per unit cannot be determined from the Bid Proposal;
   f. The Proposal form is not properly executed;
   g. The Bidder fails to submit or properly complete a Subcontractor list, if applicable, as required in Section 1-02.6;
   h. The Bidder fails to submit or properly complete an Underutilized Disadvantaged Business Enterprise Certification, if applicable, as required in Section 1-02.6;
   i. The Bidder fails to submit written confirmation from each UDBE firm listed on the Bidder’s completed UDBE Utilization Certification that they are in agreement with the bidder’s UDBE participation commitment, if applicable, as required in Section 1-02.6, or if the written confirmation that is submitted fails to meet the requirements of the Special Provisions;
   j. The Bidder fails to submit UDBE Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;
   k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or
   l. More than one Proposal is submitted for the same project from a Bidder under the same or different names.
2. A Proposal may be considered irregular and may be rejected if:
   a. The Proposal does not include a unit price for every Bid item;
   b. Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the Contracting Agency;
   c. Receipt of Addenda is not acknowledged;
   d. A member of a joint venture or partnership and the joint venture or partnership submit Proposals for the same project (in such an instance, both Bids may be rejected); or
   e. If Proposal form entries are not made in ink.

1-02.14 Disqualification of Bidders
(May 17, 2018  APWA GSP, Option B)

Delete this section and replace it with the following:

A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or does not meet Supplemental Criteria 1-7 listed in this Section.

The Contracting Agency will verify that the Bidder meets the mandatory bidder responsibility criteria in RCW 39.04.350(1), and Supplemental Criteria 1-2. Evidence that the Bidder meets Supplemental Criteria 3-7 shall be provided by the Bidder as stated later in this Section.

1. Delinquent State Taxes
   A. **Criterion**: The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue without a payment plan approved by the Department of Revenue.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder does not owe delinquent taxes to the Washington State Department of Revenue, or if delinquent taxes are owed to the Washington State Department of Revenue, the Bidder must submit a written payment plan approved by the Department of Revenue, to the Contracting Agency by the deadline listed below.

2. Federal Debarment
   A. **Criterion**: The Bidder shall not currently be debarred or suspended by the Federal government.

   B. **Documentation**: The Bidder shall not be listed as having an “active exclusion” on the U.S. government’s “System for Award Management” database (www.sam.gov).

3. Subcontractor Responsibility
   A. **Criterion**: The Bidder’s standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established procedure which it utilizes to validate the responsibility of each of its subcontractors. The Bidder’s subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also “responsible” subcontractors as defined by RCW 39.06.020.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall submit a copy of its standard subcontract form for review by the Contracting Agency, and a written description of its procedure for validating the responsibility of subcontractors with which it contracts.
4. **Claims Against Retainage and Bonds**

   A. **Criterion**: The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects in the three years prior to the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall submit a list of the public works projects completed in the three years prior to the bid submittal date that have had claims against retainage and bonds and include for each project the following information:

      - Name of project
      - The owner and contact information for the owner;
      - A list of claims filed against the retainage and/or payment bond for any of the projects listed;
      - A written explanation of the circumstances surrounding each claim and the ultimate resolution of the claim.

5. **Public Bidding Crime**

   A. **Criterion**: The Bidder and/or its owners shall not have been convicted of a crime involving bidding on a public works contract in the five years prior to the bid submittal date.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder and/or its owners have not been convicted of a crime involving bidding on a public works contract.

6. **Termination for Cause / Termination for Default**

   A. **Criterion**: The Bidder shall not have had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date; or if Bidder was terminated, describe the circumstances.

7. **Lawsuits**

   A. **Criterion**: The Bidder shall not have lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

   B. **Documentation**: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, and shall submit a list of all lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date, along with a written explanation of the circumstances surrounding each such lawsuit. The Contracting Agency shall evaluate these explanations to determine whether the lawsuits demonstrate a pattern of failing to meet of terms of construction related contracts.
As evidence that the Bidder meets the Supplemental Criteria stated above, the apparent low Bidder must submit to the Contracting Agency by 12:00 P.M. (noon) of the second business day following the bid submittal deadline, a written statement verifying that the Bidder meets the supplemental criteria together with supporting documentation (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with the Supplemental Criteria. The Contracting Agency reserves the right to request further documentation as needed from the low Bidder and documentation from other Bidders as well to assess Bidder responsibility and compliance with all bidder responsibility criteria. The Contracting Agency also reserves the right to obtain information from third-parties and independent sources of information concerning a Bidder’s compliance with the mandatory and supplemental criteria, and to use that information in their evaluation. The Contracting Agency may consider mitigating factors in determining whether the Bidder complies with the requirements of the supplemental criteria.

The basis for evaluation of Bidder compliance with these mandatory and supplemental criteria shall include any documents or facts obtained by Contracting Agency (whether from the Bidder or third parties) including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Contracting Agency from others for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Contracting Agency which is believed to be relevant to the matter.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility criteria above and is therefore not a responsible Bidder, the Contracting Agency shall notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees with this determination, it may appeal the determination within two (2) business days of the Contracting Agency’s determination by presenting its appeal and any additional information to the Contracting Agency. The Contracting Agency will consider the appeal and any additional information before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Contracting Agency will not execute a contract with any other Bidder until at least two business days after the Bidder determined to be not responsible has received the Contracting Agency’s final determination.

Request to Change Supplemental Bidder Responsibility Criteria Prior To Bid: Bidders with concerns about the relevancy or restrictiveness of the Supplemental Bidder Responsibility Criteria may make or submit requests to the Contracting Agency to modify the criteria. Such requests shall be in writing, describe the nature of the concerns, and propose specific modifications to the criteria. Bidders shall submit such requests to the Contracting Agency no later than five (5) business days prior to the bid submittal deadline and address the request to the Project Engineer or such other person designated by the Contracting Agency in the Bid Documents.

1-02.15 Pre-Award Information
(August 14, 2013 APWA GSP)

Revise this section to read:

Before awarding any contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible bidder:
1. A complete statement of the origin, composition, and manufacture of any or all materials to be used,
2. Samples of these materials for quality and fitness tests,
3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the work,
4. A breakdown of costs assigned to any bid item,
5. Attendance at a conference with the Engineer or representatives of the Engineer,
6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.
7. Any other information or action taken that is deemed necessary to ensure that the bidder is the lowest responsible bidder.
1-03 AWARD AND EXECUTION OF CONTRACT

1-03.1 Consideration of Bids
(January 23, 2006 APWA GSP)

Revise the first paragraph to read:

After opening and reading proposals, the Contracting Agency will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. If a minimum bid amount has been established for any item and the bidder’s unit or lump sum price is less than the minimum specified amount, the Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum specified amount and recalculate the extension. The total of extensions, corrected where necessary, including sales taxes where applicable and such additives and/or alternates as selected by the Contracting Agency, will be used by the Contracting Agency for award purposes and to fix the Awarded Contract Price amount and the amount of the contract bond.

1-03.2 Award of Contract

Supplement this section with the following:

The Contract will be awarded to the apparent low bidder on the basis of the total of all bid items and schedules accepted by the Contracting Agency. The Contractor shall submit bids for all bid schedules, including all alternate and/or additive bid schedules as applicable, to be considered a responsive bidder.

1-03.3 Execution of Contract
(October 1, 2005 APWA GSP)

Revise this section to read:

Copies of the Contract Provisions, including the unsigned Form of Contract, will be available for signature by the successful bidder on the first business day following award. The number of copies to be executed by the Contractor will be determined by the Contracting Agency.

Within ten (10) calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, and a satisfactory bond as required by law and Section 1-03.4. Before execution of the contract by the Contracting Agency, the successful bidder shall provide any pre-award information the Contracting Agency may require under Section 1-02.15.

Until the Contracting Agency executes a contract, no proposal shall bind the Contracting Agency nor shall any work begin within the project limits or within Contracting Agency-furnished sites. The Contractor shall bear all risks for any work begun outside such areas and for any materials ordered before the contract is executed by the Contracting Agency.

If the bidder experiences circumstances beyond their control that prevents return of the contract documents within the calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of twenty (20) additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

Supplement this section with the following:

Failure to return the required documents within the allotted time shall be considered as non-responsive and shall result in forfeiture of the bid bond or deposit of the bidder in accordance with Section 1-03.5.
Delete the first paragraph and replace it with the following:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. The bond may be a combined payment and performance bond; or be separate payment and performance bonds. In the case of separate payment and performance bonds, each shall be for the full contract amount. The bond(s) shall:

1. Be on a Contracting Agency-furnished form(s);
2. Be signed by an approved surety (or sureties) that:
   a. Is registered with the Washington State Insurance Commissioner, and
   b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner;
3. Guarantee that the Contractor will perform and comply with all obligations, duties, and conditions under the Contract, including but not limited to the duty and obligation to indemnify, defend, and protect the Contracting Agency against all losses and claims related directly or indirectly from any failure:
   a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform and comply with all contract obligations, conditions, and duties or
   b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;
4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and
5. Be accompanied by a power of attorney for the Surety’s officer empowered to sign the bond; and
6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by the president or vice president, unless accompanied by written proof of the authority of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution, power of attorney, or a letter to such effect by the president or vice president).

Supplement this section with the following:

The Contractor shall guarantee the material provided and workmanship performed under the Contract for a period of one year from and after the final acceptance thereof by the Contracting Agency. Repair and/or replacement of defective materials and workmanship shall be as specified in Section 1-05.12(1).

In addition to the requirements for the Contract Bond according to Section 1-03.4 of the Standard Specifications, the Bond shall further indemnify and hold the Contracting Agency harmless from defects appearing or developing in the material or workmanship provided or performed under the Contract within a period of one year after final acceptance by the Contracting Agency. The Contract Bond document is bound in these Specifications.
1-03.7 Judicial Review  
(November 30, 2018 APWA GSP)

Revise this section to read:

Any decision made by the Contracting Agency regarding the Award and execution of the Contract or Bid rejection shall be conclusive subject to the scope of judicial review permitted under Washington Law. Such review, if any, shall be timely filed in the Superior Court of the county where the Contracting Agency headquarters is located, provided that where an action is asserted against a county, RCW 36.01.050 shall control venue and jurisdiction.

1-04 SCOPE OF THE WORK

1-04.1 Intent of the Contract

1-04.1(2) Bid Items Not Included in the Proposal

Delete the first paragraph in its entirety and replace it with the following:

If work is required to complete the project according to the intent of the Plans and Specifications but no bid item is provided in the Bid Schedule, then the Contractor shall include the cost for providing the necessary work in the unit or lump sum price for the bid item most closely related to the work.

1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda  
(March 13, 2012 APWA GSP)

Revise the second paragraph to read:

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,
2. Proposal Form,
3. Special Provisions,
4. Contract Plans,
5. Amendments to the Standard Specifications,
6. Standard Specifications,
7. Contracting Agency’s Standard Plans or Details (if any), and
8. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

1-04.4 Changes

Supplement this section with the following:

No changes in the work covered by the approved Contract Documents shall be made without having prior written or oral (as deemed appropriate due to urgency of change) approval of the Owner. If oral approval is granted, it shall be documented in writing shortly thereafter. Charges or credits for the work covered by the approved change shall be determined by one or more, or a combination of the following methods:

a. Unit bid prices previously approved.

b. An agreed lump sum.

c. The actual costs of:

(1) Labor, including foremen;

(2) Materials entering permanently into the work;
The ownership or rental costs of construction plant and equipment during the time of use on the extra work;

(4) Power and consumable supplies for the operation of power equipment;

(5) Insurance;

(6) Social Security and old age and unemployment contributions.

Should authorized changes be made based upon the actual cost of material and labor, the costs thereof and costs allowed for overhead profit, bonds, insurance, etc., shall be determined via Section 1-09.6 Force Account of the Standard Specifications.

1-04.4(1) Minor Changes

Delete the first paragraph and replace it with the following:

Payments or credits for changes amounting to $10,000 or less may be made under the Bid item “Minor Change”. At the discretion of the Contracting Agency, this procedure for Minor Changes may be used in lieu of the more formal procedure as outlined in Section 1-04.4, Changes. All “Minor Change” work will be within the scope of the Contract Work and will not change Contract Time.

1-04.6 Variation in Estimated Quantities

Supplement this section with the following:

The quantities listed in the unit price Bid Proposal are estimates for bidding purposes only. There will be no adjustments in price due to increases or decreases in quantities regardless of the magnitude. The 25 percent provisions of this Section 1-04.6 shall not apply to: All Bid Items. Payment will be made at the unit contract price for actual quantities of work completed.

1-04.11 Final Cleanup

Supplement this section with the following:

Partial cleanup shall be done by the Contractor when he feels it is necessary or when, in the opinion of the Contracting Agency, partial cleanup should be done prior to either final cleanup or final inspection. The cleanup work shall be done immediately upon written notification of the Engineer and other work shall not proceed until this partial cleanup is accomplished. Should the Contractor not conduct the cleanup as directed and in a timely manner, the Owner shall take action to have such cleanup work completed by others and will deduct such costs from any payment due the Contractor.

1-05 CONTROL OF WORK

1-05.1 Authority of the Engineer

Supplement this section with the following:

Unless otherwise expressly provided in the Contract Drawings, Specifications, and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Engineer's right to reject means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the Contract. The Engineer's approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Contract; nor shall the exercise of such right to reject create a cause for action for damages.

At the Contractor's risk, the Engineer may suspend all or part of the work according to Section 1-08.6.
1-05.3 Working Drawings

Replace the second, third, and fourth paragraphs of Section 1-05.3 of the Standard Specifications with the following:

The Contractor shall submit shop drawings, samples, test reports and other required submittals in accordance with Section 01 33 00 – Submittals Procedure of the Technical Specifications.

1-05.3(1) Project Record Drawings (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor shall maintain a neatly marked, full-size set of record drawings showing the final location and layout of all new construction. Drawings shall be kept current weekly, with all field instruction, change orders, and construction adjustment.

The preparation and upkeep of the Record Drawings is to be the assigned responsibility of a single, experienced, and qualified individual. The quality of the Record Drawings, in terms of accuracy, clarity, and completeness, is to be adequate to allow the Contracting Agency to modify the computer-aided drafting (CAD) Contract Drawings to produce a complete set of Record Drawings for the Contracting Agency without further investigative effort by the Contracting Agency.

The Record Drawing markups shall document all changes in the Work, both concealed and visible. Items that must be shown on the markups include but are not limited to:

- Actual Dimensions, arrangement, and materials used when different than shown in the Plans.
- Changes made by Change Order or Field Order.
- Changes made by the Contractor.
- Accurate locations of storm sewer, sanitary sewer, water mains and other water appurtenances, structures, conduits, light standards, vaults, width of roadways, sidewalks, landscaping area, building footprints, channelization and pavement markings, etc. Include pipe invert elevations, top of castings (manholes, inlets, etc.).

Drawings shall be subject to the inspection of the Engineer at all times. Prior to acceptance of the work, the Contractor shall deliver to the Engineer one set of neatly marked record drawings showing the information required above.

Requests for partial payment will not be approved if the marked-up prints are not kept current, and request for final payment will not be approved until the marked-up prints are delivered to the Engineer.

1-05.3(3) “Or Equal” Materials (New Section)

The following new section shall be added to the Standard Specifications:

The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Contract Documents, including “or equal” materials and equipment as specified in the Technical Specifications, or those substitute materials and equipment approved by the Engineer and identified by Addendum. The materials and equipment described in the Contract Documents establish a standard of required type, function, and quality to be met by any proposed substitute or “or equal” item. Request for Engineer’s clarification of materials and equipment considered “or equal” must be received by the Engineer at least five (5) days prior to the bid opening date. The burden of proof of the merit of the proposed item is upon the Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.
The Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal. The Engineer may require the Contractor to furnish additional data regarding the proposed substitute item. The Engineer will be the sole judge of acceptability. No “or equal” or substitute shall be ordered, installed or utilized until the Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Working Drawing for an “or equal.” The Engineer will advise the Contractor in writing of any negative determination.

The Engineer will record the Engineer's costs in evaluating a substitute proposed or submitted by the Contractor. Whether or not the Engineer approves a substitute item so proposed or submitted by Contractor, the Contractor shall reimburse the Owner for the charges of the Engineer for evaluating each such proposed substitute. The Contractor shall also reimburse the Owner for the Engineer's fees of making changes in the Contract Documents (or in the provisions of any other direct contract with the Owner) resulting from acceptance of each proposed substitute.

1-05.6 Inspection of Work and Materials

The following shall be added to the Standard Specifications:

The Contractor shall be responsible for scheduling and paying for all testing and inspections required by the Technical Specifications. The cost of testing shall be considered incidental to the various bid items.

Refer to Section 01 45 11 – Testing, Inspections, Supervision of the Technical Specifications for additional testing requirements related to this project.

1-05.7 Removal of Defective and Unauthorized Work

(October 1, 2005 APWA GSP)

Supplement this section with the following:

If the Contractor fails to remedy defective or unauthorized work within the time specified in a written notice from the Engineer, or fails to perform any part of the work required by the Contract Documents, the Engineer may correct and remedy such work as may be identified in the written notice, with Contracting Agency forces or by such other means as the Contracting Agency may deem necessary.

If the Contractor fails to comply with a written order to remedy what the Engineer determines to be an emergency situation, the Engineer may have the defective and unauthorized work corrected immediately, have the rejected work removed and replaced, or have work the Contractor refuses to perform completed by using Contracting Agency or other forces. An emergency situation is any situation when, in the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might cause serious risk of loss or damage to the public.

Direct or indirect costs incurred by the Contracting Agency attributable to correcting and remedying defective or unauthorized work, or work the Contractor failed or refused to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from monies due, or to become due, the Contractor. Such direct and indirect costs shall include in particular, but without limitation, compensation for additional professional services required, and costs for repair and replacement of work of others destroyed or damaged by correction, removal, or replacement of the Contractor’s unauthorized work.

No adjustment in contract time or compensation will be allowed because of the delay in the performance of the work attributable to the exercise of the Contracting Agency’s rights provided by this Section.

The rights exercised under the provisions of this section shall not diminish the Contracting Agency’s right to pursue any other avenue for additional remedy or damages with respect to the Contractor’s failure to perform the work as required.
1-05.8 Survey Monuments (New Section)

The following new section shall be added to the Standard Specifications:

The Contracting Agency will, at its own cost, reference all known existing monuments or markers relating to subdivisions, plats, roads, street centerline intersections, etc. The Contractor shall take special care to protect these monuments or markers and also the reference points. In the event the Contractor is negligent in preserving such monuments and markers, the points will be reset by a licensed surveyor at the Contractor's expense.

1-05.11 Final Inspection

Delete this section and replace it with the following:

1-05.11 Final Inspections and Operational Testing

(October 1, 2005 APWA GSP)

1-05.11(1) Substantial Completion Date

When the Contractor considers the work to be substantially complete, the Contractor shall so notify the Engineer, in writing, and request the Engineer establish the Substantial Completion Date. The Contractor's request shall list the specific items of work that remain to be completed in order to reach physical completion. The Engineer will schedule an inspection of the work with the Contractor to determine the status of completion. The Engineer may also establish the Substantial Completion Date unilaterally.

If, after this inspection, the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefore.

Upon receipt of written notice concurring in or denying substantial completion, whichever is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized interruption, the work necessary to reach Substantial and Physical Completion. The Contractor shall provide the Engineer with a revised schedule indicating when the Contractor expects to reach substantial and physical completion of the work.

The above process shall be repeated until the Engineer establishes the Substantial Completion Date and the Contractor considers the work physically complete and ready for final inspection.

1-05.11(2) Final Inspection and Physical Completion Date

When the Contractor considers the work physically complete and ready for final inspection, the Contractor by written notice, shall request the Engineer to schedule a final inspection. The Engineer will set a date for final inspection. The Engineer and the Contractor will then make a final inspection and the Engineer will notify the Contractor in writing of all particulars in which the final inspection reveals the work incomplete or unacceptable. The Contractor shall immediately take such corrective measures as are necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously, diligently, and without interruption until physical completion of the listed deficiencies. This process will continue until the Engineer is satisfied the listed deficiencies have been corrected.

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.

The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer's right hereunder.
Upon correction of all deficiencies, the Engineer will notify the Contractor and the Contracting Agency, in writing, of the date upon which the work was considered physically complete. That date shall constitute the Physical Completion Date of the contract but shall not imply acceptance of the work or that all the obligations of the Contractor under the contract have been fulfilled.

1-05.11(3) Operational Testing

It is the intent of the Contracting Agency to have at the Physical Completion Date a complete and operable system. Therefore, when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing they shall be fully tested under operating conditions for the time period specified to ensure their acceptability prior to the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and equipment to be tested during this period shall be tested under the observation of the Engineer, so that the Engineer may determine their suitability for the purpose for which they were installed. The Physical Completion Date cannot be established until testing and corrections have been completed to the satisfaction of the Engineer.

The costs for power, gas, labor, material, supplies, and everything else needed to successfully complete operational testing, shall be included in the unit contract prices related to the system being tested, unless specifically set forth otherwise in the proposal.

Operational and test periods, when required by the Engineer, shall not affect a manufacturer’s guaranties or warranties furnished under the terms of the contract.

Add the following to Section 1-05.11(3) of the APWA GSP:

Refer to Section 01 45 11 – Testing, Inspections, Supervision of the Technical Specifications for additional testing requirements related to this project.

1-05.12(1) One-Year Guarantee Period (New Section)  
(March 8, 2013 APWA GSP)

The following new section shall be added to the Standard Specifications:

The Contractor shall return to the project and repair or replace all defects in workmanship and material discovered within one year after Final Acceptance of the Work. The Contractor shall start work to remedy any such defects within 7 calendar days of receiving Contracting Agency’s written notice of a defect and shall complete such work within the time stated in the Contracting Agency’s notice. In case of an emergency, where damage may result from delay or where loss of services may result, such corrections may be made by the Contracting Agency’s own forces or another contractor, in which case the cost of corrections shall be paid by the Contractor. In the event the Contractor does not accomplish corrections within the time specified, the work will be otherwise accomplished and the cost of same shall be paid by the Contractor.

When corrections of defects are made, the Contractor shall then be responsible for correcting all defects in workmanship and materials in the corrected work for one year after acceptance of the corrections by Contracting Agency.

This guarantee is supplemental to and does not limit or affect the requirements that the Contractor’s work comply with the requirements of the Contract or any other legal rights or remedies of the Contracting Agency.
Supplement this section with the following:

The Contractor agrees the above one-year limitation shall not exclude nor diminish the Contracting Agency's rights under any law to obtain damages and recover costs resulting from defective and unauthorized work discovered after one year.

1-05.13 Superintendents, Labor and Equipment of Contractor
(August 14, 2013 APWA GSP)

Delete the sixth and seventh paragraphs of this section.

1-05.15 Method of Serving Notices
(March 25, 2009 APWA GSP)

Revise the second paragraph to read:

All correspondence from the Contractor shall be directed to the Project Engineer. All correspondence from the Contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the Contract, must be in paper format, hand delivered or sent via mail delivery service to the Project Engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the Contract.

1-05.16 Water and Power (New Section)

The following new section shall be added to the Standard Specifications:

**Water Supply:** Water for use on this project shall be furnished by the Contracting Agency and the Contractor shall convey the water from the nearest convenient hydrant or other source at his own expense. The hydrants shall be used in accordance with the appropriate Water Department regulations. The Contracting Agency reserves the right to deny the use of fire hydrants where deemed inappropriate by the Contracting Agency.

**Power Supply:** The Contractor shall make necessary arrangements and shall bear the costs for power necessary for the performance of the work.

**Measurement and Payment:** No separate measurement and payment for water and power will be made. This pertains to water required for dust control, water settling trenches (when approved by the Engineer), and any other water as required by the Contract Documents. All costs for hauling, conveying, and applying water shall be included in the various bid items of the proposal.

1-06 CONTROL OF MATERIAL

1-06.1(4) Fabrication Inspection Expense
(June 27, 2011 APWA GSP)

Delete this section in its entirety.

1-06.6 Recycled Materials
(January 4, 2016 APWA GSP)

Delete this section, including its subsections, and replace it with the following:

The Contractor shall make their best effort to utilize recycled materials in the construction of this project. Approval of such material use shall be as detailed elsewhere in the Standard Specifications.

Prior to Physical Completion the Contractor shall report the quantity of recycled materials that were utilized in the construction of the project for each of the items listed in Section 9-03.21. The report shall include hot mix asphalt, recycled concrete aggregate, recycled glass, steel furnace slag and other recycled materials (e.g. utilization of on-site material and aggregates from concrete returned to the
The Contractor’s report shall be provided on DOT form 350-075 Recycled Materials Reporting.

1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws to be Observed

(October 1, 2005 APWA GSP)

Supplement this section with the following:

In cases of conflict between different safety regulations, the more stringent regulation shall apply.

The Washington State Department of Labor and Industries shall be the sole and paramount administrative agency responsible for the administration of the provisions of the Washington Industrial Safety and Health Act of 1973 (WISHA).

The Contractor shall maintain at the project site office, or other well-known place at the project site, all articles necessary for providing first aid to the injured. The Contractor shall establish, publish, and make known to all employees, procedures for ensuring immediate removal to a hospital, or doctor’s care, persons, including employees, who may have been injured on the project site. Employees should not be permitted to work on the project site before the Contractor has established and made known procedures for removal of injured persons to a hospital or a doctor’s care.

The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of the Contractor’s plant, appliances, and methods, and for any damage or injury resulting from their failure, or improper maintenance, use, or operation. The Contractor shall be solely and completely responsible for the conditions of the project site, including safety for all persons and property in the performance of the work. This requirement shall apply continuously, and not be limited to normal working hours. The required or implied duty of the Engineer to conduct construction review of the Contractor’s performance does not, and shall not, be intended to include review and adequacy of the Contractor’s safety measures in, on, or near the project site.

Amend the second sentence of the first paragraph to read:

The Contractor shall indemnify and save harmless the State (including the Commission, the Secretary, and any agents, officers, and employees) and the Contracting Agency (including any agents, officers, employees, and representatives) against any claims which may arise because the Contractor (or any employee of the Contractor or subcontractor or materialman) violated a legal requirement.

1-07.2 State Taxes

Delete this section, including its sub-sections, in its entirety and replace it with the following:

1-07.2 State Sales Tax

(June 27, 2011 APWA GSP)

The Washington State Department of Revenue has issued special rules on the State sales tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contractor should contact the Washington State Department of Revenue for answers to questions in this area. The Contracting Agency will not adjust its payment if the Contractor bases a bid on a misunderstood tax liability.

The Contractor shall include all Contractor-paid taxes in the unit bid prices or other contract amounts. In some cases, however, state retail sales tax will not be included. Section 1-07.2(2) describes this exception.

The Contracting Agency will pay the retained percentage (or release the Contract Bond if a FHWA-funded Project) only if the Contractor has obtained from the Washington State Department of Revenue a certificate showing that all contract-related taxes have been paid (RCW 60.28.051). The Contracting Agency may deduct from its payments to the Contractor any amount the Contractor may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. Any amount so deducted will be paid into the proper State fund.
1-07.2(1) State Sales Tax - Rule 171

WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used primarily for foot or vehicular traffic. This includes storm or combined sewer systems within and included as a part of the street or road drainage system and power lines when such are part of the roadway lighting system. For work performed in such cases, the Contractor shall include Washington State Retail Sales Taxes in the various unit bid item prices, or other contract amounts, including those that the Contractor pays on the purchase of the materials, equipment, or supplies used or consumed in doing the work.

1-07.2(2) State Sales Tax - Rule 170

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington; water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

For work performed in such cases, the Contractor shall collect from the Contracting Agency, retail sales tax on the full contract price. The Contracting Agency will automatically add this sales tax to each payment to the Contractor. For this reason, the Contractor shall not include the retail sales tax in the unit bid item prices, or in any other contract amount subject to Rule 170, with the following exception.

Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or a subcontractor makes on the purchase or rental of tools, machinery, equipment, or consumable supplies not integrated into the project. Such sales taxes shall be included in the unit bid item prices or in any other contract amount.

1-07.2(3) Services

The Contractor shall not collect retail sales tax from the Contracting Agency on any contract wholly for professional or other services (as defined in Washington State Department of Revenue Rules 138 and 244).

1-07.3 Fire Prevention and Merchantable Timber Requirements

Delete this section and all submittal requirements.

1-07.6 Permits and Licenses

Supplement this section with the following:

- The Contractor and all subcontractors are responsible for obtaining and paying for business licenses in the City of Selah.
- The Contractor is responsible for obtaining and paying for the building permit for this project.

No hydraulic permits are required for this project unless the Contractor’s operations use, divert, obstruct, or change the natural flow or bed of any river or stream, or utilize any of the waters of the State or materials from gravel or sand bars, or from stream beds.

All costs required to comply with this section shall be the responsibility of the Contractor.
1-07.7 Load Limits
(March 13, 1995 WSDOT GSP)

Supplement this section with the following:

If the sources of materials provided by the Contractor necessitates hauling over roads other than State Highways, the Contractor shall, at the Contractor's expense, make all arrangements for the use of the haul routes.

1-07.9 Wages

1-07.9(5) Required Documents

Add the following:

If using the occupation code for wage affidavits and payrolls and if the project involves more than one jurisdictional area, the Contractor shall reference the area just after the occupation code number. For example: 10-0010 Yak.E.

1-07.13 Contractor's Responsibility for Work

1-07.13(3) Relief of Responsibility for Damage by Public Traffic

Delete this section and replace it with the following:

When it is necessary for public traffic to utilize the street and associated facilities during construction, the Contractor shall be responsible for damages to improvements. The Contractor shall provide all necessary protection and temporary facilities to accommodate both vehicular and pedestrian traffic during construction.

1-07.15 Temporary Water Pollution Prevention

Delete this section and all submittal requirements.

1-07.18 Public Liability and Property Damage Insurance

Delete this section in its entirety, and replace it with the following:

Within ten (10) days following contract award or prior to start of construction, whichever comes first, the Contractor shall furnish the Owner a Certificate of Insurance and the additional insured endorsements as evidence of compliance with these requirements. This certificate shall name the CITY OF SELAH, its employees, agents, elected and appointed officials, HLA Engineering and Land Surveying, Inc. (HLA), as "additional insureds" and shall stipulate that the policies named thereon cannot be canceled unless at least thirty (30) days written notice has been given to the Owner. The certificate shall not contain the following or similar wording regarding cancellation notification: "Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or representatives."

The Contractor shall obtain and keep in force the following policies of insurance. The policies shall be with companies or through sources approved by the State Insurance Commissioner pursuant to Chapter 48.05, RCW. Unless otherwise indicated below, the policies shall be kept in force from the execution date of the contract until the date of acceptance by the Owner.

1. Commercial General Liability Insurance written under ISO Form CG0001 or its equivalent with minimum limits of $3,000,000 per occurrence and in the aggregate for each policy period. This protection may be a CGL policy or any combination of primary, umbrella or excess liability coverage affording total liability limits of not less than $3,000,000. Products and completed operations coverage shall be provided for a period of one year following final acceptance of the work.
2. Commercial Automobile Liability Insurance providing bodily injury and property damage liability coverage for all owned and non-owned vehicles assigned to or used in the performance of the work with a combined single limit of not less than $1,000,000 each occurrence with the Owner named as an additional insured in connection with the Contractor’s Performance of the contract.

The Commercial General Liability policy and the Commercial Automobile Liability Insurance policy may, at the discretion of the Contractor, contain provisions for a deductible. If a deductible applies to any claim under these policies, then payment of that deductible will be the responsibility of the Contractor, notwithstanding any claim of liability against the Contracting Agency. However, in no event shall any provision for a deductible provide for a deductible in excess of $50,000.00.

Prior to contract execution, the Contractor shall file with the Engineer ACORD Form Certificates of Insurance evidencing the minimum insurance coverages required under these specifications.

All insurance policies and Certificates of Insurance shall include a requirement providing for a minimum of a 30-day prior written notice to the Contracting Agency of any cancellation or reduction of coverage. All insurance coverage required by this section shall be written and provided by “occurrence-based” policy forms rather than by “claims made” forms.

Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract upon which the Contracting Agency may, after giving a five working day notice to the Contractor to correct the breach, immediately terminate the contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Contracting Agency on demand, or at the sole discretion of the Contracting Agency, offset against funds due the Contractor from the Contracting Agency. All costs for insurance, including any payments of deductible amounts, shall be considered incidental to and included in the unit contract prices and no additional payment will be made.

The Contractor is responsible for all his subcontractors’ actions and omissions.

1-07.23 Public Convenience and Safety

1-07.23(1) Construction Under Traffic

Add the following after the fourth sentence of the second paragraph:

Deficiencies not caused by the Contractor’s operations shall be repaired by the Contractor when directed by the Engineer, at the Contracting Agency’s expense.

Replace item 2. of the second paragraph with the following:

2. Keep existing traffic signal and lighting systems in operation as the work proceeds. (The Contracting Agency will continue the routine maintenance on such system.)

Add the following to the third paragraph:

5. Maintain vehicular and pedestrian access to businesses at all times that businesses are open.

Add the following to the sixth paragraph:

7. Open trenches and excavations shall be protected with proper barricades and at night, they shall be distinctively indicated by adequately placed lights.

Add the following paragraph:

It shall be the responsibility of the Contractor to seek the approval of and notify the Resident Engineer and the Police and Fire Departments at least 24 hours prior to closing any street, in addition to coordinating the proposed closures with the Contracting Agency to ensure proper detouring of traffic. When the street is re-opened, it shall again be the responsibility of the Contractor to notify the above named departments and persons.
Construction and Maintenance of Detours

Add the following to the third paragraph:

The Contractor shall maintain vehicular and pedestrian access to businesses at all times that businesses are open, unless work is occurring immediately in front of the doorway. It shall be the responsibility of the Contractor to maintain pedestrian traffic and business access throughout the duration of the project. At a minimum, the Contractor shall:

1. Minimize the disruption in front of the business access by removing sidewalk on either side of the access and leaving the existing sidewalk in place as long as possible and, likewise, shall sequence the installation of the new sidewalk to provide access to the business;
2. Provide gravel surfacing (crushed surfacing top course) access across the construction area to the door of the business;
3. Provide boardwalks and bridging where gravel surfacing cannot be provided or, by the nature of the business or where directed by the Engineer, wheeled access by strollers and wheelchairs is critical to the business and cannot be provided through the gravel surfacing;
4. Provide temporary sidewalk signs directing pedestrians through the construction, notifying pedestrians of alternative routes, and directing pedestrians to businesses where means of access is not obvious; and
5. Adjusting times of construction immediately in front of a business access to times of the day when the business is closed, or business activity is light. For example, construction in front of a deli would be restricted during the lunch hour.
6. When construction activities will affect ingress and egress to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 24 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification.
7. Local access shall be maintained to the residents within the project limits at all times.

Rights of Way

(\text{July 23, 2015 APWA GSP})

Delete this section in its entirety, and replace it with the following:

Street right-of-way lines, limits of easements, and limits of construction permits are indicated in the Plans. The Contractor’s construction activities shall be confined within these limits, unless arrangements for use of private property are made.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights-of-way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor’s attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public right-of-way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made available to the Contractor as soon as practical after they have been obtained by the Engineer.

Whenever easements or rights of entry have not been acquired prior to advertising, these areas are so noted in the Plans. The Contractor shall not proceed with any portion of the work in areas where right-of-way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right-of-way or easement is available or that the right of entry has been received. If the Contractor is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right-of-way, the Contractor will be entitled to an extension of time. The Contractor agrees that such delay shall not be a breach of contract.

Each property owner shall be given a 48-hour notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.
The Contractor shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the Contractor may desire for temporary construction facilities, storage of materials, or other Contractor needs. However, before using any private property, whether adjoining the work or not, the Contractor shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.

1-07.28 Safety Standards (New Section)

The following new section shall be added to the Standard Specifications:

All work shall be performed in accordance with all applicable local, state, and federal health and safety codes, standards, regulations, and/or accepted industry standards. It shall be the responsibility of the Contractor to ensure that his work force and the public are adequately protected against any hazards.

The Contracting Agency shall have the authority at all times to issue a stop work order at no penalty to the Contracting Agency if, in its opinion, working conditions present an undue hazard to the public, property, or the work force. Such authority shall not, however, relieve the Contractor of responsibility for the maintenance of safe working conditions or assess any responsibility to the Contracting Agency or Engineer for the identification of any or all unsafe conditions.

1-07.29 Notifying Property Owners (New Section)

The following new section shall be added to the Standard Specifications:

When construction activities will affect ingress and egress or utility service to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 24 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification in both English and Spanish. Property owner notification requirements shall be coordinated with the Owner.

1-08 PROSECUTION AND PROGRESS

Add the following new section:

1-08.0 Preliminary Matters
(May 25, 2006 APWA GSP)

Add the following new section:

1-08.0(1) Preconstruction Conference
(October 10, 2008 APWA GSP)

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, the Engineer and such other interested parties as may be invited. The purpose of the preconstruction conference will be:

1. To review the initial progress schedule;
2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;

4. To establish normal working hours for the work;

5. To review safety standards and traffic control; and

6. To discuss such other related items as may be pertinent to the work.

The Contractor shall prepare and submit at the preconstruction conference the following:

1. A breakdown of all lump sum items;
2. A preliminary schedule of working drawing submittals; and
3. A list of material sources for approval if applicable.

Add the following new section:

1-08.0(2) Hours of Work
(December 8, 2014 APWA GSP)

Except in the case of emergency or unless otherwise approved by the Engineer, the normal working hours for the Contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. Monday through Friday, exclusive of a lunch break. If the Contractor desires different than the normal working hours stated above, the request must be submitted in writing prior to the preconstruction conference, subject to the provisions below. The working hours for the Contract shall be established at or prior to the preconstruction conference.

All working hours and days are also subject to local permit and ordinance conditions (such as noise ordinances).

If the Contractor wishes to deviate from the established working hours, the Contractor shall submit a written request to the Engineer for consideration. This request shall state what hours are being requested, and why. Requests shall be submitted for review no later than five (5) working days prior to the day(s) the Contractor is requesting to change the hours.

If the Contracting Agency approves such a deviation, such approval may be subject to certain other conditions, which will be detailed in writing. For example:

1. On non-Federal aid projects, requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency representatives who worked during such times. (The Engineer may require designated representatives to be present during the work. Representatives who may be deemed necessary by the Engineer include, but are not limited to: survey crews; personnel from the Contracting Agency’s material testing lab; inspectors; and other contracting Agency employees or third-party consultants, when, in the opinion of the Engineer, such work necessitates their presence.)

2. Considering the work performed on Saturdays, Sundays, and holidays as working days with regard to the contract time.

3. Considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period.

4. If a 4-10 work schedule is requested and approved the non-working day for the week will be charged as a working day.
5. If Davis Bacon wage rates apply to this Contract, all requirements must be met and recorded properly on certified payroll.

1-08.0(3) Reimbursement for Overtime Work of Contracting Agency Employees (New Section)

The following new section shall be added to the Standard Specifications:

Where the Contractor elects to work on a nonworking day, as defined in Section 1-08.5 of the Standard Specifications, or longer than the normal working hours specified in Section 1-08.0(2), such work shall be considered as overtime work. If a 4-10 schedule is approved and the Contractor elects to work the fifth day or works multiple shifts in a single 24-hour period, such work shall be considered overtime work, or the Contractor will be charged an additional working day, at his option. On all such overtime work, a Resident Engineer will be present and a survey crew may be required at the discretion of the Engineer. In all such cases, the Contracting Agency may deduct overtime costs of employees and/or representatives of the Contracting Agency from amounts due or to become due to the Contractor.

The Contractor by these specifications does hereby authorize the Engineer to deduct such costs from the amount due or to become due to the Contractor.

1-08.1 Subcontracting

Supplement this section with the following:

A Subcontractor or lower tier Subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet Work (Form 421-012), and

The Contractor’s records pertaining to the requirements of this Special Provision shall be open to inspection or audit by representatives of the Contracting Agency during the life of the contract and for a period of not less than three years after the date of acceptance of the contract. The Contractor shall retain these records for that period. The Contractor shall also guarantee that these records of all Subcontractors and lower tier Subcontractors shall be available and open to similar inspection or audit for the same time period.

(May 30, 2019 APWA GSP, Option B)

Delete the ninth paragraph, beginning with “On all projects, the Contractor shall certify….”.
Request to Sublet Work

Disadvantaged Business (DBE)  Veteran Owned Business (VBE)  Woman Owned Business (WBE)
Minority Owned Business (MBE)  State Small Business (SBE)  Federal Small Business (FBE) (Federal Program)

Prime Contractor  Federal Employer I.D. Number *  State Contract Number

Job Description (Title)  Request Number

Approval is Requested to Sublet the Following Described Work to:

Lower Tier Subcontractor  Subcontractor
Lower Tier Subcontract/Subcontract Name  Unified Business Identifier (UBI)  Federal Employer I.D. Number *

Address  Telephone Number

City  State  Zip Code  Estimated Starting Date

If Lower Tier Subcontractor, Name of Corresponding Sub.  Fed ID of Corresponding Sub  * If no Federal Employer I.D. Number, Use Owner's Social Security Number

Item No.  Partial  Item Description  Amount

Prime Contractor Signature  Date

Department of Transportation Use Only

Percent of Total Contract  DBE Status Verification
This Request  %  Project Engineer’s Signature  Date
Previous Requests  %  Approved - Region Construction Engineer (When Required)  Date
Sublet to Date  %

□ Approved

DOT Form 421-012  Revised 07/2016
Distribution: White (Original) - Region  Canary (Copy) - Project Engineer  Pink (Copy) - Contractor
1-08.3 Progress Schedule

Delete this section and replace it with the following:

Following Contract award and satisfactory provision or execution of all required Contract Documents, the Engineer will schedule a preconstruction conference at a time mutually agreeable to all concerned. At this conference, all points of the Contract Documents will be open to discussion including scope, order and coordination of work, equipment lead time required, means and methods of construction, inspection and reporting procedures, etc. The Contractor should satisfy himself that all provisions and intentions of the Contract are fully understood.

The Contractor shall prepare and submit to the Engineer at the preconstruction conference a Construction Progress and Completion Schedule using a bar graph format. Items in the Schedule shall be arranged in the order and sequence in which they will be performed. The Schedule shall conform to the working time and time of completion established under the terms of the Contract and shall be subject to modification by the Engineer. The Schedule shall be drawn to a time scale, shown along the base of the diagram, using an appropriate measurement per day with weekends and holidays indicated. The Construction Progress Schedule shall be continuously updated and, if necessary, redrawn upon the first working day of each month or upon issuance of any Change Order which substantially affects the scheduling. Electronic copies of newly updated schedules shall be sent to the Engineer, as directed, immediately upon preparation. Refer to Section 01 33 00 – Submittals Procedure of the Technical Specifications for additional construction schedule submittal requirements.

Seasonal weather conditions shall be considered in the planning and scheduling of work influenced by high or low ambient temperature or precipitation to ensure the completion of the work within the Contract Time. No time extensions will be granted for the Contractor's failure to take into account such weather conditions for the location of the work and for the period of time in which the work is to be accomplished.

1-08.4 Prosecution of Work

Delete this section and replace it with the following:

1-08.4 Notice to Proceed and Prosecution of Work
(July 23, 2015 APWA GSP)

Notice to Proceed will be given after the Contract has been executed and the contract bond and evidence of insurance have been approved and filed by the Contracting Agency. The Contractor shall not commence with the work until the Notice to Proceed has been given by the Engineer. The Contractor shall commence construction activities on the project site within ten days of the Notice to Proceed Date, unless otherwise approved in writing. The Contractor shall diligently pursue the work to the physical completion date within the time specified in the Contract. Voluntary shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the work within the time(s) specified in the Contract.

When shown in the Plans, the first order of work shall be the installation of high visibility fencing to delineate all areas for protection or restoration, as described in the Contract. Installation of high visibility fencing adjacent to the roadway shall occur after the placement of all necessary signs and traffic control devices in accordance with 1-10.1(2). Upon construction of the fencing, the Contractor shall request the Engineer to inspect the fence. No other work shall be performed on the site until the Contracting Agency has accepted the installation of high visibility fencing, as described in the Contract.

Supplement this section with the following:

Failure of the Contractor to begin work by the date set forth in the Notice to Proceed will be considered grounds for Termination for Default as specified under Section 1-08.10(1) of the Standard Specifications.
1-08.5 Time for Completion

Add the following to the first paragraph:

Forty (40) working days after the date set forth in the Notice to Proceed shall be allowed for completion of all Contract work.

Add the following paragraph after the second paragraph:

Inclement weather shall not be a prima facie reason for the granting of an extension of time, and the Contractor shall make every effort to continue work under prevailing conditions. The Owner may, however, grant an extension of time if an unavoidable delay as a result of inclement weather in fact occurs, and such shall then be classified as a “delay”. An “inclement” weather delay day is defined as a day on which the Contractor is prevented by inclement weather or conditions resulting immediately therefrom adverse to the current controlling operation or critical path activity, as determined by the Resident Engineer, from proceeding with at least 75 percent of the normal labor and equipment force engaged on such operation for at least 60 percent of the total daily time being currently spent on the controlling operation or critical path activity.

(November 30, 2018 APWA GSP, Option A)

Revise the third and fourth paragraphs to read:

Contract time shall begin on the first working day following the Notice to Proceed Date. Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and any partial or whole day the Engineer declares as unworkable. Within 10 calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, the Contractor shall be deemed as having accepted the statement as correct. If the Contractor is approved to work 10 hours a day and 4 days a week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

Revise the sixth paragraph to read:

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor’s obligations under the contract have been performed by the Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
   a. Material Acceptance Certification Documents
   b. Final Contract Voucher Certification
   c. Copies of the approved “Affidavit of Prevailing Wages Paid” for the Contractor and all Subcontractors
   d. If applicable, a copy of the Notice of Termination sent to the Washington State Department of Ecology (Ecology); the elapse of 30 calendar days from the date of receipt of the Notice of Termination by Ecology; and no rejection of the Notice of Termination of Ecology. This requirement will not apply if Construction Stormwater
General Permit is transferred back to the Contracting Agency in accordance with Section 8-01.3(16).

e. Property owner releases per Section 1-07.24

f. Project record drawings per Section 1-05.3(1)

1-08.9 Liquidated Damages

Replace the third paragraph with the following:

If the Contract work is not completed within the times specified in Section 1-08.5, the Contractor agrees to pay to the Owner the sum of $1,800 per day for each and every working day said work remains uncompleted after expiration of the specified time.

1-08.10 Termination of Contract

1-08.10(1) Termination for Default

In the last sentence of the fifth paragraph, replace “State of Washington, Department of Transportation” with “Contracting Agency.”

1-09 MEASUREMENT AND PAYMENT

1-09.2 Weighing Equipment

1-09.2(1) General Requirements for Weighing Equipment
(July 23, 2015 APWA GSP, Option 2)

Revise item 4 of the fifth paragraph to read:

4. Test results and scale weight records for each day’s hauling operations are provided to the Engineer daily. Reporting shall utilize WSDOT form 422-027, Scaleman’s Daily Report, unless the printed ticket contains the same information that is on the Scaleman’s Daily Report Form. The scale operator must provide AM and/or PM tare weights for each truck on the printed ticket.

Supplement this section with the following:

Certified weight tickets accompanying each truckload of material will be required to be delivered to the Resident Engineer at the site. Should the Resident Engineer or Material Receiver be unavailable, it shall be the responsibility of the Contractor's project superintendent to collect all said certified tickets for the day and deliver them to the Resident Engineer the morning following the day's construction. The certified tickets shall have project title, date, time, product delivered, gross weight, tare weight, and net weight shown in pounds. Any certified weight tickets submitted later than the morning following the day materials are delivered to the site will not be considered for measurement and payment.

1-09.2(3) Specific Requirements for Platform Scales

Supplement this section with the following:

The Contractor will furnish a person, at no cost to the Contracting Agency, who will operate the certified scales while the loading and hauling of materials is in progress. The Contractor shall provide the platform scales and any tickets required for self-printing scales.

1-09.2(5) Measurement
(May 2, 2017 APWA GSP)

Revise the first paragraph to read:

Scale Verification Checks – At the Engineer’s discretion, the Engineer may perform verification checks on the accuracy of each bath, hopper, or platform scale used in weighing contract items of Work.
1-09.3 Scope of Payment

Supplement this section with the following:

Payment for work performed under this Contract will be based on the items listed in the Unit Price Bid Proposal. Should a conflict exist between the item descriptions or the units of measurement and payment listed in the Unit Price Bid Proposal and the “Payment” clauses found in each section of the Standard Specifications, the Unit Price Bid Proposal items will prevail. If work is required to complete the project according to the intent of the Plans and Specifications, but no bid item is provided in the Unit Price Bid Proposal, then the Contractor shall include the cost for providing the necessary work in the unit or lump sum price for the bid item most closely related to the work.

1-09.3(1) Description of Bid Items (New Section)

The following new section shall be added to the Standard Specifications:

1. For the bid item “Minor Change,” refer to Section 1-04.4(1) Minor Changes of the Special Provisions.

2. The lump sum price bid for “Mobilization,” shall be full compensation for all labor, materials, tools, and equipment necessary to mobilize to the project site as defined in the Standard Specifications. Payment will be made in accordance with the Standard Specifications. This bid item shall also include all costs to supply, install, maintain, and remove temporary site security fencing.

3. The lump sum price bid for “Existing Building Demolition, Complete”, shall be full compensation for all labor, materials, tools, equipment and incidentals necessary for demolition, removal and disposal of the existing building structure, equipment, and appurtenances necessary to accommodate the new building improvements. This bid item also includes all required removal, protection, and storage of materials and equipment that are called out to remain or be reused.

4. The lump sum price bid for “Roof Structure Rebuild, Complete”, shall be full compensation for all labor, tools, materials, equipment and incidentals necessary for a complete installation, as specified and shown on the Plans. This bid item includes, but is not limited to, all costs for constructing the building including roof framing and trusses, sheet metal roofing and flashing, hollow metal doors, door hardware, insulation, interior and exterior finishes and painting, signage and other required specialties, furnishings, piping, fittings, valves, pipe supports, restraints, and other miscellaneous plumbing and connections, unit heaters, fans, dampers, louvers, duct work, miscellaneous sheet metal and flashing, insulation, and thermostats. Also, included in this bid item is the cost for all required startup and testing services, training, and test reports. Provide all other appurtenances required to make it a complete installation.

5. The lump sum price bid for “Electrical and Control System, Complete,” shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for installation of a complete and operational electrical supply and control system. Work shall include, but not necessarily be limited to, furnishing and installing major electrical equipment and components, interior and exterior lighting, control panels, junction boxes, conduits, conduit banks, and connecting all equipment and facilities described under other bid items within buildings, and on-site. Also included is the cost for all required startup, testing services, training, and temporary power and control systems and connections as required.

1-09.4 Equitable Adjustment

Replace Item 2.b. with the following:

2.b. Per Section 1-09.6, Force Account.
1-09.6 Force Account
(October 10, 2008 APWA GSP)

Supplement this section with the following:

The Contracting Agency has estimated and included in the Proposal, dollar amounts for all items to be paid per force account, only to provide a common proposal for Bidders. All such dollar amounts are to become a part of Contractor's total bid. However, the Contracting Agency does not warrant expressly or by implication that the actual amount of work will correspond with those estimates. Payment will be made on the basis of the amount of work actually authorized by Engineer.

Add the following clarification:

The term “project overhead” shall include “jobsite overhead.” The term “general company overhead” shall include “home office overhead.”

Supplement paragraph one of Subsection 2 with the following:

Sales tax will be applied to payment made to the Contractor and shall not be included in the cost of materials provided to the Engineer.

1-09.7 Mobilization

Supplement this section with the following:

When the contract includes multiple schedules of work containing lump sum contract prices for “Mobilization”, partial payments will be made on the percent of the work schedule totals, not the percent of the total original contract.

1-09.9 Payments
(March 13, 2012 APWA GSP)

Delete the first four paragraphs and replace them with the following:

The basis of payment will be the actual quantities of work performed according to the Contract and as specified for payment.

The Contractor shall submit a breakdown of the cost of lump sum bid items at the Preconstruction Conference, to enable the Project Engineer to determine the work performed on a monthly basis. A breakdown is not required for lump sum items that include a basis for incremental payments as part of the respective Specification. Absent a lump sum breakdown, the Project Engineer will make a determination based on information available. The Project Engineer's determination of the cost of work shall be final.

Progress payments for completed work and material on hand will be based upon progress estimates prepared by the Engineer. A progress estimate cutoff date will be established at the preconstruction conference.

The initial progress estimate will be made not later than 30 days after the Contractor commences the work, and successive progress estimates will be made every month thereafter until the Completion Date. Progress estimates made during progress of the work are tentative and made only for the purpose of determining progress payments. The progress estimates are subject to change at any time prior to the calculation of the final payment.

The value of the progress estimate will be the sum of the following:

1. Unit Price Items in the Bid Form — the approximate quantity of acceptable units of work completed multiplied by the unit price.
2. Lump Sum Items in the Bid Form — based on the approved Contractor’s lump sum breakdown for that item, or absent such a breakdown, based on the Engineer’s determination.

3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or other storage area approved by the Engineer.

4. Change Orders — entitlement for approved extra cost or completed extra work as determined by the Engineer.

Progress payments will be made in accordance with the progress estimate less:

1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
2. The amount of progress payments previously made; and
3. Funds withheld by the Contracting Agency for disbursement in accordance with the Contract Documents.

Progress payments for work performed shall not be evidence of acceptable performance or an admission by the Contracting Agency that any work has been satisfactorily completed. The determination of payments under the contract will be final in accordance with Section 1-05.1.

Supplement this section with the following:

The progress estimate cutoff date established at the preconstruction conference shall be a minimum of ten (10) working days prior to a regularly scheduled meeting of the Contracting Agency governing body where payments may be authorized. Revisions to the agreed upon progress estimate cutoff date will only be made by written approval of the Contracting Agency. The Contractor shall submit a signed Application for Payment within three (3) working days after the progress estimate cutoff date. The Engineer shall have a minimum of five (5) working days to review the Contractor’s Application for Payment. After the application for payment is reviewed by the Engineer, the Engineer will make a recommendation to the Contracting Agency for action at the next available meeting of the governing body that payment be made. Payment to the Contractor will be made within 45 calendar days from the meeting at which the Contracting Agency’s governing body authorizes payment to be made. Failure to submit an Application for Payment within the required time may delay action by the Contracting Agency’s governing body and further delay payment to the Contractor.

All payments for lump sum items over $5,000.00 or a single payment for a lump sum contract of any amount will be measured by a schedule of values established as follows:

At the Preconstruction Conference, the contractor shall furnish a breakdown for each lump sum bid item or for the total lump sum contract price showing the amount bid for each principal category of the work, in such detail as requested by the Engineer, to provide a basis for determining progress payments. This breakdown, referred to as the “Schedule of Values,” will be approved by the Engineer as described in Section 1-08 Prosecution and Progress before the first payment is made.

1-09.9(1) Retainage

Add the following to the fourth paragraph:

6. An affidavit is delivered to the Contracting Agency by the Contractor, stating that all persons performing labor or furnishing materials have been paid.
1-09.9(2) Contracting Agency’s Right to Withhold and Disburse Certain Amounts (New Section)

The following new section shall be added to the Standard Specifications:

In addition to monies retained pursuant to RCW 60.28 and subject to RCW 39.04.250, RCW 39.12, and RCW 39.76, the Contractor authorizes the Engineer to withhold progress payments due or deduct an amount from any payment or payments due the Contractor which, in the Engineer’s opinion, may be necessary to cover the Contracting Agency’s costs for or to remedy the following situations:

1. Damage to another contractor when there is evidence thereof and a claim has been filed.

2. Where the Contractor has not paid fees or charges to public authorities or municipalities which the Contractor is obligated to pay.

3. Utilizing material, tested and inspected by the Engineer, for purposes not connected with the work (Section 1-05.6).

4. Landscape damage assessments per Section 1-07.16.

5. For overtime work performed by Contracting Agency personnel or its representative, per Section 1-08.0(3).

6. Anticipated or actual failure of the Contractor to complete the work on time:
   a. Per Section 1-08.9 Liquidated Damages; or
   b. Lack of construction progress based upon the Engineer’s review of the Contractor’s approved progress schedule which indicates the work will not be completed within the Contract Time. When calculating an anticipated time overrun, the Engineer will make allowances for weather delays, approved unavoidable delays, and suspensions of the work. The amount withheld under this subparagraph will be based upon the liquidated damages amount per day set forth in Contract Documents multiplied by the number of days the Contractor’s approved progress schedule, in the opinion of the Engineer, indicates the Contract may exceed the Contract time.

7. Failure of the Contractor to perform any of the Contractor’s other obligations under the Contract, including but not limited to:
   a. Failure of the Contractor to provide the Engineer with a field office when required by the Contract Provisions.
   b. Failure of the Contractor to protect survey stakes, markers, etc., or to provide adequate survey work as required by Section 1-05.4.
   c. Failure of the Contractor to correct defective or unauthorized work (Section 1-05.7).
   d. Failure of the Contractor to furnish a Manufacturer’s Certificate of Compliance in lieu of material testing and inspection as required by Section 1-06.3.
   e. Failure to submit Intent to Pay Prevailing Wage forms, or correct underpayment to employees of the Contractor or subcontractor of any tier as required by Section 1-07.9.
   f. Failure of the Contractor to pay workers’ benefits (Title 50 and Title 51 RCW) as required by Section 1-07.10.
   g. Failure of the Contractor to submit and obtain approval of a progress schedule per Section 1-08.3.
The Contractor authorizes the Engineer to act as agent for the Contractor disbursing such funds as have been withheld pursuant to this section to a party or parties who are entitled to payment. Disbursement of such funds, if the Engineer elects to do so, will be made only after giving the Contractor 15 calendar days prior written notice of the Contracting Agency's intent to do so, and if prior to the expiration of the 15-calendar day period:

1. No legal action has commenced to resolve the validity of the claims, and
2. The Contractor has not protested such disbursement.

A proper accounting of all funds disbursed on behalf of the Contractor in accordance with this section will be made. A payment made pursuant to this section shall be considered as payment made under the terms and conditions of the Contract. The Contracting Agency shall not be liable to the Contractor for such payment made in good faith.

If legal action is instituted to determine the validity of the claims prior to expiration of the 15-day period mentioned above, the Engineer will hold the funds until determination of the action or written settlement agreement of the parties.

When the conditions 1-7 are resolved or the Contractor provides a Surety Bond satisfactory to the Contracting Agency which will protect the Contracting Agency in the amount withheld, payment shall be made for amounts withheld because of them.

1-09.9(3) Final Payment (New Section)

The following new section shall be added to the Standard Specifications:

Upon completion of all work under this Contract, the Contractor shall notify the Engineer, in writing, that he has completed his part of the Contract and shall request final payment. Upon receipt of such request, the Engineer will inspect and, if acceptable, submit to the Owner his recommendation as to acceptance of the completed work and as to the final estimate of the amount due the Contractor. Upon approval of this final estimate and upon final acceptance of the work under this Contract, the Owner will notify the Department of Revenue of the completion of said Contract. Provided the Department of Revenue certifies there are no taxes or penalties due and owing from the Contractor, and there are no other known claims or liens against the retained funds, and further provided the terms of Section 1-09.9(1) are in compliance, the Owner will pay to the Contractor the balance of monies due under this Contract in accordance with RCW Title 60.28. In the event unsatisfied claims or liens for taxes, material, labor, and other services are known to exist, an amount will be further withheld from the retainage sufficient to satisfy the settlement of such claims and liens, including attorney's fees incurred, and the remainder will be released from escrow, or released from the retained funds and paid to the Contractor.

On contracts for public works, final payment of the retained percentage will not be made until after the Contractor has filed with the Owner the Affidavit of Wages Paid forms required by RCW 39.12.040 certifying that the Contractor and subcontractors have paid not less than the prevailing rate of wages.

The parties further agree that the Owner may, without liability, withhold final payment to the Contractor until such time as the Contractor has completed all forms required by the Owner.

If a contract is funded by grant, state, or federal money, the public body shall pay the prime contractor for satisfactory performance within thirty calendar days of the date the public body receives a payment request that complies with the contract or within thirty calendar days of the date the public body actually receives the grant or federal money, whichever is later.
1-09.11 Disputes and Claims

1-09.11(3) Time Limitations and Jurisdiction
(November 30, 2018 APWA GSP)

Revise this section to read:

For the convenience of the parties to the Contract it is mutually agreed by the parties that any claims or causes of action which the Contractor has against the Contracting Agency arising from the Contract shall be brought within 180 calendar days from the date of final acceptance (Section 1-05.12) of the Contract by the Contracting Agency; and it is further agreed that any such claims or causes of action shall be brought only in the Superior Court of the county where the Contracting Agency headquarters is located, provided that where an action is asserted against a county, RCW 36.01.050 shall control venue and jurisdiction. The parties understand and agree that the Contractor’s failure to bring suit within the time period provided, shall be a complete bar to any such claims or causes of action. It is further mutually agreed by the parties that when any claims or causes of action which the Contractor asserts against the Contracting Agency arising from the Contract are filed with the Contracting Agency or initiated in court, the Contractor shall permit the Contracting Agency to have timely access to any records deemed necessary by the Contracting Agency to assist in evaluating the claims or action.

1-09.13 Claims Resolution

1-09.13(3) Claims $250,000 or Less
(October 1, 2005 APWA GSP)

Delete this section and replace it with the following:

The Contractor and the Contracting Agency mutually agree that those claims that total $250,000 or less, submitted in accordance with Section 1-09.11 and not resolved by nonbinding ADR processes, shall be resolved through litigation unless the parties mutually agree in writing to resolve the claim through binding arbitration.

1-09.13(3)A Administration of Arbitration
(November 30, 2018 APWA GSP)

Revise the third paragraph to read:

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency’s headquarters is located, provided that where claims subject to arbitration are asserted against a county, RCW 36.01.050 shall control venue and jurisdiction of the Superior Court. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the Contract as a basis for decisions.

END OF SECTION 01 11 50
SECTION 01 33 00 – SUBMITTALS PROCEDURE

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section specifies procedures for Contractor submittals. The Contractor shall submit descriptive information that will enable the Town to determine whether the proposed materials, equipment, testing and schedule for fabrication are in general conformance to the design concept and in compliance with the Contract Documents. The information to be submitted shall consist of drawings, specifications, descriptive data, certificates, test procedures, test results and such other information, all as specifically required in the Contract Documents.

1.02 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall ensure that the material, equipment, testing, and schedule for fabrication shall be as described in the submittal. The Contractor shall verify that the material and equipment described in each submittal conforms to the requirements of the Contract Documents. If the information shows deviations from the Contract Documents, the Contractor shall, by statement in writing accompanying the information, identify the deviations and state the reason. The Contractor shall ensure that there is no conflict with other submittals and notify the Engineer in each case where such submittal may affect the work. The Contractor shall ensure coordination of submittals among related crafts.

B. Unless otherwise approved by the Engineer, all submittals shall be submitted only by the Prime Contractor, who shall indicate by a signed stamp, or other means, on the submittal the Prime Contractor has checked the submittal. The Contractor's stamp of approval shall constitute a representation to the Owner and Engineer that the Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, or similar data and assumes full responsibility for doing so, and that he/she has reviewed or coordinated each submittal with the requirements of the Contract Documents.

PART 2 – PRODUCTS

2.01 SCHEDULE OF VALUES

A. The Contractor shall submit a Schedule of Values for the major components of the work. The Schedule of Values shall be submitted within 20 days of Notice to Proceed. The Schedule of Values shall include a breakdown for each lump sum bid item for the total lump sum contract price showing the amount bid for each principal category of the work, in such detail as requested by the Engineer, to provide a basis for determining progress payments. At a minimum, the breakdown shall be according to the following elements:

1. Major construction and/or structure area, or other site features.
2. Pipe systems with each system divided into major components.
3. Major specification divisions
4. Major pieces of equipment.
5. Electrical shall be broken down first by construction area, then by major pieces of electrical equipment, process power wiring, process control wiring, lighting fixtures, lighting installation and wiring, and receptacle insulation and wiring.
B. The Contractor and Engineer shall meet and jointly review the Schedule of Values within one week following receipt of the submittal by the Engineer and make any adjustments in value allocations if in the opinion of the Engineer, these are necessary to establish fair and reasonable allocation values for the major work components. Front end loading will not be permitted. The Engineer may require reallocation of major work components from items in the above listing if, in the opinion of the Engineer, such reallocation is necessary. Within one week of the review meeting a final Schedule of Values will be prepared for distribution to the Engineer and Owner.

C. Approved Change Orders reflected in the Schedule shall be incorporated into the Schedule of Values as a single unit identified by the Change Order number.

D. Changes to the Schedule which add activities not included in the original schedule but included in the original work (schedule omissions) shall have values assigned as approved by the Engineer. Other activity values shall be reduced to provide equal value adjustment increases for added activities as approved by the Engineer.

E. In the event that the Contractor and Engineer agree to make adjustments to the original Schedule of Values because of inequities discovered in the original accepted detailed Schedule of Values, increases and equal decreases to values for activities may be made.

2.02 CONSTRUCTION SCHEDULE

A. A Construction Schedule, as required in 1-08.3 of Section 01 11 50 – Special Provisions, shall be submitted. Scheduling of the work under the Contract shall be performed by the Contractor. The development of the Construction Schedule, cost loading of the schedule, monthly payment requisitions and project status requirements of the Contract shall employ a Critical Path Method (CPM) scheduling. (This CPM schedule is encouraged but NOT required to be a computer-based system.) A bar chart system delineating the project schedule with development of critical path, approved by the Engineer, will meet the requirements of this section.

B. The Contractor shall submit a project overview bar chart type plan at the preconstruction conference for all work as indicated below to identify the manner in which the Contractor intends to complete all work within the Contract time.

C. The overview bar chart shall indicate the major components of the project work and the sequence relations between major components and subdivisions of major components. The overview bar chart shall indicate the relationships and time frames in which the various components of the work will be made substantially complete and placed into service in order to meet the project milestones as indicated on schedule. Sufficient detail shall be included for the identification of subdivisions of major components into such activities as (1) excavation, (2) foundation subgrade preparation, (3) foundation concrete, (4) completion of all structural concrete, (5) major mechanical work, (6) major electrical work, (7) instrumentation and control work, (8) installation of equipment, (9) startup and testing, and (10) other important work, for each major facility within the overall project scope. Planned durations and start dates shall be indicated for each work item subdivision. Each major component and subdivision component shall be accurately plotted on time scale sheets not to exceed 36 inches by 60 inches in size.

D. The Engineer will review the project overview bar chart. The Engineer’s review and comment on the schedules shall be limited to contract conformance. The Contractor shall make corrections to the schedule necessary to comply with the contract requirements and shall adjust the schedule to incorporate any missing information requested by the Engineer.
E. By way of the Contractor assigning activity durations and proposing the sequence of the work, the Contractor agrees to utilize sufficient and necessary management and other resources to perform the work in accordance with the schedule. Total schedule float identified belongs to the project and shall not be for the exclusive benefit of any party. Upon submittal of a schedule update, the updated schedule shall be considered the “current” project schedule.

F. Submission of the Contractor’s progress schedule to the Owner or Engineer shall not relieve the Contractor of total responsibility for scheduling, sequencing, and pursuing the work to comply with the requirements of the Contract Documents, including adverse effects such as delays resulting from ill-timed work.

G. The Contractor shall monitor the progress of the work and adjust the schedule each month to reflect actual progress and any changes in planned future activities, as a minimum for the following calendar month. Each schedule update submitted must be complete including all information requested. Each update shall continue to show all work activities including those already completed. These completed activities shall accurately reflect the “as built” information by indicating when the work was actually started and completed.

H. Neither the submission nor the updating of the Contractor’s original schedule submittal nor the submission, updating, change or revision of any other report, curve, schedule or narrative submitted to the Engineer by the Contractor under this Contract, nor the Engineer’s review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying, in any way, the Contract completion date or milestone dates or of modifying or limiting, in any way, the Contractor’s obligations under this Contract. Only a signed, fully executed Change Order can modify these contractual obligations.

I. Upon approval of a Change Order, or upon receipt by the Contractor of authorization to proceed with additional work, the change shall be reflected in the next submittal of the schedule by the Contractor. The Contractor shall utilize a sub-network in the schedule depicting the changed work and its effect on other activities. This sub-network shall be tied to the main network with the appropriate logic so that a true analysis of the Critical Path can be made.

2.03 SHOP DRAWINGS

A. Prior to fabrication or release for manufacturing of all components of the project, the Contractor shall submit shop drawings to the Engineer for review.

B. Drawings: Unless otherwise specifically directed by the Engineer, the Contractor shall identify each copy of the shop drawings with the drawing number in the lower right-hand corner, shall make all shop drawings accurately to a scale sufficiently large enough to show all pertinent features of the item and its method of connection to the work, and shall make all shop drawing prints in blue or black line on white background. Shop drawings shall be submitted in accordance with paragraphs 3.01 and 3.02 A. Each item listed in Paragraph C below shall be included and be appropriately identified.

C. Contractors shall submit the following minimum information with their shop drawings for each model or type of unit supplied by the Contractor.

1. Manufacturer’s catalog information, physical and operation description, and specifications.

2. Drawings showing the general dimensions of the equipment and confirming the size of the unit. If applicable, drawings shall include size and location of required piping connections, structural supports, construction details, list of input/output signals for manufacturer provided control panel, wiring diagrams, weights of major components, and utility connection requirements.
3. List of all design modifications to accommodate the equipment proposed.

4. Information and location of nearest parts, service crews, and repair facilities to the project location.

5. Installation list for installations in the U.S. with location, contact names, and phone numbers.

6. List of all variances from the Technical Specifications. Failure to specifically list and fully explain all variances will be cause for rejection of the submittal.

7. Any other information required to clearly and readily demonstrate compliance with all parts of the Technical Specifications.

8. Installation instructions.


10. Manufacturer’s certification of factory applied coating system and coating system technical data sheets.

11. Manufacturer’s guarantee, as specified.

12. Any additional information listed elsewhere in the Technical Specifications and required to be submitted with the shop drawings.

D. When revised for resubmission, Contractor shall clearly identify changes made since previous submission.

E. Work performed before acceptance of shop drawings shall be at the Contractor's own risk. In the event of termination for convenience, the Town will not be responsible for any materials ordered prior to return of acceptable shop drawings marked “NO EXCEPTIONS TAKEN” or “MAKE CORRECTIONS NOTED” as described below.

F. Substitutions: Any substitutions proposed by the Contractor shall require submittals to fully enable the Engineer to evaluate the proposed substitution. All submittals shall clearly note and explicitly describe all details of any substitutions or deviations from the Contract Documents. The Engineer's acceptance of any shop drawings shall not release the Contractor from responsibility for deviations from the Contract Documents.

G. The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the opinion of the Engineer, clearly indicate they have not been checked by the Contractor will be considered as not complying with the intent of Contract Documents and will be returned to the Contractor for resubmission in proper form.

2.04 SAMPLES

A. Samples, as required in the Technical Specifications, or requested by the Engineer, shall be submitted for review with the shop drawings, or subsequently as soon as possible (Engineer may request Samples for substitute equipment or materials in order to fully assess acceptability), unless otherwise specifically directed by the Engineer.

B. All samples shall be individually and indelibly labeled or tagged, indicating the Storage Building Roof Replacement, Manufacturer’s name, equipment name, equipment specification number, contract number, and all specified physical characteristics.

C. Unless otherwise specified, all colors and textures of specified items will be selected by the Engineer from the Manufacturer's standard colors and standard product lines.
2.05 TEST REPORTS

A. Test reports shall be furnished to the Engineer as specified in the Technical Specifications. Test reports required prior to shop drawing approval shall be submitted with the shop drawings. Test reports required for factory testing shall be submitted and accepted prior to shipment of the equipment to the construction site and shall be submitted with the Operation and Maintenance information unless directed otherwise by the Engineer. Test reports required after installation shall be submitted within 30 days after the final test date.

B. Test reports shall be clearly identified with the equipment title, specification number(s), and manufacturer name printed on the front of the report.

C. If test results are required to be witnessed by an independent testing laboratory, the Test report shall be certified by that laboratory.

D. Unless specified otherwise, factory tests shall be non-witnessed tests. Test reports shall be certified by the manufacturer.

2.06 MANUFACTURER'S GUARANTEE

A. The Manufacturer's Guarantee shall be submitted to the Engineer with the Operation and Maintenance Manuals and shall be in conformance with this section.

2.07 CERTIFICATE OF INSTALLATION AND MANUFACTURER'S CERTIFICATE

A. After equipment installation and on-site performance testing has been completed, the Contractor shall submit a Certificate of Installation and a separate manufacturer's Certificate of Installation and Startup According to the Specifications and Manufacturer's Requirements, in accordance with this section and the manufacturer’s standard warranty conditions.

PART 3 – EXECUTION

3.01 TRANSMITTAL PROCEDURE

A. Submittals shall be accompanied by transmittal form/letter. A sample transmittal form/letter is included at the end of this section. Equipment or identification numbers shall be listed on the form for items being submitted. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

B. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: “XX”; where “XX” is the sequential number assigned by the Contractor. Resubmittals shall have the following format: “XX-Y”; where “XX” is the originally assigned submittal number and “Y” is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 02-B, for example, is the second resubmittal of submittal number 2.

C. Submittal Completeness: Submittals which do not have all the information required to be submitted are not acceptable and will be returned without review.
D. Submittal Priority: Contractor shall indicate priority for receipt of reviewed submittals when multiple submittals have been sent to the Engineer for review. Engineer will attempt to review and reply to the highest priority submittals in the timeliest manner when Contractor indicates that there is a priority; otherwise submittals will be reviewed in the order received, in accordance with the time indicated in paragraph 3.02.

E. See 1.02B for additional Contractor requirements.

F. Electronic review stamps may be used by the Contractor and shall be applied in accordance with paragraph 3.01 E. Electronically applied stamps shall contain the Contractor’s original wet ink signature. High resolution scanned PDF documents, in accordance with paragraph 3.02 A., containing the Contractor’s review stamp and signature will be acceptable.

3.02 REVIEW PROCEDURE

A. For each required submittal, the Contractor shall submit the specified information as follows:

1. For standard 8-1/2 x 11-inch, 8-1/2 x 14-inch, and 11 x 17-inch size sheets, provide one electronic copy of each page, including the transmittal form, in PDF format and meeting the following requirements:

   a. Original or scanned PDF files shall have a minimum resolution of 600 dpi, irrespective of document size. Scanned or resized PDF files that do not match the original document size, or do not properly fill a standard page size, will not be accepted.

   b. PDF files containing multiple submittal items shall be “bookmarked” to match the submittal table of contents, as specified in paragraph 3.01 A., for easy reference and viewing.

2. For all other size sheets, provide one (1) reproducible high-resolution print and one (1) additional print of each page, until approval is obtained.

B. Unless otherwise specified, within ten (10) working days after receipt of the submittal, the Engineer will review the submittal and return the marked-up reproducible original noted in paragraph 1 above. The returned submittal will indicate one (1) of the following actions:

1. If the review indicates that the material, equipment, test or work method is in general conformance with the design concept and complies with the Contract Documents, submittal copies will be marked “NO EXCEPTIONS TAKEN.” In this event the Contractor may begin to incorporate the material or equipment covered by the submittal.

2. If the review indicates that the submittal is insufficient or that limited corrections are required, copies will be marked “MAKE CORRECTIONS NOTED.” The Contractor may begin incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in Operation and Maintenance data, a corrected copy shall be provided; otherwise no further action is required.

3. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked “MAKE CORRECTIONS NOTED” or “REVISE AND RESUBMIT.” If the comments are of a nature that can be confirmed without a resubmittal, copies will be marked “MAKE CORRECTIONS NOTED” with “CONFIRM” or “VERIFY” written where appropriate on the submittal. If the comments require a revision and resubmittal, copies will be marked “REVISE AND RESUBMIT.” Except at its own risk, the Contractor shall not undertake work covered by this submittal until the attached comments have been either confirmed
by a separate written communication or the submittal has been revised, resubmitted and returned to the Contractor marked either “NO EXCEPTIONS TAKEN” or “MAKE CORRECTIONS NOTED.”

4. If the review indicates that the material, equipment, test, or work method is not in general conformance with the design concept or in compliance with the Contract Documents, copies of the submittal will be marked “REJECTED” and “REVISE AND RESUBMIT,” or “REJECTED” and “SUBMIT SPECIFIED ITEM.” Submittals with deviations that have not been identified clearly may be rejected. Except at its own risk, the Contractor shall not undertake work covered by such submittals until a new submittal is made and returned marked either “NO EXCEPTIONS TAKEN” or “MAKE CORRECTIONS NOTED.”

3.03 EFFECT OF REVIEW OF CONTRACTOR’S SUBMITTALS

A. Review of drawings, tests, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Owner or by any officer or employee of the Owner, and the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work and test, material, or equipment so reviewed. A mark of “NO EXCEPTIONS TAKEN” or “MAKE CORRECTIONS NOTED” shall mean that the Owner has no objection to the Contractor, upon the Contractor’s own responsibility, providing the materials or equipment proposed.

B. The Engineer's review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review shall not extend to the means, methods, sequences, techniques, or procedures of construction, or to safety precautions or programs incidental thereto. The review by the Engineer of a separate item as such will not indicate review of the assembly in which the item functions.
SUBMITTAL TRANSMITTAL

Date Sent: __________________________
Submittal No.: __________________________
Specification Section No.: __________________________
Drawing/Detail No.: __________________________

Project Name: WELL NO. 6 AND ZONE 3 PUMP STATION REBUILD

Project No.: 19148

Owner: CITY OF SELAH

Engineer: HLA ENGINEERING AND LAND SURVEYING, INC.

Contractor: __________________________
Phone: __________________________ Fax: __________________________

Supplier: __________________________
Phone: __________________________ Fax: __________________________

Initial each line:

1. Contractor verifies that materials and equipment described in this submittal conform the requirements of the Contract Documents. __________

2. This submittal does not deviate from the Contract Documents. __________

3. This submittal does not conflict with other submittals or the Contract Documents. The submittals have been coordinated. __________

The Prime Contractor has determined and verified all quantities, dimensions, field construction criteria, material catalog numbers and similar data, or assumes full responsibility for doing so. I have reviewed and coordinated each submittal with the requirements of the Contract Documents.

__________________________
Signature

END OF SECTION 01 33 00
SECTION 01 45 11 – TESTING, INSPECTIONS, SUPERVISION

PART 1 – GENERAL

1.01 GENERAL DESCRIPTION

A. The work of this section applies to the Plans, Specifications, and Special Provisions of the Contract.

B. The Contractor shall be responsible for scheduling all material testing required by these Contract Documents.

C. The Contractor shall coordinate, be responsible for, and pay for the following testing and inspections:

1. Electrical and control system testing and inspections.

2. Factory testing of materials and equipment as required.

3. All required material, equipment, and system testing required for startup and operation of facilities and equipment.

4. Other testing and inspections as specified to be furnished by the Contractor in this section and/or elsewhere in the Contract Documents.

D. Additional requirements for testing may be described in various sections of these Specifications.

1.02 CONTRACTOR’S RESPONSIBILITIES

A. Cooperate with testing company personnel, provide access to work.

B. Furnish usual labor and facilities:

1. To provide access to work to be tested.

2. To obtain and handle samples at the site.

3. To facilitate inspections and tests.

4. For testing company’s exclusive use for storage and curing of test samples.

C. Notify testing company and Engineer sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

1.03 QUALITY ASSURANCE

A. Testing, when required, will be in accordance with all pertinent Codes and Regulations and with selected standards of the American Society for Testing and Materials.

1.04 DOCUMENTATION AND DISTRIBUTION

A. Testing company will promptly process and distribute required copies of test reports and related instructions. Contractor shall allow time for necessary retesting and replacement of materials with the least possible delay in progress of the work.

B. When a product is tested for conformance with criteria or standard specifically noted in Specifications, testing report will specifically state conformance or non-conformance with that specific standard.
C. Testing company will distribute copies of the testing reports, with copies sent to the Contractor and the Engineer.

PART 2 – PRODUCTS

2.01 PAYMENT FOR TESTING

A. The Owner will pay for all sampling and testing costs, except as otherwise noted. The costs for additional sampling and testing, due to failed tests shall be the responsibility of the Contractor.

2.02 CODE COMPLIANCE TESTING AND INSPECTIONS

A. Inspections and tests required by Codes or Ordinances or by a plan review approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Owner, unless otherwise provided in the Contract Documents.

B. Portions of the work are subject to inspection by the building official, and all construction shall remain accessible and exposed for inspection purposes until approved by the building official.

2.03 CONTRACTOR'S CONVENIENCE TESTING

A. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

PART 3 – EXECUTION

3.01 COOPERATION WITH TESTING COMPANY AND ENGINEER'S ON-SITE REPRESENTATIVE

A. Representatives of the testing company and the Engineer shall have access to the Work at all times and at all locations where the work is in progress. Contractor shall provide facilities for such access to enable the Engineer and the testing company to perform its functions properly.

3.02 TAKING SPECIMENS

A. All specimens and samples for testing, unless otherwise provided in the Contract Documents and/or approved in writing by the Engineer prior to the respective phase of work, shall be taken by testing company personnel.

3.03 SCHEDULES FOR TESTING

A. By advance discussion with the testing company, determine the time required for the company to perform its tests and to issue each of its findings.

B. Coordinate the testing schedule of materials with the construction schedule.

C. Revising schedule: When changes of the construction schedule are necessary during construction, coordinate all such changes with the testing company as required.

D. Adherence to schedule: When the testing company is ready to test according to the established schedule but is prevented from testing or taking specimens due to incompleteness of the work, any delay charges for testing attributable to the delay shall be the responsibility of the Contractor.

E. Testing frequencies specified herein may be modified to assure compliance with the Specifications.
3.04 ROOFING AND WATERPROOFING INSPECTING AND SUPERVISION

A. Contractor shall provide the following inspection and supervision:

1. Prior to start of roofing installation, Contractor shall conduct a job site meeting attended by representatives of the installing subcontractors, the Contractor's field superintendent, and the Engineer, to review procedures to be followed. Verify that the procedures and specifications are approved by the manufacturer for the specific application.

2. Prior to start of installation, verify that materials at the job site comply with the specified standards, that the subcontractor is qualified, and that the installing personnel are fully informed as to procedures to be followed.

3. During installation, verify that materials are installed in strict accordance with the manufacturers' procedures and specifications.

4. When requested by the Engineer, make test cuts to verify conformance with the specified requirements. Costs of cutting, patching, and repair shall be borne by the Contractor. No more than one test cut will be made if the initial test cut shows compliance with the Specification.

3.05 WAIVER OF INSPECTION AND/OR TESTS

A. Specified inspections and/or tests may be waived only in writing by the Engineer.

END OF SECTION 01 45 11
DIVISION 02 – EXISTING CONDITIONS
SECTION 02 41 00 – DEMOLITION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work included in this section consists of all work, tools and equipment necessary to remove and dispose of existing buildings, structures and appurtenances, or portions of existing buildings, structures and appurtenances, as shown on the plans.

B. This section also includes the removal, storage and/or protection of existing materials and equipment that are scheduled to remain, or to be reinstalled in existing and/or new locations.

C. Demolition work will be carried out in a manner as to not jeopardize the integrity of adjacent or connected structures, which are to remain.

D. Repair of the existing concrete structures and/or structure modifications (if needed), following demolition, will be included in this section.

E. Dust control shall be provided for the full duration of the project.

1.02 RELATED SECTIONS

A. Division 26 – Electrical

1.03 REGULATORY REQUIREMENTS

A. Conform to applicable Local, State, and Federal codes for environmental requirements, disposal of debris and removal and disposal of hazardous materials. The Contractor shall be responsible for the appropriate disposal of all debris. No on-site burning will be permitted and no debris, including concrete and asphalt, may be placed in fill areas.

B. The use of explosives for demolition will not be permitted.

C. Coordinate demolition work with all utility companies. The contractor is responsible for obtaining and complying with all requirements of the respective utility companies. The contractor shall protect all existing utilities which are to remain in service.


E. Comply with the State of Washington regulation regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

1.04 SUBMITTALS

A. No submittals required for this section.

1.05 QUALITY ASSURANCE

A. Work shall be performed in accordance with the requirements of Section 2-01, Clearing, Grubbing, and Roadside Cleanup, and Section 2-02, Removal of Structures and Obstructions, of the WSDOT Standard Specifications, Current Edition.
PART 2 – MATERIALS

2.01 MATERIALS

A. Grout for concrete patching, if required, shall be non-shrink type. Non-shrink grout shall be a cement-type grout meeting the requirements of ASTM C-1107. Non-shrink grout shall be used where called for on the Plans, and where grout will be placed with a thickness less than 2 inches. Non-shrink grout shall be mixed in proportions to be “flowable”, but not “pourable”. Specimens molded, cured and tested in accordance with ASTM C 109 shall have a minimum compressive strength of 6,200 psi. Grout shall not exhibit visible bleeding.

PART 3 – EXECUTION

3.01 PREPARATION

A. The Contractor shall verify that all existing utilities have been disconnected prior to beginning demolition. Coordinate disconnecting the existing power service with the utility company.

B. The Contractor shall be responsible for securing a location to store salvaged materials and equipment during demolition and construction. The storage location shall keep all equipment and materials free from dust, dirt, rain, moisture, or any other environment that will affect the condition of the salvaged material.

C. A waste site has not been provided by the Contracting Agency for disposal of demolition materials. All materials shall be disposed of off-site by the Contractor.

3.02 PROTECTION

A. Locate, identify, and protect from damage any utilities which remain.

B. The Contractor shall provide any shoring or bracing necessary to prevent movement, settlement, or collapse of adjacent structures that are planned to remain.

3.03 DEMOLITION

A. Remove all materials and equipment which are shown on the Plans to be salvaged and store materials in a secured location prior to beginning demolition of existing buildings and/or structures.

B. Perform demolition work in a systematic manner, from a higher to lower level, using required methods to complete all demolition work indicated on the Plans and specified herein. All demolition work shall be done in accordance with governing regulations.

C. Demolish concrete and masonry materials in small sections. Cut and carefully remove concrete and masonry near existing structures to remain using a masonry saw or hand tools. Do not use power impact tools to remove material around portions of existing structures scheduled to remain.

D. Sawcut to remove concrete walls and walkways where called out on the Plans. Other low-impact methods of removal may only be used with approval of the Engineer. Patch concrete with grout.

E. Remove and dispose of all exposed fasteners and anchor bolts remaining in existing structure walls and floors after removal of existing equipment and materials, unless otherwise noted on the plans. Patch any holes remaining in existing structures with grout and/or sealant.
3.04 DUST CONTROL

A. The Contractor shall be solely responsible for dust control on this project and shall protect motoring public, adjacent homes, and vegetation from damage due to dust, by whatever means necessary. The Contractor shall be responsible for any claims for damages and shall protect the Contracting Agency, Benton County, and the Consultant from any and all such claims.

B. When directed by the Engineer, the Contractor shall provide water for dust control within two hours of such order and have equipment and manpower available at all times including weekends and holidays to respond to order for dust control measures.

3.05 SALVAGED MATERIAL

A. See the Plans and related sections these specifications for installation of salvaged equipment. The Contractor shall be responsible for salvaging all parts of the equipment necessary for a complete installation in new and/or existing buildings. No additional payment will be made for replacement of materials planned to be reused that are needed for installation of the salvaged equipment.

3.06 CLEANUP AND REPAIR

A. Upon completion of the demolition work all tools, equipment and demolished materials shall be removed from the site.

B. Repair any portion the existing concrete structures which were damaged during demolition, or as directed by the Engineer.

END OF SECTION 02 41 00
DIVISION 05 – METALS
SECTION 05 50 11 – MISCELLANEOUS METALS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work consists of furnishing all labor, materials and equipment for the fabrication and erection of all metal fabrications shown on the drawings and as specified.

B. Work includes, but is not limited to, Embedded and non-embedded metal work including structural steel and aluminum shapes, clip angles, sheet steel, rungs, tubing, rods, guides, inserts, brackets, anchor bolts, bracing and supports, hangers, and fasteners.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure

B. Section 01 45 11 – Testing, Inspections, Supervision

C. Section 06 10 00 – Rough Carpentry

D. Section 06 17 00 – Shop-Fabricated Structural Wood

E. Section 06 20 00 – Finish Carpentry

F. Section 07 41 11 – Metal Roof and Wall Panels

G. Section 07 62 00 – Sheet Metal Flashing and Trim

H. Section 08 11 13 – Hollow Metal Doors and Frames

I. Section 09 90 00 – Painting and Coating

J. Division 23 – Heating, Ventilating, and Air Conditioning (HVAC)

K. Division 26 – Electrical

1.03 REFERENCE STANDARDS

A. American Iron and Steel Institute (AISI)

B. American Society for Testing and Materials (ASTM)

1. A 36 – Structural Steel.


6. A 386 – Zinc coating (hot dip) on assembled steel products.


10. A 526 – Steel sheet, zinc-coated (galvanized) by the hot-dip process, commercial quality.
12. B 308 – Aluminum alloy standard structural shapes, rolled or extruded.
13. F 468 – Nonferrous bolts, hex cap screws, and studs for general use.

C. American Welding Society (AWS)
D. National Association of Architectural Metal Manufacturers (NAAMM).
E. The Society for Protective Coatings (SSPC):

1.04 SUBMITTALS
A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
B. Product data: Submit manufacturer's descriptive literature and installation instructions for the following:
   1. Fasteners;
   2. Grouts;
   3. Galvanizing repair paint;

1.05 DELIVERY, STORAGE AND HANDLING
A. Do not deliver any steel items, other than those to be encased in concrete, which have not received either a galvanized, painted or anodized surface treatment, or are constructed of stainless steel.
B. Store job site metals on blocks above snow, mud, and soil. After erection, remove any weld spatter, oil and grease. Cover items with cover that allows air movement but keeps out moisture.

PART 2 – PRODUCTS

2.01 FABRICATION, GENERAL
A. Verify dimensions on site prior to shop fabrication.
B. Fabricate items with joints neatly fitted and properly secured.
C. Fit and shop assemble in largest practical sections, for delivery to site.
D. Exposed mechanical fastenings shall be flush countersunk screws or bolts, unobtrusively located consistent with design of structure, except where specifically noted otherwise.
E. Make exposed joints flush butt type hair line joints where mechanically fastened.
F. Supply components required for proper anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, unless otherwise specified or scheduled herein.

G. Thoroughly clean surfaces of rust, scale, grease and foreign matter prior to prime painting, galvanizing, anodizing or buffing.

H. Do not shop prime surfaces to be embedded in concrete. Primer is part of paint system specified in. Galvanized surfaces to be painted may be shop primed at Contractor's option.

2.02 CORROSION PROTECTION

A. All ferrous metals except stainless steel that are not entirely embedded in concrete shall be hot-dip galvanized after fabrication. All other structural steel and miscellaneous steel items not specifically described elsewhere shall be hot-dip galvanized.

2.03 MATERIALS, GENERAL

A. Steel and Iron


2. Steel pipe and tubing:
   a. Pipe: ASTM A53, Grade B, Type E or S, Schedule 40 unless indicated otherwise.
   b. Square or rectangular: ASTM A500, Grade B, welded and seamless.


4. Finish: All ferrous material not encased in concrete shall be hot-dip galvanized or stainless steel.

B. Aluminum

1. Aluminum: ASTM B308, Type 6061 T6 unless a different type is called for in an individual part of this specification.

2. Finish: AA-C22-A41, Class I unless indicated otherwise.


1. Bolts: ASTM F593-95 Alloy AISI Type 316.


2.04 FASTENERS

A. General:

1. Wet exposure. All the following are considered a wet exposure and shall be stainless steel:
   a. All fasteners which are in contact with water or sewage.
   b. Above open channels or tanks containing water or sewage.
c. Attached to a tank containing water or sewage.

2. Unless otherwise specified on the drawings, expansion bolts or drilled-in adhesive anchors may be substituted for cast-in anchor bolts in concrete or masonry base materials.

3. Drilled-in adhesive anchors are to use parallel tubes of resin and hardener, dispensed through a mixing tube which ensures proper mixing and eliminates any possibility of measuring errors. The mixed adhesive is to be injected directly into the hole drilled in the base material. Drill sizes and techniques are to be per manufacturer’s recommendations. No polyester or vinyl ester-based resins are to be used. Drilled holes are to be cleaned out prior to placing the adhesive.

4. An appropriate anti-seize compound, as recommended by the fastener manufacturer, shall be used on all stainless steel threaded bolt connections to prevent galling during installation.

B. Metal to metal:

1. Steel to steel: Except wet exposure as noted above, use ASTM A325, Grade A, hex head, hot-dip galvanized. All bolts 3/8-inch diameter or larger are to be either hot-dip galvanized or stainless steel. Bolts smaller than 3/8-inch diameter may be zinc plated bolts.


C. Metal to concrete:

1. Anchor bolts: ASTM A307, Grade A, hex head, hot-dip galvanized. All embedded anchor bolts are to be standard bolts with hex head. Do not use "J" bolts.

2. Anchor bolts, for submerged or intermittently submerged applications: Stainless steel; ANSI B 1.1 threads.

3. Expansion bolts: Meet Federal Specification FS FF-S-325, Group II, Type 4, Class 1. Material is to be stainless steel as noted under "General", above. Manufacturer: Hilti, Qwik Bolt II, or equal. Equality to be determined based on allowable loads in the ICBO or ICC report for the proposed substitute.

D. Metal to wood:


2. Lag screws: FS FF-B-561, hot-dip galvanized coated for steel, stainless steel for all other.

E. Metal to hollow construction: Toggle bolts, FS FF-B-588, (hot-dip galvanized).

F. Powder-actuated fasteners: To be used where called for on the drawings. Galvanized for steel; stainless steel for all other.

G. Washers: Provide washers of the same material and finish as the bolt or lag bolt in the following locations:

1. Under all nuts.

2. Under bolt heads except in steel-to-steel connections.
H. Lock washers: Provide spring steel helical lock washers, of the same finish as the bolt, under nuts and bolt heads of connections subject to vibration.

2.05 WELDING

A. Perform welding in accordance with pertinent recommendations of the American Welding Society. Use electrodes and methods recommended by manufacturer of material being welded, or as shown on the drawings. Type, size and spacing of welds in accordance with reviewed shop drawings.

1. Welding shall be done by operators who have been qualified by tests as prescribed in the AWS in “Standard Qualification Procedure” to perform the type of work required. The quality of welding shall conform to AWS “Code for Arc Welding in Building Construction,” Section 4 Workmanship.

B. Welds behind finished surfaces: Use methods to minimize distortion and discoloration of finished surface.

C. Remove flux and slag from both sides of welds.

D. Grind accessible welds smooth.

E. Buff or polish welded surfaces which will be exposed to view in the finished work to match and blend with adjacent parent material.

F. Complete welding before galvanizing, anodizing or painting.

2.06 GALVANIZING REPAIR PAINT

A. High zinc dust content paint, meeting the requirements of SSPC-Paint 20 or DOD-P-21035, with dry film containing a minimum of 94 percent zinc dust by weight.

B. Surface Treatment – Shop Applied


2. Steel Surfaces
   a. Paint in accordance with paint system in Section 09 90 00 – Painting and Coating.
   b. If fabricator uses different primer it must be compatible with finish coating specified in Section 09 90 00 – Painting and Coating.

C. Surface Treatment – Field Applied

1. Cutting or drilling in the field will not be allowed unless it has been approved by the Engineer.

2. Galvanized surfaces: Items that must be drilled or cut in the field shall be coated with galvanizing repair paint before installation. Field welded items shall be hot-stick galvanized after welding.

3. Painted surfaces: Damaged shop primed surfaces and all field priming and finish painting shall be done as specified in Section 09 90 00 – Painting and Coating.
2.07 HANGER SYSTEMS

A. All hanger systems on this project are to be as manufactured by Unistrut Corporation standard shapes and accessories or approved equal. All such shapes and accessories must conform to the same ASTM specifications as the standard Unistrut items. See drawings for particular configurations and sizes.

B. It is the responsibility of the particular trade using this system as support to determine the appropriate units and attachments and accessories required for the proper completion of their work. Attachment to the building structure, however, shall be limited to that shown on the drawings. Additional ceiling penetrations or other attachment must have prior approval of the Engineer. See Division 07 – Thermal and Moisture Protection for sealant around ceiling penetrations.

C. All channel shapes shall be hot-dipped galvanized in accordance with ASTM A-123 or A-153. All parts, screws and nuts shall be hot dip galvanized or stainless steel.

PART 3 – EXECUTION

3.01 INSPECTION

A. Installer must examine the areas and conditions under which miscellaneous metal items are to be installed and notify the Contractor in writing of conditions detrimental to the timely and proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner satisfactory to the installer.

3.02 PREPARATION

A. Furnish setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, anchor bolts and miscellaneous items having integral anchors which are to be embedded in concrete or masonry. Coordinate delivery of such items to project site.

3.03 ERECTION

A. Obtain Engineer’s written permission prior to on-site cutting, welding, or making other adjustments which are not part of scheduled work.

B. Install items square and level, accurately fitted and free from distortion or defects.

C. Make provision for erection stresses by temporary bracing. Keep work in alignment.

D. Replace items damaged in course of installation.

E. Grouting.

F. After installation, touch up scratched and damaged prime painted and galvanized surfaces.
   1. Use same primer as used for shop priming of painted surfaces.
   2. Use galvanizing repair paint for galvanized surfaces. Use hot-stick galvanizing for field-welded areas, and for damaged areas that are classified as a “wet use” above at Section 2.04 A. 1

END OF SECTION 05 50 11
DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES
SECTION 06 10 00 – ROUGH CARPENTRY

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK
A. The work covered by this section consists of furnishing and installing rough carpentry as shown on the Plans and as specified herein.

1.02 RELATED SECTIONS
A. Section 01 33 00 – Submittals Procedure
B. Section 05 50 11 – Miscellaneous Metals
C. Section 06 17 00 – Shop-Fabricated Structural Wood
D. Section 06 20 00 – Finish Carpentry
E. Section 07 21 00 – Thermal Insulation
F. Section 07 41 11 – Metal Roof and Wall Panels
G. Section 07 62 00 – Sheet Metal Flashing and Trim

1.03 REFERENCE STANDARDS
A. Rough carpentry shall conform to International Building Code (IBC), latest edition, and other referenced codes and standards of governing authorities. In case of conflict between any codes and standards and this section, the more stringent shall govern.

1.04 SUBMITTALS
A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
B. Manufacturers’ catalog cuts showing rough hardware conforming to or equivalent to hardware shown shall be submitted to the Engineer for review.
C. Shop Drawings and Certificates of Compliance shall be submitted wherever specifically called for herein.

PART 2 – PRODUCTS

2.01 LUMBER
A. All lumber, unless otherwise noted, shall be legibly trade- and grade-marked, kiln-dried S4S, Douglas Fir/Larch conforming to the Western Wood Products Association grading rules. Moisture content of lumber, shall be 16 percent or less at time of installation.

2.02 PLYWOOD
A. All plywood, unless otherwise noted, shall be identified with grade marks of the American Plywood Association (APA) and shall meet the requirements of the U.S. Product Standard PS-183 for softwood plywood. All plywood shall be constructed with exterior glues.
B. Plywood for roof sheathing shall be Exposure 1, CDX.
C. Plywood for interior walls exposed to view shall be APA rated AC. Screws shall be hot-dip galvanized.
D. All other plywood not exposed to view may be oriented strand particle board of the same thickness and structural rating as the plywood called out on the Plans.

2.03 ROUGH HARDWARE

A. The term "rough hardware" includes bolts, nails, lag screws, washers, plates, and similar items employed in erection and construction of rough work. Bolt anchorages embedded in concrete shall be provided as shown and required to complete work, including installation of such items furnished under other sections of these Specifications. Standard product rough hardware shall be of standard manufacture approved by a recognized agency for loads as shown. Hardware shall be steel of thickness shown. Rough hardware shall be hot-dip galvanized after fabrication.

2.04 FASTENERS

A. Nails called out on the Plans are to be common wire nails unless otherwise specified or shown. Nails shall be galvanized or stainless steel as appropriate where exposed to weather. Nails used for exterior plywood (exposed to view) shall be stainless steel.

B. Screws shall conform to UBC Standard 23-17 and shall be galvanized where exposed to weather.

C. Bolts and nuts shall conform to ASTM A307, sizes as indicated on the Plans, galvanized where exposed to weather.

D. Plyclips shall be extruded 6063-T6 aluminum alloy.

2.05 TREATED LUMBER

A. Kiln Drying: Kiln-dry lumber shall be treated with water-borne preservative and have a maximum moisture content of 15 percent after treatment.

B. Pressure Treated Lumber: All wooden nailing blocks, sills, and plates resting on or embedded in concrete or masonry within 18 inches of grade shall be pressure-treated in accordance with American Wood Preservers’ Association Manual of Recommended Practice. Preservatives shall conform to those specified in the standard. Each piece of treated lumber shall have approval mark of approved testing agency. Creosote shall not be used.

C. Preservative: Two thorough coats of preservative, Zehrung "Pentaseal", Sherwin Williams "Kemwood Penta", or approved equal, shall be applied at least 2 hours before installation of all surfaces of ground, stripping, and other members which come in contact with or are set close to concrete and masonry, except lumber specified to be pressure-treated. Tank dipping or pressure-treating may be used.

D. Cuts: Wherever necessary to cut, notch, dap drill, or frame treated lumber, newly cut or bored surfaces shall be treated with two heavy coats of the same preservative used in original treatment, minimum ¼ inch depth of penetration.

2.06 MISCELLANEOUS MATERIALS

A. Sill Sealer Gaskets: See Section 07 21 00 – Thermal Insulation for material specifications.
PART 3 – EXECUTION

3.01 CARPENTRY

A. Framing: Framing members and assemblies shall be set accurately to required lines and level, and to arrangements shown. Framing shall be accurately and neatly cut and strongly nailed, spiked, or otherwise secured in place in a workmanlike manner. Use joist hangers or framing clips at all joist or rafter connections to other framing members. Structural wood framing members shall not be spliced between bearing points or supports. Approval shall be secured from the Engineer before cutting of any wood members that may weaken structure. All blocking and backing in walls and ceilings shall be 2 x material with depth as needed and shall be accurately located around light fixtures, ceiling registers, grilles, and other required mechanical and electrical items. Backing shall be accurately located and installed for all building specialties and finish hardware items as required. Due care shall be exercised in placing framing so that structural and other important members do not require cutting for openings, pipes, vents, conduits, or ducts. Bearing surfaces on which wood structural member are to rest shall be finished to give full, true, and even support. Wedges or shims shall not be used to correct faulty work. Wood members which have been split or otherwise damaged to such an extent as to materially impair their strength shall be removed and replaced at no additional cost to the Owner.

B. Nailing: Nails shall not be driven closer together than 1/2 their length unless driven in drilled holes, nor closer to edge of member than 1/4 its length. Holes drilled slightly smaller than nail diameters shall be used when necessary to prevent splitting. The nails shall penetrate second or farther member not less than 1/2 of the length of nail. Common nails shall be used unless otherwise specified or shown. Staples may be used to fasten plywood to framing provided Contractor has previously provided the Engineer with product data showing that the stapling proposed will be structurally equivalent to the nailing called for.

C. Bolts and Nuts: Malleable or cut steel washers shall be provided under heads and nuts except where bearing on steel plates or other steel attachments, or where flat-head countersunk bolts are shown. Members shall be clamped together and bore holes shall be the same diameter as bolts, true to line. Bolts shall be driven in place and nuts drawn up tightly. Bolts shall be drawn tight again immediately prior to enclosing with finish or, if left exposed, upon completion of other work. Holes at anchor bolts embedded in concrete may be 1/8-inch larger than bolt diameter.

D. Screws: Lag and wood screws shall be screwed (not driven) into pre-drilled pilot holes. Pilot holes shall be bored first of the same diameter and depth as shank, then continued to depth equal to length of screw with diameter equal to base of the thread. Screws shall penetrate a distance equal to at least seven times the diameter of the screw shank into far members. Washers shall be installed under each lag screw head bearing on wood.

E. Rafters: Rafters shall be placed with crown up and supported firmly on framing below. Care shall be used in selection and placing of members, and positive and secure attachment shall be provided. The Contractor shall provide double joists and double headers to receive trimmers at openings which cut or interrupt normal rafter spacing.

F. Plywood Sheathing: Plywood sheathing shall be installed with face grain across supports, end joints over joists and staggered, and blocking, if shown, shall be provided at unsupported edges. Arrange panels to avoid widths less than 2 feet 0 inches.

END OF SECTION 06 10 00
SECTION 06 17 00 – SHOP-FABRICATED STRUCTURAL WOOD

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work covered by this section consists of furnishing labor, materials, equipment, truss design analysis, and fasteners for the installation of wood trusses as shown on the Plans and as specified herein.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 05 50 11 – Miscellaneous Metals
C. Section 06 10 00 – Rough Carpentry
D. Section 07 21 00 – Thermal Insulation
E. Section 07 41 11 – Metal Roof and Wall Panels
F. Section 07 62 00 – Sheet Metal Flashing and Trim

1.03 REFERENCE STANDARDS

A. Shop-fabricated structural wood shall conform to International Building Code (IBC), latest edition, and other referenced codes and standards of governing authorities. In case of conflict between any codes and standards and this section, the more stringent shall govern.


D. American Society for Testing and Materials (ASTM): A 90 – Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.

E. Western Wood Products Association (WWPA): Western Lumber Grading Rules.

1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Submit shop drawings prior to fabrication. Shop drawings are to show any connections between trusses, or any connection between trusses and other framing members shown on the Plans to be connected to the trusses.

C. Indicate truss framing plans; and grid lines; species and grades of lumber used; design loading and any stress increases used in the design; force analysis of each member; pitch, span, and spacing of trusses; gage thickness, nominal sizes and location of connectors at joints; bearing and anchorage details; framed openings; permanent bracing and bridging.

D. Shop drawings shall bear the seal of a Professional Engineer, licensed in the State of Washington.

E. Submit manufacturer's instructions on lateral bracing.

F. Verify weight of roof-mounted HVAC and other equipment if shown on the Plans, and design trusses to support equipment.
G. Verify weight of all ceiling-hung equipment, supports and appurtenances, including but not limited to, crane assemblies, pipe supports, lighting, etc., and design trusses/framing to support such items.

1.05 QUALITY ASSURANCE

A. Lumber used in the manufacture of trusses: Grade stamp clearly visible, indicating conformance with WWPA.

1.06 DESIGN CRITERIA

A. See General Structural Notes on the Plans for loading data.

PART 2 – PRODUCTS

2.01 MATERIALS – TRUSSES

A. Wood chords and webs: PS 20, graded to WWPA rules, with grade as required by the design.

B. Plates: International Conference of Building Officials approved galvanized plates with a current Research Report number.

C. Lateral support: Recommended by truss manufacturer.

2.02 MATERIALS – TRUSS JOIST SYSTEMS

A. Flange members, web members, and adhesives shall conform to the provision of NES Report No. NER-200 or the CCMC Report No. 12832-R.

B. Plates: International Conference of Building Officials approved galvanized plates with a current Research Report number.

C. Lateral Support: Recommended by joist manufacturer.

D. Ledgers: Microllam Laminated Veneer Lumber (LVL) as manufactured by Trus Joist MacMillan.

2.03 FASTENERS

A. Bolts, nuts, washers, lags, and pins sized to suit application; galvanized. See Section 06 10 00 – Rough Carpentry for fasteners. See Section 05 50 11 – Miscellaneous Metals for additional material requirements.

B. All connections to the trusses are to be designed and detailed by the designer of the trusses (see above.) This includes all truss-to-truss connections, unless these connections are explicitly shown on the Plans.

2.04 FABRICATION

A. Ensure members are accurately cut to length, angle, and true to line to ensure tight joints.
PART 3 – EXECUTION

3.01 ERECTION

A. Set and secure wood trusses level, plumb and in correct locations.
B. Provide temporary bracing and anchorage to hold trusses in place until permanently secured.
C. Ensure truss ends have sufficient bearing area.
D. Install permanent bracing and bridging prior to application of loads.
E. Cutting or altering of members is not permitted.
F. Handle trusses in a manner that will ensure that connection plates are not bent about the weak axis of the truss. Any connection plates that are loose shall be reworked at the truss manufacturing plant.

END OF SECTION 06 17 00
SECTION 06 20 00 – FINISH CARPENTRY

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work covered by this section consists of furnishing and installing finish carpentry items as shown on the Plans and as specified herein.

B. Finish carpentry items include interior and exterior standing and running trim and horizontal lap siding.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 05 50 11 – Miscellaneous Metals
C. Section 06 10 00 – Rough Carpentry
D. Section 09 90 00 – Painting and Coating

1.03 REFERENCE STANDARDS

A. "Quality Standards Illustrated", American Woodwork Institute (AWI), Sections 100, 200, and 300, Standing and Running Trim.
B. WCLIB No. 16, WWPA-70, PS 1-66, and APWA Standards as referenced in Section 06 10 00 – Rough Carpentry.
C. Voluntary Product Standard PS-51-71, "Hardware and Decorative Plywood", by U.S. Department of Commerce NBS.

1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
B. Submit manufacturer's technical product data that includes details of construction, dimensions of individual components, profiles and textures, and installation instructions and recommendations for each type of product specified.

1.05 DELIVERY, HANDLING AND STORAGE

A. Deliver materials at specified moisture content. Do not deliver finish wood to job until adequate storage is available. Protect material from moisture damage during delivery and storage.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Lumber shall be grade-marked according to WCLB No. 16 except as otherwise specified. Provide lumber dried to maximum moisture content of 16 percent unless otherwise specified. Grading requirements not covered by WCLB or WWPA shall be in accordance with U.S. Department of Commerce PS 20-70 and/or National Grading Rule for Softwood Dimension Lumber. All lumber shall be grade-marked. Provide West Coast Douglas Fir lumber except as otherwise specified below.

B. Lumber for finish carpentry shall be softwood conforming to AWI Custom Grade as indicated in Section 100 of AWI Standard, and shall be Douglas Fir, cut and selected for
vertical grain on exposed surfaces, kiln-dried from 9 to 12 percent moisture for exterior work suitable to receive specified paint.

C. Exterior hardboard paneling, siding and trim shall be manufactured in accordance with ASTM E-136 and shall be composed of Portland Cement sand, cellulose fiber, and select adhesives and water and shall not contain asbestos, fiberglass or formaldehyde. Surface burn characteristics shall be per ASTM E 84, flame spread: 0, fuel contribution: 0, smoke developed: 5.

D. Plywood shall conform to AWI Section 200, with size as shown on Plans and as specified in Section 06 10 00 – Rough Carpentry.

E. Exposed finish trim and starter strips, where shown on the Plans, shall be clear cedar or redwood, trim quality, free of knots, splits or other imperfections.

PART 3 – EXECUTION

3.01 INSPECTION AND PREPARATION

A. Examine and coordinate related work and adjacent surfaces prior to starting work of this section. Commencing finished carpentry work in each location constitutes acceptance of condition of substrates and materials.

B. Apply one layer of air infiltration barrier horizontally over entire surface to receive siding; lap ends and succeeding courses a minimum of 4 inches. Fasten barrier with sufficient number of galvanized roofing nails or non-corrosive staples to hold underlayment in place until siding is applied.

C. Unless specifically indicated otherwise, finish carpentry shall not be set until contiguous construction is thoroughly dry.

D. Prime and paint exposed wood in accordance with Section 09 90 00 – Painting and Coating.

3.02 INSTALLATION

A. Do not use finish carpentry materials that are unsound, warped, bowed, twisted, improperly treated or finished, not adequately seasoned, or too small to fabricate with proper jointing arrangements. Do not use manufactured units with defective surfaces, sizes or patterns.

B. Finish carpentry shall be installed plumb, level, true and aligned with adjacent materials. Use concealed shims where required for proper alignment. Scribe and cut finish carpentry to fit adjoining work.

C. Installation tolerances shall be 1/16-inch in 8 feet for plumb and level. Install adjoining finish carpentry with 1/16-inch maximum offset for flush installation and 1/8-inch maximum offset for reveal installation.

D. Coordinate finish carpentry with materials and systems that may be adjacent to or attached to standing and running trim and siding. Provide cutouts for mechanical or electrical items that penetrate exposed surfaces and seal all joints/penetrations with specified sealant. Provide a smooth substrate of compatible and like materials for large equipment or electrical gear that is shown to be mounted on exterior walls.
E. Refer to the manufacturer’s installation instructions for additional requirements. Install all materials to comply with the manufacturer’s warranty requirements.

END OF SECTION 06 20 00
DIVISION 07 – THERMAL AND MOISTURE PROTECTION
SECTION 07 21 00 – THERMAL INSULATION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish all labor, materials, and equipment for the installation of insulation at building structure exterior walls, ceiling, and foundation walls.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 06 10 00 – Rough Carpentry
C. Section 06 17 00 – Shop-Fabricated Structural Wood

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

B. Federal Specifications (FS)
   1. HH-I-521F Insulation Blankets, Thermal (mineral fiber, for ambient temperatures).

1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
B. Submit manufacturer’s technical product data for each type of product specified and/or used on the project.

1.05 DELIVERY OF MATERIALS

A. Furnish material in manufacturer's packaging, complete with installation instructions.
B. Store in dry location.
PART 2 – PRODUCTS

2.01 INSULATING MATERIAL

A. Unfaced Mineral Fiber Blanket/Batt Insulation:
   1. Thermal and acoustical insulation produced by combining glass fibers with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing).
   3. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50, respectively.

B. Rigid Insulation: Rigid closed-cell extruded polystyrene thermal board insulation.
   1. Density: Type IV, 1.6 lb/cu. ft. min. (ASTM C 578)
   2. Compressive Strength: 25 psi, minimum. (ASTM D 1621)
   3. Water Absorption: Maximum 0.1 percent by volume (ASTM C 272)
   4. Thermal Resistance: R-Value of 5 minimum per 1 inch. (ASTM C 518)
   5. Surface Burning Characteristics:
      a. Flame Spread: 5.
      b. Smoke Developed: 165.
   6. Thickness:
      a. Perimeter of Foundation: 2 inches unless indicated otherwise.
      b. Under Slab on Grade: 2 inches unless indicated otherwise.

C. Sill Seal Gasket
   1. Shall be FoamSealR as manufactured by Owens Corning or approved equal.
   2. Thickness: 1/4-inch.
   3. Width: To suit sill member site(s) indicated.

D. Unbonded Loose-Fill Insulation
   1. Blown-in unbonded glass fiber loose-fill thermal insulation for ceiling attic space shall comply with ASTM C764, Mineral Fiber Loose-Fill Thermal Insulation, Type 1, suitable for pneumatic installation. Insulation material shall be non-combustible, non-corrosive, odor free, and formaldehyde and asbestos free.
   2. Surface Burning Characteristics: Maximum flame spread and smoke developed index value of 5.
   3. Install loosefill insulation in accordance with the manufacturer’s instructions to obtain R-value as specified and shown on the Plans. Provide rafter baffles around building perimeter and vents to ensure ventilation of attic space.
2.02 VAPOR RETARDERS
   A. Polyethylene Vapor Retarder: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.
   B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

2.03 AUXILIARY INSULATING MATERIALS
   A. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrate indicated without damaging insulation and substrate.
   B. Insulation Fasteners: As required for each application and as recommended by manufacturer for each specific installation.
   C. Joint Tape: Foil surface tape by insulation manufacturer for sealing joints at cavity wall insulation.
   D. Attic Rafter Baffle: RAFT-R-MATE as manufactured by Owens Corning or approved equal.
      1. Install between all rafters around building perimeter.

PART 3 – EXECUTION

3.01 EXAMINATION
   A. Examine substrates and conditions, with installer present, for compliance with requirements of section in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION
   A. Clean substrate of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or that interfere with insulation attachment.

3.03 GENERAL INSTALLATION
   A. Install in accordance with manufacturer's written instructions applicable to products and application indicated.
   B. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
   C. Extend insulation in thickness indicated to envelope entire area to be installed. Cut and fit tightly around obstruction and fill voids with insulation. Remove projections that interfere with placement.
   D. Apply single layer of insulation to produce thickness indicated.

3.04 INSTALLATION OF PERIMETER/FOUNDATION AND UNDER-SLAB INSULATION
   A. On vertical surfaces, set units in adhesive applied according to manufacturer’s written instructions. Use adhesive recommended by insulation manufacturer.
   B. Protect top surface of horizontal insulation from damage during concrete work.
3.05 INSTALLATION BLANKET INSULATION

A. Unfaced Thermal and Acoustical Wall Batt: Install by friction-fit method except as otherwise required for support of units. Cut, cope and shape units as required at obstructions to provide most effective wall insulation envelope reasonably achievable. Install all wood frame walls to form full closure with roof insulation or roof deck. Place insulation into concealed corners and similar areas while areas are still accessible, whether or not such placement requires special sequencing of work.

B. Install insulation in full thickness of stud space with minimum R-value as shown on the Plans or specified herein.

3.06 INSTALLATION OF RIGID INSULATION

A. See Plans for locations.

B. In all cases install in accordance with manufacturer's printed instructions using materials specifically designed for the intended use.

C. Install PVC closure strips according to manufacturer's directions.

3.07 INSTALLATION OF LOOSE-FILL INSULATION

A. Loose-fill insulation shall be installed using a pneumatic blowing machine in accordance with the manufacturer's instructions.

B. Prior to installing loose-fill insulation:
   1. Seal all penetrations through the ceiling plane, to minimize air leakage between the conditioned space below and the unconditioned attic space.
   2. Installing vent baffles in each rafter/truss bay to ensure ventilation of the attic space by allowing free flow of air in through the vented soffit and out through the ridge, gable end or square roof vents.

C. Install insulation in thicknesses as recommended by the manufacturer to obtain minimum R-value as shown on the Plans and specified herein.

3.08 INSTALLATION OF VAPOR RETARDERS

A. General: Extend vapor retarder to extremities of areas to be protected for vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor retarders over framing by lapping not less than 2 wall studs. Fasten vapor retarders to framing at top, end and bottom edges, at perimeter of wall openings and at lap joints. Space fasteners 16 inches o.c.

C. Seal overlapping joints in vapor retarders with adhesive or vapor-retarder tape according to vapor retarder manufacturer's instructions. Seal butt joints and fastener penetrations with vapor-retarder tape. Locate all joints over framing members or other solid substrate.

D. Firmly attach vapor retarders to substrate with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer.

E. Seal joints caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor-retarder tape or another layer of vapor retarder.
F. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

3.09 PROTECTION

A. General: Protect installed insulation and vapor retarders from damage due to harmful weather exposure, physical abuse and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 00
SECTION 07 41 11 – METAL ROOF AND WALL PANELS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work includes, but is not necessarily limited to, furnishing all labor, materials and equipment for the installation of manufactured metal roof, wall and soffit panels as shown on the Plans. Work also includes installation of snow retention system as specified.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 06 10 00 – Rough Carpentry.
C. Section 06 17 00 – Shop-Fabricated Structural Wood.
D. Section 07 62 00 – Sheet Metal Flashing and Trim.

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.


1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Product Data: Submit manufacturer's technical product data, installation instructions and recommendations for each type of roofing, siding and soffit requirements. Include highlighted data substantiating that materials comply with requirements.

C. Shop Drawings: Submit complete shop drawings detailing roof and wall panel layouts, trim installation, and panel attachments. Shop drawings shall also include details of all soffit panel perimeter and joint flashings that comply with the manufacturer’s standard recommendations. Describe all proposed details that deviate from what is shown on the plans. Include details to allow for expansion and contraction.

D. Samples:

1. Prior to ordering products, submit manufacturer's standard color samples for Engineer's selection.

2. Prior to starting work, submit the following:
   a. Roof and Wall Panels: Two (2) 12-inch long panel samples showing shape and the representative color as approved by the Engineer.
   b. Soffit Panels: Two (2) 12-inch x 12-inch panel samples showing shape and the representative color as approved by the Engineer.

E. Informational Data:

1. Test Reports: Specifying that all products comply with performance requirements specified within this section.

2. Certifications specified in the following Quality Assurance article.

3. Qualification Data: Manufacturer's, engineer's and installer's qualification data.

4. Manufacturer's instructions.

1.05 QUALITY ASSURANCE

A. Single-Source: Obtain roof and wall panels from one manufacturer.

B. Installers Qualifications: Installer shall be experienced to perform work and is acceptable to panel manufacturer.

C. Manufacturer Qualifications:

1. Manufacturer shall have a minimum of Ten (10) years of experience supplying metal roof, wall and soffit panels to the region where the work is to be done.

2. Capable of providing field service representation during construction, approving acceptable installer and approving application methods.

D. Regulatory Agency Requirements: Comply with IBC and local Building Code requirements if more than those specified.
1.06 PERFORMANCE REQUIREMENTS

A. Materials: Roof, wall and soffit panels shall be formed from steel conforming to ASTM A653 or ASTM A792, with minimum yield strength of 40,000 psi.

B. Protective Coatings: Roof, wall and soffit panel coating thickness shall conform to ASTM A653, G90 (Galvanized) or ASTM A792, AZ50 (Zincalume).

C. Finish:
   1. Primer Coat Material: All panels are to have a factory-applied baked-on corrosion-resistant primer, minimum primer coat dry film thickness: 0.2 mils
   2. Finish Coat Material: All panels are to have a factory-applied baked-on paint system on both sides using polyvinylidene fluoride (PVF$_2$), such as "Kynar 500" or equal, meeting the following requirements.
      a. Weathering: No checking, blistering or adhesion loss when tested for 5000 hours in accordance with ASTM D4587.
      b. Chalking: Will not chalk greater than #8 rating when tested for 2000 hours in accordance with ASTM D4214.
      c. Fading: Color changed will not exceed 5 NBS units when tested for 5000 hours in accordance with ASTM D2244.
      d. Humidity: Shall be less than 5 percent of #8 blister when tested for 5000 hours in 100 percent humidity at 100 degrees F in accordance with ASTM D2247.
      e. Flexibility: No rupture of coating when subjected to a 180-degree bend around a 1/8-inch mandrel in accordance with ASTM D522.
      f. Formability: When subjected to a 180-degree bend over 1/8-inch diameter mandrel in accordance with ASTM D522, exterior coating shall be flexible to the point of metal rupture without separation of coating from substrate.
      g. Abrasion Resistance: Coating system shall withstand a minimum of 65 liters of falling sand before appearance of base metal per ASTM D968.

D. Structural Design Requirements: Roof Panels shall be designed to withstand the minimum snow and wind loads as specified on the plans. Designs are to be done using AISI Specification for the Design of Cold-Formed Steel Structural Members." Wind design to include local effects at discontinuities in accordance with "Metal Building Manufacturer's Association, Low Rise Building Systems Manual."

1.07 DELIVERY, STORAGE AND HANDLING

A. Protect against damage and discoloration.

B. Handle panels with non-marring slings.

C. Do not bend panels.

D. Protect panels against standing water and condensation between adjacent surfaces.

E. If panels become wet, immediately separate sheets, wipe dry and allow to air dry.

F. Remove any strippable film prior to installation and do not allow to remain on panels in extreme cold, heat or in direct sunlight.
1.08 PROJECT CONDITIONS

A. Examine the conditions and substrate in which metal roof and wall panels are to be installed. Substrate shall be installed level, flat and true to avoid panel stresses.

B. Field measurements shall be taken prior to fabrication of panels.

C. Proceed with panel installation only after satisfactory conditions are met.

1.09 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Submit a written product warranty, for Owners acceptance, executed by the manufacturer agreeing to cover failure of the factory-applied exterior finish on metal roof, wall and soffit panels within the following warranty period:

   Roof, Wall and Soffit Panels: Twenty-five (25) years from Date of Substantial Completion.

C. Contractors Warranty: Warrant panels, flashing, sealant, fasteners, and accessories against defective materials and/or workmanship, to remain watertight and weatherproof with normal usage for two (2) years following project substantial completion date, and to repair or replace without additional cost to the owner, any leaks, and resulting damage to other materials and building contents as may occur.

PART 2 – PRODUCTS

2.01 MANUFACTURERS AND PRODUCTS

A. Roof, wall and soffit panel products specified within this section are by:

   1. AEP Span

B. Subject to compliance with requirements, equivalent products by the following manufacturers are acceptable:

   1. Bruce & Dana, Inc.
   2. Metal Sales Manufacturing Corporation.
   3. Metal Building Components, Inc. (MBCI)
   4. Approved equal.

2.02 MATERIALS

A. Metal Roof and Wall Panels:

   1. Super-Span as manufactured by AEP Span or approved equal.

      a. Width: 36-inch net coverage.
      b. 24 gage minimum thickness.
c. Profile: 1-1/4-inch high major ribs at 12-inches on center and one minor rib between each major rib.

d. Color: As selected by Engineer from manufacturer's standard colors.

B. Metal Soffit Panels:

1. Prestige Series® as manufactured by AEP Span or approved equal.
   a. Profile: 12-inch wide flat panel, 1-inch minimum to 1½ inches maximum high.
   b. 24 gage minimum thickness.
   c. Perforated for ventilation.
   d. Color: As selected by Engineer from manufacturer's standard colors.

2.03 ACCESSORIES

A. Roof and Wall Panels:

1. Fasteners: Per manufacturer recommendations.
   a. Exposed fasteners should have sealing washers and be the same color as the parts they attach.
   b. All fasteners must be coated to provide protection against corrosion.

2. Ice and Water Barrier: Sheet barrier of self-adhering rubberized asphalt membrane underlayment having internal reinforcement, and "split" back plastic release film, conforming to ASTM D 1970, CertainTeed WinterGuard™, Owens Corning WeatherLock®, or Engineer approved equal. Provide ice and water barrier material specifically designed and suitable for use as a metal roofing underlayment, with warranty equal in duration to that of metal roofing system. Provide ice and water barrier as roofing underlayment over entire roof.

3. Accessories: Except as indicated as work of another specification section, provide components required for a complete roof and wall panel system, including, but not necessarily limited to, fascia, ridge closures and vents, clips, seam covers, flashing, sealants, gaskets, fillers, closure strips and similar items. Match materials and finishes of panels.
   a. Closure strips: Closed-cell, self-extinguishing, expanded cellular rubber or cross-linked polyethylene foam flexible closure strips. Premolded to match configuration of roof and wall panels. Provide closure strips where indicated or necessary to ensure weathertight construction.
   b. Sealing Tape: Pressure-sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
   c. Joint Sealant: One-part elastomeric urethane sealant or as recommended by panel manufacturer.
   d. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.
B. Soffit Panels:

1. Panel Penetration Flashing: Recommended by panel manufacturer.
   a. Color: Match panel color.

2. Flashings: Match panel finishes and material. Do not use lead or copper.

3. Fasteners: Per manufacturer recommendations.
   a. Conceal whenever possible, if exposed use same color of parts they attach.

4. Furring Channel: Aluminum or galvanized steel.

C. Snow Retention/Snow Guards:

1. Snow retention system for exposed fastener metal roofing shall be ColorGard®, as manufactured by S-5! Attachment Solutions (Metal Roof Innovations, Ltd.), www.s-5.com, or Engineer approved equal.

2. Unpunched cross member shall be constructed of mill-finished aluminum and supplied with splice pieces, mounting brackets, and manufacturer recommended fasteners. Mounting brackets shall be VessaBracket-47 with factory applied butyl sealant. Minimum bracket spacing shall be as indicated on plans. Brackets shall be attached to roof trusses, unless otherwise indicated. Supply and install color-matching prefinished metal roofing strip into ColorGard® crossmembers.

2.04 FABRICATION

A. Roof, Wall and Soffit Panels:

1. Unless otherwise shown on Plans or specified herein, fabricate panels in continuous one-piece lengths and fabricate flashings and accessories in longest practical lengths.

2. Panels shall be factory formed. Field formed panels are not acceptable.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine conditions and proceed with work.

B. Verify dimensions, tolerances and method of attachment with other work.

C. Verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions. If field measurements differ from contract Plans or shop drawings notify Engineer prior to fabrication.

D. Prior to starting work, notify general contractor about defects requiring correction.

E. Do not start work until conditions are satisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Apply bituminous coating or other permanent separation materials on panel surfaces where panels would otherwise be in contact with substrate materials that are non-compatible or could result in electrolytic corrosion or deterioration of either material or finishes. Coat back of metal roof and wall panels with bituminous coating where it will contact wood, ferrous metal or cementitious construction.

C. Roof and Wall Panels:
   1. Follow roof and wall panel manufacturer's instructions in conjunction with approved shop drawings.
   2. Install panel seams vertically.
   3. Lap panels away from prevailing wind directions.
   4. Secure panels without warp or deflection.
   5. Maximum Alignment Variation: $\frac{1}{4}$ inch in 40 feet.
   6. Flashing:
      a. Overlap roof panels at least 6 inches.
      b. Install flashing to allow for thermal movement.
      c. Remove any strippable protective film, if used, immediately preceding flashing installation.
   7. Cutting and Fitting:
      a. Neat, square and true. Torch cutting is prohibited where cut is exposed to final view.
      b. Openings 6 inches and larger in any direction shall be shop fabricated and reinforced to maintain original load capacity.
      c. Openings less than 6 inches in largest dimension can be made by trade requiring opening.
      d. Where necessary to saw cut panels, debur and treat with galvanic paint.

D. Soffit Panels:
   1. Follow soffit panel manufacturer's instructions in conjunction with approved shop drawings.
   2. Cutting and Fitting:
      a. Neat, square and true. Torch cutting is prohibited where cut is exposed to final view.
      b. Openings 6 inches and larger in any direction shall be shop fabricated and reinforced to maintain original load capacity.
      c. Openings less than 6 inches in largest dimension can be made by trade requiring opening.
E. Snow Retention/Snow Guards:
   1. Install in accordance with the manufacturers written instructions.

3.03 PREPARATION
A. Clean and dry surfaces prior to applying sealants.

3.04 ADJUSTING, CLEANING AND PROTECTION
A. Panels or flashings that have severe paint and/or substrate damage shall be replaced as directed by the Engineer or Owner’s representative. Do not use touch-up paint on damaged surfaces.

B. At completion of each day’s work and at work completion, sweep panels, flashings and gutters clean. Do not allow fasteners, cuttings, fillings or scraps to accumulate. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 07 41 11
SECTION 07 62 00 – SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This Section includes the following categories:

1. Metal flashing.
2. Exposed trim.
3. Exposed fascia.
4. Drain gutter assemblies.
5. Miscellaneous metal fabrication.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 06 10 00 – Rough Carpentry
C. Section 07 41 11 – Metal Roof and Wall Panels
D. Section 07 92 00 – Joint Sealants

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.


B. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).

1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Shop drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

C. Samples of sheet metal flashing, trim and accessory items, in the specified finish.

1. Two (2) 8-inch square samples of specified sheet materials to be exposed as finished surfaces.

D. Informational Data: Submit manufacturer's and installer's qualification data.
1.05 QUALITY ASSURANCE
A. Single-Source: Obtain sheet metal from one manufacturer.
B. Installers Qualifications: Engage an experienced installer who has completed sheet metal flashing and trim work similar in material, design and extent to that indicated for this Project and with a record of successful in-service performance.

1.06 PERFORMANCE REQUIREMENTS
A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposed to weather without failing.

1.07 DELIVERY, STORAGE AND HANDLING
A. Protect against damage and discoloration.

1.08 PROJECT CONDITIONS
A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance, durability of work and protection of materials and finishes.

1.09 WARRANTY
A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
B. The contractor shall furnish, at no additional cost to the Owner, a guarantee of the watertightness of the flashings. The warranty is limited to repairs due to ordinary wear from the elements and/or due to faulty materials and workmanship.

1. Warranty Period: Five (5) years from Date of Substantial Completion.

PART 2 – PRODUCTS
2.01 METALS
A. Zinc-coated Steel: Commercial quality with 0.20 percent copper. ASTM A653, G90 hot-dip galvanized, mill phosphatized where indicated for painting; not less than 22 gage thickness except as otherwise indicated. The Contractor may, at his/her option, substitute Zincalume or Galvalume, meeting ASTM A792, AZ50 requirements for galvanized finish.

2.02 MISCELLANEOUS MATERIALS AND ACCESSORIES
A. Fasteners: Same metal as flashing/sheet metal or, other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
B. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work; matching or compatible with material being installed; noncorrosive; size and gage required for performance
C. Zinc Coated Steel Primer: Self-etching type, compatible with paint system specified in; Section 09 90 00 – Painting and Coating; shop applied.
D. Mastic Sealant: Polyisobutylene, nonhardening, nonskinning, nondrying and nonmigrating sealant.
E. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07 92 00 – Joint Sealants.

F. Adhesive: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

G. Paper Slip Sheet: 5-lb/square red rosin, sized building paper conforming to FS UU-B-790, Type I, Style 1b.

H. Gutter Strainer: 1/4-inch hardware cloth installed in sheet metal frames. Fabricate screen and frame of same basic material as gutters and downspouts.

I. Roofing Cement: ASTM D4586, Type I, asbestos free, asphalt based.

2.03 GENERAL FABRICATION

A. Sheet Metal Fabrication Standards: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design dimensions, metal and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams and solder.

E. Expansion Provisions: Space movement joints a maximum of 10 feet with no joints allowed within 24 inches of corners or intersection. Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to view.

I. Fabricate cleats and attachment devices from same materials as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.
2.04 SHEET METAL FABRICATION

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Exposed Trim and Fascia: Fabricate from the following material:

   Galvanized Steel: 22 gage.

C. Roof-Penetration Flashing:

   Galvanized Steel: 22 gage.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrate and conditions under which sheet metal flashing and trim are to be installed and verify that work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

B. Verify dimensions, tolerances and method of attachment with other work.

3.02 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal work that is without excessive oil canning, buckling and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Expansion Provisions: Space movement joints a maximum of 10 feet with no joints allowed within 24 inches of corners or intersection. Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently weatherproof and water proof, form expansion joints of intermeshing hooked flanges, not less than 1-inch-deep, filled with mastic sealant (concealed within joints).

D. Soldered Joints: Do not solder the following materials:

   1. Aluminum.

   2. Coil-coated galvanized sheet.

E. Sealed Joints: Form nonexpanding, but moveable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joints with sealant and form metal to completely conceal sealant.

F. Separation: Separate metal from noncompatible metal or corrosive substrate by coating concealed surfaces, at location of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
1. Underlayment: Where installing stainless steel or aluminum directly on cementitious or wood substrate, install a slip sheet of red-rosin paper and a course of polyethylene underlayment.


G. Roof-Penetration Flashing: Coordinate roof-penetration flashing installation with roofing and installation of items penetrating roof.

H. Downspout: Shall be set plum and not less than 0.5 inches from the wall. Leaders shall connect gutters on overhanging eaves to downspouts. Leaders shall be set with a slope not less than 1/8-inch per foot or more than 1/2-inch per foot below the horizontal line. Leaders shall fit over the outlet tube in gutter bottom and shall fit into and be riveted to the downspout. Rivet spacing shall be not more than 2 inches. Strainers shall be set loosely in the eave tube opening in gutter. Downspout shall be one continuous piece from leaders to ground termination. Downspouts terminating in drainage lines shall be neatly fitted into downspout boots and filled. Downspout hangers shall be 16-gauge by 1-inch flat stock of the same material as the downspout.

I. Gutters: Brackets and spacers shall be fastened to roof nailer by screws and shall interlock with or be fastened to the leading edge of gutter. Brackets and spacers shall be alternated at not more than 36 inches on center.

3.03 ADJUSTING, CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

C. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 07 62 00
SECTION 07 92 00 – JOINT SEALANTS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work consists of furnishing all labor, materials, and equipment for the complete installation of sealant and caulking as indicated on the Plans and specified herein. Work is primarily at perimeter of hollow metal doorframes, interior and exterior, and windows, and other penetrations in outside walls of buildings.

B. The required applications of sealants include, but is not necessarily limited to, the following general locations:
   1. Joints between louvers, window frames, door frames, and other construction.
   3. Roof penetrations and other required sheet metal/flashings locations.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 07 62 00 – Sheet Metal Flashing and Trim
C. Section 08 11 13 – Hollow Metal Doors and Frames
D. Section 09 90 00 – Painting and Coating

1.03 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
B. Submit product data.
C. Submit manufacturer's surface preparation and installation instructions.
D. Submit samples of sealant colors.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Name and addresses of manufacturers of products specified herein are as follows:
   1. Dow Corning Corporation, Midland, Michigan.
   5. Sika Chemical Corporation, Lyndhurst, New Jersey.
   6. Sonneborn Building Products Division, Contech, Minneapolis, Minnesota.
   7. Tremco, Cleveland, Ohio.

2.02 SEALANT SYSTEMS

A. Type 1: Vertical joints 1-inch or less in width
   1. Silicon rubber (nonsag)

B. Type 2: Interior nonmoving joints
   1. Silicone rubber (at wet interior areas)

2.03 ACCESSORIES

A. Primer: Nonstaining type, recommended by sealant manufacturer to suit application.

B. Joint cleaner: Noncorrosive and nonstaining type, recommended by sealant manufacturer and compatible with joint substrates.

C. Joint filler: Round, opened or closed-cell, foam rod, as recommended by sealant manufacturer, diameter oversized 30 percent greater than the width of joint to be filled.

D. Bond breaker: Pressure-sensitive tape recommended by sealant manufacturer to suit application.

PART 3 – EXECUTION

3.01 INSPECTION

A. Verify that joint dimensions and physical and environmental conditions are acceptable to receive work of this section.

B. Beginning of installation means acceptance.

3.02 PREPARATION

A. Clean, prepare, and size joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.

B. Verify that joint substrates and release tapes are compatible with sealant.

C. Examine joint dimensions and size materials to achieve required width/depth ratios.
D. Use joint filler to achieve required joint depths, to allow sealants to perform properly.

E. Where joints are more than 3/4-inch deep, install joint filler to within 1/2-inch of surface.

F. Where joint is more than 1/2-inch deep, install joint filler to within 1/4-inch of surface.

G. Where joint is less than 1/2-inch deep, apply bond breaker tape to bottom of joint to prevent adhesion of sealant to joint bottom.

H. Prime or seal joint surfaces wherever recommended by the sealant manufacturer. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.

3.03 INSTALLATION

A. Install sealant in accordance with manufacturer's instructions.

B. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.

C. Tool joints: Concave.

D. Joints: Free of air pockets, foreign embedded matter, ridges, and sags.

E. Install sealant before painting only if it is recommended as paintable by the sealant manufacturer, otherwise do all sealing after painting is completed.

3.04 CLEANING

A. Remove excess and spillage of compounds promptly as the work progresses. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage, without damage to the adjoining surfaces of finishes.

END OF SECTION 07 92 00
DIVISION 08 – OPENINGS
SECTION 08 11 13 – HOLLOW METAL DOORS AND FRAMES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work consists of furnishing all labor, materials, and equipment for the installation of hollow metal doors and frames, and relights, as shown on Plans.

B. Work included:

1. Standard, insulated core steel doors; standard frames, unless otherwise detailed.

2. Prepare doors and frames to receive hardware specified in Section 08 71 00 – Door Hardware.

3. Provide lights in doors where indicated.

4. All steel doors and door frames on this project are to be hot-dip galvanized and factory primed for field finish painting.

5. Certain openings require custom doors and frames, see elsewhere for details.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure

B. Section 08 71 00 – Door Hardware

C. Section 09 90 00 – Painting and Coating

D. Division 26 - Electrical

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.


1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Submit product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.

C. Shop Drawings: Submit shop drawings for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements and details of joints and connections. Show anchorage and accessory items.
1.05 QUALITY ASSURANCE

A. Provide doors and frames complying with ANSI/SDI 100 “Recommended Specifications for Standard Steel Doors and Frames” as specified.

B. Certification of label construction: For components exceeding Underwriters Laboratories, Inc. (UL), furnish inspection certificate stating that components construction conforms to UL rating requirements only if Engineer is aware of such a limitation and has allowed the non-labeled unit.

C. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies tested for fire-test-response characteristics per ASTM E 152, and are labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction.

1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies provide certification by a testing agency acceptable to authorities having jurisdiction that doors conform to all standard construction requirements of tested and labeled fire-rated door assemblies except for size.

2. Temperature-Rise Rating: Where required by code, provide doors that have a temperature-rise rating of 450 °F maximum in 30 minutes of fire exposure.

D. Single Source: Provide doors, frames, and builders hardware through one source.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames in cartons or crates to provide protection during transit and storage. Adequately protect factory finished paint surfaces from damage during shipment, storage, construction and installation of door hardware and accessories.

B. Inspect hollow metal work for damage upon delivery and during construction. Field repair of damage(s) will not be allowed. Remove and replace any damaged items as directed by the Engineer.

C. Store doors and frames at the building site under cover. Place units on minimum 4-inch high wood sills or on floors in a manner that will prevent rust and damage. Avoid the use of non-vented plastic or canvas shelters which could create a humidity chamber. If cardboard wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to promote air circulation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements, equivalent products by the following manufacturers are acceptable.

1. Steel Doors and Frames:
   b. Curries Company.
   c. Republic.
   d. Steelcraft.
   e. Stiles.
2.02 MATERIALS

A. Steel sheets: All doors and frames shall be constructed of galvanized steel sheets conforming to the requirements of ASTM A653, G90 minimum coating thickness.

B. Paint: All hollow metal doors and frames on this project shall be factory primed and field finish painted with paint as specified in Section 09 90 00 – Painting and Coating. Factory paint and field finish paint shall be spray-applied to achieve a smooth and uniform finish. Brush and roller applied finishes will not be accepted.

2.03 METAL DOOR FABRICATION

A. General: Fabricate doors in accordance with SDI 100-1991, Grade II, Model 2 seamless design, to sizes shown, providing necessary clearances and bevels to permit operation without binding. Door shall be free from warp, wave, buckle and other defects.

B. Door Construction:
   1. Thickness: 1-3/4 inches, unless indicated otherwise.
   2. Fabricated with face sheets of 18-gauge steel.
   3. Both lock edge and hinge rail edge of the door shall be continuous welded and ground smooth the full height of the door.
   4. Bevel lock and hinge edges 1/8-inch in 2 inches.
   5. Provide with top and bottom inverted 16-gauge steel channels welded within the door to both face sheets.
   6. Reinforce, stiffen and sound deaden with self-extinguishing, non-toxic, polystyrene foam core completely filling inside of door and laminated to the inside faces of panels.
   7. Closer Reinforcement Channel: 12-gauge reinforcement in doors with closers.

C. Thermal Rated Assemblies: Provide door and frame assemblies tested in accordance with ASTM C1363 at exterior locations. Unless otherwise indicated, maximum apparent U factor for thermal-rated assemblies is 0.39 BTU/hr (ft²) °F.

D. Preparation for Hardware:
   1. Reinforce components for hardware installation in accordance with SDI 107.
   2. Door shall be mortised, reinforced, drilled and tapped at the factory for templates for all mortise hardware listed in the hardware schedule.
   3. Door shall be reinforced only for surface applied hardware such as closers, checks, escutcheons and kick plates, the drilling and tapping for which is to be done in the field by the door erector.
   4. Door shall be provided with reinforcing unit as recommended by lock manufacturer.
   5. Hardware Mounting Height and Door Clearances: In accordance with ANSI industry standards.

E. Electric Door Position Switches: Provide cutout and 12-gauge reinforcing tabs for electric door position switch. Location as recommended by position switch manufacturer.
2.04 METAL FRAME FABRICATION

A. General: Pressed, double rabbeted metal frames shall be formed to shapes and sizes shown. Head and jambs are to be notched, mitered, welded and finished to present a smooth surface for painting.

B. Frames shall be fabricated from 16-gauge steel and shall be designed with integral stop and trim. Mitered corners shall be reinforced with 18-gauge channel shaped reinforcements.

C. Jamb Anchors: Frame anchors shall provide stiffness and rigidity to keep frames square, in accurate position without twisting, buckling or warping.
   1. Provide minimum of three anchors at jamb end of frames.
   2. Wood stud construction: 18-gauge galvanized steel sheet, U-shaped type to engage stud, welded to back of frame. Loose anchors are not acceptable.
   3. Concrete masonry: Adjustable galvanized “tee” anchors. Install in course mortar as work progresses.
   4. Cast-in-place concrete walls: Use cabinet type frames anchored to concrete as per manufacturers printed recommendations, using expansion bolts.

D. Floor Anchors: For each jamb which extends to floor, provide clip-type anchors formed of not less than 14-gauge galvanized steel sheet, welded to back of frame, with two holes to receive fasteners.

E. Preparation for Hardware: Frame shall be prepared at the factory for all hardware using templates furnished by hardware supplier. Locations of miscellaneous hardware shall conform to the recommendations for the Door and Hardware Institute (DHI). Mortise, reinforce, drill and tap for all mortise type hardware. Reinforce for surface applied hardware, the drilling and tapping for which is to be done in the field by door erector.
   1. All hardware cutouts shall have steel plate reinforcements with tapped holes welded to frame. Reinforcement shall include 3/16-inch butt reinforcement; 12-gauge lock strike; 12-gauge for surface applied items.
   2. Provide strike stops at frames to receive metal doors with holes for three rubber door silencers. On double doorframes, provide for two silencers per door at head. Omit holes at frames to receive unitized weather stripping.

F. Electric Door Position Switches: Door frames shall be provided with cutout, 12-gauge reinforcing tabs, and 16-gauge grout guard cover box/junction box with electrical conduit knockout for electric door position switch. Location as recommended by position switch manufacturer. Coordinate conduit and wiring connections and requirements with Division 26 – Electrical.

G. Removable Spreaders: Provide removable metal spreaders for frames to prevent damage during shipment and handling. Removal of spreaders shall be possible without damage to the finished surface.

H. Plaster Guards: Provide 26-gauge steel plaster guards or mortar boxes, welded to frame at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation.
2.05 ACCESSORIES

A. Cement Grout: Portland cement, sand and water; with minimum compressive strength of 3000 psi at seven days.

B. Bituminous Paint: Coal Tar Epoxy. Factory coat inside of frame profile with bituminous coating to a thickness of 1/16-inch.

C. Vision Frames: Vision frames shall be removal channel type with sloped moldings, 7/16 inches wide by 1-1/4 inches high, constructed of 18-gauge galvanized rolled steel, with mitered and welded corners and counter-sunk mounting holes. Fasteners shall be stainless steel and placed on the interior side of the door. All fire rated vision lights and frames are to be installed in accordance to standards set forth by NFPA 80. All fire rated vision frames shall bear the mark of Underwriters Laboratory (UL), Warnock Hersey, or approved equal, visible without removal of the frame from the door.

D. Louvers: Door louvers shall be supplied and installed by the door manufacturer. Louvers shall be galvanized 18-gauge steel with 50 percent free area, and integral stainless-steel mesh insect screen, model AFDL as manufactured by Anemostat®, or approved equal. Louvers for fire-rated doors shall be UL rated fusible-link type, constructed of galvanized 18-gauge steel with optional framed attached stainless-steel mesh insect screen, Anemostat® model FLDL-UL, or approved equal. Refer to the door and HVAC schedules on the Plans for sizes and additional requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General: Install steel doors, frames and accessories according to shop drawings, manufacturer’s data and as specified.

B. Placing Frames: Comply with provision of SDI 105 “Recommended Erection Instructions for Steel Frames,” unless otherwise indicated. Set frames accurately in position, plumbed, aligned and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged. Install silencers.

1. In masonry construction, install at least three wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.

2. At existing concrete or masonry construction, install at least three completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.

3. In metal stud partitions, install at least three wall anchors per jamb at hinge and strike levels. In steel stud partitions, attach wall anchors to studs with screws.

4. Grout all frames unless noted otherwise. Coat inside of frames with bituminous paint.

5. Install fire rated frames in accordance with the requirements of NFPA 80.

C. Door Installation: Fit steel doors accurately in frames, within clearances specified in ANSI/SDI 100.

1. Fire-Rated Doors: Install in accordance with requirements of NFPA 80.

D. Install hardware in accordance with Section 08 71 00 – Door Hardware.
3.02 PROTECTION, ADJUSTING AND CLEANING

A. Protection: Immediately before final inspection, remove protective wrapping from doors and frames.

B. Remove and replace defective work, including doors which are warped, bowed, dented, buckled or otherwise unacceptable.

C. Final Adjustments:
   1. Check and readjust operating finish hardware items just prior to final acceptance.
   2. Leave work in complete and proper operating condition.

END OF SECTION 08 11 13
SECTION 08 71 00 – DOOR HARDWARE

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work covered by this section of the specifications consists of furnishing and delivering to
the job site for fitting and installation; all finish hardware complete, in accordance with this
section and applicable Plans. It is intended that the following list of hardware will cover all
finish hardware to complete the project. Omissions and discrepancies shall be brought to
the Engineer's attention during the bidding period. Hardware for labeled openings shall
meet U.L. requirements.

B. Work included

1. Templates for doors and frames.

2. All required screws, bolts, anchors, and the like, for proper fastening of each item
   of hardware.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure

B. Section 08 11 13 – Hollow Metal Doors and Frames

C. Division 26 - Electrical

1.03 REFERENCE STANDARDS


D. Washington State Barrier-Free Regulations (WAC 51-30).

E. ANSI / BHMA A156.1 through A156.24 - Product Standard for Builders Hardware.


H. Door and Hardware Institute (DHI) [www.dhi.org] - Hardware for Labeled Fire Doors.

I. Door and Hardware Institute (DHI) - Recommended Locations for Architectural Hardware
   for Standard Hollow Metal Doors and Frames.

J. Door and Hardware Institute (DHI) - Abbreviations and Symbols.

1.04 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Furnish five (5) typewritten hardware schedules for approval with attached cut sheets.
   Approval of schedule shall not relieve the contractor of responsibility for errors or omissions
   therein.
C. Submit schedule in accordance to DHI publication on "Sequence and Format for the Hardware Schedule" and include explanation of all abbreviations, symbols and codes.

D. Include cross-reference to hardware groups in the hardware schedule. Mark openings with the Engineer's numbering and indicate each door and frame.

E. Indicate type, style, function, size, hand, means of fastening and manufacture for each hardware item.

F. Quantities listed are for the Contractor's convenience only and are not guaranteed. Items not specifically mentioned, but necessary to complete the work shall be furnished matching in quality, finish and design those items specified for similar locations.

G. Submit one (1) copy of catalog cuts for each hardware item listed in the schedule. Catalog cuts must be of good reliable quality. Highlight each cut to readily show compliance with project requirements.

H. Provide samples if required by the Engineer. Samples will be returned to be incorporated into the work.

I. Furnish a complete and current set of templates to all other related material suppliers.

J. Keying requirements will be discussed with the owner, finalized and documented for submittal to the owner.

1.05 QUALITY ASSURANCE

A. The "scheduled" manufacture's names and numbers shown in the hardware schedule are for the purpose of establishing quality, design and function. Only approved Manufacturers and model numbers will be accepted. A request for approval, in writing, indicating the "scheduled" manufacture's catalog number and "substitution" manufacture's proposed substitution catalog number must be submitted. In addition, catalog cuts, and physical samples (if requested), clearly labeled, must accompany the request for approval. All physical samples must be left with the Project Manager for whatever time that is required for his evaluation.

B. Single Source: Provide doors, frames and hardware through one source.

C. Only recognized builders' hardware suppliers who have regularly engaged in furnishing hardware in the project vicinity for a minimum of five (5) years will be acceptable. This supplier must have in its employ a locksmith along with a Hardware Consultant currently a member of the American Society of Architectural Hardware Consultants, who is available at reasonable times, during the course of the work for consultation about the projects hardware details, installation or adjustment. Suppliers without certified consultants may be required to furnish a letter of qualification, listing similar projects furnished, including the Architects name, date and year and the project location.

D. Provide hardware for fire rated openings in compliance with NFPA - 80 latest edition.
1.06 DEFINITIONS
A. ANSI American National Standards Institute.
B. BHMA Builders Hardware Manufacturers Association.
C. CABO Council of American Building Officials.
D. DHI Door and Hardware Institute.

1.07 DELIVERY, STORAGE AND HANDLING
A. Hardware shall be delivered to the project site in the manufacturer’s original packaging, with appropriate markings indicating the location in accordance with the approved hardware schedule.
B. Jointly inventory the hardware upon delivery with the Contractor and or Installer.
C. Store all hardware in a clean, dry and secure room to prevent hardware from damage and loss.

1.08 WARRANTY
A. The following items shall have warranty in excess of Division 01.
   1. Door Closers: 10 years.
   2. Mortise Locks and Latches: 5 years.
   3. Exit and Fire Exit Devices: 3 years.
B. Warranty period shall begin from the date of substantial completion.

PART 2 – PRODUCTS
2.01 MANUFACTURERS
A. Materials, equipment, and accessories specified under this section shall be products of:

   1. Hinges ST Stanley
   2. Locksets SC Sargent
   3. Cylinders SC Sargent
   4. Exit Devices SR Sargent
   5. Flush Bolts IV Ives
   6. Bifold Track ST Stanley
   7. Closers N Norton
   8. Wall Stops IV Ives
   9. Floor Stops IV Ives
   10. Overhead Stops GJ Glynn Johnson
   11. Thresholds P Pemko
   12. Gasketing P Pemko
   13. Kickplates/Protective Items H Hager
   14. Position Switches SE Sentrol (GE-Interlogix)
2.02 MATERIALS

A. The following products have been selected to establish a level of quality, design and function. Furnish either the designated item or the approved alternate. Plans show the direction of slide, swing and hand of each door. Furnish each item of hardware for proper installations and operation. Check door and frame types to ensure all additional installation accessories are included with the specified item.

B. Related items: All necessary fastenings, brackets, clips, and other items necessary to install the hardware items in the best manner shall be furnished in the same material and finish as the related item and shall be furnished as a part of the project.

2.03 DOOR HANDLES

A. All door handles on the project shall be lever-type. If lock cylinders are called for on the Door Schedule, they shall be in the handle.

2.04 FASTENERS

A. All screws shall be of matching finish to their product and shall be manufacturers standard.

2.05 HINGES AND PIVOTS

A. Doors 1-3/4 inches thick minimum use 4-1/2-inch hinges.

B. Each door shall have three hinges. Doors 7 feet 6 inches in height, and over shall have an additional hinge for each 30 inches of additional height, or fraction thereof.

C. Exterior doors over 3 feet 2 inches wide and/or 7 feet 6 inches high shall have heavy weight hinges. Hinges shall be non-ferrous with non-removable stainless-steel pins.

D. Interior reverse bevel doors with lockable hardware shall have non-removable pin hinges.

E. Hinges shall be sized in width to clear all trim.

2.06 LOCKSETS

A. Locks, cylinders and trim shall be the product of one manufacturer.

B. Functions as shown in hardware sets.

C. Provide 3/4-inch minimum latch throw for mortise locks, 1/2-inch for cylindrical locks and 1-inch throw for deadbolts.

D. Provide locks with standard 6-pin cylinder.

E. Unless otherwise noted, locksets shall have freely rotating locked levers for added security and vandalism protection.

2.07 DOOR CLOSERS

A. Door closers shall be fully adjustable type with complete spring power adjustment, sizes 2-6 and field adjustable according to door size and frequency of use. Closer shall have adjustable back-check.

B. Where closers are indicated to be delayed action, provide units with adjustable delay.
C. Where doors are indicated to be accessible to the physically handicapped, provide units that comply with ANSI A117.1 provisions for door opening force and delayed action for closing.

D. Provide all accessories for mounting required by door and frame types.

2.08 EXIT DEVICES

A. Except on fire rated doors, equip exit devices with a cylinder dogging feature to hold the push bar down and the latch bolt in the retracted position.

B. Where function of exit device requires a cylinder, provide mortise or rim cylinder as required.

C. Where exit devices are required on fire rated doors, provide devices with UL label indicating “Fire Exit Hardware.” For doors without fire rating, provide devices listed for “Panic Hardware.”

D. For double doors, provide removable steel mullion and accessories as required for proper door operation and/or fire rating.

2.09 DOOR TRIM UNITS

A. Fabricate protection plates not more than 1 inches less than door width on stop side of door and not less than 1 inch less than door width on pull side of door.

B. Metal plates shall be of stainless steel and 0.050 or 18 gauge.

C. Provide manufacturers standard exposed fasteners with through bolting on matched pairs.

2.10 FLUSH BOLTS

A. Provide manual, self-latching or automatic flushbolts where listed in hardware sets. Flushbolts for fire rated doors shall be approved and shall have U.L. label.

B. Provide minimum 1/2-inch diameter rods of brass, bronze or stainless steel with a minimum 3/4-inch throw.

C. Provide 12-inch rods for doors less than 7 feet 0 inches. Provide longer rods as necessary for doors taller than 7 feet 0 inches.

D. Provide dust proof strikes at all locations except where thresholds are shown.

2.11 THRESHOLDS AND WEATHERSTRIP

A. Provide continuous weather-stripping at the edge of every exterior door leaf. Provide non-corrosive fasteners as recommended by manufacturer.

B. Provide thresholds with flat head sleeve anchors on all exterior doors.

C. Provide PemKote™ anti-slip surface on all exterior thresholds.

2.12 ASTRAGALS

A. All double doors shall be provided with a removable astragal. Astragals shall be constructed of galvanized steel, painted to match door finish. Astragal shall be trimmed as recommended by the manufacturer to clear strike lip or other hardware.

B. Astragals for exterior double doors shall be supplied with weather-stripping at edge where doors meet.
2.13 SILENCERS
A. All interior wood and metal doors shall have silencers, unless specified otherwise.
B. Three per single door and two per pair.

2.14 KICK DOWN DOOR HOLDERS
A. Provide heavy-duty cast brass or bronze construction with specified finish.
B. Base shoe shall be round non-marring rubber with a corrugated bottom.
C. Base shoe shall be removable for replacement.

2.15 DOOR POSITION SWITCHES
A. Door position switches shall be concealed/flush mount, magnetic type electric contacts, Sentrol (GE-Interlogix) 2757 Series, or Engineer approved equal. Switches shall be UL listed. Coordinate installation and wiring with Division 26 – Electrical.

2.16 FINISHES
A. The designations used in hardware sets indicate hardware finishes are to be industry recognized standard commercial finishes established by BHMA.
   1. Hinges 630
   2. Locks 626
   3. Flushbolts 626
   4. Push/Pull/Kicks 630
   5. Closers 689
   6. Exit Devices 626
   7. Door stops 626

2.17 KEYING
A. Keying Schedule: After receipt of approved finish hardware schedule, hardware supplier shall prepare a keying schedule. Keying schedule shall then be discussed with Engineer and Owner to ensure all locksets are functionally correct and keying fulfills desires of Owner. Copies of proposed keying schedule shall be given to Engineer and/or Owner with all corrections inserted into proposed schedule.
B. Establish system to integrate with existing system.
C. All keyed cylinders shall be subject to existing Masterkey system. The hardware supplier shall be responsible for obtaining all keying information from the Owner.
D. Keys shall be furnished in the following quantities:
   0 each Grandmaster
   6 each Master keys
   3 each Change keys per cylinder
   2 each Control keys
   6 each Construction keys
E. Construction Keying: Furnish all standard cylinder items with construction cores. Following construction, the hardware shall provide permanent cores as part of this contract. The hardware supplier shall insert all permanent cylinder cores into the locks and try each permanent key for operation before turning the permanent keys over directly to the Owner.
PART 3 – EXECUTION

3.01 INSTALLATION

A. Mount hardware units at heights indicated in “Recommended Locations for Builders Hardware for Standard Steel Doors and Frames,” By DHI. The local Authority having jurisdiction may have specific requirements that may apply.

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Whenever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, reinstall each item. Do not install surface-mounted items until finishes have been completed on the substrate.

C. Vision Panels: Mounting is custom. Panic hardware is to be mounted to clear vision panel frames. The vision panel is to be located 40 inches maximum above finish floor, governed by ADA regulations.

D. Set all hardware plumb and true to locations specified in the installation instructions.

E. Set thresholds for exterior doors in a bed of butyl-rubber sealant.

F. Upon completion of installation, verify hardware has been installed in accordance with the approved finish hardware schedule. Check hardware for proper placement and operation. Hardware found to be incorrectly installed or damaged, will be repaired or replaced.

3.02 ADJUSTMENT

A. After inspection of the installation and operation by Engineer, the Contractor shall readjust all items of operating hardware as required.

B. Wherever hardware installation is made more than four (4) weeks prior to acceptance or occupancy of a space or area, return to work prior to acceptance of occupancy and make final check and adjustment of all hardware. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of air conditioning and ventilating equipment. Hardware to be found defective shall be repaired or replaced.

C. Instruct Owner's personnel in proper adjustment and maintenance of hardware and finishes during the final adjustment period.

3.03 PROTECTION AND CLEANING

A. After installation, all hardware surfaces shall be cleaned on both interior and exterior of all mortar, plaster, paint and other contaminants. After being cleaned, all work shall be protected against damage.

3.04 SPECIAL TOOLS

A. Provide three (3) sets of any special tools, required for installation and maintenance of hardware to Owner.
3.05 SCHEDULE

A. Refer to the Door Schedule on the Plans to relate the hardware group to specific doors.

<table>
<thead>
<tr>
<th>Mfr.</th>
<th>Qty.</th>
<th>Description</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>6 EA</td>
<td>HINGES</td>
<td>FBB191 4.5 x 4.5 NRP</td>
</tr>
<tr>
<td>SC</td>
<td>1 EA</td>
<td>LOCKSET</td>
<td>FW-10G44GL</td>
</tr>
<tr>
<td>IV</td>
<td>1 PAIR</td>
<td>MANUAL FLUSHBOLTS</td>
<td>FB458</td>
</tr>
<tr>
<td>N</td>
<td>1 EA</td>
<td>CLOSER (ACTIVE LEAF)</td>
<td>7500</td>
</tr>
<tr>
<td>P</td>
<td>1 EA</td>
<td>THRESHOLD</td>
<td>171AK</td>
</tr>
<tr>
<td>P</td>
<td>2 EA</td>
<td>SWEEP</td>
<td>29326CNB</td>
</tr>
<tr>
<td>P</td>
<td>1 EA</td>
<td>ASTRAGAL</td>
<td>357SP W/ S88D</td>
</tr>
<tr>
<td>IV</td>
<td>1 SET</td>
<td>WEATHERSTRIP</td>
<td>S88D 20’</td>
</tr>
<tr>
<td>IV</td>
<td>1 EA</td>
<td>KICK DOWN HOLDER (ACTIVE LEAF)</td>
<td>FS452</td>
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<tr>
<td>IV</td>
<td>1 EA</td>
<td>MANUAL WALL HOLDER (INACTIVE LEAF)</td>
<td>WS445</td>
</tr>
</tbody>
</table>

END OF SECTION 08 71 00
DIVISION 09 – FINISHES
SECTION 09 90 00 – PAINTING AND COATING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work covered by this section includes all labor, materials, and equipment required for surface preparation and application of protective coatings as indicated on the Plans and as specified herein.

B. It is the intent that all new interior and exterior metal and submerged metal surfaces be painted, whether specifically mentioned or not.

C. Unless specifically indicated in the Technical Specifications, the following items shall not be painted:
   1. Nonferrous and corrosion-resistant alloys such as copper, bronze, monel, aluminum, chromium plate, stainless steel, except where:
      a. Required for electrical insulation between dissimilar metals.
      b. Aluminum and stainless steel that is embedded in concrete or masonry, or aluminum in contact with concrete or masonry.
      c. Color coding of equipment is required.
   2. Nonmetallic materials such as glass, PVC, wood, porcelain, and plastic except as required for architectural painting or color coding.
   3. Prefinished electrical and architectural items such as motor control centers, switchboards, switchgear, panelboards, transformers, disconnect switches, acoustical tile, cabinets, elevators, louvers, wall panels, except where color coding of equipment is required.
   4. Nonsubmerged electrical conduits attached to unpainted concrete surfaces.
   5. Cathodic protection anodes.
   6. Insulated piping or insulated piping with jacket, except as required for architectural painting or color coding.
   7. Moving parts of operating units such as valve and damper operators, linkages, sensing devices, motor and fan shafts, unless otherwise specified.
   8. Code required labels, such as Underwriters Laboratories, or any equipment data plates.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 06 20 00 – Finish Carpentry
C. Section 08 11 13 – Hollow Metal Doors and Frames
1.03 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Manufacturer’s Certification: Contractor shall submit certification that states that the factory
   applied coating system meets or exceeds the requirements specified herein.

C. Technical Data Sheets: For each paint system used herein, Contractor shall submit a
   technical data sheet from each paint manufacturer and paint colors available for each
   product used in the paint system. The technical data sheet shall at minimum provide the
   paint material name, manufacturer name, product name and number, material
   specification, minimum coats of coverage and thickness.

D. Paint Schedule: Contractor shall submit a complete and detailed paint schedule showing,
   at a minimum, product name and number (including required primer or ty-coat), number of
   coats, thickness of each coat, colors, and locations each paint system will be used.

E. Contractor Qualifications: Submit coating applicator name and qualifications, including
   references and manufacturer’s certification as applicable and specified in this section.

F. Maintenance Instructions: Contractor shall submit Manufacturer’s instructions for
   procedures and products required for re-coating of finish coat.

1.04 QUALITY ASSURANCE

A. Contractor Qualifications: All painting specified in this section shall be accomplished by an
   applicator qualified in the field of protective coatings for a water and wastewater systems,
   with a minimum of five (5) years of experience, including specific experience in application
   of the specified product systems. The Contractor shall maintain qualified personnel who
   have received training by the manufacturer or manufacturer’s representative and shall be
   certified or licensed by the coating materials manufacturer as a qualified applicator.

1.05 DELIVERY AND STORAGE

A. Deliver all materials to the job site in original, new, and unopened packages and containers
   bearing manufacturer’s name and label.

   1. Provide labels on each container with the following information:

      a. Name or title of material.
      b. Federal Specification number, if applicable.
      c. Manufacturer's stock number.
      d. Manufacturer's name.
      e. Contents by volume, for major pigment and vehicle constituents.
      f. Thinning instructions.
      g. Application instructions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in
   storage, mixing, and application of paint in a clean condition, free of foreign materials and
   residue.
1.06 GUARANTEE/WARRANTY

A. The Contractor shall provide a Manufacturer's guarantee as specified in the General Conditions for all labor, materials, and equipment required herein.

1.07 JOB CONDITIONS

A. Do not apply paint when conditions are such that dust, dirt, or other deleterious substances which may impair the quality of coats or the finish are present or will be present before the coating is fully dry.

B. Comply with manufacturer's recommended limitations for ambient and surface temperature and humidity. No painting is to be done when the relative humidity exceeds 85 percent.

C. Comply with manufacturer's recommendations for minimum and maximum times between applications.

PART 2 – PRODUCTS

2.01 PAINT AND COATING SUPPLIERS

A. Specifications for paint of this section are based on products of the Sherwin-Williams Company, unless otherwise specified. Equivalent products are acceptable only with Engineer's approval.

B. Paint finish coats shall be by the same Manufacturer of the prime coat and shall be compatible. Contractor shall be responsible for verifying compatibility of finish coatings used with shop coating system used by manufacturers of prefinished materials and equipment.

2.02 COLOR REQUIREMENTS

A. All equipment shall be painted with the color as approved by the Engineer. All non-submerged portions of equipment shall be painted the same color as the process piping it serves, except as follows: dangerous parts of equipment and machinery shall be OSHA Orange, fire protection equipment and apparatus shall be OSHA Red, and physical hazards in normal operating areas shall be OSHA Yellow.

B. Each coat of paint shall be darker than the preceding coat such that the finish coat is the darkest coat.

C. Colors shall be formulated with colorants free of lead and lead compounds.

D. Fiberglass reinforced plastic (FRP) equipment with an integral colored gel coat shall not require painting, provided the color is approved by the Engineer.

E. Colors shall be selected from “deep” pigments.

2.03 PAINT SYSTEM SCHEDULE

A. All colors will be selected by the Engineer based on the color charts and samples submitted by the Contractor.

B. The Contractor will be required to prepare and paint the following areas of construction:

1. All ceilings and interior walls (unless otherwise noted).

2. All hollow metal doors and frames (unless otherwise noted).
3. Any miscellaneous metal work which is not galvanized, aluminum or stainless steel, including, but not necessarily limited to, pipe and valve supports, and equipment stands and supports.

C. The following types of paints in the schedule below, as manufactured by the Sherwin-Williams Company, have been used as a basis for the paint schedule:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>ITEM</th>
<th>TYPE OF COATING</th>
<th>FINISH</th>
<th>PRODUCT SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Interior</td>
<td>CMU walls</td>
<td>Water-based</td>
<td>Eggshell</td>
<td>PRO INDUSTRIAL WATER BASED CATALYZED EPOXY, B73-360 Series, including manufacturer recommended primer/ty-coat.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Epoxy Polyamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Interior</td>
<td>Wood ceiling and trim</td>
<td>Water-based</td>
<td>Eggshell</td>
<td>PRO INDUSTRIAL WATER BASED CATALYZED EPOXY, B73-360 Series, including manufacturer recommended primer/ty-coat.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Epoxy Polyamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building, Interior and Exterior (including existing building doors)</td>
<td>Hollow metal doors and frames</td>
<td>Aliphatic Acrylic Polyurethane</td>
<td>Semi-Gloss</td>
<td>HI-SOLIDS POLYURETHANE, B65-350 Series, including manufacturer recommended primer/ty-coat</td>
</tr>
</tbody>
</table>

D. For all product systems in the above schedule, primer shall be provided that is appropriate for the substrate and compatible with the specified finish coat. If substrate conditions are not appropriate for the primer specified, the manufacturers recommended primer and/or ty-coat shall be provided. The manufacturers recommended (suggested) dry film thickness shall be provided for all product systems.

PART 3 – EXECUTION

3.01 INSPECTION

A. All work performed under this section shall be carefully inspected by the Contractor and Engineer for rejections or flaws to be corrected, and for proper compliance with Plans and Specifications. Owner furnished equipment shall be inspected by Contractor for compliance with this specification. If surface damage to paint system occurs prior to delivery, and if the Engineer determines that the damage cannot be repaired at the job site, the equipment will be returned to the factory for repair and returned to the job site at no cost to the Owner.

B. Visual Inspection: The paint system will be visually inspected by the Engineer and/or Contractor. Show-through of substrate or previous coating will be grounds for rejection.

C. Testing: Dry Film Thickness (DFT) in mils on steel and galvanized substrates will be measured with a calibrated magnetic non-destructive testing apparatus. Holiday testing of concrete primary digester coating systems shall be as specified in paragraph 2.04.

D. Coverage rates for concrete and masonry surfaces will be determined by a count of empty containers. Remove or permanently deface labels of empty containers after counting by the Engineer. Remove empty, counted containers from the job site.
E. All pipe testing shall be done prior to any finish painting.

F. Leak tests and all functional tests shall be completed prior to painting unless permitted otherwise by the Engineer.

G. Starting of painting work will be construed as the installer's acceptance of the surfaces and conditions within any particular area.

H. Factory Finished/Prefinished items:
   1. Unless otherwise indicated, do not include painting when factory finishing, or installer finishing is specified for such items as (but not limited to) toilet accessories, partitions, lab equipment, furnishings, cabinetwork, acoustical materials, acoustical ceilings, and metal surfaces of aluminum louvers and similar finished materials.
   2. For factory finished items that require additional field painting see painting schedule, Paragraph 2.03.

I. Remove all hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted or provide surface-applied protection prior to surface preparation and coating operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

### 3.02 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

B. Installer must examine the areas and conditions under which painting work is to be applied. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

C. Test previously painted or primed surfaces for compatibility with painting systems.

D. Masking: Remove, mask, or otherwise protect surfaces or hardware not specified or intended to be painted or blasted, or surfaces which have received the finish coat.

E. Clean surfaces to be painted before applying coating or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly coated surfaces.

F. Metal Surface Preparation: All workmanship for metal surface preparation shall be in conformance with the current Steel Structures Painting Council (SSPC) specifications as listed in Table 09 90 00-1. All oil, grease, welding fluxes, and other surface contaminants shall be removed prior to blast cleaning. All surfaces shall be cleaned of all dust and residual particles of the blast cleaning operations prior to painting. Surfaces that have started to rust before they are painted shall be re-blasted.
Table 09 90 00-1. SSPC Specification Numbers

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Solvent Cleaning</td>
<td>SP 1</td>
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<tr>
<td>Hand Tool Cleaning</td>
<td>SP 2</td>
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<td>Power Tool Cleaning</td>
<td>SP 3</td>
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<td>White Metal Blast Cleaning</td>
<td>SP 5</td>
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<td>Commercial Blast Cleaning</td>
<td>SP 6</td>
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<td>Brush-Off Blast Cleaning</td>
<td>SP 7</td>
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<tr>
<td>Pickling</td>
<td>SP 8</td>
</tr>
<tr>
<td>Near-White Blast Cleaning</td>
<td>SP 10</td>
</tr>
</tbody>
</table>

G. Plastic Surface Preparation: All plastic surfaces to be coated shall be hand sanded to provide tooth for the coating system. Larger areas may be power sanded or brush-off blasted, provided sufficient controls are employed so that the surface is roughened without removing excess material. Wash sanded surfaces with detergent and rinse.

H. Concrete and Masonry Preparation:

1. Prepare surfaces of concrete and masonry to be painted by removing all efflorescence, chalk, dust, dirt, grease, oils, through etching, wire brushing, fiber brushing, stoning or scraping to remove glaze.

2. Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. Do not paint over surfaces where the alkalinity or moisture content exceeds that permitted in the manufacturer's printed directions.

I. Previously primed or painted surfaces. Sand lightly to remove gloss then wash with detergent and rinse.

J. Wood Preparation:

1. Touch up knots, pitch streaks and sappy spots with shellac where finish calls for interior enamel or paint. Sand all surfaces smooth and wipe clean before applying specified primer. Putty or spackle holes, splits, and scratches smooth after primer application.

2. Staining: Clean soiled surfaces, sand smooth and even and vacuum clean where finish calls for stain. Putty all nail holes, cracks, and the like with colored putty matching that of finish, after first coat has been applied. Bring putty flush with adjoining surfaces in neat, workmanlike manner. After "setting", wipe wood-paste filler across open grain wood. Wipe with grain and obtain clean surface.


L. Protection from sandblasting: Thoroughly mask and protect from dust all mechanical and electrical equipment in vicinity of sandblasting. Repair all painted surfaces and equipment damaged by sandblasting.
M. Non-ferrous metals shall not be painted, except where directed or called for.

N. Hot-dip galvanized items shall not be painted except where directed or called for. See elsewhere in these specifications for special treatment of hollow metal doors and frames.

3.03 APPLICATION

A. General:

1. Apply paint in accordance with the manufacturer's directions. Use applicators and techniques best suited for the type of material being applied. Do not exceed manufacturer's recommended coverage per gallon.

2. Apply additional coats when undercoats, stains, or other conditions show through the finish coating, until the paint film is of uniform finish color and appearance.

3. Apply paint to surfaces behind movable equipment and furniture the same as similar exposed surfaces. Coat surfaces behind permanently-fixed equipment or furniture with prime coat and base coat only.

4. See elsewhere in these specifications for special requirements and treatment of hollow metal doors and frames.

B. Back priming: Ungalvanized structural steel, miscellaneous steel and iron work shall be back-primed prior to erection. Galvanized steel surfaces need not be back primed or painted. All ungalvanized metal brackets, angles, mechanical equipment mounting plates and miscellaneous devices mounted against concrete or masonry surfaces shall be back primed before installing.

C. Factory Finished Items (including factory primer):

1. The Contractor shall repair or have repaired all surface damage to factory finished items. The Engineer shall determine if damage can be repaired at job site or if item is to be returned to the factory. Any coating done shall be equal to the original coating in every way and compatible with the shop coats.

2. Where additional coats of paint are required, the factory applied primer shall be from the paint system selected or be compatible with it. This finish coat will be field applied. Coordinate this work with equipment manufacturers. Colors will be selected by the Engineer.

D. Hollow Metal Doors and Frames: All hollow metal doors and frames on this project shall be factory primed and field finish painted as specified in Section 08 11 13 – Hollow Metal Doors and Frames. Factory paint and field finish paint shall be spray-applied to achieve a smooth and uniform finish. Brush and roller applied finishes will not be accepted.

E. Coating inspection: Each coat of material shall be inspected and approved by the Engineer before applying succeeding coats; otherwise no credit for coats applied will be given, and Contractor assumes recoat responsibilities.

3.04 CLEANUP

A. Cleanup: During the progress of the work, remove from the project daily all discarded coating materials, rubbish, cans and rags.

B. Cleaning: Upon completion of painting work, clean all window glass and other spattered surfaces. Clean by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
C. Corrected Work: Correct any damages by cleaning, repairing, or replacing and painting as directed by the Engineer. Provide "Wet Paint" signs as required to protect newly-coated finishes. Remove temporary protection wrappings provided by others for protection of their work, after completion of painting operations.

D. Repair of Defective Work: Where any painted surface exhibits rust through its finished coat, all layers of primer and paint shall be removed down to the bare metal. The metal surface shall be prepared again to receive a completely new paint system. The new system shall be the same as the one removed or as selected by the Engineer.

END OF SECTION 09 90 00
DIVISION 10 – SPECIALTIES
SECTION 10 44 00 – FIRE PROTECTION SPECIALTIES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK
   A. Work consists of furnishing all labor, materials and equipment for the installation of all fire protection specialties and appurtenances as specified herein.

1.02 RELATED SECTIONS
   A. Section 01 33 00 – Submittals Procedure
   B. Section 09 90 00 – Painting and Coating

1.03 SUBMITTALS
   A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
   B. Submit product data for each type of product included in this section. For fire extinguisher cabinets (if required) include roughing-in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction and panel style and materials.

1.04 QUALITY ASSURANCE
   A. Single-Source Responsibility: Obtain furnishings of each type from one manufacturer.
   B. UL-Listed Products: Provide new, portable fire extinguishers which are UL-listed and bear UL “Listing Mark” for type, rating and classification of extinguisher indicated.

PART 2 – PRODUCTS

2.01 MANUFACTURERS
   A. Subject to compliance with these specifications, products by one of the following manufacturers is acceptable:
      1. J. L. Industries.
      3. Grinnel Corp.
      4. Potter Roemer.
      5. Engineer approved equal.

2.02 FIRE EXTINGUISHERS
   A. Multi-Purpose Dry Chemical Type: UL-rated 3A-40BC 5 lb. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires.
2.03 MOUNTING BRACKETS

A. Provide manufacturer's standard support brackets designed to prevent accidental dislodgment of extinguisher, of sizes required for type and capacity of extinguisher indicated, in manufacturer's standard plated finish. Provide and install brackets for extinguishers located in cabinets and extinguishers mounted directly to walls.

2.04 SCHEDULE

A. Install fire extinguishers in the following rooms in locations required by code, or as indicated on the Plans:

<table>
<thead>
<tr>
<th>Location</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine Room</td>
<td>1</td>
</tr>
<tr>
<td>Pump Room</td>
<td>1</td>
</tr>
<tr>
<td>Electrical Room</td>
<td>1</td>
</tr>
</tbody>
</table>

B. Fire extinguishers shall be mounted directly to wall with manufacturer's standard wall mount bracket unless otherwise indicated.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install items included in this section in locations and at mounting heights indicated or, if not indicated, at heights to comply with applicable regulations of governing authorities. Install extinguishers and cabinets so that top of extinguisher is not more than 5'-0" above the floor.

B. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

C. Upon completion of the project, all extinguishers shall be fully charged and in perfect operating condition.

END OF SECTION 10 44 00
DIVISION 22 – PLUMBING
SECTION 22 00 00 – PLUMBING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work shall consist of all labor, materials, equipment and incidentals necessary to completely furnish, install, test and clean all plumbing systems. The systems shall include, but not be limited to, all piping, fittings, hangers, valves, fixtures and equipment indicated on the Plans and/or specified herein including all appurtenances necessary to make the systems complete and fully operational.

B. Plumbing systems shall be, but not be limited to, the following:
   1. Potable water to 5 feet outside of buildings.
   2. Drainage, waste, and vents to 5 feet outside of buildings.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure

B. Division 26 – Electrical

1.03 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.

B. Submit product data sheets for all plumbing materials and equipment used on the project.

1.04 QUALITY ASSURANCE

A. All work shall be done by people fully qualified and experienced in the work to be performed.

B. Provide the services of a manufacturer’s representative to completely inspect and start up the pumps after installation.

1.05 PROJECT CONDITIONS

A. Obtain exact location and mounting heights of fixtures from details on Plans. Do not order any fixtures until casework shop drawings have been reviewed. Coordinate all fixture locations with casework manufacturer.

B. Where trim and rough-in is not specified, furnish as necessary for the completion of job and of same quality as elsewhere specified.

C. All trim chrome plated.

D. Escutcheon plates for all lines through cabinets and walls.

E. All counter top sinks set on bead of clear silicone sealant.

F. Install trim as specified and connect to equipment furnished by others, and equipment furnished by Owner.
PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Specifications are based on products of the following manufacturers:

- American Standard
- Josam
- Epco
- Bradley
- Eljer
- Zurn
- Nibco-Scott
- BEECO
- Fee & Mason
- Precision Plumbing Products
- Kohler

B. Equivalent products by the following manufacturers are acceptable, subject to approval of the Engineer.

- Capitol Manufacturing
- American Granby Co.
- Crane
- Unistrut
- Hammond Valve Corp.
- Zurn
- Watts
- Neptune
- ITT Grinnell
- Wade
- Speedstrut
- Cla-Val
- J.R. Smith

C. Each type of equipment shall be by a single manufacturer, for example, all plumbing fixtures, roof and floor drains, water heaters, etc.

2.02 DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ABOVE GROUND

A. Above ground pipe and fittings shall be solvent weld DWV PVC, conforming to ASTM D2665 and ASTM D3311.

2.03 WATER PIPING AND FITTINGS, ABOVE GROUND

A. Dielectric connections: EPCO Sales, Inc.

1. Unions: 2 inches and smaller, 175 psi minimum working pressure, ends to match connections.

2.04 WATER ACCESSORIES


B. Drain valves: 1/2-inch globe valves at low points in cold water and hot water systems.

2.05 HANGERS, ANCHORS AND GUIDES

A. Provide galvanized pipe hangers to support horizontal piping. Secure vertical piping to wall with galvanized offset clamps or other supports as approved by the Engineer.

2.06 FLOOR DRAINS

A. As called out on the Plans; or

1. Zurn Z-551, medium duty cast iron body, outlet size of connected line, heavy duty cast iron slotted grate. Size as shown on the Drawings;
2. Zurn Z-505 heavy duty, cast iron body, outlet size of connected line, heavy duty cast iron slotted grate. Size as shown on the Drawings;

3. Zurn Z-455 drain with integral cleanout. Cast iron body, outlet size of connected line, heavy duty cast iron slotted grate. Size as shown on the Drawings.

B. Provide cast iron floor drain cleanout where indicated on Plans or required by code, Zurn Model Z-1400 or approved equal.

C. Provide acid-resistant epoxy coating where required or indicated on Plans. Coating drains shall be provided wherever corrosive liquids will be present.

D. Prefabricated Trench Drain: Prefabricated trench drain shall be ZURN Model Z-886 HD or approved equal with steel edge rail and ductile iron slotted grate, length and configuration as indicated on the Plans. Provide manufacturers standard end cap and outlet accessories as required for a complete installation.

PART 3 – EXECUTION

3.01 GENERAL

A. Install materials and equipment as shown and specified in accordance with governing codes and standards.

B. Rough in work as construction progresses to minimize cuttings, eliminating interferences.

C. Locate equipment requiring service and maintenance in fully accessible positions. Furnish access doors for this purpose if required.

D. Runs and arrangement of piping shall be as shown, subject only to such changes and modifications as may be necessary to suit actual conditions at the building, to avoid interference or conflict with work of other sections. Install piping concealed in floor or in wall construction or excavations to prevent delay to other work and to allow ample time for necessary tests and approvals.

E. Carefully check installations against structural, architectural, and mechanical drawings and note where walls, ceilings, beams, and pipe shafts are furred or enclosed. Piping shall not be furred in or covered before approval by the Engineer.

F. Hang horizontal piping runs from ceilings or construction above, located as closely as possible to structural members or bottom of slabs or beams, to obtain maximum head room. If a condition should arise where clearance below such piping would interfere with finished ceiling or wall surfaces, the Engineer shall be notified, and no work shall be installed until approved.

G. Connections as shown are intended that waste, soil, water, and other services be fully connected to each individual piece of apparatus with required piping, unions, flanges, valves, check valves, and other needed appurtenances.

H. Each branch pipe shall be controlled by a gate valve where it connects to the supply main or riser. Each toilet room, group of fixtures, or isolated fixture shall be separately controlled by valves in an accessible location and provided with access doors where necessary.

I. Install swing joints or expansion loops to allow for pipe expansion where necessary. Securely anchor pipes so expansion can occur at these joints.

J. Make joints between dissimilar piping by dielectric unions or flanges.
K. Use reducing fittings wherever a change in pipe size occurs. The use of bushings will not be permitted.

L. Provide piping with unions to permit alterations and repairs.

3.02 INSTALLATION OF DRAINAGE, WASTE AND VENT SYSTEMS

A. Make connection to the sewer system as required.

B. All underground drainage and waste pipe shall be pitched a minimum of 2 percent slope in the direction of flow, unless otherwise indicated or approved by the Engineer. Make changes in direction of drainage and waste lines with 45-degree wyes, long turn wyes, or sweep bends. Use long turn fittings wherever space permits. Provide waterproofing around all lines penetrating through foundation walls and floor slabs.

C. Check and verify all inverts of lines within and outside the building.

D. Install traps on fixtures and equipment requiring connection to the sanitary system. Traps shall be of same size as the pipe on which they occur. Provide cleanouts for all traps. Vent traps as shown.

E. Cleanouts: Provide as shown, at the base of each stack, each change in direction, and on a minimum of 50-foot centers on horizontal runs. Cleaning screws, deckplates and other plugs shall be made up with graphite and oil only, use no grease or cement.

F. Pitch vent lines to allow for condensation drainage.

G. Where vent piping is run concealed in partitions, obtain exact dimensions and locations of partitions and use special care to assure that lines are maintained in their proper locations.

H. Joints
   1. Joints for hub and spigot pipe shall be ASTM C 564 rubber gasket or "No-Hub”.
   2. Cast iron “No-Hub” joints shall be made up with neoprene sleeve, stainless steel shield and clamps sized to fit “No-Hub” fittings used. Application as recommended by the manufacturer, precalibrated torque wrench shall be used to tighten clamps.
   3. Copper tubing and fittings: Assembled with 50/50 tin-antimony solder. Cut copper tubing square; ream, butt, and size; clean tube ends and fittings well; apply heat, solder. Remove excess solder.

I. Flashing: Flash vents as shown on drawings penetrating the roof structure with roofing manufacture standard.

3.03 INSTALLATION OF COLD WATER SYSTEMS (POTABLE AND NONPOTABLE)

A. Install cold water system as shown. Piping shall traverse the building at the locations shown, or as required to service fixtures requiring cold water, and with the pipe sizes shown or specified. The service shall be valved at the point shown. Locate underground service a minimum of 30 inches below grade. Fit pipe connections to mechanical equipment with unions for ease of dismantling.

B. Conceal cold water piping in finished areas.
3.04 INSTALLATION OF HOT WATER SYSTEMS (POTABLE AND NONPOTABLE)

A. Begin the installation of the hot water piping system at the water heater and traverse the building at the locations shown, or as required to service fixtures requiring hot water, and with the pipe sizes indicated. Fit piping around the heater and equipment with sufficient number of unions to assure easy dismantling for maintenance.

B. Conceal hot water piping in finished areas.

3.05 HANGERS, ANCHORS, GUIDES

A. Support piping to maintain required grading and pitching of lines, to prevent vibration, and to secure piping in place. Provide for expansion and contraction.

B. The spacing of hangers shall be not greater than 10 feet on center for pipe larger than 1 inch; 8 feet for 1-inch pipe; 6 feet for pipe 3/4 inch and smaller.

C. Support vertical lines at bases by an approved hanger placed in the horizontal line near the riser.

D. Do not hang piping from the ductwork or piping of other trades. A common trapeze, properly supported and pitched, may be used.

E. Make pipe sleeves watertight with caulked lead joints on both sides of a foundation wall. Pipe and hangers of dissimilar material shall have a plastic sleeve heat shrunk on pipe in contact with hanger.

3.06 INSTALLATION OF PLUMBING FIXTURES

A. Protect fixtures and equipment during construction. Replace if damaged.

B. Verify all dimensions by field measurements. Verify that all plumbing fixtures may be installed in accordance with pertinent codes and regulations. Exact location and mounting height of plumbing fixtures shall be obtained from the architectural drawings.

C. Fasten plumbing fixtures securely to supports or building structure. Secure supplies behind or within wall construction to provide rigid installation.

D. Set fixtures level and square, in accordance with fixture manufacturer’s written instructions, with relation to interior finish, floor, and wall lines and pertinent codes and regulations. Space toilet room fixtures equidistant and at the same height from floor as shown.

E. Install stop valve in an accessible location in the water connection to each fixture.

F. Seal fixtures to walls and floors using clear silicone sealant.

G. When installed, cover metal fixture trimmings with noncorrosive grease or approved protective tape and maintain until construction work is complete. Upon completion, remove labels, clean and polish fixtures and trimmings.

3.07 TESTS AND ADJUSTMENTS

A. Test piping in the presence of the Engineer.

1. Correct leaks in joints or evidence of defective pipe or fittings by replacing defective parts with new joints and materials.

2. Adjust apparatus to function as specified
3. Apply water test to all parts of the drainage waste and vent system before pipes are concealed or fixtures are set in place. Test may be applied in sections. Close openings of each system to be tested except the highest openings on the finished system. Fill system with water to the highest opening plus 6 feet. Water shall remain in the system for at least 24 hours, after which time no leaks at any joint or lowering of the water level at the overflow shall be visible.

B. Test fixtures to demonstrate proper operation upon completion of installation and after units are water pressurized. Replace malfunctioning units, then retest.

C. Adjust water pressure at faucets, shower valves, and flush valves to provide proper flow and stream.

3.08 PAINTING AND MARKING

A. Painting shall be in accordance with Section 09 90 00 – Painting and Coating.

END OF SECTION 22 00 00
DIVISION 23 – HEATING, VENTILATING, AND
AIR CONDITIONING (HVAC)
SECTION 23 00 00 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work included: Provide heating, ventilation, and air conditioning systems where shown on the Plans, as specified herein, and as needed for a complete and proper installation including, but not necessarily limited to:
   1. Heating and cooling units.
   2. Heating and cooling controls.
   3. Ductwork, registers and grilles.
   5. Permits.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals Procedure
B. Section 05 50 11 – Miscellaneous Metals
C. Section 07 62 00 – Sheet Metal Flashing and Trim
D. Section 08 11 13 – Hollow Metal Doors and Frames
E. Division 26 – Electrical

1.03 SUBMITTALS

A. Refer to Section 01 33 00 – Submittals Procedure, for general submittal requirements.
B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
   1. Manufacturer's catalogs, samples, and other items needed to fully demonstrate the quality of the proposed materials and equipment.
C. Record Drawings:
   1. Comply with provisions of Division 01.
   2. Include a copy of the record drawings in each copy of the operation and maintenance manual described below.

1.04 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
B. Codes and regulations:
   1. In addition to complying with the specified requirements, comply with pertinent regulations of governmental agencies having jurisdiction.
2. In the event of conflict between or among specified requirements and pertinent regulations, the more stringent requirement will govern when so directed by the Engineer.

C. Without additional cost to the Owner, provide such other labor and materials as are required to complete the work of this section in accordance with the requirements of governmental agencies having jurisdiction, regardless of whether such materials and associated labor are called for elsewhere in these Contract Documents.

D. The material specified shall be furnished by reputable manufacturers, qualified and experienced in the manufacture of such equipment. All equipment specified shall be designed, constructed, and tested in accordance with the best practices and methods of the trades involved.

E. Electrical wiring and equipment with electrical connections, including the motors, and control and safety devices, shall be Recognized Electrical Testing Laboratory (RETL) listed and labeled, or the Contractor shall obtain approval from the Washington State Department of Labor and Industries for the electrical portions of the equipment.

1.05 PRODUCT HANDLING

A. Comply with provisions of Division 01 and manufacturer’s recommendations.

PART 2 – PRODUCTS

2.01 DUCTWORK – LOW VELOCITY

A. Material: Galvanized steel or aluminum sheet; steel of following gauges when longest dimension of duct cross section is stated:

- Under 12 inches: 26 ga.
- 13 inches to 30 inches: 24 ga.
- 31 inches to 60 inches: 22 ga.

B. Hangers and Joints

1. Rectangular Ducts: Longitudinal joints at corners Pittsburgh Lock or double seam, longitudinal joints in flat surface double break.

2. Over 15 Inches: Sides, top, bottom diamond break stiffening.

3. Up to 24 Inches: Transverse joints in wide surface 1-1/4 inches standing seam or button punched every 6 inches or “S” cleat, seams not over 36 inches apart; transverse joints on narrow surface same as wide surface except drive cleats instead of “S” cleats; hanger 1-inch x 1/8-inch strap iron screwed to duct or saddle type hanger of 1-inch x 1-inch x 1/8-inch angle with 3/16-inch rods.

4. Plenum Changers: Joints, seams and stiffening same as ductwork of equivalent dimensions.

5. Ductwork: Made as airtight as possible.

C. Mitered elbows shall have turning vanes as manufactured by Barber-Colman Co. or equal.

2.02 DUCT SEAMS

A. Seal all duct seams, transverse and longitudinal, air tight with 6-ounce canvas secured in place with “EC800” or equal duct sealing compound, an approved lagging adhesive, or duct tape.
2.03 FLEXIBLE CONNECTION TO EQUIPMENT

A. All types of fan units, unless specifically detailed otherwise, shall be isolated from the ductwork with flexible connections. Connections shall have at least 4 inches of flexible material between the metal parts being isolated and shall be installed with approximately 1 inch of slack flexible material. Flexible connectors shall be of canvas cloth and carry the UL label and be approved by the State of Washington Fire Marshal with a copy of the approval enclosed with submittal.

2.04 VIBRATION ISOLATION AND FLEXIBLE CONNECTIONS

A. At duct connection to equipment, provide vent-fabric, approved by the governmental agencies having jurisdiction, flexible connections with a minimum of 6 inches full length. Vent-fabric, Duro Dyne or equal.

B. Support all compressors or other motor bearing equipment via vibration isolation pads, unless noted otherwise. Place pads under equipment in accordance with manufacturer's recommendations. Amber/Book "Ampad" type NR pad or equal.

C. Provide additional sound isolation as required to limit the noise level in conditioned space to a maximum of NC-40.

D. Mount larger vibrating equipment when so noted on “ThyCurb Vibrocurbs” with a minimum static deflection of 1 inch.

E. Isolate piping from the structure in a manner to prevent transmission of vibration.

2.05 PREFABRICATED ROOF CURBS

A. Prefabricated roof curbs shall be constructed of 18-gauge galvanized steel or 0.063-inch thick aluminum formed on three sides with only one welded seam to ensure a strong square curb. Wood nailers for attaching fan and/or vent hood shall have notched and lapped joints to ensure strength and durability. A rubber seal shall be provided between the curb and fan/vent hood housing to ensure proper performance of the fan, prevent insects and moisture from entering, and to reduce vibration transmission to the ductwork. Curbs shall have 1-inch minimum thick fiberglass insulation, securely attached at top and bottom with an insulation tray. An optional liner shall be provided to protect the insulation from the airstream. Roof curbs shall also be provided with an optional damper tray.

B. Prefabricated roof curbs shall be as manufactured by Greenheck Fan Corporation, Schofield Wisconsin, or Engineer approved equal. Roof curbs shall be of a model, size and configuration as called out on the Plans, or recommended by the manufacturer. Roof curb configuration and height shall be suitable for the type of roof being installed on. An optional raised cant shall be provided at insulated flat roofs, or where indicated on the Plans.

2.06 INSULATION

A. General:

1. Provide materials complying with NFPA Bulletin 90-A, as determined by UL method NFPA-ASTM E84, and complying with the governing code, with flame spread rating under 25 and smoke developed rating under 50.

2. Where vapor barriers are used, provide intact and continuous throughout.

3. Acceptable manufacturers:

   a. Owens/Corning Fiberglass.
b. Johns-Manville

c. Certainteed

B. Application:

1. Provide duct insulation as required per table 5-11 of Washington State Energy Code, latest revision.

2.07 BALANCING DAMPERS

A. Provide balancing dampers, splitter dampers, or adjustable turning vanes as indicated on the Plans.

2.08 FIRE DAMPERS

A. Provide fire dampers as indicated on the Plans. Provide UL rated static fire dampers, Greenheck model FD-150X with integral sleeve or engineer approved equal.

2.09 BACKDRAFT DAMPERS

A. Backdraft dampers shall be suitable for mounting inside fabricated wall collar or damper tray, or for direct mounting in wall with louver assembly.

B. Exhaust dampers shall be Greenheck Model WD-300 series for sidewall fans and WD-100 series for roof mounted fans.

C. Supply dampers shall by Greenheck Model VCD-23 series low-leakage dampers with 115-volt motor packs. Motor pack torque and model selection shall be based on the damper size. Unless otherwise specified or shown on the Plans, damper motors shall operate on a power open and spring return principle to assure damper closure in the event of an electrical failure.

D. Materials:

1. Frame: 16-gauge galvanized steel.

2. Blades: 16-gauge galvanized steel with TPE seals.

3. Axles: 1/2-inch Type 304 stainless steel with synthetic bushings.

4. Linkage: Type 304 stainless steel.

2.10 AIR OUTLETS

A. Ceiling Diffusers: Unless otherwise specified or called out on the Plans, ceiling diffusers shall be adjustable curved blade four-way diffuser, with 0.055-inch minimum T6 extruded aluminum, Shoemaker CB40 Series, or approved equal. Color: White. Provide square to round duct adapter as required. See Plans for required sizes. Provide optional adjustable apposed-blade damper where indicated on the Plans.

B. Supply Diffusers/Registers: Supply diffusers shall be double-deflection type, constructed of heavy gauge aluminum with individually adjustable airfoil blades, 3/4-inch maximum blade spacing, vertical front blades, and nylon blade bushings, Shoemaker 904 Series, Titus model 300FS, or approved equal. Color: White. Provide square to round duct adapter as required. See Plans for required sizes. Provide optional adjustable apposed-blade damper where indicated on the Plans.
C. Return Air Grilles: Unless otherwise specified or called out on the Plans, return air grilles shall be 1/2-inch x 1/2-inch x 1-inch aluminum lattice (egg crate) with 20-gauge minimum extruded aluminum frame, 90 percent free area, Shoemaker 600 Series, Titus model 50F, or approved equal. Color: White. See Plans for required sizes.

D. Provide factory-applied or site-applied black coating on the inside of all air outlets and connecting plenums.

2.11 EXTERIOR LOUVERS

A. Exterior wall louvers shall be extruded aluminum stationary louvers, Greenheck Model ESD-435.

B. Materials:
   1. Frame: Heavy gauge 6063T5 extruded aluminum, 4-inch x 0.081-inch nominal.
   2. Blades: J style, 6063T5 extruded aluminum, 0.081-inch nominal thickness, positioned at 45-degree angle, 4-inch centers.
   3. Birdscreen: 1/2-inch x 0.063-inch aluminum square mesh wire.
   4. Louvers shall be installed flush to exterior wall surface with internal clip angles, or other means of attachment to wall. Exterior perimeter flanges will not be allowed.
   5. Finish: Kynar 70% (2 coat), color as selected by the Engineer from manufacturer’s standard colors.

C. Performance:
   1. Static Pressure Drop, Intake: 0.04-inch WC at 530 fpm free area velocity.
   2. Static Pressure Drop, Exhaust: 0.04-inch WC at 500 fpm free area velocity.
   3. Water Penetration: 0.02 ounce per square foot at 705 fpm free area velocity.

D. Door louvers shall be as specified in Section 08 11 13 – Hollow Metal Doors and Frames and as called out on the Plans.

2.12 SUPPLY AND EXHAUST FANS

A. General:
   1. All supply and exhaust fans and accessories shall be as manufactured by Greenheck Fan Corporation, Schofield Wisconsin, or Engineer approved equal.
   2. All fans shall bear the AMCA certified ratings seal for air and sound performance and shall be UL listed.
   3. Fans installed in hazardous locations shall be constructed entirely of spark-resistant materials and shall be provided with explosion proof motors and disconnect switches.
   4. Belt drive fans shall be supplied with an auto belt tensioner.
   5. Provide OSHA compliant motor-side guard on fans where indicated on the Plans or required by code.
6. **Spare Parts:**
   a. Belt drive fans shall be supplied with and one spare set of all drive belts.
   b. Fans with filters or filter boxes shall be supplied with one spare set of all filters.
   c. Spare parts shall be packaged with protective coverings for storage and identified with labels describing the contents.

B. **Centrifugal Inline Fans:**

1. Centrifugal inline fans shall be backward inclined direct drive units, as called out on the Plans. Inline fans shall be supplied with fan housing, housing supports, and dampers, as called out on the Plans. Discharge configuration shall be as shown on the Plans.

2. **Fan Wheel:** The fan wheel shall be a non-overloading, backward inclined centrifugal wheel constructed of aluminum. The wheel cone and fan inlet shall be matched and have precise running tolerances for maximum performance and operating efficiency. Single thickness blades shall be securely riveted or welded to a heavy gauge back plate and wheel cone. Fan wheel shaft shall be constructed of stainless steel. Fan rub ring and motor cover shall be constructed of aluminum. All fasteners shall be stainless steel.

3. **Fan Housing:** The fan housing shall be square design, constructed of heavy gauge aluminum and provided with duct mounting collars. The housing shall be insulated with 1-inch fiberglass duct liner for noise reduction. The housing and bearing supports shall be constructed of heavy gauge bolted and welded steel construction to prevent vibration and to rigidly support the shaft and bearing assembly. Housing supports shall be constructed of structural steel with formed flanges. The drive frame shall be constructed of welded steel and support the motor. Adequate access panels shall be provided to permit easy access to internal fan components. All fasteners shall be stainless steel. Provide neoprene mounts/hangers for vibration isolation. The Contractor shall provide inlet and outlet flexible duct connections as specified and shown on the Plans.

4. **Dampers:** Back draft dampers shall be as specified and may be factory-mounted to the fan or field-installed within the duct.

5. Fans shall be statically and dynamically balance in accordance with AMCA Standard 204-05 and bear the AMCA certified ratings seal for specified air and sound performance.

C. **Fan Motors:**

1. Fan motors for direct-drive supply and exhaust fans shall be an electronic commutation (EC) type specifically designed for fan applications, Greenheck Vari-Green, or approved equal. AC induction type motors are not acceptable. Motors shall be permanently lubricated with heavy-duty ball bearings to match the fan load and prewired to the specific voltage and phase. Internal motor circuitry shall convert 120V, single phase, 60 Hz AC power supply to DC power to operate the motor. Motor shall be speed controllable down to 20 percent of full speed (80 percent turndown). Speed shall be controlled by a potentiometer dial mounted on the motor, or a remote dial where indicated on the Plans. Motor shall be a minimum of 85 percent efficient at all speeds.
2. Fan motors on belt drive supply and exhaust fans shall be squirrel cage induction type motors suitable for use on a 120V single-phase or 480V three-phase (as indicated on the Plans), 60 Hz AC power supply. Motors 1 HP and greater in size shall be NEMA Premium® efficient.

3. Fans located in hazardous locations, or where required by code, shall be provided with explosion-proof motors, suitable for use in Class 1, Group D, Division I or Division II classified locations.

4. All motors shall be mounted on vibration isolators and be out of the air stream.

2.13 ELECTRIC UNIT HEATERS

A. Electric unit heaters shall be of the capacity shown on the Plans, 480 VAC, 3-phase, wall mounted unit heater with integral power disconnect, internal control power transformer, and wall mounting brackets, Q-Mark MUH Series or approved equal.

2.14 THERMOSTATS

A. Thermostats shall be provided where shown on the Plans and as specified in this Section.

B. Thermostats for ventilation fans (cooling only) shall be SPST line voltage type, rated for 16.0 FLA and 96.0 LRA at 120 VAC, Dayton model 1UHH4, or approved equal. The temperature control range shall be 30˚F to 110˚F.

PART 3 – EXECUTION

3.01 GENERAL

A. All equipment shall be installed in strict accordance with the manufacturer's specifications.

B. Openings required in building construction for heating and ventilation work shall be provided by the General Contractor. Locations of all openings shall be as shown on the Plans, and required for the installation of the equipment and systems, and verified by this Contractor.

3.02 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.03 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this section.

B. Coordinate installation of factory assembled fan and air handling units and accessories with louver, damper and duct installations. The contractor shall provide all additional materials required for a complete installation as specified and shown on the Plans.

C. Louvers, wall collars, dampers and wall openings shall be coordinated with the requirements for fan installation.

D. Provide sufficient wall collar length to meet minimum distance recommended between damper and fan.
3.04 EQUIPMENT INTERFACE

A. For electrically operated equipment, verify the electrical characteristics actually available for the work of this section and provide equipment meeting those characteristics.

3.05 EQUIPMENT

A. The exhaust fans shall be mounted and flashed as shown on the Plans. Care shall be taken to ensure a watertight installation. Backdraft dampers shall be installed so there is free movement and air does not leak back in the wrong direction.

3.06 PAINTING

A. Touchup scratches and abrasions to be invisible to the unaided eye from a distance of 5 feet 0 inches.

3.07 INSULATION

A. Wrap insulation firmly around all ductwork, covering all surfaces including seams, and with all joints lapped at least 2 inches.

B. Securely fasten the insulation in place with 16-gauge soft annealed black or galvanized wire, spaced approximately 12 inches on center for straight runs and 3 inches on center for elbows and fittings.

C. Take special care to avoid excessive stretching and compressing, and to achieve securing at lapped sections where possible.

3.08 TESTING AND ADJUSTING

A. Test and adjust each piece of equipment and each system as required to assure proper balance and operation.

1. Test and regulate ventilation systems to conform to the air volumes shown on the Plans or specified herein.

2. Make tests and adjustments in apparatus and ducts as required to provide proper volume and face distribution of air for each grille and ceiling outlet.

3. Where required, at no additional cost to the Owner, provide pulleys, belts etc. as required to set fan drives at the speed needed to give the indicated volume.

4. For each system, record the following data in tabulated form that is applicable to equipment and systems installed on this project:

   a. Air volumes at all supply, return, outside air inlets, and exhaust outlets.

   b. Total CFM supplied.

   c. Total CFM returned.

   d. Total CFM exhausted.

   e. Total static air pressure across fan.

   f. Motor speed, fan speed, and input ampere load for each fan motor.

   g. Air/water temperature entering and leaving for heating and cooling cycles.
h. Compressor ampere loading.

i. Temperature/pressure readings across any heat exchangers, including any that may be located in packaged equipment.

B. Submit test and balance reports to the Engineer for review in accordance with Section 01 33 00 – Submittals Procedure.

C. Eliminate noise and vibration, and assure proper function of all controls, maintenance of temperature, and operation in accordance with the approved design.

D. Secure required approval from governmental agencies having jurisdiction.

END OF SECTION 23 00 00
DIVISION 26 - ELECTRICAL
SECTION 26 00 00 – ELECTRICAL

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. General requirements for electrical work.
   a. Systems Descriptions
   b. Area classifications
   c. Submittals
   d. Records
   e. Coordination

B. Related Sections include but are not necessarily limited to:

1. General Conditions.
2. Division 01 - General Requirements.
3. Division 02 - Existing Conditions.
4. Division 23 – Heating, Ventilating, and Air Conditioning.

C. Installation of systems and equipment is subject to clarification as indicated in reviewed shop drawings and field coordination drawings.

1.3 WORK DESCRIPTION

A. Provide the labor, materials, and equipment necessary to furnish, install, and place into operation the power, lighting, instrumentation, control, alarm and associated electrical systems of this Contract.

B. Provide functioning systems in compliance with manufacturer's instructions, performance requirements specified or indicated, and modifications resulting from reviewed shop drawings and field coordinated drawings.

C. Provide temporary power for existing equipment to maintain process continuity where indicated.

D. Provide electrical connections to motors, instrumentation, controls, meters, and any other electrical device installed or provided as part of the project.
E. Test, adjust and calibrate equipment and start-up all electrical equipment, instrumentation equipment, and its associated mechanical attachments as necessary to place the project into operation.

F. Mark and identify circuits, equipment, and enclosures with wire numbers, nameplates, and warning signs.

1.4 SYSTEMS DESCRIPTIONS

A. Revise/provide complete interior lighting system including all lighting equipment, raceways, wiring, and switching/control equipment as shown on the Plans.

B. Replace/provide complete process control systems including individual controllers, monitoring and/or metering equipment, instrumentation equipment, and associated raceways, wiring, control panels, enclosures, and similar items as shown on the Plans.

1.5 AREA CLASSIFICATIONS

A. Areas of the project are classified as “damp” or “wet” as defined in Article 100 - Definitions of the NEC. For the purposes of this specification, areas considered as damp under the NEC shall be considered wet. Areas are also classified as wet as listed below:

1. Areas outdoors or underground.
2. Areas in below grade vaults, manholes, or pullholes.
3. Areas in buildings or structures that are below grade.

B. Corrosive Areas: Corrosive areas are those areas where equipment or devices will be exposed to gases, fumes, vapors, liquids, or other agents that have a deteriorating effect on the device or equipment. Corrosive areas are generally indicated on the drawings and/or noted in these specifications.

1. The following shall be considered Corrosive Locations:
   a. Chlorine Room.

C. Process Areas:

1. Chlorine Room
2. Pump Room

1.6 DEFINITIONS

A. Outdoor Areas:

1. Those locations on the Project site where the equipment is normally exposed to wind, dust, rain, snow, or similar natural environmental conditions.
B. Indoor Areas:

1. Those locations on the Project site where the equipment is normally protected from wind, dust, rain, snow, and similar natural environmental conditions by a building or structure with a complete floor-wall-roof/ceiling enclosure.

C. Shop Fabricated:

1. Manufactured or assembled equipment for which a NRTL test procedure has not been established.

D. NRTL: Nationally Recognized Testing Laboratory.

E. NEC: National Electrical Code

F. NFPA: National Fire Protection Association

G. NECA: National Electrical Contractors Association

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7, or a full member company of the InterNational Electrical Testing Association (NETA).

1. Testing Agency Field Supervision: Use persons currently certified by NETA or the National Institute for Certification in Engineering Technologies, or equal, to supervise on-site testing specified in Part 3.

2. Comply with NEC for components and installation.

3. Comply with WAC and RCW requirements.

B. Listing and Labeling: Provide products specified in these specifications that are listed and labeled.

1. The Terms "Listed and Labeled": As defined in the NEC, Article 100.

2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

3. Comply with WAC and RCW requirements.

C. Electrical Component Standard: Provide components that comply with NFPA 70.

D. When a specific code or standard has not been cited, the applicable codes and standards of the following code-making authorities and standards organizations apply:

1. American Association of State Highway and Transportation Officials (AASHTO).


5. ETL Testing Laboratories, Inc (ETL).
6. Insulated Cable Engineers Association (ICEA).
7. Institute of Electrical and Electronic Engineers (IEEE).
8. Illuminating Engineering Society of North America (IES).
10. Joint Industrial Council (JIC).
11. Lightning Protection Institute (LPI).
15. Underwriters Laboratories, Inc. (UL).

E. In case of conflict or disagreement between codes, standards, laws, ordinances, rules, regulations, plans and specifications, or within either document itself, the more stringent condition governs.

1.8 SUBMITTALS

A. See Section 01 33 00.

B. Make submittals as soon as practicable after the date of notice to proceed, but prior to purchase, fabrication, or installation of materials or equipment. Make submittals as a single package for each specification section or group related sections in one submittal, with proposed products and materials grouped according to the sections specified in Division 26. Do not split submittals having a common bill of materials. Group Division 26 submittals with Division 43 or 46 submittals where submittals have related items.

C. Submit short circuit report, harmonic analysis studies, or arc flash studies with or before the submittal information panelboards, transfer switches and circuit breakers and similar items that require arc flash warning labels.

D. Product Data:

1. Provide manufacturer's product technical data, including, but not limited to:
   a. Identification of the manufacturer.
   b. Manufacturer's product descriptive bulletin.
c. Current, voltage, nameplate, load, impedance, and other electrical data pertinent to the Project and necessary to assure compliance with the Specifications and Plans.

d. Equipment weights and dimensions.

2. Clearly indicate by using arrows or brackets precisely what is being submitted on. Designate optional accessories, which are being included and those which are excluded in the submittal.

E. Shop Drawings: Submit Shop Drawings containing detailed drawings, diagrams and instructions for installing, operating and maintaining the material and equipment proposed for installation in the electrical work.

1. See individual Division 26 sections for specific additional requirements.

2. Prior to submittal, coordinate the electrical equipment (particularly motor control equipment, control panels and instrumentation) and materials, with other applicable equipment and systems of the contract documents, particularly process equipment and systems. Any modifications to the electrical equipment or other equipment, due to the use or submittal of process or other equipment which is different from that specified, shall be reflected in the submittal of the electrical equipment so affected.

a. Where electrical equipment submitted by the Contractor is a different size than the scaled dimensions shown on the plan, section or elevation drawings of the Contract Documents or requires clearance (for Code compliance, ventilation or other reasons), the Contractor shall mark and submit copies of the Contract Documents (or provide a modified AutoCAD drawing) showing the actual size of the proposed equipment, its placement drawn to scale in red pencil on the copies and any necessary clearances which demonstrate the suitability of the proposed equipment for the conditions of installation i.e. adequate space, clearance etc.. Submittals which do not meet this requirement will be rejected as incomplete.

b. Where equipment dimensions, layout, conduit connection routing, or conductor and conduit quantities, sizes or types are required to be different than indicated on the Contract Plans to accommodate the submitted equipment, the submittal shall clearly indicate the required changes (increased sizes, ratings of equipment or devices) and shall note that they are being provided to accommodate the submitted equipment without additional cost. The submittal shall indicate increased ratings, sizes. Submittals which do not meet this requirement will be rejected as incomplete.

c. Enclosures for equipment submitted by the Contractor shall be able to accept the quantities and sizes of conduits as shown on the Contract Plans. Submittals which do not meet this requirement will be rejected.
d. Lugs or connections for equipment submitted by the Contractor shall be able to accept the quantities and sizes of conductors as shown on the Contract Plans. Submittals which do not meet this requirement will be rejected.

3. Provide technical drawings as follows:
   a. Provide diagrams and drawings similar to the Contract Plans and named in a similar fashion for all technical drawings submittals.
   b. Use diagrams and symbols for shop drawings that conform to Joint Industry Conference (JIC) Electrical Standards for Industrial Equipment and/or NEMA, Industrial Control Systems, ANSI and IEEE standards, latest revisions. Prepare drawings on size A, B or D sheets in a format similar to the Contract Plans or other nationally recognized drawing standard.
   c. Provide electrical elementary wiring diagrams for the electrical control systems showing the interconnecting wiring of electrical control items, such as motor starters and controllers, control systems, interlocks, switches, programmable controllers, microprocessor controllers, and relays. Use equipment manufacturer’s approved submittal drawings as a reference for control panels, field instruments etc.
   d. Provide scaled and dimensioned panel or enclosure face layout drawing; panel/subpanel material of construction, dimensions, and weight; conduit and wiring access locations; and material wiring and terminal block drawings for each control panel.
   e. Provide schematic interconnection diagrams and/or Process Instrumentation Drawings (PID) diagrams for each separate control system or control panel. Each control diagram shall show a schematic representation of process equipment and locations of switches, meters, automatic valves, and indicators, controllers and recorders. Correct operating settings and ranges for each control instrument shall be marked on these diagrams.

F. Clearly indicate on submittals that equipment or material is NRTL listed or is constructed utilizing listed or recognized components. Where a NRTL standard has not been established clearly identify that no NRTL standard exists for that equipment.

G. Operation and Maintenance Manuals:
   1. See specific sections for information specific to each type of equipment which is to be included in O&M manuals.
   2. Provide preliminary manuals of each equipment item to the Owner for review no later than when the electrical equipment is submitted for approved and final copies before the equipment is shipped to the job site.
3. Provide final manual copies before the equipment is shipped to the job site. For equipment which also requires third party (NETA) testing, provide reports with O&M manuals after installation but before equipment is put into use. Equipment installation will not be accepted without O&M manuals and third-party testing reports.

4. Drawings and Bill of Materials included in final manuals shall show “as shipped” wiring and components. Provide updates to the final manuals with Record Drawings of the work upon completion of the work, folded and punched for insertion into the manual after they are reviewed by the Owner.

5. Clearly indicate by using arrows or brackets precisely what has been provided. Designate optional accessories, which are being included and those which are excluded in the manual.

6. Final manuals for the electrical system shall consist of 3-post, expandable metal hinge binders labeled with the job name and the Contractor's name with tab dividers for each major type of equipment.
   a. Provide manufacturer's installation, operation, maintenance, and service information for each item of equipment furnished under Division 26.
   b. Assemble and index each section listing the contents individually on the tab divider for that section.
   c. Compile a spare parts list and a supplier's index for each section and assemble in the section provided.
   d. Assemble records of tests, measurements, and calibration settings made for each device. Provide Record Drawings of the work upon completion of the work. Fold, punch, and insert these records into the manual after they are reviewed by the Owner.

1.9 RECORDS

A. Maintain and annotate on the job at all times a separate set of Record Drawings in accordance with the General Conditions. Show changes from the Contract Documents plan drawings including: wiring diagrams, including wire and terminal numbers, routing of raceways, stubups, actual equipment and fixture locations, equipment sizes and dimensions and building or structure outline changes. Review the drawings with the Owner as the work progresses whenever requested and provide color copies of record drawings when requested. At the end of the end of the project, forward to the Owner a complete set of drawings marked in red pencil in a manner consistent with the Contract Plans, indicating the changes made on the job. Equipment furnished under this Contract for use on future work and all concealed materials, including conduits, shall be dimensioned from visible and permanent building/structure features or drawn to scale on the record drawings.
B. Record voltage, current, and megohmeter and ground ohmic resistance test measurements made on the electrical work, the size, type and settings of trip units, fuses, and overload relay elements installed in the equipment. Record the setting of all pressure, temperature, level, and similar instrumentation and control devices. When the project is operating, turn over these records to the Owner.

C. Digital Record Photographs

1. Requirements for the Photographs
   a. Digital photographs shall be at the native resolution of the camera or smart phone. The file format of the photographs shall be JPEG using the modest compression. (Where the compression levels are described, the typical description of the compression level might be “good”.)
   b. JPEG files shall be stored so that the EXIF (Exchangeable Image File Format) data is maintained. Prior to taking any photographs, the camera time should be set so that EXIF data includes the time and date of the photograph. The JPEG files shall be stored so that the creation (or modification) time and date of the file also reflect the time and date of the photograph. (The EXIF data should be viewable under Windows 7.)
   c. The camera shall have a native resolution of at least 8.0 megapixels.
   d. Photographs of signs, nameplates, or labels shall be taken using macro modes. The photographs shall be taken so that text is legible. If required, the photographs of reflective items may be taken at an angle to the item to reduce glare.

2. Take photographs of electrical equipment possibly requiring coordination when the equipment arrives on site. The photographs shall include nameplates and labels if available. The equipment shall include but not necessarily be limited to, the following:
   a. HVAC equipment
   b. Motorized actuators
   c. Control Panels

3. Take photographs of conduits prior to concealing them. The photograph files shall be labeled with location or shall contain adequate context to determine location such as a tape measure showing distance from a wall or depth below grade. The photographs shall include the following:
   a. Conduit placement prior to pouring concrete or backfilling

4. Take photographs of electrical equipment following installation or modification. The photographs shall include nameplates, labels, and similar identifiers. The equipment shall include but not necessarily be limited to, the following:
   a. Motors and motor drive equipment.
b. Control Stations

c. HVAC equipment

d. Motorized actuators

e. Control Panels

f. Instrumentation providing electrical signals including transmitters, sensors, and switches.

g. Panelboards

h. Safety Disconnect Switches

5. Photographs shall be supplied to the Owner at least once every day. Photographs shall be supplied to the Owner no later than one day after they are taken. Photographs shall be supplied on optical media (CD-R, DVD-R, or DVD+R), by email or by another method by prior arrangement with the Owner.

1.10 COORDINATION

A. Coordinate and schedule connecting electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

B. Coordinate the interruption of electrical systems to any part of the facility in use by the Owner at least 48 hours before interruption of the system.

C. Coordinate the cutting of existing structures with the new and existing electrical systems. Identify, locate, and protect existing and underground, underslab or embedded conduits/cables where excavation or cutting of existing structures is to be performed.

D. Coordinate installing electrical identifying devices and markings prior to installing acoustical ceilings and similar finishes that conceal such items.

E. Coordinate installing electrical identification after completion of finishing where identification is applied to field-finished surfaces.

F. Coordinate requirements for access panels and doors where electrical items requiring access are concealed by finished surfaces.

G. Coordinate the electrical work with the requirements of equipment provided under other Divisions. Portions of the electrical design are based upon the equipment specified in other Divisions. Where modifications to the specified electrical systems or equipment devices or materials are required to accommodate actual electrical requirements of equipment which is specified under other Divisions of the Contract but which has electrical requirements different from those specified under those Divisions for the equipment, make modifications to the electrical system or systems required to accommodate the equipment, and pay for all such changes. No additional payment or “extras” are allowed for changes required to accommodate substitutions or changes proposed by the Contractor.
H. Where changes in the work, or substitutions in material or equipment specified under this Division are proposed, ensure that sizes, weights, openings, etc., are provided that do not require changes in the work outside this Division. If changes to work outside this Division are required to accommodate substitutions or changes proposed by the Contractor, submit complete descriptions of these changes for approval by the Owner, and pay for all such changes. No additional payment or "extras" are allowed for changes required to accommodate substitutions or changes proposed by the Contractor.

I. Coordinate the installation of electrical equipment with other trades:

1. Arrange for the building-in of equipment and materials during structure construction. Arrange for the building in of anchors, supports, sleeves, or other equipment and materials during concrete placement, framing, precasting or other structure construction. Coordinate installing required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed. Install sleeves for cable and raceway penetrations of concrete slabs and walls, except where core-drilled holes are used. Install for cable and raceway penetrations of masonry and gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls. Gypsum wall sleeves may be cut-in after erection if desired.

2. Where equipment or materials cannot be built-in during construction, arrange for chases, slots, box-outs or other openings in the structure, as required to allow installation of equipment after structure construction is complete.

3. Where penetration of completed or permanent construction elements such as walls, beams, ceilings, floors, etc. is required, obtain approval from Owner for penetration (drilling, cutting, shooting, punching) of structural components prior to penetrating the element or component.

4. Accurately locate panelboards, outlets, switches, control stations and similar devices with respect to equipment and the finished work of others. Verify dimensions and locations with the general, civil, structural, mechanical, process, architectural and other Contract plans as well as shop drawings/supplier’s drawings and trades.

5. Coordinate installing large equipment requiring special access openings or positioning prior to closing in the building.

J. Coordinate electrical work with work under other Divisions. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Cooperate in locating equipment to avoid interference with work of others and plan this work to harmonize with the work of other trades so that all work may proceed as expeditiously as possible. No extras are allowed because of moving work required to avoid interference with work of other trades or contractors.

K. Coordinate connecting electrical circuits to components furnished under other Divisions. Coordinate the location of motors, switches, panel connections and other points of connection with the equipment manufacturers or vendors prior to conduit installation, and route circuits to the actual connection point. Remove
and reinstall conduit, outlet boxes and other electrical connections, even if removal and reinstallation of building materials is necessary, where electrical connections are not made to the appropriate equipment location.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Receive, handle, and store electrical materials and equipment in accordance with the manufacturer’s instructions.

B. Protect materials and equipment from damage, corrosion, or disfiguring; protect nameplates on electrical equipment from defacing. Deliver equipment to their final locations in protective wrappings, containers, and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is safe from such hazards. Field repair of material or equipment made defective by improper storage or site construction damage by other trades is not acceptable.

C. Repair, restore, or replace damaged, corroded and rejected items at no additional cost to the Owner.

D. Provide dry, heated storage for materials and equipment intended to be installed indoors which is not protected by packaging suitable for outdoor storage by the manufacturer and for equipment that requires an electrical connection or heater to mitigate water condensation and like hazards.

E. Keep electrical equipment rooms clean and vacuumed after each day when work is performed in the area. Do not place electrical equipment rated for indoor installation into its final location until this location is weathertight and heated with openings to the outside closed with temporary weather barriers or with the installation of permanent doors, fans, and ducts. (The final location shall be the electrical equipment location shown on the Contract Plans or otherwise described in the Contract Documents.)

F. Ensure that equipment is not used as steps, ladders, scaffolds, platforms, or for storage - either inside or on top of enclosures.

G. Protect nameplates on electrical equipment from defacing.

H. Repair, restore, or replace damaged, corroded and rejected items at no additional cost to the Owner.

1.12 EXTRA MATERIALS

A. Provide extra materials including spare parts where noted in individual specification sections.

B. Extra materials including spare parts shall be provided with the equipment or like materials at the time the equipment or materials arrive on site. It is not acceptable to provide extra materials after the equipment or materials are delivered to the site or house equipment in a storage area not accessible to the Owner. Provide an inventory and listing of the spare parts to the Owner when the parts (and spares) arrive onsite.
PART 2 — PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Refer to individual Division 26 sections.

   1. Provide equipment, which is of a similar type, made by one manufacturer throughout the project unless otherwise noted in the Specifications.

B. Submit requests for substitution in accordance with Specification Section 01 33 00.

2.2 MATERIALS

A. Except as otherwise indicated, provide new materials and equipment which are standard products of manufacturers regularly engaged in production of such equipment. Provide similar items of equipment of the same manufacturer and quality. Where systems are specified, provide components of the system from one manufacturer.

B. Trade names and catalog numbers may be used in the Plans or Specifications to establish quality standards and basis of design:

   1. Other listed manufacturers in the applicable specification sections with equal equipment may be acceptable.

   2. If no other manufacturer is listed then any manufacturer of equal equipment may be acceptable.

C. Provide material or equipment approved and labeled for the purpose for which it is to be used by a nationally recognized electrical testing laboratory (NRTL) or other organization acceptable to the State of Washington Department of Labor and Industries.

   1. Where NRTL test procedures have been established for the product type, provide electrical equipment approved under that procedure and bearing the NRTL label.

D. Where voltage, current, power, temperature or other ratings are specified that do not correspond to standard ratings of the manufacturer selected by the Contractor, furnish the next rating level which increases the capacity of the device or material in question.

E. Furnish materials, devices, equipment or supplies of materials that are inherently non-corrosive or are coated or covered in a manner, acceptable to the Owner, which renders them non-corrosive. Do not provide materials which contain polychlorinated biphenyls, asbestos or other hazardous or detrimental materials. Do not install materials in a manner, location or construction that produces galvanic action or any other materials corroding or eroding action. Material that may cause rusting or streaking on a building/structure surface shall not be used.

F. Fabricate equipment or devices in the field equivalent in every respect to manufactured items used for the same purpose. Where cutting, drilling, grinding, or similar actions are performed on galvanized or painted metal, regalvanize or repaint, respectively, to match original finish.
G. When equipment is shop fabricated for the Project, use electrical devices and enclosures which are NRTL listed and labeled or recognized.

PART 3 — EXECUTION

3.1 INSTALLATION

A. Make arrangements for and pay for necessary permits, licenses, and inspections.

B. Equipment shall be installed in accordance with the requirements of the National Electrical Code, National Electrical Safety Code, and applicable state and local regulations and ordinances.

C. Install equipment in accordance with the manufacturer's instructions and the NECA “NEIS” (National Electric Installation Standards).

D. Provide on-site testing as listed in individual specification sections. Test results shall be in writing.

E. Equipment Dimensions and Clearances:

1. Dimensions indicated for electrical equipment and dimensions indicated for the installation of electrical equipment are restrictive dimensions. Verify that equipment will fit within the indicated locations and spaces. Do not use equipment that impinges upon the required clearance, reduces actual clearance, or exceeds the indicated dimensions:

   a. Except as approved in writing by the Owner.

2. Do not use arrangements of equipment that impinge upon the required clearance, reduce actual clearances or exceed the space allocation.

F. Equipment Access:

1. Install equipment so it is readily accessible for operation and maintenance.

2. Access to equipment shall not be blocked or concealed by conduits, supporting devices, boxes, or other items.

3. Do not install electrical equipment such that it interferes with normal maintenance requirements of other equipment.

G. Install materials and equipment in a manner, location and construction that does not produce galvanic action or any other materials corroding or eroding action. Equipment fabricated from aluminum shall not be placed in direct contact with earth or concrete.

H. Screen or seal all raceways and openings into equipment to prevent the entrance of moisture, rodents and insects.
I. Plans indicate the approximate location and arrangement of electrical equipment and the approximate location of other equipment requiring electrical work. The general arrangement of panelboards, outlets and other equipment is diagrammatic and approximate as to locations. To avoid interference with structural members and equipment of other trades, it may be necessary to adjust the intended location of electrical equipment. Where minor changes are required because of structural or finish conditions or for the convenience of the Owner, provide such changes without additional expense to the Owner. Unless specifically dimensioned or detailed, the Contractor may, at his discretion, make minor adjustments in equipment location without obtaining the Owner's approval. Minor adjustments are defined as a distance not to exceed:

1. 1 FT at grade, floor and roof level in any direction in the horizontal plane.
2. 1 FT for equipment other than lighting at ceiling level in any direction in the horizontal plane.
3. 1 FT for lighting fixtures at ceiling level in any direction in the horizontal plane.
4. 1 FT on walls in a horizontal direction within the vertical plane.
5. Changes in equipment location exceeding those defined above require the Owner's approval.
6. Particular attention shall be paid to door swings, piping, radiation, ductwork, and structural steel:
   a. In general, waste and vent lines and large pipe mains and ductwork shall be given priority for the locations and space shown.
   b. Electrical lighting fixtures shall, in general, be given priority for ceiling space.
   c. No additional compensation will be allowed for the moving of misplaced outlets, wiring, or equipment.

3.2 DEMONSTRATION
A. Demonstrate to the Owner that the electrical installation is working by operating all electrical systems and equipment. Simulate control and emergency conditions, artificially where necessary, for complete system tests. Adjust installed equipment for proper operation of all electrical and mechanical components.

3.3 ASSISTANCE
A. Provide assistance to the Owner during the demonstration or testing of equipment by operating devices and equipment, during construction observation by opening enclosures for inspection, checking record drawing information, and similar tasks, as necessary, in the Owner's judgment to verify all work provided.

END OF SECTION 26 00 00
SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Supporting devices.
2. Electrical identification.
3. Electrical demolition.
4. Cutting and patching
5. Cleaning and finish touchup painting.
6. Testing

1.3 SUBMITTALS

A. General: Submit each item in this Article as described in Section 16010 and Division 1 Specification Sections.

B. Product Data: For each type of material specified.

1. In addition to the requirements of 16010 and Division 1 Specification sections, submit only one manufacturer for each product type. Multiple manufacturers for the same product will be rejected.

C. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1. Testing Reports.

1.4 QUALITY ASSURANCE

A. Refer to Section 26 00 00 paragraph 1.7.

PART 2 — PRODUCTS

2.1 SUPPORTING DEVICES

A. Provide tubing, channel and angle support systems, hangers, sleeves, brackets, fabricated items, and fasteners for secure support of electrical equipment, devices, components and materials:

1. Material:
   a. Wet locations (including outdoors and in below-grade structures): Stainless steel or hot-dipped galvanized.
   b. Corrosive areas: 304 stainless steel or 40 mil PVC coated galvanized steel.
c. Other locations: Steel, except as otherwise indicated, protected from corrosion with zinc coating, cadmium plating, or with treatment of equivalent corrosion resistance using approved alternative finish or inherent material characteristics.

B. Conduit clamps: one hole or beam clamps
1. Rigid Steel Conduit: cast iron hot dipped galvanized clamps with cast iron hot dipped galvanized clamp back (AKA foot or spacer).
2. PRMC: cast iron PVC coated or stainless-steel clamps with cast iron PVC coated or stainless-steel clamp back (AKA foot or spacer).
3. EMT: stamped steel clamps – cad plated or galvanized.

C. Anchors: stainless steel in process, wet, hazardous or corrosive areas; cadmium plated or galvanized steel in dry areas.
1. lag screws or Type A tapping screws for wood.
2. Toggle bolts with springhead for light loads in masonry.
3. thru-bolt with fender washers for loads in masonry.
4. toggle bolts with springhead for hollow partitions.
5. epoxy set or self-drilling anchors with threaded studs for concrete.
6. clamps or U-bolts for structural steel.
7. Epoxy set or self-drilling anchors with extension rods for hollow tile over concrete.
8. hanger rods: 1/4-inch diameter or larger threaded steel, except as otherwise indicated.

D. Sleeves:
1. Wet, hazardous or corrosive areas:
   a. ASTM A 53, Type E, Grade A, Schedule 40, hot dipped galvanized steel, plain ends.
   b. Hot dipped galvanized cast iron, with weep rings.
2. Dry Areas:
   a. PVC, schedule 40.
   b. 0.0276-inch or heavier galvanized sheet steel, round tube, closed with welded longitudinal joint.

2.2 ELECTRICAL ENCLOSURES
A. Enclosures for use with Electrical Equipment:
1. Standards:
   a. NEMA ICS-6, Enclosures for Industrial Controls and Systems.
   b. UL 508, Industrial Control Equipment.
c. UL 698, Industrial Control Equipment for Use in Hazardous Locations.

2. Provide NEMA enclosure types as indicated on the Contract Documents. Where the enclosure type is not indicated by the Contract Documents provide enclosures as follows:
   a. NEMA 1: Use in electrical rooms and in dry indoor finished areas.
   b. NEMA 12: Use in unclassified (non-hazardous and non-corrosive) indoor locations which are neither wet nor damp.
   c. NEMA 4X: Use in all non-hazardous wet or corrosive locations.

B. Shop or Factory Finishes:
   1. Exteriors of painted enclosures shall be ANSI gray.
   2. Interiors of painted enclosures shall be either white or light gray.

2.3 ELECTRICAL IDENTIFICATION

A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Contractor's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NEC and these Specifications.

B. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape not less than 3 mils thick by 1 inch wide.

C. Underground Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:
   1. Size: Not less than 4 mils thick by 6 inches wide.
   2. Compounded for permanent direct-burial service.

D. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.

E. Engraved, Plastic-Laminated Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched for mechanical fasteners 1/16 inch minimum thick for signs up to 20 sq. in., 1/8-inch-thick for larger sizes. Engraved legend in white letters on black face.

F. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless-steel screws or stainless-steel No. 10/32 machine screws with nuts and flat and lock washers.

G. Wire markers: machine printed, black ink, alpha-numerical identifiers on yellow polyolefin shrink tubing. Kroy K4350 Shrink Tube or approved equal.
   1. Where it is not possible to use shrink tubing (i.e. on pre-terminated cables) it is acceptable to use the following:
      a. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
2.4 TOUCHUP PAINT
A. For Equipment: Provided by equipment manufacturer and selected to match equipment finish.
B. For Non-Equipment Surfaces: Matching type and color of undamaged, adjacent finish.
C. For Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 — EXECUTION

3.1 INSTALLATION
A. Comply with NECA's "Standard of Installation."
B. Install the equipment and materials in a neat and workmanlike manner employing workmen skilled in the particular trade and in accordance with the manufacturer’s instructions and industry standards. Maintain adequate supervision of the work by a person in charge at the site during any time that work under this division is in process or when necessary for coordination with other work.
C. Install components and equipment to provide the maximum possible headroom where mounting heights or other location criteria are not indicated. Mount enclosures for individual units at fifty-four inches above floors to centerline of controls.
D. Install items level, plumb, parallel and perpendicular to other building systems and components, except where otherwise indicated.
E. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
F. Give right of way to raceways and piping systems installed at a required slope.
G. Make all penetrations of electrical work through floors, walls and roofs water, rodent, insect and weather-tight.

3.2 ELECTRICAL SUPPORTING METHODS
A. Support electrical equipment, devices and materials from framing members or structure with sufficient clearance for maintaining and servicing.
   1. Provide backing plates, and/or framing material to support equipment, devices and materials which are located between the framing members which are part of the building or facility structure.
   2. Provide metal structure fabricated of structural shapes such as C-channel or square tubing (not strut channels, unistrut, b-line, etc.) for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other equipment and devices except where components are mounted directly to structural features of adequate strength.
B. Fastening and Supports: Unless otherwise indicated, securely fasten electrical items and their supporting hardware to the building/structure/support.

1. Use supports as detailed on the Plans and as specified:
   a. Where not detailed on the Plans or specified, use supports and anchoring devices rated for the equipment load and as recommended by the manufacturer.

2. Attach enclosures mounted on equipment with machine screws or clamps as required. Do not drill equipment frames or sheets without permission of the equipment supplier/manufacturer and the Owner. Do not mount safety switches or external equipment to other equipment enclosures, unless enclosure mounting surface is adequately reinforced structurally to accept mounting of external equipment.

3. Base rating and size of supports and anchoring devices on dimensions and weights verified from approved equipment submittals. Attach wall mounted enclosures with a minimum of three fasteners, and more if the manufacturer so recommends.

4. Standoff outdoor wall-mounted equipment and indoor equipment mounted on earth or water bearing walls or in a washdown area a minimum of one-quarter inch where enclosures are mounted on walls in wet areas (outdoors, below grades, etc.). Use corrosion resistant spacers such as neoprene, or fiberglass or plastic shim washers to maintain ¼ IN separation between the equipment and the wall.

5. Do not cut, or weld to, building structural members without permission of the owner. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or any other items.

6. Select fasteners so the load applied to any fastener does not exceed 25 percent of the proof-test load.

C. Raceway Supports: Comply with NEC and the following requirements:

1. Conform to manufacturer’s recommendations for selecting and installing supports.

2. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U bolts, clamps, attachments and other hardware necessary for hanger assembly and for securing hanger rods and conduits.

3. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

4. Spare Capacity: Size supports for multiple conduits so capacity can be increased by a 25 percent minimum in the future.

5. Support individual horizontal raceways with separate, malleable iron pipe hangers or clamps.

6. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports, with no weight load on raceway terminals.
7. Use double nuts or jam nuts with regular nuts on threaded rods and bolts.

8. Trim rod ends to within ¼ inch after installation of last nut, clamp or similar hardware; smooth cut ends or install cap nut.

D. Provide concrete foundations or pads required for electrical equipment:

1. Floor-mounted equipment shall be mounted on a concrete base except the concrete base shall be shortened in height by the thickness of the channel base when the equipment is provided with channel bases such as can be provided with variable frequency drives. Pad shall be poured on top of the finished floor or slab.

2. Install concrete pads and bases according to requirements of Division 03 and per structural plans and specifications.

E. Install hangers, inserts, supports, and anchors prior to installation of fireproofing.

F. Cable supports - provide cable ties and straps for clamping, tying, securing and banding wires and cables in all junction boxes, panelboards and terminal cabinets. Support each circuit independently; group phases of three phase circuits.

3.3 IDENTIFICATION

A. Install labels where indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.

B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated on the Plans or required by codes and standards. Use consistent designations throughout the Project.

C. Self-Adhesive Identification Products: Clean surfaces of dust, loose material, and oily films before applying.

D. Tag or label power circuits in enclosures using tags or adhesive marking tape. Identify source and circuit numbers in each cabinet, pull box, pull hole, vault, maintenance hole, junction box, and outlet box. Color coding may be used for voltage and phase indication.

E. Identify Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above power and communication lines. Where multiple lines installed in a common trench or concrete envelope do not exceed an overall width of 16 inches, use a single line marker.

F. Provide engraved phenolic name plates (white with black background) on equipment enclosures giving the name and circuit identification (Panel /Enclosure served from and circuit location or ID) of the enclosed device/equipment in one-quarter inch letters.

G. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.
H. Provide electrical danger, caution, warning or safety instruction signs including arc flash signs in accordance with WAC/RCW, WISHA/OSHA and other applicable state/federal safety requirements.

3.4 DEMOLITION

A. Demolish all existing electrical devices and circuits which are noted for demolition. Demolition includes, but is not limited to:

1. Remove all conduit, conductors, fittings, device boxes, hangers, panels, devices, etc., which are not concealed in the building structure or below grade/slab.

B. Do not remove or damage fireproofing materials. Repair or replace fireproofing removed or damaged.

C. Locate, identify, and protect electrical equipment and materials to remain. Where existing work to remain is damaged in the course of the work, remove damaged portions and install new products of equal capacity, quality, and functionality at no additional cost to the Owner.

D. Remove existing conductors from conduits or other enclosures, unless otherwise indicated, where existing work is to be abandoned in place. Cut and remove buried cable or raceway indicated to be abandoned in place at the point where it stubs up or emerges from burial 12 inches below the surface of adjacent grade or construction; cap and patch surface to match existing finish.

E. Remove demolished material from the Project site and legally dispose of demolished material by wastehaul to approved landfill or recycling facility.

F. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation and/or reconnection. Coordinate the process, mechanical, HVAC, and other equipment scheduled to be relocated and/or reused with other Divisions and disconnect the equipment from and reconnect the equipment to the electrical systems.

3.5 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for electrical installations. Perform cutting by skilled mechanics of the trades involved.

B. Repair disturbed surfaces to match adjacent undisturbed surfaces.

3.6 CLEANING AND TOUCHUP PAINTING

A. Clean dirt and debris from all surfaces. Thoroughly vacuum the interior of enclosures to remove dirt and debris.

B. Replace nameplates damaged during installation.

C. Apply touch-up paint as required to repair scratches, etc. Field paint in accordance with Section 09 90 00. Thoroughly clean damaged areas and provide primer, intermediate, and finish coats to suit the degree of damage at each location. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
3.7 TESTING

A. Testing shall be performed by a person currently certified by the InterNational Electrical Testing Association.

B. Additional testing requirements specific to other sections are specified in those sections.

C. Test electrical equipment as described in individual specification sections after installation but before it is energized and placed in service. All equipment shall be tested as recommended by the manufacturer. Report all test results in writing. Where tests disclose a defect in the work, rework or repair equipment which performs unsatisfactorily during or as a result of system testing at no additional expense to the Owner and retest to confirm the rework or repair until retesting confirms that the defect has been corrected. Test in accordance with the manufacturer's installation and testing instructions and the applicable electrical standards (i.e., NEMA, IEEE, ISA, ANSI, or other) for the class of equipment. If equipment or system fails retest, replace it with products which conform with Contract Documents. Continue remedial measures and retests until satisfactory results are obtained. Remedial measures and retests will be done at no cost to the Owner.

D. Test motor driven equipment motors before energization. Insulation test shall consist of megohmeter check phase–to–ground, per IEEE Standard 43, and polarization index test manufacturer's recommendations.

1. Perform load tests of each motor and prepare a written report of the findings showing the following:
   a. Nameplate Ratings (horsepower), (speed), (voltage), (phase), (ampere rating of motor at full load).
   b. Measured Load in amperes on each phase at full speed.

2. For load tests for each process equipment motor:
   a. Note the operating conditions at the time of the test.
   b. Note the suction and discharge conditions (pressure, water level, temperature, humidity, where such conditions affect load).

3.8 DEMONSTRATION

A. Demonstrate equipment in accordance with Section 26 00 00.

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. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.3 SUBMITTALS
A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
   1. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.4 QUALITY ASSURANCE
A. Refer to Section 26 00 00 paragraph 1.7.

PART 2 — PRODUCTS

2.1 BUILDING WIRES AND CABLES
A. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Wire and Insulation Applications" Article.
B. Thermoplastic Insulation Material: Comply with NEMA WC 5.
C. Cross-Linked Polyethylene Insulation Material: Comply with NEMA WC 7.
D. Ethylene Propylene Rubber Insulation Material: Comply with NEMA WC 8.
E. Conductor Material: Copper.
F. Stranding:
   1. Class B for power applications.
   2. Class C for control applications.
G. Size and Type:
   1. Stranded conductor for No. 10 AWG and smaller gauge 120 VAC branch power circuits; except receptacle, lighting and switch leg circuits which shall be solid conductor.
   2. Stranded conductor for 277 or 480 VAC power circuits, and for any power circuit larger than No. 10 AWG.
   3. Stranded conductors for control circuits.
4. Grounding conductors: solid conductor in sizes No. 6 AWG and smaller gauge; stranded in No. 4 AWG and larger gauge.

H. Cords: Type SO, size No. 14 AWG or larger.

I. VFD Cable: Low voltage, shielded power cable. Three conductor copper cable rated 600 volt, with cross linked thermosetting polyethylene insulation on each conductor, three bare grounding conductors (one in each interstice), with a corrugated copper shield and overall PVC jacket. Cables shall have the following maximum nominal outer diameter (OD) and minimum bend radius:

<table>
<thead>
<tr>
<th>Conductor Size</th>
<th>Nominal OD (Inches)</th>
<th>Minimum Bend Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>#16</td>
<td>.40</td>
<td>4.0</td>
</tr>
<tr>
<td>#14</td>
<td>.45</td>
<td>4.5</td>
</tr>
<tr>
<td>#12</td>
<td>.50</td>
<td>5.0</td>
</tr>
<tr>
<td>#10</td>
<td>.60</td>
<td>6.0</td>
</tr>
<tr>
<td>#8</td>
<td>.70</td>
<td>7.0</td>
</tr>
<tr>
<td>#6</td>
<td>.80</td>
<td>8.0</td>
</tr>
<tr>
<td>#4</td>
<td>.90</td>
<td>9.0</td>
</tr>
<tr>
<td>#2</td>
<td>1.05</td>
<td>10.5</td>
</tr>
<tr>
<td>#1</td>
<td>1.20</td>
<td>12.0</td>
</tr>
<tr>
<td>#1/0</td>
<td>1.3</td>
<td>13.0</td>
</tr>
<tr>
<td>#2/0</td>
<td>1.4</td>
<td>14.0</td>
</tr>
<tr>
<td>#3/0</td>
<td>1.55</td>
<td>15.5</td>
</tr>
<tr>
<td>#4/0</td>
<td>1.7</td>
<td>17.0</td>
</tr>
</tbody>
</table>

1. VFD cables with nominal outer diameters and minimum bend radiiuses that are greater than shown in the above table will be rejected.

2. Belden VFD Power Cable Model numbers 29520C through 29532C (depending on cable size).

2.2 INSTRUMENTATION AND SPECIALTY WIRE

A. Low voltage instrument cable: 600 volt rated, multi-conductor cable with overall neoprene or PVC jacket. Individual conductors PVC or polyethylene insulated, with or without nylon overcoat.

1. Unshielded instrument cable Belden 9486 (18 gauge), 9488 (14 gauge) or equal, Alpha or NEC.

2. Shielded single pair instrument cable (2/C#18) Belden 9341 or equal, Alpha or NEC.

B. Specialty wire: As specified in the section describing the system it serves.
2.3 COMMUNICATIONS CABLING

A. For all communications cabling, it shall be acceptable to provide higher performance rated than specified. For example, it is acceptable to provide Cat6 in lieu of Cat5e, but only Cat5e performance is required.

B. Patch Cables

1. Modular Data Patch Cables: Patch cables shall be pre-manufactured Category 5E UTP of FTP modular 8-position/8-conductor to modular 8-position/8-conductor plugs. Patch cables shall meet or exceed TIA/EIA 568A Category 5E specifications for performance.
   a. Provide quantities of patch cables as shown on the Contract Drawings.

2.4 CONNECTORS AND SPLICES

A. Provide UL-listed, factory-fabricated wiring connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

B. Conductor Connections, Splices or Taps:

1. Solid Conductors size 18 through 10 AWG: Twist on insulated spring connectors.

2. Stranded Conductors size 18 through 6 AWG: insulated, solid barrel, crimp type plated copper alloy connectors.

3. Conductors size 4 AWG and larger: plated copper alloy compression splicing sleeves installed by high pressure compression tools and insulated with heat shrink Raychem sleeves.

4. Outdoors or wet areas: wire splice kits, epoxy resin, hardener, and mold. 3M Scotchcast or equal.

C. Terminations: suitable for 75-degree Celsius rated copper conductor.

1. Service and feeder circuits: compression indent barrel connectors with one or two-hole spade lug ends.

2. Conductor size 18 through 10 AWG: insulated, solid copper barrel, crimp type, plated copper alloy spade tongue terminal, made for the wire size and terminal on which they are installed and crimped with an approved plier or tool for the connector.

3. Conductor size 8 AWG and larger: compression, indent, solid copper barrel, one or two-hole lugs.

D. Motor connections: insulated, solid barrel, crimp type, ring tongue plated copper alloy.

E. Shielded RJ45 type plug

1. Provide shielded, metal enclosed plug with insulation displacing connectors.

2. Crimp style plug connections are NOT acceptable.
3. Plugs shall be manufactured by:
   a. Metz connect C6A RJ45 Field Plug Pro.

2.5 INSULATING MATERIALS

A. Fillers: Scotchfill, or equal.

B. Tape: 7 mil vinyl plastic tape, Scotch 33+, or equal.

PART 3 — EXECUTION

3.1 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRE AND INSULATION APPLICATIONS

A. Service/Feeders: Type USE/RHW/RHH insulated, stranded conductors, in raceway.

B. Branch circuits: Type USE/RHW/RHH insulated, stranded conductors, in raceway except Type THHN/THWN insulated, solid conductors, may be used indoors, above grade only, for 120/240-volt lighting, HVAC and receptacle branch circuits in sizes #12 AWG and #10 AWG.

C. Equipment Grounding Conductors: Same type insulation and conductor as the circuit conductors supplying the equipment to be grounded.

D. Grounding Conductors (other than equipment grounding conductors): bare copper with varnish coat.

E. Class 1 and 2 Control Circuits: Type USE/RHW/RHH, size #14 AWG or larger, in raceway; Type MTW/THWN, size #14 AWG or larger, in raceway may be used indoors above grade or above above grade in weatherproof enclosures.

F. Instrumentation Circuits: Shielded or unshielded instrument cable, as indicated on the Contract Plans.

3.3 INSTALLATION

A. Install wires and cables in raceway system, according to manufacturer's written instructions and NECA's "Standard of Installation", after raceway system is complete, and following "Examination" article of this section. Where existing conductors or cables are removed and later repulled through new or existing conduits, test the conductors after each pulling operation, and replace the conductors or cables with new conductors or cables if the test results are not acceptable per NETA standards.

B. Provide individual neutral conductors for each 120 volt or 277-volt circuit. Common neutral conductors for multi branch circuits are not permitted unless specifically noted and shown on the plans.
C. Install service, feeder, motor, control, instrumentation, communication and signaling circuits continuously without splices from equipment terminal to equipment terminal or motor lead. 120 and 277-volt single phase branch circuits may be spliced or connected at taps or connection for outlet devices. Do not splice circuits at other locations without written permission from the Owner.

D. Color code conductors as follows:


2. 480/277-volt, three phase systems:
   a. Phase A - brown
   b. Phase B - orange
   c. Phase C - yellow
   d. Neutral - gray

3. 240/120, single phase systems:
   a. Phase A - black
   b. Phase B - red
   c. Neutral - white

4. Use control wiring of colors different than power wiring or supplied with a trace of color in addition to the basic color of the insulation. Number control wiring individually to match equipment number and terminal numbering or use wires of different colors with equipment number for each node or different function in each circuit but use the same color scheme throughout each system for any control or signal wires performing the same function.

5. Use wire with insulation of required color for conductors of No. 8 AWG and smaller. For wire larger than No.8 AWG which is not available in specified colors, use self-adhesive, wrap-around cloth type markers of solid colors to code the conductors. When conductors are marked in this manner, mark each conductor at all accessible locations such as panelboards, junction boxes, pullboxes, pullholes, auxiliary gutters, outlets, switches, and control centers.

6. Do not use white, gray, or green color for any power, lighting, or control conductor not intended for neutral or grounding purposes.
   a. Low voltage control circuits, or 18 AWG or smaller control conductors, may use gray, green or white singly or as part of a trace color in addition to the base color.

7. Connect power circuit conductors of the same color to the same phase throughout the installation. Viewing all equipment from the front, make connections so phase color sequence is in the same order as that for panelboards, etc. If the phase order of the wires must be reversed to accommodate motor rotation, the adjustment shall be made at the motor terminal box or for cord connected equipment only, at the load side of the
safety disconnect switch. Reversing the phase order at the motor controller or disconnect switch is not acceptable.

E. Install wiring to equipment neutral and grounding blocks on the bottom or furthest back row first. Leave unconnected blocks accessible for future neutral or grounding connections.

F. Leave six inches or more of free conductor at each connected device or equipment terminal and nine inches of free conductors at each unconnected outlet. Tape free ends of conductors at unconnected outlets and coil neatly in outlet box.

G. Install wires neatly in enclosures. Bend or form wires in neat runs from conduits to terminals. Arrange wires so that they may be grouped by conduit or function in the enclosure. Install cable ties and straps to support and bundle wires in enclosures. Arrange wires to allow wire tags and numbers to be easily read without bending or flexing wiring.

H. Install grounding conductors according to Section 26 05 26.

I. Pulling Conductors:
   1. Make all cable pulls by hand. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, or wrapping extra conductor into an eye, that will not damage cables or raceway.
   2. 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. Install pullboxes or pull fittings where necessary to prevent exceeding manufacturer's recommendations.
   3. Cut cable or conductor ends off after pulling and clean all lubricant and/or pulling compound from conductors before terminating.

J. Support cables according to Section 26 05 00.

K. Seal around cables where cables directly penetrate or where cables are within a raceway which penetrates an exterior wall. Provide sealing using duxseal or foam within conduit bodies on exterior of building where conduits penetrate wall above grade. Provide conduit drain on lowest point of exposed exterior conduit to drain fluid within conduit. Arrange exterior conduit so wall penetration and penetration seal are in a different conduit body than the conduit drain.

L. Where conduits penetrate a vertical exterior wall below grade, provide duxseal or foam seal around conductors within conduit fitting or box on interior of building immediately after the penetration. Provide conduit body with conduit drain at a level below bottom of enclosure to which the conduit attaches. Unless otherwise noted, terminate raceway which penetrates exterior vertical wall below grade in bottom of interior enclosure to which it connects. It is not acceptable to terminate a raceway which penetrates an exterior wall below grade into the top of the interior enclosure to which it connects.
M. Identify wires and cables according to Section 26 05 00 “Common Work Results for Electrical” and as follows:

1. For power circuits:
   a. At each connection, except at motors, tag for phase rotation and circuit number.
   b. At each motor tag for winding lead numbers. Make all phase rotation changes for motor direction changes at the motor to maintain correct color phase sequence in equipment.
   c. In each enclosure or box where more than one ungrounded power conductor is spliced or connected, tag for panelboard identification and pole number.

2. For control circuits:
   a. Tag at ends of wire.

3. Labels shall identify circuits and signals. In the description below, equipment tag ID refers to the motor driven device controlled by the motor controller such as a Neat Polymer Pump (16NPP01). The device tag ID refers to a piece of ancillary equipment associated with the equipment referenced by the tag ID, such as a disconnect switch (1DS) or solenoid valve (1SV). The wire labels shall be identified as follows unless otherwise noted in the specifications:
   a. Wires from motor controllers to devices shall be labeled with the device tag ID (Controller terminal #)(device terminal number) – for example, 16SV01(8)(3) - would reference a wire to solenoid valve 16SV01 landed on terminal 8 in the motor controller and landed on terminal 3 at the solenoid valve (the device end may not have a terminal number, in that case the wire label would only have one terminal label 05SV01(8) in the above example).
   b. Wires from control panels to devices shall be labeled with the device tag (CP terminal #)(device terminal number) – for example, 16MFM01(0501)(1) - would reference a wire to magnetic flow meter 16MFM01 landed on terminal 0501 in the control panel and terminal 1 at the flowmeter.
   c. Wires from motor controllers to control panel shall be labeled with Equipment tag ID (Motor Controller terminal #) (CP terminal #) – for example, 16NPP01(8) (03;01) - would reference a wire for pump 16NPP01 landed on terminal 8 in the motor controller and continued to terminal 0301 in the control panel.
   d. Wires from device to device (i.e. disconnect switches to control stations) shall be labelled with Device #1 tag (device #1 terminal number)-Device #2 tag (device #2 terminal number) – for example, 1DS(1)-1CS(4) would reference a wire landed on terminal 1 on a disconnect switch and continued to terminal 4 in a control station.
3.4 CONNECTIONS

A. Use the proper high-pressure compression tool for terminating indent type compression connectors or terminations on conductors of size #8 AWG or larger gauge. Use an approved pliers or tool for crimping connectors for conductors of size #10 AWG or smaller gauge.

B. Make splices or tap connections with filler, and tape that possess equivalent or better mechanical strength and insulation ratings than conductors being connected. Insulate to same thickness as connectors being spliced or connected.

C. Shielded cables used for analog signals shall be terminated with not greater than 1 inch of conductor left outside the shield. This applies to field wires entering the panel for termination, and to panel conductors. Conductor twist shall be maintained over the unshielded length to as close as possible to the point of termination. Where the overall jacket is cut back to expose the individual conductors, provide a heat shrink sleeve over the jacket, the signal, and the shield (drain) conductors. Insulate the shield (drain) conductor where not covered by the jacket or the sleeve. Where shield (drain) conductors are not terminated, cut the conductor even with the jacket so that it is covered by the sleeve to prevent inadvertent contact with other devices, terminals, or conductors in the panel.

D. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer, and in compliance with other Sections of Division 26.

E. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

F. For communications cables permanently installed in control panels and motor controllers (starters, VFDs, etc.), directly terminate UTP cabling with metal clad cat 6 shielded RJ45 type plug unless otherwise noted.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform field quality-control testing.

B. Test installation of wires and cables before electrical circuitry has been energized.

1. Test wire and cable installation, when complete and seventy-two hours prior to energization of the system.
2. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.3.2. Certify compliance with test parameters.

3. Remove and replace conductors with visible damage on conductor insulation ends due to installation in an incomplete or damaged conduit system such as, but not limited to, missing bushings or burrs on conduit ends.

C. Correct malfunctioning conductors, cables, and connections at Project site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new materials and retest.

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. This Section includes grounding of electrical systems and equipment and basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other Sections of these Specifications.

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

1. Section 26 05 19 for grounding conductor requirements.

1.3 SUBMITTALS
A. General: Submit each item in this Article as described in Section 16010 and Division 1 Specification Sections.

B. Product Data: For each type of component specified.

1. In addition to the requirements of 16010 and Division 1 Specification sections, submit only one manufacturer for each product type. Multiple manufacturers for the same product will be rejected.

C. Field Test Reports: Indicate and interpret test results for compliance with manufacturer’s published standards and performance requirements. (see Section 3.4 for further information)

D. Operation and Maintenance Manual: At the completion of the project, the operating and maintenance information shall be updated to reflect any changes during the course of construction. The Operation and Maintenance Manual shall include the following:

1. Approved testing reports.
2. Product Data

1.4 QUALITY ASSURANCE
A. Refer to Section 26 00 00 Basic Electrical Requirements 1.7 Quality Assurance

B. Comply with UL 467, “Grounding and Bonding Equipment”.

PART 2 — PRODUCTS

2.1 GROUNDING AND BONDING PRODUCTS
A. Governing Requirements: Where types, sizes, ratings, and quantities indicated are in excess of NEC requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.
2.2 WIRE AND CABLE GROUNDING CONDUCTORS

A. Comply with Section 26 05 19 Conductors and Cables." Conform to NEC Table 8 (Conductor Properties), except as otherwise indicated, for conductor properties, including stranding.

B. Equipment Grounding Conductors: Insulated with green color insulation.

C. Grounding-Electrode Conductors: Stranded cable, bare or varnish coated.

2.3 CONNECTOR PRODUCTS

A. Pressure Connectors: High-conductivity-plated units.

B. Bolted Clamps: Heavy-duty type.

C. Exothermic-Welded Connections: Provided in kit form and selected per manufacturer's written instructions for specific types, sizes, and combinations of conductors and connected items. Burndy, Thermoweld, or Cadweld.

PART 3 — EXECUTION

3.1 APPLICATION

A. Equipment Grounding Conductors: Comply with NEC Article 250 for types, sizes, and quantities of equipment grounding conductors, except where specific types, larger sizes, or more conductors than required by NEC are indicated.

1. Install insulated equipment grounding conductor with circuit conductors for the items below.

   a. Service and Feeders.

      1) Bond the conductor full size to the equipment to which the circuit connects and to any portion of the raceway where it is metallic. Provide boxes or fittings suitable for connecting equipment grounding conductors where metallic conduit transitions to non-metallic.

   b. Single or three-phase motor or appliance branch circuits.

   c. Flexible raceway runs.

2. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables. Bond the conductor at each end of non-metallic raceway to grounded metallic raceway or equipment.

3. Provide boxes or fittings suitable for connecting equipment grounding conductors where metallic conduit transitions to non-metallic.

B. Separately Derived Systems: Where NEC requires grounding, ground according to NEC Paragraph 250-30.
3.2 INSTALLATION

A. General: Ground electrical systems and equipment according to NEC requirements, except where Plans or Specifications exceed NEC requirements.

B. Ground the secondary electrical system to the building structure, metallic piping systems and supplemental grounding electrodes. Coordinate grounding connections made to the water system with the mechanical work and install bonding jumpers wherever deemed necessary.

3.3 CONNECTIONS

A. General: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to assure 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. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells. Comply with manufacturer's written instructions. Clean all varnish, oxide, scale, concrete, etc. from conductors before firing joints. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

C. Equipment Grounding-Wire Terminations: Make the grounding conductor connections to motors or equipment ten horsepower and above, or twenty amperes and above, with conductor termination and a 5/16 inch minimum bolt tapped to the motor frame or equipment housing. Ground connection to smaller motors and equipment may be made by fastening the conductor termination to a connection box.

D. Noncontact Metal Raceway Terminations: Where metallic raceways terminate at metal electrical enclosures without mechanical and electrical connection to electrical enclosures, terminate each conduit with a metallic, insulating grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in electrical enclosures. Bond electrically noncontinuous conduits at both entrances and exits with grounding bushings and bare grounding conductors, except as otherwise indicated.

E. Connect discontinuous sections of metallic raceway using grounding (bonding) connections at each end of metallic raceway with equipment grounding conductor in the non-metallic portion of the raceway.

F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. Where these requirements are not available, use those specified in UL 486A and UL 486B.
G. **Compression-Type Connections:** Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by manufacturer of connectors. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

3.4 **FIELD QUALITY CONTROL**

A. **Independent Testing Agency:** Engage an independent electrical testing organization to perform acceptance tests described below.

B. Test installation of grounding electrodes and ground rods before electrical circuitry has been energized.

C. **Acceptance Tests:**
   1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.13. Certify compliance with test parameters. Maximum grounding resistance value shall be 3 ohms.
   2. Measure ground resistance not less than 2 full days after the last trace of precipitation, and without the 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.
   3. Measure resistance of equipment grounding connections for service, feeder and motor circuits to ground at the load end with a Biddle ground ohmmeter.

D. **Excessive Ground Resistance:** Where resistance to ground exceeds specified values, notify Owner. Check connections of affected equipment and conductors. Replace, repair, or correct defective connections or conductors. Provide additional ground rods or larger grounding electrode where the grounding electrode resistance is higher than specified. Revise and retest until resistance is within specifications.

E. **Report:** Prepare test reports, certified by the testing organization, of ground resistance at each test location. Include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

**END OF SECTION 26 05 26**
PART 1 — GENERAL

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

1.2 SUMMARY
A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1. Raceways include the following:
   a. RMC.
   b. PRMC.
   c. EMT.
   d. FMC.
   e. LFMC.
   f. PVC.
   g. RTRC

2. Boxes, enclosures, and cabinets include the following:
   a. Device boxes.
   b. Outlet boxes.
   c. Pull and junction boxes.
   d. Cabinets and hinged-cover enclosures.

B. Related Sections include the following:
   1. Section 26 00 00 for electrical requirements
   2. Section 26 05 00 for raceway and box supports.
   3. Section 26 05 19 for conductors installed in raceways and boxes.
   4. Section 26 27 26 for devices installed in boxes.

1.3 DEFINITIONS
A. EMT: Electrical metallic tubing.
B. FMC: Flexible metal conduit.
C. LFMC: Liquid tight flexible metal conduit.
D. RMC: Rigid metal conduit.
E. PRMC: PVC coated rigid metal conduit.
F. PVC: Rigid polyvinyl chloride conduit.
1.4 SUBMITTALS
A. General: Submit each item in this Article according to Section 01 33 00.
B. Product Data: For each type raceway and box specified.
   1. In addition to the requirements of Division 01 Specification sections, submit only one manufacturer for each product type. Multiple manufacturers for the same product will be rejected.

1.5 QUALITY ASSURANCE
A. Refer to Section 26 00 00 Paragraph 1.7.

1.6 COORDINATION
A. Coordinate layout and installation of raceways and boxes with other construction elements to ensure adequate headroom, working clearance, and access.
B. Coordinate conduit stub up locations with approved equipment shop drawing submittals prior to locating conduit stub ups in the slab. Locate conduit stub ups per equipment manufacturer’s recommendations and the requirements of the Plans and Specifications.

PART 2 — PRODUCTS

2.1 METAL CONDUIT AND TUBING
A. RMC:
   1. Conduit: Hot dipped galvanized steel with threaded ends meeting ANSI C80.1.
   2. Couplings: unsplit, NPT threaded steel cylinders with galvanizing equal to the conduit.
   3. Nipples: same as conduit, factory made through eight inches, no running threads.
B. PRMC (PVC-Coated Rigid Steel Conduit and Fittings): NEMA RN 1.
   1. Minimum 40 mil exterior PVC coating, and 2 mil interior urethane coating
   2. Manufacturers:
      a. RobRoy Industries
      b. Thomas & Betts Ocal
C. EMT:
   1. Conduit: Galvanized steel tubing meeting ANSI C80.3.
2. Couplings: steel, cast iron, or malleable iron compression type employing a split, corrugated ring and tightening nut, with integral bushings and locknuts. No indent or setscrew type.

D. FMC:
2. Connectors: galvanized steel, screw in or clamp style, approved for grounding.

E. LFMC:
1. Conduit: flexible, galvanized steel convolutions forming a continuous raceway, covered by a liquid tight PVC layer. Electri-Flex Type LA or American Sealtite, Type UA. The use of thinwall conduit is not permitted.
2. Connectors: Hot-Dip galvanized steel or hot-dip galvanized malleable iron, screw in ferrule which covers the end of the conduit inside and out, insulated throat, approved for grounding. Provide with gland nut with integral ground lug for connectors to motors rated 10 horsepower and larger. O-Z/Gedney Type 4Q series or approved equal.

2.2 RIGID NONMETALLIC CONDUIT (RNC)

A. Rigid nonmetallic conduit (RNC) includes PVC and RTRC per NEC Article 352 (Rigid Polyvinyl Chloride Conduit: Type PVC) and NEC Article 355 (Reinforced thermosetting Resin Conduit: Type RTRC) and as follows:
1. PVC:
   a. NEMA TC 2, Schedule 40 or 80 PVC.
   b. Fittings: NEMA TC 3; match to conduit or conduit/tubing type and material.
2. RTRC:
   a. NEMA TC 14
   b. UL 1684

2.3 CONDUIT BODIES, OUTLET BOXES AND DEVICE BOXES

A. Concealed dry indoor locations, flush mounted in ceilings: Stamped steel, deep drawn one piece (without welds or tab connections), galvanized, with knockouts for conduit or connector entrance, meeting NEMA OS 1, and with plaster or extension rings to suit construction and application.

B. Exposed dry indoor locations which are not hazardous or are not in process areas: Stamped steel, deep drawn one piece (without welds or tab connections), galvanized, with knockouts for conduit or connector entrance, meeting NEMA OS 1. Boxes 6”x6”x4” or larger may be code gauge fabricated steel continuously welded at seams and painted after fabrication. Covers shall be of the same material and finish as the device box.
C. Exposed outdoors, below grade, wet locations, or exposed in indoor locations in process areas which are not corrosive or hazardous: galvanized, cast iron alloy box, one piece, with threaded holes or hubs, integral mounting lugs or feet and galvanized cast iron alloy cover with neoprene gaskets. Covers shall be of the same material and finish as the device box except where otherwise indicated. See Section 26 27 26 for in-use, weatherproof exterior receptacle device box covers.

D. Exposed corrosive locations: PVC coated cast iron or stainless-steel boxes with threaded hubs, integral mounting lugs or feet and PVC coated covers with neoprene gaskets. Covers shall be of the same material and finish as the device box.

E. Device boxes associated with control stations shall be the same material as the disconnect switch and control station enclosure. For example, if the disconnect is stainless steel, then the associated device box shall be stainless steel.

F. Masonry boxes where installed per the requirements of the specifications, are not required to be drawn one piece.

2.4 PULL BOXES AND JUNCTION BOXES

A. Concealed dry indoor locations, flush mounted in ceiling: Stamped steel, deep drawn one piece (without welds or tab connections), galvanized, with knockouts for conduit or connector entrance, meeting NEMA OS 1, and with plaster or extension rings to suit construction and application.

B. Exposed dry indoor locations which are not hazardous or are not process areas: Stamped steel, deep drawn one piece (without welds or tab connections), galvanized, with knockouts for conduit or connector entrance, meeting NEMA OS 1. Boxes 6”x6”x4” or larger may be code gauge fabricated steel continuously welded at seams and painted after fabrication. Covers shall be of the same material and finish as the device box.

C. Masonry boxes where installed per the requirements of the specifications, are not required to be drawn one piece.

D. Exposed outdoors, below grade, wet locations, or exposed in indoor locations in process areas which are not corrosive or hazardous: Cast-Metal Boxes meeting NEMA FB 1, with gasketed screw down cover. Boxes 6”x6”x4” or larger may be code gauge fabricated stainless steel continuously welded at seams and with rubber gasketed covers. Hoffman or equal. Covers shall be of the same material and finish as the pull or junction box.

E. Junction boxes associated with control stations shall be the same material as the disconnect switch and control station enclosure. For example, if the disconnect is stainless steel, then the associated device box shall be stainless steel.

F. Exposed corrosive locations: PVC coated cast iron or stainless-steel boxes with threaded hubs, integral mounting lugs or feet and PVC coated covers with neoprene gaskets.
2.5 MISCELLANEOUS FITTINGS

1. NEMA FB 1; compatible with conduit/tubing materials.

2. Conduit bodies shall be cast or malleable iron, hot dipped galvanized. Covers shall be of the same material and finish as the fitting. Appleton, Crouse Hinds, OZ Gedney, or equal.

3. Conduit bushings shall be malleable iron. Locknuts and sealing locknuts in sizes smaller than 2 ½” shall be steel. Locknuts and sealing locknuts in sizes 2 ½” and larger shall be malleable iron. Appleton, Cooper Crouse Hinds, OZ Gedney, Thomas Betts or equal.

4. Conduit sealing bushings shall be OZ Gedney Type CSM series. Cabinet sealing bushing shall be OZ Gedney Type GRK.

5. Conduit sealing fittings drains and breathers shall be OZ Gedney Type EY and DB, or equal Appleton or Crouse Hinds.

6. Through wall and floor seals shall be OZ Gedney FS and WS series.

PART 3 — EXECUTION

3.1 EXAMINATION

A. Examine surfaces and spaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRING METHODS

A. Install RMC or PRMC unless other raceways are shown on the Contract Documents, are required by Code, or are permitted under these specifications.

B. Where the manufacturer of equipment provided by the Contractor recommends or requires RMC for circuits associated with the equipment, provide RMC or PRMC for the entire circuit, even if other conduit types would otherwise be permitted under these specifications.

C. Indoors: Use the following wiring methods:

1. Exposed raceway runs in:
   a. Non-process areas which are dry and above grade: EMT or RMC.
   b. Process areas: RMC or PRMC.
   c. Corrosive areas: PRMC
   d. Wet or below grade Locations: RMC or PRMC.
   e. Hazardous, non-corrosive areas: RMC or PRMC
   f. Hazardous and corrosive areas: RMC
2. Concealed:
   a. Wood or Steel frame walls: EMT or RNC.
   b. Masonry walls: RNC or RNC.
   c. Dry accessible building spaces (i.e. above dropped ceilings): EMT or RMC.
   d. Below slab-on-grade floors:
      1) Use RMC or PRMC for underslab circuits. RMC may be used for indoor underslab circuits only where specifically noted on the Plans.
      2) At stub up locations or other locations where the raceway changes from buried to exposed conditions, transition conduit as described in paragraph 3.3:
   
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except where RMC (or PRMC) is used, use LFMC. Do not use flexible conduit in place of elbows, offsets, or fittings to attach to equipment. See below for further requirements for the installation of raceway terminations and connections using flexible connections.

4. It is not permissible to install conduits embedded in concrete floors or slabs; conduit may pass through walls, floors and slab.

D. Outdoors: Use the following wiring methods:

1. Exposed:
   a. In non-corrosive or non-hazardous locations: RMC or PRMC.
   b. In corrosive locations: PRMC

2. Below Grade:
   a. Under exterior slab-on-grade: PRMC
   b. Under wall slab: PRMC
   c. In earth (backfill): RNC or PRMC.
   d. Use PRMC where metal conduit is indicated on the Plans for underground circuits. It is not permissible to use RMC in outdoor, below grade locations.

3. Use PRMC at stub up locations and at entrances to buildings or other locations where the raceway changes from buried to exposed conditions, transition conduit as described in paragraph 3.3.

4. Use PRMC under structure slabs where existing from under building slab-on-grade or basement areas to 10 feet beyond walls.

5. Connection to Vibrating Equipment: LFMC. Do not use flexible conduit in place of elbows, offsets, or fittings to attach to equipment. See below for further requirements for the installation of raceway terminations and connections using flexible connections.
E. Comply with additional requirements of Division 27 for installation of raceways for communications circuits.

3.3 INSTALLATION

A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions. Provide a raceway for each circuit indicated. Do not gang raceway into wireways, pullboxes, junction boxes, etc., without specific approval. Do not group home runs or circuits without approval of the Owner.

B. Minimum Raceway Size: 1-inch trade size for communications circuits, 3/4 inch trade size for other circuits.

C. Provide PRMC or RTRC elbows for all RNC runs where conduit changes from straight to angled or bent runs horizontally (line) or vertically (grade). Where RTRC is used in PVC runs, provide elbows with factory attached deep socket PVC couplings. Coordinate the radius of all conduit bends, whether factory elbows or bends, or field bends, with the manufacturer's minimum bend radius for the installed cable or conductor.

D. Install conduit as a complete, continuous system without wires, mechanically secure and electrically connected to all metal boxes, fittings and equipment. Blank off all unused openings using factory made knockout seals.

E. Install conduit concealed unless shown otherwise on the Plans.

F. Do not install raceway below grade/slab unless specifically shown on the Plans as being installed below grade/slab.

G. Run parallel or banked raceways together, on common supports where practical. Use factory elbows where elbows can be installed parallel; otherwise, provide field bends for banked raceways. Make bends in parallel or banked runs from same centerline to make bends parallel.

1. Bend and offset metal conduit with hickey or power bender, standard elbows, conduit fittings or pull boxes. Bending of PVC shall be by hot box bender and, for PVC two inches in diameter and larger, expanding plugs. Make elbows, offsets and bends uniform and symmetrical. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.

H. Wherever practical, route conduit with adjacent ductwork or piping and support on common racks. Base required strength of racks, hangers, and anchors on combined weights of conduit and piping.

I. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes or other heat sources operating at temperatures above 40° C (104° Fahrenheit). Install horizontal raceway runs above water and steam piping.

J. Where conduits cross building or structure expansion joints, use suitable sliding or offsetting expansion fittings. Unless specifically approved for bonding, use a suitable bonding jumper. For sizes one inch and smaller, a half-loop of flexible conduit between boxes or fittings may be used.
K. Exposed Conduit Installation:

1. Install exposed raceways in lines parallel or perpendicular to the building or structural members or the structure lines except where the structure is not level. Follow the surface contours as much as practical. Do not install crossovers or offsets that can be avoided by installing the raceway in a different sequence or a uniform line. Provide adequate headroom.

2. Where several circuits follow a common route, stagger pullboxes or fittings, or if shown grouped in one box, individually fireproof each conduit.

3. Support exposed raceways as specified in Section 26 05 00.
   a. Provide anchors, hangers, supports, clamps, etc. to support the raceways from the structures in or on which they are installed. Do not space supports further apart than ten feet.
   b. Provide sufficient clearance to allow conduit to be added to racks, hangers etc. in the future.
   c. Support raceway within three feet of every outlet box, junction box, gutter, panel, fitting, etc.
   d. Raceway in "wet" areas shall have clamp backs (spacers) or other appropriate spacers to hold them a minimum of ½ inch off the surface. Horizontal runs on the roof surface shall be blocked at every 5 feet to hold them a minimum of 2 inches above roof surface.
   e. Support conduit connections to motors or other equipment independently of the motor or equipment. Rise or drop vertically to the nearest practicable point of connection to the unit. Run vertical drops to the floor and fasten with a floor flange. Unsupported drops are not permitted. Horizontal runs on the floor or on equipment are not permitted. Drop or rise at the appropriate closest location. Run conduit on equipment frames or supports to closely follow the contours of the equipment. Locate conduit to maintain access to all equipment services and adjustment points and so as not to interfere with operation of the equipment.

L. Concealed conduit installation:

1. Raceway concealed above ceilings, in furred spaces, under slab, etc., which are normally inaccessible may be run at angles not parallel to the building lines.

2. Install concealed raceway in wall or ceiling construction and/or place below the slab. Do not install conduit in slab. Do not run conduit just below the slab or at the edge of the slab.

3. Embed raceway in masonry in the hollow core. Horizontal runs in the joint are not permitted.
M. Underground raceway runs

1. Run as straight as practicable. Make changes in direction and/or grade of sufficient length to allow a gradual change (three-foot radius minimum). Make slight offsets with five-degree couplings.

2. Run trench true, and clear of stones or soft spots. Place three inches of fine sand in the trench bottom and tamp into place. Provide preformed plastic spacers on top of sand spaced five feet on center where more than one conduit is placed in a trench. After the raceway is placed in the trench, backfill to six inches above top of conduits with sand, then with native earth backfill passing a No. 8 sieve, free of stones. Do not tamp on top of the conduit until the final backfill is placed. Tamp or water settle the final backfill to finish grade. Compact the backfill as specified under Division 2.

3. Mark direct buried conduit by an underground line warning tape as described in Section 16050.

4. Clean underground and embedded conduit two-inch size and above with a wire brush or swab, followed by a mandrel not less than twelve inches long and approximately one-quarter inch smaller in diameter than the conduit internal diameter.

5. Where raceway exits from grade or concrete, provide the following:
   
a. For runs exiting from grade, slabs or encasement, transition to one of the following for a minimum of 24” inches of raceway (including elbows) before exiting and for vertical runs, a minimum of 3” beyond the exiting point:
      
      a) PRMC
      b) RMC taped with a half-lapped wrap of Scotchrap No. 51 plastic tape (40 mil total thickness). The conduit shall be wrapped a minimum of 3” above the exiting point and at least 24” of raceway below the exiting point (at a minimum, the rigid steel elbow and conduit located at/above the exiting point shall be fully wrapped).
      c) RMC coated with Kopper’s Bitumastic No. 505.
      d) RTRC (use for elbow only for PVC conduit runs)

   b. Do not extend plastic conduit (PVC or RTRC) into the slab, above grade, into buildings or into equipment.

6. For equipment to be moved into place at a later date, install a coupling flush with the floor slab and a threaded flush plug.

N. Protect stub-ups from damage where conduits rise out of wall by installing a steel bushing or coupling on the threaded end before slab is poured. Penetrations for raceways:

1. Do not bore holes in ceiling joists outside center third of member depth or within two feet of bearing points. Holes shall be one-inch diameter maximum.
2. Penetrate through building or structure wall or surfaces with a PVC or sheet metal sleeve with at least ¼" greater interior diameter (ID) than conduit exterior diameter (OD), set flush with walls, pack with fiberglass and seal with silicone sealant and cover with escutcheon plate.

3. Penetrate through roofs with core drill hole ½ inch to 1 inch larger than conduit, flash with neoprene, caulk conduit in place and seal with silicone sealant under flashing. Sleeve roof opening where non-concrete roof construction occurs.

O. Raceway terminations and connections:

1. Join raceways with fittings designed and approved for the purpose and make joints tight.

2. Make threaded connections waterproof and rustproof by application of a watertight, conductive thread compound. Clean threads of cutting oil before applying thread compound.

3. PRMC: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

4. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.

5. Cut ends of conduit square with hand or power saw or pipe cutter. Ream cut ends to remove burrs and sharp ends. Make conduit threads which are cut in the field to have same effective length and same thread dimensions and taper as specified for factory-cut threads.

6. Flexible Connections: Use maximum of 18 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement, such as motors, transformers, generators or similar equipment or equipment such as instruments which must be removed for service. Install flexible conduit in a straight length. Do not use flexible conduit in place of elbows, offsets, or fittings to attach to fixed equipment such as panels, enclosures or switches. With the Owner’s approval, longer lengths of flexible conduit may be used for connection to items of equipment which require longer lengths for installation (i.e. 2” conduits and larger) and removal of the equipment for maintenance or replacement purposes. Recessed and semi-recessed lighting fixtures may use up to 6 feet of flexible conduit, or 11 feet of pre-manufactured lighting “whips”. Use liquid-tight flexible metal conduit in wet or damp locations. Do not strap flexible conduit to structures or other equipment.

7. Provide double locknuts and insulating bushings at conduit connections to boxes and cabinets. Align raceways to enter squarely and install locknuts with dished part against the box. Use grounding type bushings where connecting to concentric or eccentric knockouts. In “wet” areas, use locknuts of the sealing type, use Myers hubs or O-Z/Gedney rain tight conduit hubs.

8. Connect conduits to enclosures at the location of the gutter or device to which the contained conductors will be routed. Route or stub conduits to motors and/or mechanical equipment directly to the connection and locate as close as possible to equipment terminals.
9. Where a device manufacturer requires a device or junction box to permit multiple conduit entries into the device from a single conduit, provide the device or junction box at no additional cost to the Owner.

10. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align raceways so the coupling is square to the box and tighten the chase nipple so no threads are exposed.

11. Place conduits at panelboards in the rear line of knockouts where possible. Install spare conduits from flush-mounted panels up to accessible spaces. Install a minimum of one spare three-quarter inch conduit for every three single-pole spare breakers or spaces, or fraction thereof (three conduits minimum).

12. Connect conduit to hubless enclosures, cabinets and boxes with double locknuts and with insulating type bushings. Use grounding type bushings where connecting to concentric or eccentric knockouts. Connect to enclosures, boxes and devices from below in wet areas. Make conduit connections to enclosures at the nearest practicable point of entry to the enclosure area where the devices are located to which the circuits contained in the conduit will connect.

P. Keep conduits clean and dry and close each end left exposed. When blowing through conduits, cover electrical components installed in enclosures to avoid blowing dirt or water into equipment. Use temporary closures to prevent foreign matter from entering raceways.

Q. Install pull wires in empty raceways and in empty innerduct. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 8 inches of slack at each end of the pull wire.

R. Seal interior of raceways around conductors at (1) hazardous locations, (2) where conduits pass from warm to cold locations, such as the boundaries of air conditioned, heated or refrigerated spaces and where conduits enter or exit buildings from outdoor areas, including underground ducts or conduit runs or (3) where otherwise required by NFPA 70.

1. Methods used to seal interior of raceways around conductors shall be as follows:
   a. Install raceway sealing fittings according to manufacturer’s written instructions. Locate fittings at suitable, approved, and accessible locations. For hazardous locations, fill them with UL-listed sealing compound. For non-hazardous areas, fill with expansive foam or Ducseal. 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. Boxes that have electrical devices installed (switches, receptacles etc.) shall not be used in place of a dedicated steel box for installation of the fitting that will house the sealing material.
   b. Seal conduits using expansive foam or Ducseal where conduits enter through the bottom of motor control centers, switchboards, panelboards and control panels.
c. Seal conduits using expansive foam or Ducseal for individual items of equipment where it is not practical to install raceway seal fittings such as building mounted lighting fixtures and convenience receptacles.

d. As otherwise required by NFPA 70.

S. Device and Outlet Boxes

1. Coordinate box locations with building surfaces and finishes to avoid bridging wainscots, joints, finish changes, etc.

2. Boxes in wet areas shall be surface mounted on channel iron stanchions or set with spacers on walls and shall be attached with clamps or feet (drilling or punching enclosure to mount through side of box or enclosure is not permitted), and they shall have all conduit connections from below arranged to drain moisture away with suitable EYD drains installed at the bottom. It is not permissible to install conduits into the top and side of the boxes at exterior locations unless otherwise noted on Plans.

3. Attach exposed (surface mounted) boxes to building structure with a minimum of two fasteners. Provide attachments to withstand a force of one-hundred pounds applied vertically or horizontally.

4. Set exposed device boxes four feet above the finished floor to top of the box unless otherwise noted on the Plans.

5. Set exposed boxes for lighting switches at 44 inches above the finished floor and within one foot of the door opening on the strike or lock side of the door or on the side closing last.

6. Set recessed boxes at the following heights to the bottom of the box, except where noted otherwise:

   a. convenience outlet receptacles in finished areas at sixteen inches;

   b. lighting switches, dimmers, etc. at forty-four inches above floor and within one foot of the door opening on the strike or lock side of the door or on the side closing last.

7. Arrange boxes used in wet areas to drain moisture away from devices or enclosures for equipment and make conduit connections from below.

T. Install wall or surface mounted enclosures and cabinets plumb. Support at each corner.

U. Use deep socket PVC coupling for connecting RTRC to PVC conduit runs.

3.4 PROTECTION

A. Provide protection and maintain ambient conditions, in a manner acceptable to manufacturer and Owner, that ensure coatings, finishes, and cabinets are without damage or deterioration at the time of Substantial Completion.

   1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.5 CLEANING

A. On completion of installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION 26 05 33
SECTION 26 27 26 – WIRING 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. This Section includes various types of receptacles, connectors, switches, and finish plates.

1.3 SUBMITTALS
A. General: Submit each item in this Article as described in Section 26 00 00 and Division 01 Specification Sections.
B. Product Data: For each type of wiring device specified.
   1. Specification sheets (cut sheets) of all proposed equipment (indicate the exact devices that are to be supplied).
   2. In addition to the requirements of 26 00 00 and Division 01 Specification sections, submit only one manufacturer for each product type. Multiple manufacturers for the same product will be rejected.
C. Operation and Maintenance Manual: At the completion of the project, the operating and maintenance information shall be updated to reflect any changes during the course of construction. The Operation and Maintenance Manual shall include the following:
   1. Maintenance and Repair Manuals (specified in Division 1).
   2. Product Data.

1.4 QUALITY ASSURANCE
A. Refer to Section 26 00 00 Basic Electrical Requirements Quality Assurance.

PART 2 — MATERIALS

2.1 MANUFACTURERS
A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the following:
   1. Wiring Devices:
      a. Cooper Wiring Devices.
      b. Bryant Electric, Inc.
      c. Hubbell Inc.
      e. Leviton Mfg. Co., Inc.
      f. Pass & Seymour/Legrand.
2.2 WIRING DEVICES

A. Comply with NEMA Standard WD 1 “General Color Requirements for Wiring Devices” and NEMA Standard WD 6, "Wiring Devices – Dimensional Specifications"

B. Enclosures: NEMA 1 equivalent, except as otherwise indicated.

C. Color: Ivory except as otherwise indicated or required by Code.

D. Receptacles, Straight-Blade and Locking Type: Except as otherwise indicated, comply with Federal Specification W-C-596, UL Standard 498, "Electrical Attachment Plugs and Receptacles". Receptacles shall be heavy duty specification grade. Receptacles installed within "Process Areas" shall be industrial heavy-duty grade. Provide NRTL labeling of devices to verify compliance.

1. General purpose Convenience Outlets
   a. Duplex receptacle configuration
   b. Nylon face
   c. Staked screw terminals for line, neutral, and ground connections.
   d. Provisions for split bus
   e. NEMA 5–15R or 5–20R
   f. Hubbell HBL 5262 or equal

2. Special Purpose Receptacles
   a. Staked screw terminals for line, neutral, and ground connections.
   b. NEMA configuration as indicated.

E. Receptacles, Straight-Blade, Special Features: Comply with the basic requirements specified above for straight-blade receptacles of the class and type indicated, and with the following additional requirements:

1. Ground-Fault Circuit Interrupter (GFCI) Receptacles: UL Standard 943, "Ground Fault Circuit Interrupters," with integral NEMA 5-20R duplex receptacle arranged to protect only the connected receptacle and no other receptacles connected on the same circuit.

F. Receptacles, Industrial Heavy-Duty: Conform to NEMA Standard PK 4 "Plugs, Receptacles, and Cable Connectors of the Pin and Sleeve Type for Industrial Use."


2. External Cable Grip: Woven wire mesh type made of high-strength stainless or galvanized-steel wire strand and matched to cable diameter and with attachment provision designed for the corresponding connector.

H. Cord and Plug Sets: Match voltage and current ratings and number of conductors to requirements of the equipment being connected.

1. Cord: Rubber-insulated, stranded copper conductors, with type SOW-A jacket. Grounding conductor has green insulation. Ampacity is equipment rating plus 30 percent minimum.

2. Plug: Male configuration with nylon body and integral cable-clamping jaws. Match to cord and to receptacle type intended for connection.


1. Lighting Switches: 120/277V ac only, rated 20 amperes.


J. Wall Plates: Single and combination types that mate and match with corresponding wiring devices. Features include the following:

1. Color: Matches wiring device except as otherwise indicated.

2. Plate–Securing Screws: Metal with heads colored to match plate finish.

3. For non-architecturally finished areas, in process equipment areas or electrical rooms: Stainless steel.

K. In-Use, weatherproof exterior receptacle device box covers shall be constructed entirely of cast aluminum material. The cover which encloses the cord set shall be opaque gray. Product shall be INTERMATIC Model WP1010MC or equal.

L. Device Box Covers: Cast iron to match box to which installed.

M. Door Security Switch

1. Magnetic door switch (for intrusion at building doors): GE model number 1078 or equal.

N. Smoke detectors shall be 120-volt, independent units. Alarm contacts shall be rated for use with 24-volt circuits. Smoke detectors shall detect smoke using a photoelectric detector. Smoke detectors shall have a test and silence feature. Each smoke detector shall have form C contacts that operate when that detector detects smoke. Smoke detectors shall have battery backup in each detector. Smoke detector shall be General Electric ESL 350CC or equal.
PART 3 — EXECUTION

3.1 INSTALLATION

A. Except as otherwise indicated on Plans, surface mount, with long dimension vertical. Mount with grounding terminal of receptacles on bottom.

B. Arrangement of Devices:

1. Group adjacent switches in common boxes under single, multigang cover plates.

2. See Section 26 05 33 for mounting height of devices.

3. Verify locations of outlets and switches in cabinetry with cabinet supplier and cabinetry shop drawings prior to installation.

C. Install switches with the “Off” position down. Install three- and four-way switches so the load is de-energized when all switch handles are down.

D. Connect phase, neutral, and grounding wires to devices with full loops around screws installed to tighten with tightening of the screw. The use of push-in terminals are not acceptable. Trim insulation to within one-eighth inch of screw terminal.

E. Surface mounted devices and wall plates: Install devices and assemblies plumb, level and secure.

F. Flush mounted devices and wall plates:

1. Provide spacers on device screws to flush yokes or flanges to surface of wall within 1/16 inch where boxes are not flush with the wall surface.

2. Protect devices and assemblies during painting.

3. Install wall plates after painting is complete. Install with an alignment tolerance of 1/16 inch to plumb. Install at flush mounted devices so that all four edges are in continuous contact with finished wall surface without the use of mats or similar devices. Do not use plaster fillings.

G. Use corrosion resistant devices outdoors.

3.2 GROUNDING

A. Connect receptacle or switch ground lug to device box.

3.3 FIELD QUALITY CONTROL

A. Acceptance Testing:

1. Test wiring devices for proper connections, polarity and ground continuity. Perform this testing with testing equipment designed for testing polarity and connections.

2. Operate each operable device at least 6 times.
3. Test ground-fault circuit interrupter operation with local fault simulations, using a tester designed for such testing, and according to manufacturer recommendations. Testing with integral test switches on the receptacle is not sufficient for this testing.

B. Replace damaged or defective components, and retest.

3.4 CLEANING

A. General: Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION 26 27 26
SECTION 26 28 16 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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 switches and circuit breakers, whether individually mounted or group mounted in panelboards and automatic transfer switches

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

1. Section 26 05 00 for general materials and installation methods.
2. Section 26 27 26 for attachment plugs and receptacles, and snap switches used for disconnect switches.

1.3 SUBMITTALS

A. Product Data for disconnect switches, circuit breakers and accessories specified in this Section. This includes, but is not limited to:

1. Specification sheets (cut sheets) of all proposed equipment (indicate the exact devices that are to be supplied).
2. nameplate ratings
3. mounting methods
4. For units which are standalone mounted include dimensioned plans (showing available conduit entry locations), sections and elevations.
5. Enclosures which will not accept the quantities and sizes of conduits as shown on the Contract Plans will be rejected.
6. Lug configuration showing quantities and sizes of conductor equipment can accept. Lugs or connections for switches and circuit breakers which are not able to accept the quantities and sizes of conductors as shown on the Contract Plans will be rejected.

B. Maintenance data for tripping devices to include in the operation and maintenance manual specified in Division 26 00 00.

C. Submit circuit breaker information with or after short circuit report as specified under Section 26 00 00.

A. Operation and Maintenance Manual: Shall include the following:

1. Maintenance Manuals (specified in Division 1).
2. Electrical System Study Report
3. Field Test Reports (see Section 3.2 for further information)
4. Product Data
1.4 QUALITY ASSURANCE

A. Refer to Section 26 00 00.

B. Source Limitations: Obtain disconnect switches and circuit breakers from one source and by a single manufacturer. Automatic transfer switches may be from the same manufacturer or a different manufacturer than the switches and circuit breakers.

C. Comply with NEC for components and installation.

D. Comply with UL 98, “Enclosed and Dead-Front Switches” for safety switches.

E. Comply with UL 1066 “Standard for Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures” for low voltage power circuit breakers.


G. Submit and obtain approval of shop drawings and make approved shop drawings available prior to placement of conduits in slabs to ensure placement is coordinated with switch and circuit breaker access locations from approved shop drawings. Do not place conduits in slabs prior to the receipt of approved shop drawings. Any relocation of conduits that are required because of incorrectly placed conduits prior to receipt of approved shop drawings shall be completed at the Contractor’s expense.

PART 2 — PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering switches and circuit breakers that may be incorporated into the Work include, but are not limited to, the following:

1. Disconnect switches, safety switches and circuit breakers:
   b. General Electric Co.; Electrical Distribution and Control Division.
   c. Schneider Electric (Square D Co.)

2.2 SWITCHES

A. Enclosed, non-fusible Switch, 600 A and Smaller: NEMA KS 1, Type HD, enclosure consistent with environment where located, handle lockable with 2 padlocks, and interlocked with cover in CLOSED position. Switch horsepower rated where used in motor circuits.

B. Enclosed, Fusible Switch, 600 A and Smaller: NEMA KS 1, Type HD, Class R rejection fuse clips, enclosure consistent with environment where located, handle lockable with 2 padlocks, and interlocked with cover in CLOSED position. Switch horsepower rated where used in motor circuits. Provide fuses per manufacturer’s recommendation for the equipment connected to fusible switch.
C. Enclosure: NEMA KS 1, with enclosure types as described in Section 26 05 00, unless indicated otherwise in the Contract Documents. Enclosure conduit entry locations shall be able to accept the quantities and sizes of conduits as shown on the Contract Plans. Enclosure shall use spring loaded latches to ensure environmental protection in any position of the switch; the use of screw or bolt type securing is not acceptable for NEMA 1, 3, 3R, 4, 4X or 12 rated enclosures.

D. Lugs or connections shall be able to accept the quantities and sizes of conductors as shown on the Contract Plans.

E. Accessories:
   1. Provide at least two auxiliary contacts for each switch. Where no auxiliary contacts are shown on plans, provide two normally open auxiliary contacts. Where one auxiliary contact is shown on the plans, provide indicated auxiliary contact and one additional normally open auxiliary contact. If two or more auxiliary contacts are shown on the plans, provide auxiliary contacts as shown.

2.3 ENCLOSED CIRCUIT BREAKERS

A. Molded-Case Circuit Breaker: NEMA AB 1, with lockable handle.

B. Characteristics: Frame size, trip rating, number of poles, and auxiliary devices as indicated with interrupting rating to meet available fault current.
   1. Main circuit breakers and branch circuit breakers 200 amps and larger in panelboards; individual enclosed circuit breakers; and circuit breakers indicated as “LSI” shall have electronic trip units, with field-adjustable, short- and long-time trip units, each separately and individually adjustable for time and pickup. Circuit breakers shall have long term (trip pickup) settings adjustable to the standard overcurrent protection ratings listed in the NEC.
   2. Feeder circuit breakers and main circuit breakers under 200 amps shall be molded case breakers with thermal magnetic trip unless otherwise noted.
   3. Motor circuit breakers shall be magnetic only trip with adjustable trip setting.
   4. Branch circuit breakers shall be molded case, thermal-magnetic trip, trip-free with non-interchangeable, non-adjustable trip unless otherwise noted.

C. Application Listing: Appropriate for application, including switching lighting loads (SWD) or heating, air-conditioning, and refrigerating equipment (HACR).

D. Coordinate circuit breaker trip sizes with equipment submittals for process, HVAC etc. equipment specified under other Divisions and adjust the rating/trip size as needed to conform with the manufacturer’s requirements for the trip rating. Revise short circuit report as required to coordinate with circuit breaker requirements for equipment submittals for process, HVAC etc. equipment.

E. Molded-Case Switch: Where indicated, molded-case circuit breaker without trip units.
F. Enclosure: per application, as described in Section 26 05 00, unless otherwise specified or required to meet environmental conditions of installed location. Enclosure conduit entry locations shall be able to accept the quantities and sizes of conduits as shown on the Contract Plans.

G. Lugs: Compression lugs, mechanical lugs and power-distribution connectors suitable for conductors of the material, number and size provided. Lugs or connectors shall be able to accept the quantities and sizes of conductors as shown on the Contract Plans.

PART 3 — EXECUTION

3.1 INSTALLATION

A. Install equipment enclosures level and plumb in locations as indicated, according to manufacturer's written instructions.

B. For wall mounted equipment enclosures located at walls, bolt units to wall or mount on structural–steel channels bolted to wall. For enclosures not located at walls, provide structural stanchion supports conforming to Section 26 05 00.

C. Install wiring between switches, circuit breakers, control, and indication devices.

D. Connect switches and circuit breakers and components to wiring system and to ground as indicated and as instructed by manufacturer.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

E. Identify each switch and circuit breaker according to requirements specified in Section 26 05 00.

3.2 FIELD QUALITY CONTROL

A. Acceptance Testing: After installing switches and circuit breakers and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures:
   a. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.5.1.1 for switches. Certify compliance with test parameters.
   b. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.6.1.1 for molded-case circuit breakers. Certify compliance with test parameters.

2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.
3.3 ADJUSTING

A. Set field-adjustable circuit-breaker trip setting ranges as indicated.

1. Where circuit breakers are included in short circuit study, set the trip as recommended in the study.

B. Provide fuses for fused disconnect switches to coordinate with manufacturer’s listed maximum fuse size for equipment supplied by the disconnect switch.

3.4 CLEANING

A. After completing system installation, including fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, and abrasions.

END OF SECTION 26 28 16
SECTION 26 51 00 – INTERIOR LIGHTING

PART 1 — GENERAL

1.1 RELATED DOCUMENTS
A. The work of this Section applies to the Drawings, Specifications, and provisions of the Contract. The revised General Conditions, Special Project Conditions, and other Division 01 Specification Sections apply to the Work of this Section.

1.2 SUMMARY
A. This section includes work for interior lighting fixtures (including fixtures normally mounted on the building), LED drivers and accessory materials such as frames, lenses, diffusers, hangers, spacers, stems and canopies, auxiliary junction boxes and other miscellaneous hardware as required for complete installation of all lighting equipment.

1.3 RELATED SECTIONS
A. Section 01 33 00 – Substitutions and Product Options
B. Section 26 00 00 - Electrical General Provisions
C. Section 26 05 00 - Common Work Results for Electrical.
D. Section 26 05 19 - Power Conductors and Cables
E. Section 26 05 33 - Raceway and Boxes for Electrical Systems

1.4 REFERENCES
A. References as described in Section 26 00 00 shall apply to this section.
B. UL listed for the application.
C. ANSI/IESNA RP-16-05 – Nomenclature and Definitions
D. ANSI C62.41.2 - Surge Protection.
E. ANSI C78.377 – Lamp color temperature (Chromaticity).
F. ANSI C78.09 82 - Fixture Safety Specification.
G. ANSI C82.77 - Harmonic Emission Limits.
H. LM-79 – Test Reports (Luminous Flux).
I. LM-80 – Lumen maintenance.

1.5 DEFINITIONS
A. Definitions as described in Section 26 00 00 shall apply to this section.
B. LED luminaire: A complete lighting unit consisting of LED-based light emitting elements and a matched driver together with parts to distribute light, to position and protect the light emitting elements, and to connect the unit to a branch circuit. The LED based light emitting elements may take the form of LED packages (components), LED arrays (modules), LED Light Engine, or LED lamps. The LED luminaire is intended to connect directly to a branch circuit.
C. Fixture: A complete lighting unit. Fixtures include lamps and parts required to distribute light, position and protect lamps, and connect lamps to power supply. Internal emergency lighting units also include a battery and the means for controlling and recharging the battery. See also LED luminaire.

D. Average Life: The time after which 50 percent fails and 50 percent survives under normal conditions.

E. CRI: Color Rendering Index.

F. CCT: Correlated Color Temperature.

G. SSL: Solid State Lighting (or LED)

1.6 SUBMITTALS

A. Comply with Submittal requirements as described in Section 26 00 00.

B. Submit the following:

1. Product Data describing fixtures, lamps and drivers/ballasts. Arrange Product Data for fixtures in order of fixture designation. Include data on features and accessories and the following:
   a. Outline drawings indicating dimensions and principal features of fixtures.
   b. Electrical Ratings and Photometric Data: Certified results of laboratory tests for fixtures and lamps.

2. Maintenance data for fixtures to include in the operation and maintenance manual specified in Division 01.

3. Provide one of the following sets of data regarding the output of the luminaire over time:
   a. LM-79-08 report at T=0 and at T=6000 hours with a summary table showing the percentage lumen output change and percent input power change.
   b. LM-80-08 test data for the LEDs at the three temperatures per LM-80-08. Provide extrapolation data using an exponential decay function to show the output at 50,000 hours. Provide the Ts value from the LM-79-08 ad where the point falls in relation to the LM-80-08 extrapolated data. Interpolate between the LM-80-08 data for the Ts temperature.

C. Operation and Maintenance Manual: Shall include the following:

1. Maintenance Manuals for the lighting fixtures (specified in Division 1).
2. Field Acceptance Test Reports (see section 3.3 for further information).
3. Product data.

1.7 QUALITY ASSURANCE

A. Comply with Quality Assurance requirements of Section 26 00 00.

B. Listing and Labeling: Provide fixtures, emergency lighting units, and accessory components specified in this Section that are listed and labeled for their indicated use and installation conditions on Project.
1. Special Listing and Labeling: Provide fixtures for use in damp or wet locations and recessed in combustible construction that are specifically listed and labeled for such use.

C. Coordinate fixtures, mounting hardware, and trim with ductwork, insulation, sprinkler system, ceiling system and other items, including work of other trades, required to be mounted on ceiling or in ceiling space.

1.8 EXTRA MATERIALS

A. Furnish extra materials including spare parts as described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. One spare LED luminaire of each type being provided on the project as described on the lighting fixture schedule.

2. LED Lamps: 2% of each type and rating installed. Furnish at least one of each type.

3. Plastic Diffusers and Lenses: 1% of each type and rating installed. Furnish at least one of each type.

4. LED Drivers: 2% of each type and rating installed. Furnish at least one of each type.

5. Globes and Guards: 5% of each type and rating installed. Furnish at least one of each type.

B. Extra materials including spare parts shall be provided with the equipment or like materials at the time the equipment or materials arrive on site. It is not acceptable to provide extra materials after the equipment or materials are delivered to the site.

1.9 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with Delivery, Storage and Handling requirements of Section 26 00 00.

1.10 WARRANTY

A. Comply with warranty requirements as described in Section 26 00 00.

B. Comply with warranty requirements as listed in the lighting fixture schedule.

PART 2 — PRODUCTS

2.1 GENERAL

A. Comply with the Products requirements of Section 26 00 00.

2.2 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products specified in the Lighting Fixture Schedule.

2.3 FIXTURES AND FIXTURE COMPONENTS, GENERAL

A. No visible labels, trademarks or monograms on the exterior of the lighting fixtures or on lens or diffusers.)

B. Metal Parts: Free from burrs, sharp corners, and edges.

C. Sheet Metal Components: Steel, except as indicated. Form and support to prevent warping and sagging.
D. Doors, Frames, and Other Internal Access: Smooth operating without the use of tools, intended for finger operation; free from light leakage at seams, joints or junctions visible in the installed condition under operating conditions; and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.

E. Reflecting Surfaces: Minimum reflectance as follows, except as otherwise indicated:
   1. White Surfaces: 85 percent.
   2. Specular Surfaces: 83 percent.
   3. Diffusing Specular Surfaces: 75 percent.
   4. Laminated Silver Metallized Film: 90 percent.

F. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or water white, annealed crystal glass, except as otherwise indicated.
   1. Plastic: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
   2. Lens Thickness: 0.125 inch minimum; except where greater thickness is indicated.
   3. Pattern for plastic lenses: K12 prismatic refractors. Pattern No. 12 is not acceptable.
   4. Approved manufacturers:
      a. Holophane
      b. KSH Plastics
      c. Carolite Plastics
      d. Plaskolite, Inc.

G. Provide gaskets on all trims and housings of "wet" location fixtures. Provide non-corrosive type plaster rings, hangers, trim and hardware in wet locations.

H. Fixture Supports
   1. Provide hook hangers for fixtures where indicated or specified consisting of an integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking type plug.

2.4 LED DRIVERS

A. Electronic integrated circuit, solid-state, full-light-output, energy-efficient type compatible with lamps and lamp combinations to which connected.
   1. Certification by Electrical Testing Laboratory (ETL). Can be UL recognized, but Listed when part of a fixture assembly.
   2. Drivers shall have a minimum efficiency of 85%.
   4. Voltage: Match connected circuits.
5. Starting Temperature: -30 deg. C to 50 deg C.
7. Total Harmonic Distortion (THD) of Ballast Current: Less than 10 percent.
9. Lamp-Driver connection method does not reduce normal rated life of lamps.

2.5 EMERGENCY BALLASTS
A. Emergency ballasts shall be rated 1400 lumen output. Emergency ballasts shall be manufactured by Bodine or equal.

2.6 LED LAMPS AS PART OF FIXTURE
A. Provide lamps for each fixture which comply with ANSI C78 series that is applicable to each type of lamp.
B. Color Temperature and Minimum Color-Rendering Index (CRI): 4000-4100 K and minimum CRI listed on fixture schedule.
C. LED Lamp Life: Rated average is a minimum of 50,000 operating hours before reaching L70 lumen output degradation point with no catastrophic failures.

2.7 FUSES
A. Provide fuses in fixtures mounted more than eight feet above floor or operated at 277 volts.
B. Fast acting, current limiting fuses, coordinated with the ballast and lamp operating characteristics, so as to avoid false tripping, yet provide fault clearing before damage occurs to the fixture. Bussman Type HFL in-line fuse holder and Bussman Type GLR fuse, sized at two-hundred percent of the ballast current rating.

2.8 FINISHES
A. Manufacturer’s standard, except as otherwise indicated, applied over corrosion-resistant treatment or primer, free of streaks, runs, holidays, stains, blisters, and similar defects

PART 3 — EXECUTION

3.1 GENERAL
A. Comply with the Execution requirements of Section 26 00 00.

3.2 INSTALLATION
A. Coordination with other work.
   1. Coordinate lighting fixture size and design, frame requirements, and hanging or mounting devices for project ceiling conditions before ordering lighting fixtures. Consult the Contract Document Drawings for details of ceiling and wall construction; provide lighting fixtures suitable for the particular type of ceiling or wall at each location.
2. Adjust light fixtures as required - near piping, equipment, etc., to protect from physical damage and provide sufficient clearance to install lamps and to maintain lens, reflectors, ballasts, etc. Where pendant mounted fixtures are in conflict with ducts and piping, coordinate the location and mounting heights of the fixtures to the available space left between the various ducts and piping.

3. Locate fixtures so that doors and other equipment will not damage them at any time.

4. Prepare irregular surfaces for mounting.

B. Fixture support

1. Install fixtures with supports, brackets and trim as recommended by the fixture manufacturer to suit the particular building construction and use. Align each fixture to ceiling structure.

2. Install surface mounted fixtures tight to the ceiling construction. Provide shims or spacers as required to keep surface mounted fixture from warping or twisting due to uneven surfaces. For suspended fixtures, use stems and chain attachments that cannot be displaced from hangers by an upward force.

3. Secure surface fixtures to ceiling system, roof structure or slabs with a fastener such as lag screw, lag bolt, toggle bolt, cinch anchor or stud to support the fixture plus one-hundred pounds at each support. Nails or similar fasteners are not approved for lighting fixture support.

4. Do not support fixtures from ceiling material other than structural or framing material. Provide supports, spacers, channels, etc., necessary to support lighting fixtures where fixtures are located so that they cannot be connected directly to structure members. Provide additional framing to directly support fixtures where construction is such that mounting channels, strongbacks or bridging is required to support fixtures. Provide additional support material which matches the structure material.

5. Provide outlet boxes or other supports for lighting fixtures which are of sufficient strength to support at least four times the weight of fixture or one-hundred pounds, whichever is greater. Support all fixtures weighing more than fifty pounds independently of outlet box.

6. Do not support fixtures with forty-eight inches or longer lamps from outlet box ears. Provide suitable fixture stud in box for each fixture.

7. Support all surface mounted fixtures more than eighteen inches wide at or near each corner, in addition to support from outlet box.

C. Install fixtures in rows or grids true to line. Install fixtures in a common area at the same level or grade. Install continuous runs of fixtures straight and true with joining straps, couplings, and nipples. Maintain spacing for fixtures as dimensioned or shown on the reflected ceiling plan and do not arbitrarily change because of ceiling pattern, etc. Symbols on Drawings which are undimensioned show approximate locations and care shall be used to locate fixtures on centers of spaces, at the quarter points, or as indicated. Any changes in fixture layout must be approved in writing by the Engineer.
3.3 CONNECTIONS
A. Ground the lighting units. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL
A. Inspect each installed fixture for damage. Replaced damaged fixtures and components.
B. Tests: Verify normal operation of each fixture after fixtures have been installed and circuits have been energized with normal power source. Interrupt electrical energy to demonstrate proper operation of emergency lighting installation.
C. Replace or repair malfunctioning fixtures and components, then retest. Repeat procedure until all units operate properly.
D. Report results of tests in writing.
E. Replace fixtures that show evidence of corrosion during Project warranty period.
F. Provide replacement lamps and drivers for all lamps and drivers which fail prior to completion of the work.

3.5 ADJUSTING AND CLEANING
A. Clean fixture lens, diffusers, enclosures on fixtures. Dirty enclosures, lens or diffusers shall be removed, washed and rinsed as recommended by fixture manufacturer.

3.6 LIGHTING FIXTURE SCHEDULE
A. Lighting Fixture Schedule is shown on the Drawings.

END OF SECTION 26 51 00
CITY OF SELAH
YAKIMA COUNTY
WASHINGTON

WELL NO. 6 AND ZONE 3
PUMP STATION

DWSRF LOAN NO. 05-96300-023
HLA PROJECT NO. 06042C
DECEMBER 2008

INDEX

SHEET 1 COVER
SHEET 2 GENERAL NOTES, CONSTRUCTION SEQUENCE AND SITE DEMOLITION PLAN
SHEET 3 EXISTING BUILDING AND VAULT DEMOLITION PLAN
SHEET 4 SITE PLAN
SHEET 5 PIPING PLAN AND SECTION
SHEET 6 PIPING SECTIONS
SHEET 7 FOUNDATION PLAN
SHEET 8 ROOF FRAMING PLAN
SHEET 9 EXTERIOR ELEVATIONS
SHEET 10 EXTERIOR ELEVATIONS
SHEET 11 SITE DETAILS
SHEET 12 SITE DETAILS
SHEET 13 STRUCTURAL DETAILS AND NOTES
SHEET 14 BUILDING DETAILS
SHEET 15 BUILDING DETAILS
SHEET 16 ELECTRICAL SYMBOL SCHEDULE
SHEET 17 ELECTRICAL SITE PLAN
SHEET 18 ELECTRICAL DETAILS
SHEET 19 ONE LINE DIAGRAM
SHEET 20 ELEMENTARY WIRING DIAGRAMS
SHEET 21 LIGHTING PLAN AND FIXTURE SCHEDULE
SHEET 22 GROUNDING PLAN
SHEET 23 POWER PLAN
SHEET 24 PROCESS INSTRUMENTATION PLAN
SHEET 25 TELEMETRY CONTROL PANEL ELEVATIONS
SHEET 26 TELEMETRY CONTROL PANEL ELEMENTARY WIRING DIAGRAM
SHEET 27 TELEMETRY CONTROL PANEL ELEMENTARY WIRING DIAGRAM (CONTINUED)

DATUM ELEVATION
CITY OF SELAH STATION
FROM THE SR-82 - FIRST STREET DIVIDING CURVATURE, GO NORTH 1/4 MI ON ROAD TO ROAD ON THE LOT. THE MARK IS LOCATED 0.7 FT. WEST OF THE CL, 30 FT. SOUTH OF AN ELECTRONIC VAULT ON ROAD, 27.5 FT. EAST OF A POWER POLE, AND 250 FT. AND 32.8 FT. SOUTH OF THE WIRELESS COMES. THE MARK IS A WOOD BRIDGE GEAR SET INTO THE CONCRETE SURFACE.
ELEVATION 112.38

RECORD DRAWINGS
HUBBREGTSE, LOMMAN ASSOCIATES, INC.

DATE
INFORMATION PROVIDED BY
INSPECTOR
CONTRACTOR

JOB NUMBER
LOCATION PLAN

CITY OF SELAH
WELL NO. 6 AND ZONE 3
PUMP STATION

CATHERINE L. OLMAN, P.E.
619 North 30th Avenue
Spokane, WA 99202-3603
(509) 922-3023 \ Fax (509) 445-2360
GENERAL DEMOLITION NOTES
1. All demolition work shall be performed in accordance with all state, local, and federal requirements. The contractor shall submit a demolition plan that complies with all requirements including, but not limited to, hazardous materials disposal and hours of operation.

2. The contractor shall provide adequate fencing, signage, and barriers to protect the public and prevent unauthorized access to the demolition site. All materials and debris shall be removed daily or as required.

3. The contractor shall provide adequate dust control measures to minimize dust generation during the demolition process. Dust control measures may include, but are not limited to, water suppression, encapsulation, and vacuum systems.

4. The contractor shall ensure that all applicable hazardous materials are identified and properly removed or contained. The contractor shall provide a hazardous materials management plan that complies with all requirements of the respective utility companies.

5. The contractor shall coordinate with all utility companies, including but not limited to, electric, gas, sewer, water, storm water, and irrigation, to ensure safe and proper removal of their facilities.

6. The contractor shall maintain a site safety program and ensure that all workers are trained and certified in accordance with applicable regulations.

CONSTRUCTION SEQUENCE
1. Remove UDR from existing vaults, sump, and remove existing vaults and vaults to the extent shown on the plans. Salvage all materials to be removed, remove electrical conduit as per jobsite.

2. Coordinate closing of valves and isolation of all existing electrical conduits. All existing electrical conduits shall be removed.

3. Install new underground piping from the final building location to the new building location. Remove and dispose of existing piping and fittings as required.

4. Fill vault voids with backfill to final grade.

5. Remove and dispose of the existing electrical and chlorine buildings. Follow installation and testing of new vaults. Remove electrical conduit and water service.

6. Complete site work, including storm drainage system, site restoration, and finishes.

NOTES
1. Temporary site security fencing shall be installed at the site prior to the start of the demolition process. The contractor shall provide a temporary site security fence that complies with all applicable regulations.

2. All temporary site security fencing shall be removed upon the completion of the demolition process.

3. The contractor shall provide a demobilization plan that complies with all applicable regulations and requirements.

4. The contractor shall ensure that all salvaged materials are properly identified and inventoried.

5. The contractor shall ensure that all salvaged materials are properly stored and disposed of in accordance with all applicable regulations and requirements.

6. The contractor shall provide a final site clearance plan that complies with all applicable regulations and requirements.

7. The contractor shall provide a final site clearance plan that complies with all applicable regulations and requirements.
### Power Distribution and Control Equipment
- Equipment/Device Location:
- Panel or Device Wires:
- Wires:
- Wires Connected:
- Device or Equipment Terminal:
- Ground:
- Grounding Equipment:
- Grounding Equipment (Metal Ossure Wires):
- Grounding Equipment (Metal Ossure Grounding):

### Lightning Fixtures
- Lighting Fixtures:
- Wall Mounted:
- Incandescent, Fluorescent Fixtures:
- Picture Light with Switch:

### Switching Devices
- Switching Devices:
- Single Pole Switch:
- Dual Pole Switch:
- Three Pole Switch:
- Four Pole Switch:

### Receptacle Outlet Devices
- Receptacle Outlet Devices:
- Single Pole Receptacle:
- Double Pole Receptacle:

### Mechanically Actuated Switches
- Mechanically Actuated Switches:
- Float Switches:

### General Wiring Symbols
- General Wiring Symbols:
- Junction Box:
- Junction Box:

### Record Drawings
HUBBREGTSE, LOUMAN ASSOCIATES, INC.

### City of Selah
WELL NO. 6 AND ZONE 3 PUMP STATION
ELECTRICAL SYMBOL SCHEDULE

### Abbreviations
- Abbreviations:
  - A: Amplifier
  - F: Full Voltage Non-Reversing Motor
  - G: Transformer
  - H: Magnetic Circuit Breaker
  - M: Magnetic Contactor
  - N: Neutral
  - O: Overcurrent Relay
  - P: Push Button
  - Q: Magnetic Motor Starter
  - R: Relay Contacts
  - S: Circuit Breaker
  - T: Transformer
  - U: Unfused Switch

### Color Code
- Color Code:
  - A: Amber
  - B: Blue
  - C: Black
  - D: Brown
  - E: Red
  - F: Green
  - G: Gray
  - H: Yellow
  - I: White
  - J: Orange
  - K: Purple
  - L: Pink
  - M: Tan
  - N: Green
  - O: Blue
  - P: Orange
  - Q: Red
  - R: Yellow
  - S: Black
  - T: White
  - U: Green
  - V: Blue
  - W: Orange
  - X: Red
  - Y: Yellow
  - Z: Black