



ADDENDUM NO.3

Port of Kalama
Pedestrian Crossing Replacement
Kalama, Washington
December 11, 2025

TO ALL PLANHOLDERS AND/OR PROSPECTIVE BIDDERS:

The following changes, additions, and/or deletions are hereby made a part of the Contract Documents for the Port of Kalama's Pedestrian Crossing Replacement Project located in Kalama, Washington, as fully and completely as if the same were fully set forth therein. Except as described below, the original Contract Documents remain unchanged.

An additional addendum is planned for questions not addressed here.

KEY DATE CHANGES

1. December 10, 2025 – Addendum No. 3
2. January 6, 2026 at 2:00 pm – Bid Opening Date

PROJECT INFORMATION

Reissued – Project Information (Rev 2)

BIDDING REQUIREMENTS

Reissued – Invitation to Bid (Rev 2)

REQUIRED BID FORMS

Reissued – Bid Form (Rev 3)

SAMPLE FORMS

(NOT USED)

GENERAL CONDITIONS

(NOT USED)

SPECIAL PROVISIONS

Reissued – Section 8-20 (Rev 2)

Reissued – Section 8-58 (Rev 1)

Reissued – Section 8-59 (Rev 1)

Reissued – Section 8-60 (Rev 1)

CHANGES TO DRAWINGS

(NOT USED)

CHANGES TO APPENDICES

(NOT USED)

PRE-BID QUESTIONS

70. The architectural drawings specify general steel section sizes? Are these size called out required for the structural design?

The general steel section sizes shown on the architectural drawings are based on a similar span structure and are an architectural best estimate of efficient structural member sizes. These should not, however, be construed as engineered to fully meet the load requirements for this project. Full engineering must be provided for all members on the project and member sizes therefore may vary slightly.

71. Is there a minimum interior vertical clearance within the pedestrian bridge?

The minimum interior vertical clearance acceptable for the pedestrian bridge is 9'-0" clear. For simplicity and clarity, the dimensions should match those shown on the drawings (Top-of-steel member 10'-0" above bridge deck, with member assumed to be approx. 10" deep, in order to properly align with adjacent members on the stair towers alongside. This results in approximately 9'-2" clearance, a small amount above the minimum clearance, for tolerance if the member needs to be slightly deeper than 10".

72. Bid item 105 Heat Pump is clearly intended to price the mechanical room HVAC equipment, HP-1 and ODU-1. Please confirm what is to be priced to bid items 101-104 and where elevator pit sump pumps are to be priced.

Elevator sump pumps shall be included in the bid item "Sanitary Waste Piping Specialties".

The bid item "Basic Mechanical Requirements" includes all work items listed in Section 8-57.

The bid items "Basic Mechanical Materials and Methods", "Mechanical Insulation", and "Refrigerant Piping" are removed. See reissued Bid Form and Specification Sections 8-58, 8-59, and 8-60.

73. There seems to only be two defined electrical only items on the bid form, which are items 68 and 69 and both are for lighting. I don't see anything to specifically address other costs.

Where do the following items fit in the current bid form?

- Fire alarm (system & conduit).
- CCTV conduits and possibly system
- Communication conduits
- Electrical service and panelboards
- Elevator associated wiring
- Which of the two illumination system bid items do you want the lighting control panel in
- Is excavation for power and communication conduits to be lumped in with all excavation

For bidding purposes what should be use for the available fault current rating for panel A?

The following bid items have been added to the bid form to account for additional electrical components:

- Luminaires for Bridge Structure and Associated Rooms
- Fire Alarm System and Conduits
- CCTV System and Conduits
- Communication Conduits
- Branch Circuit Electrical Wiring and Conduits
- Electrical Service, Panelboards, and Lighting Controls
- Elevator Associated Wiring

See reissued Specification Section 8-20 and Bid Form.

The lighting control panel shall be included with the electrical room equipment.

Excavation for power and communication conduits shall be included with the associated system. See reissued Specification section 8-20.1.

Type B handrail LED installation is shown on Sheet A3.0.

A meeting between the utility and engineer regarding fault current requirements will be held on 12/16/25. Updates will be provided following that meeting.

74. We just received addendum 2 and understand that an addendum 3 will be issued soon after. Addendum 2 revised the project milestones that require the bridge open and complete by September 30, 2026 with the remaining work complete by May 22, 2027. Please clarify what scope is tied to each milestone. Based on our schedule accounting for the design build bridge elements, we don't believe the schedule to construct and open the bridge in 9-months is possible.

Please confirm this is not an error, I do not believe will be able to submit a bid with this milestone change.

This date is an error. See revised Bid Form.

75. After multiple elevator contractor responses, please consider the following.

The specifications, plans, and renderings detailed in the plans show a full glass elevator cart. Due to the outlined specifications of what the elevator needs to be in "8-52 HYDRAULIC ELEVATORS", it is not going to be possible without spending 4x-5x the cost of a typical elevator. The contractors had concerns with not only "if the weight would be possible with a full glass cart on a hydraulic elevator" but also the "ongoing cost of replacement for the glass if it is damaged". One elevator contractor said that for as long as he has been doing elevators (12+ years) he has never sold a glass door elevator where the owners kept them long term after being damaged/replaced so often.

Providing an elevator with the most glass possible, while considering costs, would be a 1/2 glass back elevator (glass above handrails to the ceiling). Going this route would likely mean that two motors would be needed per elevator (higher shutdown rates due to syncing issues of the motors) OR the cart would be substantially slowed down in operation in order to preserve the motors long-term use.

One elevator contractor noted that it would be possible to go to more of a full glass cart, but it would need to be a different type of elevator – electric traction elevators. Here is a view of the ones installed at SeaTac (https://www.youtube.com/watch?v=B_oBF5xCzSM). Costs would be somewhere around \$700k-\$1M per elevator (rough estimate).

Can the elevator type change from a hydraulic elevator to meet full glass car request? If not, is glass a requirement of the elevator car, if only the back wall top half can be glass yet increase costs by ~40% to accommodate, still required? Please provide direction on how POK would like to overcome these obstacles and the direction to bid the elevators specifically.

Hydraulic lift elevators with full glass cabs are commonly used in the region for exterior public works/transit projects for their durability and low maintenance needs with added security benefits without significant increases in cost.

The project shall be bid as specified.

ATTACHMENTS

PROJECT INFORMATION

Project Title: Port of Kalama
Pedestrian Crossing Replacement

Manual Date: November 2025

Bid Due Date: **January 6th, 2026 @ 2:00 p.m.**

Project Owner: Port of Kalama
110 West Marine Drive
Kalama, WA 98625
(360) 673-2325

Project Manager: Darin Sampson
(360) 673-2325
dsampson@portofkalama.com

Project Engineer: Colin Eng
WSP
(206) 431-2260
colin.eng@wsp.com

INVITATION TO BID (REV 2)

00 11 16 - INVITATION TO BID

NOTICE is hereby given that the PORT OF KALAMA will be receiving SEALED BIDS at the Port Office, 110 West Marine Drive, Kalama, Washington 98625 until January 6th, 2026 at 2:00 p.m., for the Port of Kalama Pedestrian Crossing Replacement project.

The bids will then and there be publicly opened and read aloud. Any bids received after the published bid submittal time cannot be considered and will not be accepted by the Port.

Bid packets containing plans, specifications, and detailed instructions to bidders may be obtained beginning November 4th, 2025 . Bid packages may be picked up at J2 Blue Print Supply Co., located at 8100 NE St. Johns Road, Suite B101, Vancouver, WA, or send your requests to bid@j2b.com. Printed plans and specifications are available for the cost of reproduction. Bidders must register in J2's plan center.

The Work includes:

All labor, materials, tools, equipment, permits, testing, training, and supervision for the installation of all components of the Pedestrian Crossing Replacement project as shown in the plans and specifications, generally including:

1. Prepare required submittals and attend required meetings with the Owner and regulatory agencies as required by permits for the project.
2. Mobilize to the site.
3. Implement temporary site controls including traffic controls, marine environmental/ water quality controls and temporary erosion and sediment controls (TESC).
4. Demolish, clear and grub site, and perform site grading as required for new site civil, structural/architectural, landscaping and utilities work.
5. Furnish and install new concrete and asphalt pavement surfaces.
6. Furnish and install new contractor designed pre-manufactured pedestrian bridge and stair/elevator towers.
7. Furnish and install new landscaping elements and irrigation system.
8. Furnish and install new elevator system.
9. Furnish and install new lighting and electrical service.
10. Demobilize equipment, labor, temporary facilities and unused materials from the site.
11. Other work required to complete the primary tasks identified above and described in the Contract Documents.

All contractors MUST comply with the prevailing wage and apprenticeship utilization requirements, as well as anti-discrimination laws of the State of Washington, and pay all associated fees. The Port of Kalama will comply with the statutory retainage requirements for public works contracts. The Port of Kalama is an equal opportunity employer.

The scheduled date for the mandatory pre-bid meeting is November 19th, 2025 at 10:00 a.m., at the Port of Kalama Office (110 West Marine Drive, Kalama, WA 98625).

Bids may NOT be withdrawn or canceled by the bidder for a period of sixty (60) days following the bid opening. For further information contact Darin Sampson, Project Manager, Port of Kalama, at (360) 673-2325 or dsampson@portofkalama.com.

This invitation will be advertised on November 4th, 5th, 11th, & 12th.

END OF DOCUMENT

00 41 00 - REQUIRED BID FORMS**00 41 13 - BID FORM**

TO: PORT OF KALAMA
FOR: PEDESTRIAN CROSSING REPLACEMENT

The undersigned Bidder declares that it has read and examined the Bidding Documents, the specifications, and has examined the site and conditions affecting the Work.

And it proposes and agrees if this proposal is accepted to provide at its own expense all labor, machinery, tools, materials, etc., including all work incidental to or described or implied as incidental to such items, according to the specifications, contract, and the instructions of the Port of Kalama, and that the Bidder will complete the work within the time stated, and that it will accept in full payment therefor the unit prices as set forth in the proposal below:

SCHEDULE OF PRICES

Bid Item	Item Description	Basis of Measure	Approx. Quantity	Unit Price	Total Amount
1	Mobilization	LS	1		
2	Project Temporary Traffic Control	LS	1		
3	Clearing and Grubbing	LS	1		
4	Removing Cement Conc. Sidewalk	SY	16		
5	Removing Paint Line	LF	517		
6	Removing Plastic Line	LF	20		
7	Removing Plastic Crosswalk Line	SF	48		
8	Removal of Structures and Obstructions	LS	1		
9	Crushed Surfacing Base Course	Ton	1,620		
10	Roadway Excavation Incl. Haul	CY	1,500		
11	Structure Excavation Class A Incl. Haul	CY	210		
12	Shoring or Extra Excavation Class A	LS	1		
13	HMA Cl. ½ In. PG 58H-22	Ton	670		

14	Asphalt Cost Price Adjustment	CALC	1	\$40,000	\$40,000
15	Conc. Class 5000 for Pile Cap	CY	225		
16	Conc. Class 5000 for Contractor Designed Curbs & Low Walls	LS	1		
17	St. Reinf. Bar for Pile Cap	LB	95,200		
18	St. Reinf. Bar for Contractor Designed Curbs & Low Walls	LS	1		
19	Micropile	EA	14		
20	Micropile Verification Load Testing	EA	1		
21	Micropile Proof Load Testing	EA	14		
22	Furnishing Steel Piling (PP 24" x 3/4")	LF	1,200		
23	Furnishing Steel Piling (PP 24" x 5/8")	LF	3,400		
24	Driving St. Pile (PP 24")	EA	40		
25	Bioretention Planter Central	LS	1		
26	Bioretention Planter North	LS	1		
27	Bioretention Planter South	LS	1		
28	Bioretention Planter A	LS	1		
29	Bioretention Planter B	LS	1		
30	Bioretention Planter C	LS	1		
31	Bioretention Planter D	LS	1		
32	Bioretention Planter E	LS	1		
33	Bioretention Planter F	LS	1		
34	Bioretention Planter G	LS	1		
35	Bioretention Planter H	LS	1		
36	Bioretention Planter I	LS	1		
37	Bioretention Planter J	LS	1		
38	Bioretention Planter K	LS	1		

39	Bioretention Planter L	LS	1		
40	Bioretention Planter M	LS	1		
41	Bioretention Planter N	LS	1		
42	Silt Fence	LF	1,550		
43	Inlet Protection	Each	7		
44	Catch Basin Type 1	Each	1		
45	Locking Solid Metal Cover and Frame for Catch Basin	Each	1		
46	Polypropylene Storm Sewer Pipe 12 In. Diam.	LF	1,550		
47	PVC Sanitary Sewer Pipe 8 In. Diam.	LF	24		
48	PVC Pipe for Water Main 12 In. Diam.	LF	35		
49	Gate Valve 12 In.	EA	1		
50	Moving Existing Hydrant	EA	1		
51	PSIPE Acer Rubrum 'Armstrong Gold'/'Armstrong Gold' Maple	EA	3		
52	PSIPE Liquidambar Styraciflua 'Rotundiloba'/Round-Lobed Sweet Gum	EA	8		
53	PSIPE Nyssa Sylvatica 'Wildfire'/Wildfire Tupelo	EA	10		
54	PSIPE Cornus Sericea 'Kelseyi'/Kelsey's Dwarf Red Twig Dogwood	EA	97		
55	PSIPE Itea Virginica 'Little Henry'/Little Henry Sweetspire	EA	24		
56	PSIPE Salix Purpurea 'Nana'/Dwarf Purple Osier Willow	EA	73		
57	PSIPE Spiraea Douglasii/Western Spirea	EA	6		
58	PSIPE Viburnum Plicatum Tomentosum/Doublefile Viburnum	EA	2		
59	PSIPE Miscanthus Sinensis 'Morning Light'/Morning Light Eulalia Grass	EA	22		
60	PSIPE Pennisetum Alopecuroides/Fountain Grass	EA	120		
61	PSIPE Carex Obnupta/Slough Sedge	EA	270		
62	PSIPE Juncus Effusus/Common Rush	EA	287		

63	PSIPE Liriope Muscari/Lilyturf	EA	23		
64	PSIPE Mahonia Repens/Creeping Mahonia	EA	56		
65	Cement Conc. Traffic Curb	LF	1,600		
66	Cement Conc. Pedestrian Curb	LF	22		
67	Chain Link Fence 8 Ft. Height	LF	848		
68	Single 8 Ft. Chain Link Gate	EA	1		
69	Cement Conc. Sidewalk	SY	1,195		
70	Specialty Cement Conc. Sidewalk	SY	47		
71	Cement Conc. Curb Ramp Type Parallel	EA	2		
72	Illumination System, Conduit and Foundations	LS	1		
73	Illumination System, Wiring and Poles	LS	1		
74	Luminaires for Bridge Structure and Associated Rooms	LS	1		
75	Fire Alarm System and Conduit	LS	1		
76	CCTV System and Conduits	LS	1		
77	Communication Conduits	LS	1		
78	Branch Circuit Electrical Wiring and Conduits	LS	1		
79	Electrical Service, Panelboards, and Lighting Controls	LS	1		
80	Elevator Associated Wiring	LS	1		
81	Permanent Signing	LS	1		
82	Precast Conc. Barrier Type F Anchored	LF	80		
83	Paint Line	LF	3,932		
84	Plastic Crosswalk Line	SF	128		
85	Plastic Stop Line	LF	12		
86	Plastic Access Parking Space Symbol	EA	4		

87	Cold-Formed Metal Framing	LS	1		
88	Metal Fabrications	LS	1		
89	Rough Carpentry	LS	1		
90	Thermal Insulation	LS	1		
91	Below-Grade Vapor Retarder	LS	1		
92	Fluid Applied Weather Barrier	LS	1		
93	Metal Wall Panels	LS	1		
94	Joint Sealants	LS	1		
95	Contractor Engineered, Pre-Manufactured Stair Towers	LS	1		
96	Contractor Engineered, Pre-Manufactured Elevator Hoistway Enclosures	LS	1		
97	Contractor Engineered, Pre-Manufactured Pedestrian Bridge	LS	1		
98	Reinstall Timber Boardwalk	SF	375		
99	Bridge Expansion Joint and Cover Assemblies	LS	1		
100	Hollow Metal Doors and Frames	LS	1		
101	Aluminum-Framed Curtainwall	LS	1		
102	Door Hardware	LS	1		
103	Glazing	LS	1		
104	Gypsum Board Assemblies	LS	1		
105	Painting and Coating	LS	1		
106	Louvers and Vents	LS	1		
107	Elevators	LS	1		
108	Common Plumbing Work	LS	1		
109	Sanitary Waste and Vent Piping	LS	1		
110	Sanitary Waste Piping Specialties	LS	1		

111	Sanitary Drains	LS	1		
112	Basic Mechanical Requirements	LS	1		
113	Heat Pump	LS	1		
114	Perforated Metal Graphics Panels	LS	1		
115	Dimensional Letter Signage	LS	1		
116	Slotted Wheel Stop	EA	19		
117	Bollard Type 1	EA	9		
118	Bollard Cover	EA	9		
119	Connection to Existing Structure	EA	2		
120	48-Inch Handrail	EA	1		
121	Handrail End Treatment	EA	2		
122	Bench	EA	2		
123	Bark or Wood Chip Mulch	SY	79		
124	Topsoil Type A	SY	79		
125	Irrigation System	LS	1		
BID SCHEDULE (Subtotal Items)					
WA State and Local Sales Tax 8.0%					
BID SCHEDULE Total Including Sales Tax					

TOTAL BID AMOUNT (Including Sales Tax, In Figures): \$ _____

TOTAL BID AMOUNT (Including Sales Tax, In Words): _____

The successful low responsive bidder will be deemed that Bidder with the lowest responsive price based on the base work and those alternates (if any) combined that the Port decides to accept. The Port is under no obligation to accept any alternates.

PROJECT COMPLETION

Project completion shall be **May 21st, 2027**. It is agreed that liquidated damages in the sum of \$1,000.00 per day shall be levied for each and every calendar day by which the completion of the work is delayed beyond the time fixed for completion or extension thereof.

ADDENDA

The bidder acknowledges receipt of the following addenda (insert addenda number and descriptions):

TRENCH EXCAVATION SAFETY PROVISIONS

Pursuant to RCW 39.04.180, if the bid amount contains any work which requires trenching exceeding a depth of four feet, all costs for trench safety shall be included in the Base Bid **and indicated below** for adequate trench safety systems, in compliance with RCW 49.17. Bidder must include a lump sum dollar amount in the box below (even if the value is \$0.00) to be responsive.

Trench Safety System	\$
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(Included also in Base Bid)

APPRENTICE UTILIZATION GOAL

Pursuant to RCW 39.04.330, a 15% apprenticeship utilization goal is required on this project, and the estimated cost associated to meet the goals (including wages, fees, and administration), shall be included in the Base Bid **and indicated below**. Bidder must include a lump sum dollar amount in the box below (even if the value is \$0.00) to be responsive.

A **\$5,000** incentive will be paid at project closeout for meeting the 15% apprenticeship utilization goal.

Apprenticeship Utilization Cost	\$
Apprenticeship Utilization Incentive	

(Included also in Base Bid)

EXECUTION

BIDDER:

Name of Firm

Signature of Authorized Representative

Address:

Printed Name and Title

Date

Telephone _____

Facsimile _____

Washington State Contractor's License No. _____

Issuance Date _____ Expiration Date _____

State of Washington, Employment Security Department No. _____

(in accordance with RCW Title 50)

ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, AND ELECTRICAL

Description

Section 8-20.1 is supplemented with the following:

(*****)

This work shall consist of furnishing and/or installing all materials, labor, tools and equipment necessary to construct the illumination and signal systems including, but not limited to, excavation, cement concrete foundations, backfill, trenching, junction boxes, control cabinet with electrical panel and photo electrical controller, conduit and wire as further detailed in the following tables (see also Section 9 of Special Provisions):

1. Illumination System 1, Parking Lot:

Item	Furnished By:	Installed By:
Reinforced Cement Concrete Foundations Contractor w/Anchor Bolts	Contractor	Contractor
Junction Boxes	Contractor	Contractor
Ground Rods & Clamps	Contractor	Contractor
Conduit with Joints, Sweeps and Caps (and Pullcord)	Contractor	Contractor
Cement Concrete Foundation	Contractor	Contractor

2. Illumination System 2, Building, Structure and Bridge:

Item	Furnished By:	Installed By:
Decorative Luminaires, and Receptacles	Contractor	Contractor
Conduit with Joints and Sweeps	Contractor	Contractor
Wire with Splices and Fuses	Contractor	Contractor
Pull Boxes	Contractor	Contractor
Connection to Electrical Service	Contractor	Contractor

Unless otherwise noted, the locations of poles, junction boxes, and appurtenances as shown on the plans are approximate, and exact locations are to be determined in the field to minimize interference with other structures. This work also includes coordinating with Cowlitz PUD for a new electrical service.

Cowlitz PUD shall install the meter in the control cabinet and shall make the final connection. Contractor shall coordinate.

Materials

Equipment List and Drawings

Section 8-20.2(1) is supplemented with the following:

(*****)

Catalog cuts are required for the following items: receptacles, junction boxes, conduit

and fittings, wire and cable conductors, splice kits, fused disconnects and fuses, ground rods and clamps, and all other hardware for which a catalog cut has been required by an approved "Request for Approval of Material Sources."

Construction Requirements

Excavation and Backfilling

Section 8-20.3(2) is supplemented with the following:

(*****)

Trenches shall be backfilled with native material, unless it is deemed unsuitable by the Engineer. Unsuitable material shall be wasted and the trench shall be backfilled with import material indicated on the Plans to the base of the subgrade. The remaining depth shall be restored as noted on the Plans.

Compaction

The backfill shall be compacted by a method approved by the Engineer and meeting the provisions of Section 7-17.3(3) of the Standard Specifications. Compaction of backfill shall meet the following density requirements.

Paved Areas

Trenches through existing paved areas and shoulders shall be compacted to at least 95 percent of maximum density at optimum moisture content as determined by the Modified Proctor Compaction Test, ASTM Designation 01557. This includes the foundation, bedding, backfill and base course materials.

Unimproved Areas

Backfill for unimproved areas shall be native material and compacted to 90 percent as determined by Modified Proctor Compaction Test.

Foundations

Section 8-20.3(4) is supplemented with the following:

(*****)

The Contractor shall furnish and install cast in place foundations as indicated on the Plans. The Contractor shall backfill and compact around the bases to eliminate any voids or gaps.

Conduit

Section 8-20.3(5) is supplemented with the following:

(*****)

Unless otherwise specified on the Plans, all conduits shall be Schedule 80 PVC. Schedule 80 PVC shall be used for all conduits under roadways, driveways, parking lots and locations specifically indicated on the Plans.

Wiring

Section 8-20.3(8) is supplemented with the following:

(*****)

Unless otherwise specified, illumination circuit conductors shall be 8 AWG: No splices shall be allowed in conduits. All splices and all connections shall be made at terminal locations, at the fused quick disconnects, or at a junction box.

Service, Transformer, ITS Cabinets

Section 8-20.3(10) is supplemented with the following:

(*****)

The Contractor shall have the service inspected by the Department of Labor and Industry and coordinate with Cowlitz County PUD to have the meter installed and service connected. The Contractor shall pay all connection fees.

Section 8.20.3 is a supplemented with the following:

(*****)

Service Cabinet and Electrical Energy

Install service cabinet and associated equipment early on to allow the utility to schedule its work and make the electrical hook-up prior to field testing. Have the electrical service cabinet inspected and approved by the City building codes and utility providing power. Notify the Owner's Representative when approvals are complete to schedule the utility to make the electrical hookup. Do not energize branch circuits prior to completing rough-in inspection.

Permanently attach a label of available fault current and date of calculation inside service cabinet. Label shall be phenolic with white text at least 1/2 inch high on black background

Measurement

Section 8-20.4 is supplemented with the following:

(*****)

There will be no unit of measure for the lump sum contract items of "Illumination System, Conduit and Foundations," "Illumination System, Wiring and Poles," "Luminaires for Bridge Structure and Associated Rooms," "Fire Alarm System and Conduits," "CCTV System and Conduits," "Communication Conduits," "Branch Circuit Electrical Wiring and Conduits," "Electrical Service, Panelboards, and Lighting Controls," and "Elevator Associated Wiring."

Payment

Section 8-20.5 is supplemented with the following:

(*****)

Payment for these items shall include all costs associated with furnishing, testing, and installing the complete and operable illumination system, spare system, and all associated peripheral equipment.

“Luminaires for Bridge Structure and Associated Rooms”, lump sum.
“Fire Alarm System and Conduits”, lump sum
“CCTV System and Conduits”, lump sum.
“Communication Conduits”, lump sum.
“Branch Circuit Electrical Wiring and Conduits”, lump sum.
“Electrical Service, Panelboards, and Lighting Controls”, lump sum.
“Elevator Associated Wiring”, lump sum.

The lump sum Contract price for “Luminaires for Bridge Structure and Associated Rooms,” “Fire Alarm System and Conduits,” “CCTV System and Conduits,” “Communication Conduits,” “Branch Circuit Electrical Wiring and Conduits,” “Electrical Service, Panelboards, and Lighting Controls,” and “Elevator Associated Wiring” shall be full pay for the construction of the complete electrical system as described above and as shown in the Plans, and herein specified, including excavation, backfilling, concrete foundations, conduit, wiring, restoring facilities destroyed or damaged during construction, salvaging existing materials, and for making all required tests. All additional materials and labor, not shown in the Plans or called for herein and which are required to complete the electrical system, shall be included in the lump sum Contract price.

(*****)

8-58 BASIC MECHANICS MATERIALS AND METHODS

Description

Work Included

- A. Work includes motors, control equipment, support appurtenances, seismic restraint, identification, and balancing work.
- B. Contract requirements of the General Conditions, the Supplementary Conditions, and Division 1 apply to all work in this section.

Quality Assurance

- A. Regulatory Requirements: Comply with all applicable City, County, and State codes and ordinances. In case of conflict with drawings or specifications, the codes and ordinances govern.
- B. Basis: Latest version of the following: Uniform Building Code, Uniform Plumbing Code; Uniform Mechanical Code and local amendments to the same. The codes are used as the basis for design throughout these documents.
- C. Coordination and Pre-installation Meetings: As required by Division 1, Quality Control.

Submittals

- A. General: Submit in accordance with Section 013300 and the following.
- B. Product Data: Motor control equipment.

Materials

General

- A. Comply with "Quality Assurance" provisions, Specifications, and Manufacturers' Data. Where these may be in conflict, the more stringent requirements govern.

Motors And Control Equipment

- A. Provided by Division 26.

Expansion Shells and Bolts (As Required to Install HP-1)

- A. Expansion Shells for Rod Hangers
 - 1. Phillips, Gregory, Omark, or Fastite in holes drilled in concrete.
- B. Expansion Bolts for Equipment
 - 1. USM or McCullough in holes drilled in concrete.

Anchor Bolts (As Required to Install HP-1)

- A. Provide for all equipment; number and size per manufacturers' recommendations or as indicated.

Supplementary Steel Framing (As Required to Install HP-1)

- A. The contractor shall include in the bid and pay for all costs to provide supplementary intermediate steel to span building structure as required to support the equipment furnished.
- B. Intermediate steel supports, steel framing: Standard structural steel shapes or Schedule 40 steel pipe, galvanized with extra-heavy finish.

Painting

- A. Paint all exposed fixtures and equipment. Coordinate color with Technical Representative. Refer to Architectural documents for paint and application requirements.

Underwriters' laboratory, inc. (UL) listed equipment

- A. Whenever UL Standards exist for equipment with electrical components, provide UL-accepted equipment bearing the UL label. Otherwise provide equipment certified in writing by the manufacturer as complying with UL Standards for similar items to the satisfaction of the governing agencies.

Construction Requirements

Inspection

- A. Verify installation conditions as satisfactory to receive work of this Section. Do not install until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

Preparation

- A. Field Measurements: Field-verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

Installation, Application, Erection, And Performance

- A. Install, apply, erect, and perform the work in accordance with "Quality Assurance" provisions, Specifications, and manufacturers' written installation instructions and directions. Where these may be in conflict, the more-stringent requirements govern.

Cleaning

- A. Promptly remove waste material and rubbish caused by mechanical construction work. At completion of the project, clean all equipment, piping and fixtures installed or provided under this Contract.

Cutting And Patching

- A. Cut all openings and holes required for mechanical work. Carefully examine existing conditions prior to commencing work.

Accessibility

- A. Locate valves, dampers, controls, etc., to be easily accessible.
- B. Install all equipment which requires periodic servicing or repairs to be readily accessible. Otherwise, obtain Technical Representatives approval of location.

Special Protection

- A. Exercise maximum precaution to provide positive protection for the existing building and equipment from damage of any kind, and in particular prevent any water and dust seepage into the existing building.
- B. Storage of materials: Make all necessary provisions to prevent damage or corrosion of materials.

Equipment Installation

- A. General
 - 1. Provide supports for all equipment as required, including braces as required for seismic restraint; these include frames or supports for all mechanical equipment.

Bracing shall conform with the requirements of IBC and IMC. Sizing and installation of these members is the responsibility of the Mechanical Contractor.

Painting

A. General

1. Paint exposed equipment, piping, sheet metal work and mechanical system appurtenances.

B. Application

1. Thoroughly clean surfaces to be painted to remove dirt, grease and scale. Wash galvanized surfaces with mild solution of acid prior to painting to effectively clean oils from surface and to etch zinc.
2. Paint insulated surfaces and covered piping with one primer coat and two finish coats.
3. Paint exposed equipment, pipes and supports with one primer coat and two finish coats. Equipment painted at the factory with lacquer or enamel need not be painted; touch up damaged areas with paint to match factory color.
4. Paint the supporting devices for mechanical devices or systems specified to be painted.

Wiring

- A. Wiring shall conform to applicable sections of these specifications. Provide wiring from branch circuit overcurrent device to motor controller to motor terminals, including installation of starter and all connections. Provide raceway and conductors as shown for remote control, or interlock connections. Coordinate other control wiring with Division 23 of the Specifications. Provide overload elements in controllers sized to match motor nameplate full load amperes. Space within controllers shall not be used as a junction box.
- B. Mechanical contractor shall arrange and pay for the power and control wiring for HP-1.

Payment

Payment for the Work of this section will be in accordance with Section 8-57, Basic Mechanical Requirements.

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8-59 MECHANICAL INSULATION

Description

Work Included

- A. Work includes insulation for piping.

Quality Assurance

- A. Regulatory Requirements: Comply with all applicable City, County, and State codes and ordinances. In case of conflict with drawings or specifications, the codes and ordinances govern.
- B. Basis: International Building Code; Uniform Plumbing Code; International Mechanical Code; Washington State Energy Code.
- C. Applicable industry Standards. Refer to Section 230500.

Submittals

- A. General: Submit in accordance with Section 013300 and the following.
- B. Product Data: Insulation, Insulation Covers; Inserts.

Applicable Publications (Most Recent Editions)

- A. American Society for Testing and Materials (ASTM) Standards:
 - B. E84 Surface Burning Characteristics of Building Materials
 - C. E96 Test for Water Vapor Transmission of Materials
- D. National Fire Protection Association (NFPA) Standards:
 - E. 90A Air Conditioning and Ventilating Systems
 - F. 255 Building Materials, Tests of Surface Burning Characteristics
- G. Underwriters' Laboratories, Inc. (UL) Publications:
 - H. 723 Surface Burning Characteristics of Building Materials

Definitions And Abbreviations Used In This Section

- A. Definitions:
 - B. "Exposed" is work exposed to the view of occupants in normally occupied areas and in equipment rooms.
 - C. "Concealed" is work located in ceiling spaces, chases and other locations not exposed to view.
 - D. "Cold Piping" includes the piping to 70 degrees F:
 - E. "Hot Piping" includes the piping from 71 to 250 degrees F
- F. Abbreviations:
 - G. ASJ All-Service Jacket,
 - H. FSK Foil-Scrim-Kraft Jacket,
 - I. K Thermal Conductivity, BTU per hour per square foot per degree F for each inch of thickness,
 - J. PCF Pound per cubic foot density,
 - K. Perm Water vapor transmission rate (permeability),
 - L. SSL Self-Sealing Lap.

Surface burning characteristics:

- A. Provide composite or component ratings per NFPA 255, ASTM E84, or UL 723, as follows: Fiberglass Insulation, flame spread 25, smoke developed 50.
- B. Composite includes insulation, jacketing and adhesive used to secure jacketing or

- facing.
- C. Components include PVC jacketing and fittings, adhesive, mastic, cement, tape and cloth.

Minimum insulation thickness:

- A. Thickness of insulation is defined as the thickness of the basic insulating medium not including finishing materials.
- B. Mechanical Pipe Insulation, Fiberglass ASJ, Flexible Elastomeric: Thickness shall conform to the following table.

MINIMUM PIPE INSULATION

Service	Notes	Fluid Temp. Max °F	Runouts	1" & Less	1- 1/4" – 2"	2- 1/2" – 4"	>4" to 6"
a. Refrigerant Suction (RS)	(1)	40	NA	1.0	1.0	NA	NA

Notes:

(1) Closed cell neoprene insulation as specified below.

Materials

General

- A. Comply with "Quality Assurance" provisions, Specifications, and manufacturers' data. Where these may be in conflict, the more stringent requirements govern.
- B. ACCEPTABLE MANUFACTURERS
- C. Fiberglass: Owens-Corning; Knauf; Certainteed; Johns Manville.
- D. Flexible Elastomeric: Armstrong, Rubatex.

Piping Insulation

- A. Refrigerant Piping Insulation: Closed cell neoprene pipe insulation. Armaflex, Rubatex or accepted equal.

Inserts (Load-Bearing Insulation) Between Pipes And Pipe Hangers/Supports

- B. General: Coordinate with the work of Div. 23.
- C. Provide rigid insulation inserts with thickness equal to the adjoining insulation with vapor barrier.
- D. Provide insulation protection shields between inserts and pipe hangers/supports, minimum 12" long, 18-gauge galvanized steel; Grinnell, Fee & Mason, Elcen, or accepted.

Adhesives, Cements And Finishes

- A. Insulation Cement: Manville No. 460, or accepted equal, mineral wool based insulating cement with good adhesion to cold surfaces and rated to 1800°F.
- B. Vapor Barrier coating: Non-flammable, fire-resistant, polymeric resin, compatible with insulation.
- C. Spray Mastic: Insulcoustic 551, Foster 35-01, or accepted equal.
- D. Glass Cloth: Twinberg-Miller "Glasfab" No. 2020-X, Foster "Mast-a-Fab", or accepted equal.
- E. Bonding Adhesive: Foster 85-17 or accepted equal.
- F. Insulation Weather Cover for Piping Installed Outdoors and/or exposed to weather:

Embossed soft aluminum sheet, .016" minimum thickness.

Construction Requirements

Inspection

- A. Verify installation conditions as satisfactory to receive work of this Section. Do not install until unsatisfactory conditions are corrected. Install insulation and related equipment in accordance with the manufacturers written instructions. Beginning work constitutes acceptance of conditions as satisfactory.

Preparation

- A. Field Measurements: Field-verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

Installation, Application, Erection And Performance

- A. Install, apply, erect, and perform the work in accordance with "Quality Assurance" provisions, Specifications, and manufacturers' installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

Time Of Application

- A. Apply insulation only after piping systems have been tested and certified by the KCHA Project Manager as ready for insulation. If insulation is applied prior to testing, necessary removals, repairs and modifications to insulation due to leaks that may occur in piping systems shall be made without additional cost to the Owner.

Extent Of Insulation

- A. Insulate all piping completely, except as indicated.
- B. Do not insulate the following:
- C. Piping: Valve stems, handwheels and operators and unions.
- D. Equipment: Items with factory-applied insulation meeting the requirements of this Section. Do not apply insulation over coil and damper access panels.

Installation, General

- A. Apply in a workmanlike manner, by skilled craftsmen regularly engaged in this type of work.
- B. Apply to clean and dry surfaces.
- C. On cold surfaces, apply with continuous, unbroken moisture and vapor seal. Insulate and vapor seal all hangers, supports, anchors, and other projections that are secured to cold surfaces, to prevent condensation.
- D. Extend all surface finishes to protect all raw edges, ends, and surfaces of insulation.
- E. Install all piping insulation continuous through walls, ceilings, and floor openings and sleeves, except where firestop or firesafing materials are required.
- F. Install with all joints tightly butted.
- G. Tuck and tuft all edges of insulation.
- H. Install insulation to allow easy access to equipment for inspection and repairs.
- I. Carefully bevel and seal insulation around equipment nameplates.

Piping Insulation

- A. Install pipe insulation per the manufacturer's written instructions.
- B. FINISHES

- C. Vapor Barrier: Cold water piping insulation shall be continuously covered with an accepted vapor barrier. Apply two coats of the vapor barrier coating over all surfaces and lagging not covered with continuous vapor barrier jackets. Fill all joints, cracks, seams and depressions, and apply additional lagging as necessary to form smooth continuous surfaces.

Payment

Payment for the Work of this section will be in accordance with Section 8-57, Basic Mechanical Requirements.

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8-60 REFRIGERANT PIPING

Description

Use Of Documents

- A. All information contained in Section 230500, Basic Mechanical Requirements, is considered a part of this section.

Description

- A. General:
 - 1. Work includes all refrigerant products, material, equipment and installation. Provide all refrigerant pipe and pipe fitting as required by the mechanical system design, the specifications and/or the contract documents. Provide a complete and operable system. Comply with the requirements of Div. 23.
- B. Work Included:
 - 1. Refrigerant pipe, fittings, connections, procedures and testing. The contractor shall coordinate the refrigeration piping needs with the actual condensing unit and air handler furnished, and include in with their costs all hardware, tubing, piping and accessories required.
- C. Code:
 - 1. All work shall be installed in accordance with International Mechanical Code, International Building Code and all local codes. Refer to Specification Section 230500.

Submittals

- A. Comply with the requirements of Section 013300. Provide submittals for the equipment and materials listed in Part 2.

Quality Assurance

- A. Brazing, Soldering and Welding Materials and Procedures: Conform to ASME Code and applicable State regulations.

Qualifications

- A. All piping, start-up and testing shall be performed by a licensed refrigeration mechanic.

Materials

Pipe And Tube

- A. Refrigerant Piping:
 - 1. Dimensional requirements for pipe, pipe fittings and components shall conform to ANSI 15 and ANSI B31.5. Tubing used for refrigerant service shall be cleaned, sealed, capped or plugged prior to being shipped from the manufacturer's plant.
- B. Pipe and Fittings:
 - 1. Type L Copper
 - 2. ASTM B 20, straight length except that coil length may be used for connection to equipment but shall not exceed 6-feet in length. Fittings shall be ANSI B16.18, cast bronze or ANSI B16.22, wrought copper with brazing or solder joints, and ANSI B16.24 bronze flanges and flanged fittings.
- C. Pipe Sleeves:

1. Pipe sleeves through outside walls, floors or roof slabs shall be zinc-coated steel pipe conforming to ASTM A120. Sleeves through inside partitions shall be zinc-coated sheet steel not less than 0.0217 inches thick conforming to ASTM A 525.
- D. Brazing Metal:
 1. AWS A5.8 15 percent silver-base alloy, minimum melting point 452 degrees F for pressure up to 150 psi.
 2. Solder Metal:
 3. ASTM B 32, Grade 95TA, tin-antimony alloy, minimum melting point 452 degrees F for pressure up to 150 psi.

Filter Dryers

- A. Sporlan or approved equal.

Sight Glasses

- A. Sporlan or approved equal.

Construction Requirements

Examination

- A. Verify conditions, including defects or errors which would cause defective installation/ application or products or cause latent defects in workmanship or function.

Refrigeration Piping

- A. Fabrication and Assembly of Piping and Components: Fabrication of piping and components shall conform to ANSI 15 and ANSI B31.5 and as specified herein. Piping shall be cleaned, sealed, plugged, or capped for delivery to the site.
- B. Refrigerant piping shall slope in the direction of refrigerant flow. Trapping of lines shall not be permitted except as indicated or required by the manufacturer's written installation instructions. Sleeves of suitable size shall be provided for lines passing through building walls as specified herein.
- C. Returning Oil From Refrigeration System: Refrigerant lines shall be installed so that the gas velocity in the evaporator suction line is sufficient to move the oil along with the gas to the compressor.
- D. Except as indicated otherwise where equipment location requires a vertical riser, the line size shall be such as to allow sufficient velocity to lift the oil at minimum system loading pressure and velocity and pressure drop. The larger riser shall have a trap, of minimum volume, obtained by use of 90 degree ells. The smaller riser shall be arranged with inlet close to end lower horizontal line, and the larger riser shall connect from end of lower horizontal line to the top of upper horizontal line. Valves shall not be installed in risers.

Brazing And Soldering

- A. Brazing and soldering procedures qualifications shall conform with the CDA Copper Tube Handbook and ANSI B31.5. Braze all joints on buried copper lines. Cut lines. Solder or braze above ground copper lines. Cut tubing ends square and remove all fins and burrs, do not use dented or otherwise damaged tubing.
- B. Clean outside of tubing ends and recessed area inside of fittings by burnishing until all dirt, oxide and other foreign substances are removed. Use either fine crocus cloth or a wire fitting brush made especially for this type of work.
- C. During brazing operation, protect the tubing from forming an oxide film on the inside of tubing by

slowly flowing dry nitrogen to expel the air. Apply a light coating of flux to burnished tubing and fitting joint brazing or soldering temperature until brazing alloy or solder metal has penetrated full depth of fittings and has expelled all flux. Before making joints to valves remove stems and washers.

Hangers And Supports

- A. MSS-SP-58 and SP-69 for the intended temperature ranges, except that spacing of the hangers and supports shall comply with Table 1 below.

TABLE 1
MAXIMUM SPAN FOR COPPER TUBING

Diameter (Inches)	Span
1/2	3'-6"
3/4	4'-3"
1	4'-9"
1-1/2	5'-6"

Cleaning Of The Refrigeration Piping System

- A. When installations of the various components of the piping system are completed, they shall be cleaned before final closing. All piping and components shall be cleaned free of scale and thoroughly flushed of all foreign matter. Thoroughly clean all strainers and valves. Equipment shall be wiped clean, with all traces of oil, dust, dirt, or paint spots removed. The Contractor shall maintain the system in this clean condition until final approval.

Field Inspection

- A. General:
1. Prior to initial operation, conduct tests on the piping system. Materials and equipment required for tests shall be furnished by the Contractor. Defects disclosed by the test shall be corrected by the installation and prior to acceptance shall be performed in the presence of the Engineer and shall be subject to his approval.
 2. Preparation for Tests:
 3. Before tests are made, controls and equipment that may be damaged by the test pressure employed shall be temporarily removed.
- B. Charging the System for Test:
1. The low and high pressure sides of the system shall be charged with a dry, inert gas, such as nitrogen (N₂) or anhydrous carbon dioxide (CO₂) using a small amount of the refrigerant gas to act as a tracer.
 2. Use pressure limiting or reducing valve with pressure gage on the high-pressure gas tank to limit the pressure in the system to the specified test pressure for the respective refrigerant.
- C. Leakage Test:
1. With the system charged to the desired pressure, the gas supply shall be tightly shut off and the system held for 30 minutes, during which time there shall be no loss of pressure. If a pressure drop, not attributable to temperature changes, occurs during this period the entire system shall be checked with a halide torch or an electronic leak detector.
 2. If any leak is found, the leak shall be repaired and the system tested for another 30 minute period at the test pressure. Testing and repair shall continue until there is no loss of pressure.
- D. Evacuation:

1. After completion of testing of refrigerant system for leaks remove all air and moisture from the system by using a vacuum pump. The pump shall be capable of reducing the absolute pressure in the system to a point where any water present in the lines will vaporize at a temperature appreciable below the ambient temperature and will be withdrawn from the system.
 2. Before conducting the evacuation test, inspect the vacuum pump oil for purity and provide new oil charge if existing charge is contaminated. Conform with the following requirements.
- E. Extent of Evacuation:
1. Evacuate the system to a maximum absolute pressure of 0.020 inches of mercury (500 microns) or lower. During the evacuation the ambient temperature shall not be below 35 degrees F. Use pressure gages for measurement of pressure.
- F. Criteria of Dryness:
1. Upon achieving specified evacuation of system valve off the vacuum pump from the system for a period of at least 12 hours. The system shall be considered tight and dry and free of air if the absolute pressure has not increased by more than .002 inches of mercury (50 microns) at the expiration of this period.
 2. Repeat the pressure test if the pressure rise exceeds 0.02 inches of mercury which indicates a leak in the system or presence of moisture. If no leaks are found, resume the evacuation test and continue until dryness of system is achieved.
- G. Sealing Off the System:
1. When a satisfactory vacuum has been obtained it shall be broken with the introduction of vapor (no liquid) and subsequent sealing off of the system.
 2. Charging of Refrigerant for the Piping System:
 3. The Contractor shall furnish the initial charge of refrigerant which shall be charged by connecting the drums of refrigeration into the low side of the system where it will be evaporated. The gross and net weights of the drum shall be noted. Place the drum on a scale so that it may be determined when it has been emptied.
 4. The charging connection shall be loosely connected to the system connection, so that the initial flow of refrigerant will expel air from the connection, following which the loose joint shall be started and operated while charging continues.
 5. Unless otherwise recommended by the manufacturer, the following procedures shall be exercised during the charging operation:
 - i. Place the refrigerant condensing system in operation.
 - a. Place the fluid circulation system, of water coolers or evaporator fans of a direct-expansion system in operation.
- H. Startup and Operational Tests:
1. The refrigeration piping system shall be started up and initially operated. During this time the various strainers shall be periodically cleaned until no further accumulation of foreign material occurs. Care shall be exercised so that minimum loss of refrigeration occurs when the strainers are cleaned. Safety and automatic control instruments shall be adjusted as necessary to place them in operation and sequence as indicated.

Payment

Payment for the Work of this section will be in accordance with Section 8-57, Basic Mechanical Requirements.

