

**Addendum No. 3
To the Plans, Specifications, Proposal and Contract**

**City of Kirkland
Fire Station 24
9824 NE 132nd ST, Kirkland WA 98034
CIP # PSC 3002 200
JOB # 32-20-PW**

Notice to All Plan holders:

This Addendum No. 3, containing the following revisions, additions, deletions, and/or clarifications is hereby made part of the Plan and Contract Documents for the above-named project. Bidders shall take this Addendum into consideration when preparing and submitting their bids. With issuance of this Addendum, it shall be incorporated into the Contract Documents.

Contractors shall acknowledge receipt of this Addendum in the place provided on the Bid Form. Failure to do so may disqualify the Bidder from consideration of its bid.

All other requirements of the contract documents remain in effect.

ISSUED THIS DATE: August 13, 2020

BID SUBMITTAL TIME/DATE/LOCATION: **Unchanged –**

Prior to 1:00 P.M. on August 18, 2020 at

City of Kirkland
123 5th Avenue
Kirkland WA 98033

GENERAL

Item 1. The incorrect version of Addendum 2 was initially posted to the City of Kirkland's website. The City posted the correct version on August 12, 2020 and notified the registered plan holders of the issue. There were no issues with Addendum 2 posted on Builders Exchange of Washington.

PROJECT NOTES/ CLARIFICATIONS

None

QUESTIONS & ANSWERS

- 1. Question:** *Specification section 31 60 00 Aggregate Pier Soil Reinforcement note 2.4.B.2.b Storm Water Vault - Allowable foundation soil bearing pressure for footing design of 5,000 pounds per square foot, with a one third increase for transient wind and seismic loading. Please confirm that 5000psf bearing pressure is only required under the detention vault walls. If this is not the case, please clarify how you would like the vault foundation supported by ground improvement.*
Answer: Aggregate piers are not required for the detention vault walls -see revision to 31 60 00 provided by this addendum.

2. **Question:** *Please confirm that the fiber, CATV and voice services are all being brought into IT Room 115 by the service providers and that the telecom installer has no scope in terms of backbone cabling or backbone terminations.*

Answer: See sheet E1.1 flag notes 10-13 and general notes 12 and 13 indicating the WAN optical fiber, CATV and copper phone service entrance pathways from an existing pole and vault location to the MDF, IT Room 115. Per the aforementioned notes on E1.1, service entrance cabling shall be provided by the providers for CATV and phone service. The Owner will provide the WAN optical fiber installation.

There is no backbone cabling or termination scope as there is only one Telecom Room/ MDF indicated on the drawings. See detail-2/ E8.2 for locations of conduit service entrances in IT Room 115 (MDF) identified with rack component note 17.

3. **Question:** I just wanted to get clarification regarding the offsite 24" SDR35/Class 50 Ductile Iron Pipe. On NE 132nd St. Sheets C8.0-C8.4. It appears as though there are 2 runs of 24" pipe side by side. Is that correct or do the 2 lines represent 1 ea 24" line?

Answer: there is a single run of the 24" storm main being proposed in the 132nd St ROW. The double "SD" line type represents a single 24" storm main run, similar to the linetype used on the survey for the existing storm just north of the proposed 24" storm.

4. **Question:** Additional questions regarding the Detention Vault

Answer: See Vault Sheets issued by this addendum.

5. **Question:** On Brace Frame BF-5 on page S6.1 they show HSS 8 x 8 diagonal braces in lieu of BRB's, but detail 8 on S6.2 show BRB connections for all braces. Please confirm BF-5 braces are not BRB's. My BRB supplier assumed they were BRB's.

Answer: See Addendum 2.

6. **Question:** Spec Section 00 70 00 talks about GL insurance limits. However, there is no mention of the requirement of an Excess Umbrella Policy. If a GC's individual Policy limits are lower than those required, will an Excess Umbrella policy with higher limits sufficient to cover the individual line item Policy Limit requirements be acceptable?

Answer: Yes, the City can accept a combination of primary CGL coverage and excess coverage to meet the liability insurance requirements.

PROJECT MANUAL MODIFICATIONS

Item 1. Refer to Section 00 30 00 INFORMATION AVAILABLE TO BIDDERS

- a. Add F. Draft Temporary Construction Easement -attached.
Add G. Issued Permits.

The following files are provided for download from BxWA and The City of Kirkland's website:

1. BMU20-03586_Issued_Permit_8-11-2020_BMU20-03586_Permit.pdf
2. BMU20-03586_Permit_Conditions_8-11-2020_BMU20-03586_Permit_Conditions.pdf
3. BMU20-03586_Inspection_Card_8-11-2020_BMU20-03586_Inspection_Card.pdf
4. BMU20-03586_Issued_Permit_8-11-2020_MMU20-05254_Mechanical_Permit.pdf
5. BMU20-03586_Issued_Permit_8-11-2020_PMU20-05253_Plumbing_Permit.pdf

Item 2. Refer to Section 00 41 00 BID FORM

- a. Replace with Section provided by this Addendum -attached.

Item 3. Refer to Section 00 60 00 BONDS AND CERTIFICATES

- b. Replace with Section provided by this Addendum -attached.

Civil Specifications

Item 1. Refer to Section 32 13 00 CONCRETE PAVING

- a. Add 1.4 B. to read:
B. Concrete mix design for pavement and walks within the property boundaries (and where the front apron extends to the street) shall have an initial solar reflectance (SR) value of at least 0.33 to meet requirements of LEED v4.1. Contractor shall provide submittal documentation demonstrating that mix design meets initial SR value of at least 0.33.

Architectural Specifications

Item 1. Refer to Section 06 40 23 ARCHITECTURAL WOODWORK

- a. Replace with Section provided by this Addendum -attached -includes revisions for Lobby casework.

Item 2. Refer to Section 07 54 19 POLYVINYL-CHLORIDE (PVC) ROOFING

- a. Revise subsection 1.10.B.1 to read: 1. Warranty Period: Five years from date of Substantial Completion.
- b. Revise 2.2.A.3 to read: Exposed Face Color: EnergySmart Reflective Gray, initial solar reflectance of 0.50, emittance of 0.84, and solar reflective index (SRI) of 56.
- c. Revise 2.3 A.1.d. to read: Duro-Last; Duro-Tuff 80-MIL Membrane.
- d. Revise 2.3.A.3 to read: Exposed Face Color: EnergySmart Reflective Gray, initial solar reflectance of 0.50, emittance of 0.84, and solar reflective index (SRI) of 56.
- e. Add 2.3.A.4 to read: Location: Protection Layer is applied over membrane roofing layer (per subsection 2.2 -above) at the Apparatus Bay Roof -see Drawings.
- f. Revise 2.9 to read:

2.9 WALKWAYS

A. Basis of Design: Nonporous, heavy duty walkway pads by Plastic Extruders Ltd; Crossgrip PVC. Address: Russell Gardens, Wickford, Essex, SS11 8DN, England. Phone: +44(0)1268 571116. Web: www.plastex.co.uk. Email: sales@plastex.co.uk

1. Appearance: Open grid "duckboard" design with cross direction top ribs
2. Color: Light Gray
3. Durability: One piece welded construction
4. Installation: Loose laid
5. Composition: Flexible DINP plasticized Polyvinyl Chloride (PVC)
6. Wind Stability: 94 mph (150 km/h)
7. Height: 9/16 inch (14 mm)
8. Slip Resistance:
 - a. ASTM F 1677 (Dry/Wet): 0.6/ 0.5
 - b. DIN 51130: R10, V10

Item 3. Refer to Section 08 71 00 DOOR HARDWARE.

- a. Replace with Section provided by this Addendum -attached.

Item 4. Refer to Section 11 31 00 APPLIANCES.

- a. Revise 2.7 to read:
2.7 WASHERS
 - A. Manufacturer: Crossover
 1. Model # & Type: WHLFP817M, with one stacking kit
 2. Color: Gray
 3. Quantity: 2
- b. Revise 2.8 to read:
2.8 DRYERS
 - A. Manufacturer: Crossover
 1. Model # & Type: DLHF0817E
 2. Color: Gray
 3. Quantity: 2

Item 5. Refer to Section 31 60 00 AGGREGATE PIER SOIL REINFORCEMENT.

- a. Delete 1.2 B.2.
- b. Revise 1.2 C.1 to read:
 1. Work shall consist of designing, furnishing, and installing monitoring and testing aggregate piers for soil improvements, to the lines and grades designated on the project drawings and as specified herein. The aggregate pier elements shall be in a columnar-type configuration and shall be used to reinforce soils for the support structural spread footings and where indicated on the drawings
- c. Delete 2.4 B.2.b.
- d. Revise 2.4 C. to read:
 1. Long-term static settlement for the building footings:
 - a. Total: < 1 inch.
 - b. Differential: < 1/2 inch over a 50-foot distance.
 2. Post Seismic Settlement for building footings:
 - a. Total: < 1 inch.
 - b. Differential: < 1/2 inch over a 50-foot distance.
- e. Delete 3.5 B.3.a.5)

Electrical Specifications

Item 1. Refer to Section 26 05 00 GENERAL ELECTRICAL PROVISIONS is revised.

- a. Modify Subparagraph 1.2 A. to read:
Purchase the necessary permits, including State of Washington Labor and Industries, King County and City of Kirkland permit fees, licenses and approvals required for execution of this work and include all costs in the bid.

Item 2. Refer to Section 26 32 13 PACKAGED ENGINE GENERATOR is revised.

- a. Modify Subparagraph 2.4 B. 2. to read:
Capacity: Provide fuel tank sized for 72 hours of emergency operation at rated load.
- b. Modify Subparagraph 2.7 C. to read:
Sound performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 75 dBA measured at any location 7 meters from the engine generator in a free field environment.

Traffic Specifications

Item 1. Refer to Section 34 41 00 ROADWAY SIGNALING AND CONTROL EQUIPMENT
APPENDIX A – TRAFFIC SIGNAL AND ILLUMINATION SYSTEM SPECIFICATION.

- a. Replace APPENDIX A as provided by this Addendum -attached -includes revisions to the video detection system, CCTV camera system, emergency vehicle preemption, and pedestrian pushbutton system.

DRAWING MODIFICATIONS

The following Contract Drawings are revised:

Civil Drawings

Item 1. Refer to Sheet C8.0 NE 132ND STREET PLAN & PROFILE and Sheet C8.1 NE 132ND STREET PLAN & PROFILE.

- a. Replace with Sheets provided by this Addendum - Revision to pavement marking from two way left turn lane to a left turn lane at east and west approach to existing elementary school driveway and new fire station access road driveway.

Item 2. Refer to Sheet W2.0 WATER UTILITY PLAN.

- a. Replace with Sheet provided by this Addendum - Revised 10" WM replacement in NE 132nd Street to a 12" WM with associated fittings per NUD requirements.

Vault Drawings

Item 1. Refer to Sheet VS0.1 DETENTION VAULT STRUCTURAL NOTES AND DRAWING LIST.

- a. Replace with Sheet provided by this Addendum.

Item 2. Refer to Sheet VS1.0 DETENTION VAULT FOUNDATION AND FRAMING PLANS.

- a. Replace with Sheet provided by this Addendum.

Architectural Drawings

Item 1. Refer to Sheet A1.3 SITE DETAILS.

- a. Revise Detail 2 FLAGPOLE
 1. Revise to External Halyard System -per 10 75 00.
 2. Delete Access Panel for Winch.

Item 2. Refer to Sheet A5.1 ENLARGED PLANS.

- a. Enlarged Plan 4, revise Interior Elevation Detail Bug to read 6/A7.7.

Item 3. Refer to Sheet A7.1 INTERIOR ELEVATIONS.

- a. Interior Elevations 2 and 2b: Replace elevations with attached AD3 ASK1 - REVISED 101 LOBBY INTERIOR ELEVATIONS.

Item 4. Refer to Sheet A8.2 INTERIOR DETAILS.

- a. Detail 10: Replace with attached AD3 ASK2 - REVISED INT. CORNER @ INT. BRICK VENEER.

Item 5. Refer to Sheet A8.3 INTERIOR DETAILS.

- a. Detail 11: Replace with attached AD3 ASK3 - DISPLAY CASE CABINET PLAN.
- b. Detail 12: Add attached AD3 ASK4 - DISPLAY CASE CABINET SECTION.
- c. Detail 13: Add attached AD3 ASK5 - RADIO CABINET PLAN.
- d. Delete Detail 10.

Item 6. Refer to Sheet A9.3 DOOR, STOREFRONT & FRAME TYPES.

- a. Detail 2 EXTERIOR STOREFRONT FRAME TYPES.
 1. Delete (ALL SERIES 1)
 2. Add (SERIES 1) to S1 and S2
 3. Add (SERIES 2) to S3 and S4
 4. Detail shown referenced for head condition at S3 is incorrect. Refer instead to attached sketch AD3 ASK6 - SF HEAD AT BRICK VENEER

Item 7. Refer to Sheet A9.4 DOOR SCHEDULE & FINISH SCHEDULE

- a. Modify DOOR SCHEDULE as follows:
 1. Door 103A revise Door Type to "C."
 2. Door 104A revise Door Type to "C."
 3. Door 107A revise Door Thickness to: Per Manufacturer.
 4. Doors 112A & 121A delete Threshold Detail reference to 4/A9.6 (detail is not used).
 5. Door 119A revise Door Glazing to T/I.
 6. Doors 124A-127A and 136A-139A delete Threshold Detail reference to 20/A9.5 (detail not used).
 7. Delete Hardware Set column from schedule -see hardware groups in 08 71 00.
 8. Add note: see Drawing Details and 08 71 00 for man gates.
- b. Modify FINISH SCHEDULE as follows:
 1. At Hallway 129 delete CT-1 (and T-1) and FF from NORTH, EAST and SOUTH WALL MATERIAL and FINISH -there is no tile in this room.
 2. Add General Note: No Rubber Base at Brick.
 3. Add General Note: Provide ENTRANCE FLOOR MATS at Rooms 100, 109 and 119. Floor Mat at Vestibule shall extend from Door 100A to Door 101A and shall be 3'6" wide.

Item 8. Refer to Sheet A9.5 ENLARGED FLASHING AND THRESHOLD DETAILS

- a. Replace Detail 19 with REVISED FOLDING DOOR THRESHOLD per AD3 ASK7 -attached.

Item 9. Refer to Sheet A9.6 INTERIOR DOOR/WINDOW DETAILS

- b. Details 16 & 20: Revise dimension to 5 7/8".

Electrical Drawings

Item 1. Refer to Sheet E1.1 ELECTRICAL SITE PLAN.

- a. Add 120v/1P circuit at motorized vehicle gate for Click-2-Enter system per attached sketch AD3 ESK-1.
- b. Revise General Note 2 to read:
"Contact Puget Sound Energy Service Representative Ehsan Estiri (Ehsan.Estiri@pse.com) when vault, conduits and service are ready for inspection."

Item 2. Refer to Sheet E4.1 1ST FLOOR MECHANICAL POWER PLAN.

- a. Add General Note 7 per attached sketch AD3 ESK-2.

Item 3. Refer to Sheet E4.2 ROOF MECHANICAL POWER PLAN.

- a. Add General Note 7 per attached sketch AD3 ESK-2.

Item 4. Refer to Sheet E7.1 1ST FLOOR FIRE ALARM PLAN.

- a. Add Flag Note 2 per attached sketch AD3 ESK-3.
- b. Add Flag Note 2 to Fire/Smoke Dampers, typical for all Fire/Smoke Dampers per attached sketch AD3 ESK-3.

Item 5. Refer to Sheet E8.1 ENLARGED PLANS, ELECTRICAL DETAILS.

- a. Kitchen Enlarged Plan: Recircuit receptacles above counter per attached sketch AD3 ESK-4.
- b. Kitchen Enlarged Plan: Add gas solenoid reset pushbutton switches per attached sketch AD3 ESK-4.
- c. Kitchen Enlarged Plan: Add power connection for gas solenoid valves per attached sketch AD3 ESK-4.
- d. Kitchen Enlarged Plan: Add Flag Notes 1, 2, and 3 per attached sketch AD3 ESK-4.
- e. Electrical Room Enlarged Plan: Add circuit and homerun at LCP per attached sketch AD3 ESK-5.

Item 6. Refer to Sheet E8.5 ELECTRICAL DETAILS.

- a. Control Relay Panel Detail 1: Revise reference to “GAS SOLENOID - COOKTOP” to read “GAS SOLENOID - RANGE”.
- b. Control Relay Panel Detail 1: Revise Detail Notes references to “COOKTOP” and “OVEN” to read “RANGE”.

Item 7. Refer to Sheet E9.1 ONE LINE DIAGRAM.

- a. Revise feeder schedule item 800S per attached sketch AD3 ESK-6.
- b. Add feeder schedule item 800G per attached sketch AD3 ESK-6.

Item 8. Refer to Sheet E10.1 PANEL SCHEDULES.

- a. Revise Panel ‘P1’ per attached sketches AD3 ESK-7 and AD3 ESK-8.
- b. Revise Panel ‘P2’ per attached sketch AD3 ESK-9.

Item 9. Refer to Sheet E10.2 PANEL SCHEDULES.

- a. Revise Panel ‘M1’ per attached sketch AD3 ESK10.

Traffic Drawings

Item 1. Refer to Sheet TS01 TRAFFIC SIGNAL NOTES AND LEGEND.

- a. Replace sheet issued for bid with sheet provided by this addendum –includes revisions to the general notes and adds guidance for emergency signal signage.

Item 2. Refer to Sheet TS02 TRAFFIC SIGNAL PLAN.

- a. Replace sheet issued for bid with sheet provided by this addendum - includes revisions to the signal phasing, emergency vehicle preemption, video detection system, CCTV camera system, emergency signal signage, signal controller/service cabinet positions, roadway illumination circuitry from the existing service cabinet at NE 132nd St & 100th Ave NE to the new service cabinet, and induction loops at the NE 132nd St & 100th Ave NE intersection.

Item 3. Refer to Sheet TS03 TRAFFIC SIGNAL FIELD WIRE TERMINATIONS.

- a. Replace sheet issued for bid with sheet provided by this addendum – includes revisions to the signal phasing, emergency vehicle preemption, and flashing yellow arrow configuration.

Item 4. Refer to Sheet TS04 TRAFFIC SIGNAL DETAILS.

- a. Replace sheet issued for bid with sheet provided by this addendum – includes revisions to the emergency vehicle preemption and CCTV camera system.

Item 5. Refer to Sheet TS05 TRAFFIC SIGNAL POLE CHART.

- a. Replace sheet issued for bid with sheet provided by this addendum – includes revisions to the emergency signal signage and video detection system.

SUBSTITUTION REQUESTS

Architectural Approvals

The following items have been approved for bidding:

These approvals are for quality only. No attempt has been made to check each material as to the special features, capacities or physical dimensions especially required by this project. It shall be the responsibility of the supplier, manufacturer and the contractor to check all requirements before submitting for final approval. Final approval of exact features, sizes, capacities, etc., all of which must match materials indicated specified, will be determined when submitted during construction period. Certain approvals are subject to conditions noted. Equipment and/or furnishings listed in this addendum from supplier’s literature and brochures will be approved per conditions listed above. After all addenda have been issued, all previously submitted equipment and/or furnishings not listed have been rejected. Where a manufacturer is listed below but no product is named as approved, provide submittals per the “comparable product” requirements –see Section 01 60 00.

APPROVALS - Architectural		
SECTION	ITEM	MANUFACTURER (PRODUCT)
06 40 23	Architectural Woodwork	Central Cabinet Systems (Frontier Door)

Mechanical Approvals

The following equipment is approved for bidding, subject to all requirements of the Plans and Specifications. Equipment is to provide the same performance, including acoustical performance, and have the same dimensions and weights as the equipment used for the basis of design. Where a manufacturer is listed below but no product is named as approved, provide submittals per the “comparable product” requirements –see 01 60 00.

EQUIPMENT APPROVALS – Mechanical		
SECTION	ITEM	MANUFACTURER
23 05 93	TAB	TAC
23 34 00	HVLS Fans	Greenheck
23 37 00	HVAC Louvers	American Warming
23 55 00	Tubular Infrared Heaters (Modulating)	Superior Radiant Products
23 55 00	Tubular Infrared Heaters (Modulating)	Detroit Radiant Products

Electrical Approvals:

The following equipment manufacturers are approved for the fixture types indicated for bidding, subject to all requirements of the Plans and Specifications. Equipment is to provide the same performance and have the same dimensions and weights as the equipment used for the basis of design. Where a manufacturer is listed below but no product is named as approved, provide submittals per the “comparable product” requirements –see 01 60 00.

EQUIPMENT APPROVALS - Electrical		
SECTION	ITEM	MANUFACTURER
Sheet E0.4	Type F8	Gammalux GB24RC2 Series
Sheet E0.4	Type F10A	Dals Lighting Series
Sheet E0.4	Type F12	Lucetta Ltg Celeste Series
Sheet E0.4	Type F12	Paraflex Series
Sheet E0.4	Type FE4	Halo HC620D01 Series
Sheet E0.4	Type FE7	Forrun AQU-F-32 Series
26 32 13	Package Engine Generator	Blue Tech Power Systems (D-Square Energy)
26 36 00	Transfer Switches	Asco Power Technologies (D-Square Energy)

REPLACEMENT SHEET FILE NAMES

- a. 20200813_FS24_Bid_Add3_Civil_Sheets.pdf (3 Sheets)
- b. 20200813_FS24_Bid_Add3_Vault_Sheets.pdf (2 Sheets)
- c. 20200813_FS24_Bid_Add3_Traffic_Sheets.pdf (5 Sheets)

Sincerely,

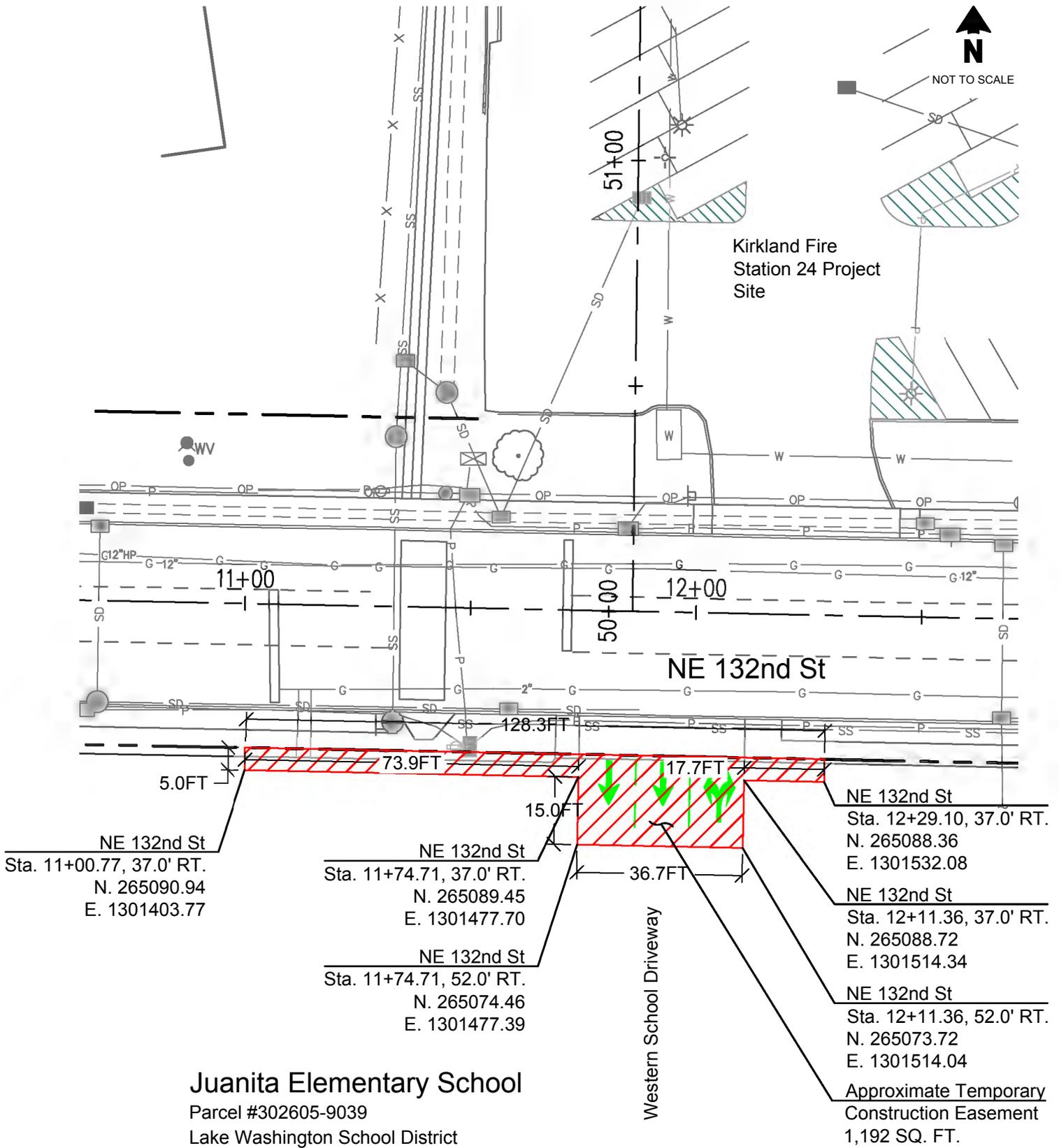
Anneke Davis

Anneke J. Davis, P.E.
 Senior Project Engineer

Rod Steitzer

Rod Steitzer, P.E.
 Capital Projects Manager

8/14/2020



Temporary Construction Easement

August 3, 2020

DRAFT
FIGURE

Kirkland Fire Station 24



1

BID FORM

Bidder's Firm Name: _____ Date: _____

Address: _____

Telephone No.: _____

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

**Fire Station 24
9824 NE 132ND ST, Kirkland, WA 98034
CIP NO. PSC 3002 200
JOB NO. 32-20-PW**

GENERAL PROPOSAL

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

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

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

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

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

TIME OF COMPLETION:

The Owner can issue Notice to Proceed at any time after contract execution. The undersigned understands

BID FORM

and agrees that Substantial Completion of the work shall be no later than 365 consecutive calendar days after the Notice to Proceed, and that Final Completion of the work shall be no later than 45 consecutive calendar days after Substantial Completion.

PERMITS, FEES AND INSPECTIONS:

The Owner will apply for and pay for the general building permit and the NUD utility permit. The contractor is required to meet the requirements and conditions of any owner-procured permits, to post the permits, and for the scheduling and inspections related to these permits. The City of Kirkland has secured NPDES coverage under the Ecology Construction Stormwater General Permit, and will transfer that coverage, and responsibility for any associated fees, to the Contractor. The Contractor is responsible for all other required permits for the project in their entirety: including, but not limited to, the plumbing, electrical, mechanical, and utility permits. A City right-of-way permit is not required to be applied for or paid for as this is a City project, although the Contractor will need to comply with requirements of working in the right of way, such as, but not limited to, having an approved traffic control plan. Utility connection fees, if incurred by the contractor to facilitate the work, shall be paid back to the contractor by the Owner within the contact document change order process without markup of any kind. All other City of Kirkland and other State of Washington or local agency permits and requirements are the financial and administrative responsibility of the Contractor at no cost to the City of Kirkland.

BASE BID:

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

The undersigned bids for complete construction of the Fire Station 24 Project as follows:

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

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

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

TRENCHING

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

WATERMAIN

All watermain work required to replace the existing AC water main in Right-of-way with 12" ductile iron

BID FORM

is included in the Total for Base Bid above. The bidder shall enter in the blank space provided below; the dollar amount (in numbers) the bidder has included in its Total for Base Bid for Right-of-Way watermain replacement work. The watermain work includes all work to a) abandon approximately linear 190 feet of watermain underneath the sidewalk b) construct and connect approximately 265 linear feet of new 12-inch ductile-iron watermain within NE 132nd ST including associated bends (4) and gate valves (2), pipe excavation and trenching, pipe bedding and backfill, and road base replacement material within the pipe trench area. \$ _____ . **The bidder must fill in the blank.**

ALTERNATE BIDS

Alternate #1 Remove the detention pond as shown in the Drawings and Specifications and replace with the detention vault as shown in the Drawings and Specifications. **Bidder shall provide the differential amount to the Total Base Bid to accomplish Alternate #1. The bidder must bid on Alternate #1.**

The undersigned bids for complete construction of Alternate #1 (Detention Vault) for a differential amount to the Total for Base Bid, which does not include Washington State sales tax, the sum of:

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

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

LUMP SUM and UNIT PRICE ALLOWANCES (Refer to Section 01 21 00 for description of Allowances):

The Undersigned certifies that the sums specified as lump sum allowances and unit price allowances for the provision of items and work as specified in Section 01 21 00 – Allowances, are included in the Total Base Bid.

LUMP SUM ALLOWANCES

- | | |
|--|---------|
| 1. Additional Exterior Signage | \$5,000 |
| 2. Additional Interior Signage | \$2,500 |
| 3. Parking Lot Restriping (Goodwill Parking Lot) | \$9,200 |
| 4. Moisture Barrier | \$2,400 |

UNIT PRICES (Refer to Section 01 22 00 for description of Unit Prices):

1. Unit Price/Bank cubic yard for Over-excavation and replacement of Unsuitable Soil:

Bid w/o Sales Tax \$ _____ /bank cu. yd
(Please write dollar figure in space above –in numbers)

Multiply Unit Price 1 Bid X 250 (250 does not reflect anticipated quantity; the product of the unit price bid and 250 shall be used for the evaluation of low bid).

\$ _____
(Please write dollar figure in space above –in numbers)

BID FORM

2. Unit Price/Bank cubic yard for Over-excavation and replacement of Contaminated

Soils:

Bid w/o Sales Tax \$ _____/bank cu. yd
(Please write dollar figure in space above –in numbers.)

Multiply Unit Price 2 Bid X 250 (250 does not reflect anticipated quantity; the product of the unit price bid and 250 shall be used for the evaluation of low bid).

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

3. Unit Price No. 3: Rock Removal and replacement with satisfactory soil material.

Bid w/o Sales Tax \$ _____/bank cu. yd
(Please write dollar figure in space above –in numbers.)

Multiply Total for Unit Price 3 Bid X 250 (250 does not reflect anticipated quantity; the product of the unit price bid and 250 shall be used for the evaluation of low bid).

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

4. Unit Price No.4: Provision of Controlled Density Fill (CDF) in locations as authorized by the Owner:

Bid w/o Sales Tax \$ _____/cu. yd
(Please write dollar figure in space above –in numbers.)

Multiply Total for Unit Price 4 Bid X 250 (250 does not reflect anticipated quantity; the product of the unit price bid and 250 shall be used for the evaluation of low bid).

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

ADDENDA

Receipt of the following Addenda is hereby acknowledged.

Addendum No. _____ dated _____

BID FORM

BID REVIEW MEETING:

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

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

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

CONTRACTOR (Firm Name)

By (Signature)

Printed Name/Title of Signatory

(Indicate whether Contractor is Partnership,

Washington State Contractor's
Registration Number

Contractor's Industrial Insurance
Account Number

Contractor's Address:

Telephone Number

Fax Number

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

BONDS AND CERTIFICATES

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

1.01 GENERAL: In addition to the Bid Security, the City of Kirkland requires the Contractor to furnish the following bonds and insurance. The insurance coverage shall be maintained during the life of the Contract and for not less than one year thereafter.

1.02 EVIDENCE OF COMPLIANCE:

- A. Performance Bond: Submitted at time of execution of the Contract and attached thereto.
- B. Labor, Materials, and Taxes Bond: Submitted at time of execution of the Contract and attached thereto.
- B. Insurance: A Certificate of Insurance shall be filed with "City of Kirkland." This Certificate shall be reflective of all Insurance Coverage required by the City's Contract Documents. Any Certificate filed with the City of Kirkland found to be incomplete or not according to Form, will be returned as not satisfactory. Rejected Certificates shall be corrected as necessary and resubmitted to the City of Kirkland.

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

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

In addition to the foregoing, the Certificate of Insurance must include a Cancellation Notification of not less than forty-five (45) days. The Certificate should also contain the Contract Number and a "concise verbal definition" of the Contract to which the Certificate applies.

1.03 INSURANCE GENERALLY: The Contractor shall not commence work under this contract until he has obtained the insurance required hereunder and such insurance has been approved by the City of Kirkland. In like manner, the General Contractor shall not allow any subcontractor to commence work on any subcontract until the subcontractor has submitted to the General Contractor a Certificate of Insurance reflective of the coverage required by the City of Kirkland. The City of Kirkland's approval of insurance shall not relieve or decrease the Contractor's liability hereunder. Each policy shall contain an endorsement stating that the insurance company will not, prior to the completion of the Work or any expiration date shown on the policy and certificate, whichever occurs first, terminate the policy or change any coverage therein without first mailing, by registered mail, written notice of such action

at least thirty (30) days prior to the termination or change, to the City of Kirkland. Certificate shall be issued on an ACORD Form, or a form that meets with the City of Kirkland's approval. The Insuring Company shall have a Best Rating of A, or meet with the City of Kirkland's approval.

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

- 1.04 CONTRACTOR'S LIABILITY INSURANCE: The insurance required by the City of Kirkland is as specified below and in the amounts indicated:
- A. Worker's Compensation and Employer's Liability Insurance: All employees of the Contractor and subcontractors shall be insured under Washington State Industrial Insurance. Employees not subject to the State Act shall be insured under Employer's Liability with a \$2,000,000.00 limit of liability. A separate Certificate of Insurance shall be furnished to the City of Kirkland if any of the Contractor's payroll is not reported to the Washington State Industrial Insurance. The contractor shall be responsible for confirming compliance of all subcontractors with the above requirements.
- B. Comprehensive General Liability and Comprehensive Automobile Liability Insurance: The Contractor shall obtain and retain Bodily Injury and Property Damage Liability Insurance providing the following:
1. Additional Insured: City of Kirkland, and the Architect/Engineer of Record shall be named as additional insured for liability arising out of the work of this Contract as a result of the negligence, real or alleged, on the part of the contractor and his subcontractors.
 2. Limits of Liability: The minimum acceptable General Liability Limit shall be \$5,000,000 Aggregate/\$2,000,000 Occurrence. Coverage shall include owners & Contractors Protective Liability and Employers Liability (Stop-Gap) Coverage. The minimum acceptable Automobile Liability Limit shall be \$2,000,000. The Owner does not represent that the minimum required insurance coverage or limits are adequate to protect Contractor from all liabilities.
 3. Coverage: Coverage shall be written on an "Occurrence" Basis, or meet the City of Kirkland's approval. Coverage shall be as is usual to the practice of the Insurance Industry; included but not limited to the following coverages:
 - a. Premises and Operations including Explosion, Collapse and Underground Liability;
 - b. Products and completed Operations;
 - c. Owners and Contractors Protective Liability;
 - d. Broad form Property Damage Liability;
 - e. Blanket Contractual Liability;
 - f. Personal Injury Liability, including coverage's A, B, and C;
 - g. Employers "Stop-Gap" Liability;
 - h. Automobile Liability for All Owned, Non-Owned, Hired Leased or Borrowed Vehicles. Automobile Coverage shall include "Any Auto" or "Scheduled Autos" and shall include Hired and Non-Owned Auto Liability;
 - i. Un-insured and Under-insured Motorist Coverage should also be in effect.

4. Products and Completed Operations Insurance: The minimum acceptable Annual Aggregate for Products and Completed Operations Liability shall be \$5,000,000. This coverage must be maintained for a period of not less than three years after the final acceptance of the work performed.
 5. Professional Liability: The minimum acceptable coverage for Professional Liability shall be \$1,000,000, if applicable.
- 1.05 PROPERTY INSURANCE: The Contractor shall purchase and maintain property insurance upon the entire Work at the site to 115 percent of the full value thereof. This insurance shall include the interests the City of Kirkland, the Contractor, and all subcontractors in the Work being performed. The coverage shall be written on a "Builder's Risk" basis. All materials which are to be made part of the construction project are to be so insured while being stored at or off the job site(s) and/or while being transported to and from the job site(s). Builders Risk insurance shall be on a special perils policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including flood, earthquake, theft, vandalism, malicious mischief, and collapse. The Builders Risk insurance shall include coverage for temporary buildings, debris removal, and damage to materials in transit or stored off-site. This Builders Risk insurance covering the work will have a deductible of \$5,000 for each occurrence, which will be the responsibility of the Contractor. Higher deductibles for flood and earthquake perils may be accepted by the Owner upon written request by the Contractor and written acceptance by the Owner. Any increased deductibles accepted by the Owner will remain the responsibility of the Contractor. The Builders Risk insurance shall be maintained until the Owner has granted substantial completion of the project. Insurance against loss of tools, equipment, construction, or otherwise not to be incorporated into the Work is the responsibility of the Contractor and the cost of such insurance shall not be included in the cost of insurance required herein before.
- A. Waiver: City of Kirkland and the Contractor waive all rights against (1) each other and the subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Owner for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Article or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the City of Kirkland, as trustee.
- 1.06 BONDS
- A. Performance and Payment Bond: Furnish surety bond (Section 00 61 40) in an amount equal to 100 percent of the Contract Sum covering faithful performance of the work and payment of labor and materials. Furnish bonds issued by a bonding company licensed to transact business in the locality of the Work and approved by the Owner. The bond must state that it is provided pursuant to Ch. 39.08 RCW.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

1. Plastic-laminate cabinets.
2. Cabinet Hardware
3. Countertops
4. Interior Window Sills, Stools and Aprons.
5. Acoustic Wood Panels (interior wood ceiling and wall acoustical panel system)
6. Wood Veneer cabinets.
7. Display Case Hardware

- B. Related Sections include the following:

1. Division 01 Section "Sustainable Design Requirements" for applicable Sustainability requirements.
2. Division 01 Section "Submittal Procedures" for submittal requirements
3. Division 06 Section "Rough Carpentry" for blocking
4. Division 09 Section "Acoustical Panel Ceilings" for Acoustic Wood Panel suspended grid installation and acoustical cloud

1.3 LEED

- A. This project is targeting LEED gold certification from the US Green Building Council. It is the contractor's responsibility to familiarize themselves with this program, to determine which points in the system that are relevant for this project are influenced by their work, and to meet the requirements of those sections for this project. Review Section 01 81 13 for Low-emitting Materials, Regional Materials and Recycled Content submittal requirements.

1.4 DEFINITIONS

- A. Exposed Surfaces of Cabinets: Surfaces visible when doors and drawers are closed, visible edges of cabinet ends, doors, drawer fronts and toe kicks not covered by base board. Excluding visible surfaces in open cabinets or behind glass doors.

- B. Semi-exposed Surfaces of Cabinets: All surfaces visible when doors and drawers are open. Surfaces behind glass doors or drawer fronts, including interior faces of doors and interiors and sides of drawers. Visible surfaces in open cabinets and behind glass doors. Underside of wall cabinets and visible portions of cabinets from an upper building area."
- C. Concealed Surfaces of Cabinets: Surfaces not usually visible after installation, including sleepers, web frames, dust panels, bottoms of drawers, and ends of cabinets installed directly against and completely concealed by walls or other cabinets. Tops of wall cabinets and utility cabinets are defined as "concealed" unless visible from an upper building area.

1.5 QUALITY ASSURANCE

- A. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- B. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
 - 2. Establish Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site and coordinate construction to ensure that actual dimensions are correspond to establish dimensions.

1.7 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated."

1.8 SUBMITTALS

- A. General: Conform with requirements under Division 01 Section "Submittal Procedures".

- B. Product Data: For panel products, high-pressure decorative laminate, cabinet hardware and accessories, and finishing materials and processes.

- C. Sustainable Design Submittals:
 - 1. Comply with requirements of Section 01 81 13
 - 2. Product Data:
 - a. For recycled content, indicating postconsumer and preconsumer recycled content and cost.
 - b. For adhesives, indicating that product contains no urea formaldehyde.
 - c. For composite wood products, indicating that product contains no urea formaldehyde.
 - 3. Chain-of-Custody Certificates: For certified wood products. Include statement of costs.
 - 4. Laboratory Test Reports:
 - a. For adhesives, indicating compliance with requirements for low-emitting materials.
 - b. For composite wood products, indicating compliance with requirements for low-emitting materials.

- D. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 3. Show locations and sizes of cutouts and holes for plumbing fixtures and other items installed in architectural woodwork.
 - 4. Shop Drawings: For cabinets.
 - a. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - b. Show details full size.
 - c. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - d. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural wood cabinets.
 - e. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
 - 5. Shop drawings for Acoustic wood panel ceilings and wall systems:
 - a. Showing coordination of ceilings and wall system including details and attachment systems.
 - b. Coordinate ceiling and wall panel layout and installation with suspension systems components in section 09 51 13
 - c. Show other construction elements, light fixtures, HVAC equipment, fire – suppression systems, and other assemblies that may impact installation.

- E. Samples for Verification:
 - 1. Plastic laminates and Fiber-composite Board

- a. 8 by 10 inches, for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
 - b. Corner pieces as follows:
 - 1) Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
 - 2) Miter joints for standing trim.
 - c. Exposed cabinet hardware and accessories, one unit for each type and finish.
2. Solid surfacing materials
 3. Thermo-set decorative-panels, 8 by 10 inches, for each type, color, pattern, and surface finish, with edge banding on 1 edge.
 4. Wood ceilings and wall panel systems
- F. Warranty and maintenance information to be included in closeout manuals:

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Products: Comply with the following:
1. Medium-Density Fiberboard: ANSI A208.2, Industrial Grade MDF, made with binder containing no urea formaldehyde. Basis of Design: For all laminated cabinet work substrate (unless otherwise noted), Provide "Medite II" as manufactured by SierraPine Springfield, Oregon or equivalent product in compliance with requirements. 100% post-industrial recycled wood residuals with formaldehyde-free adhesive system; meeting the following characteristics:
 - a. Surface Burning Characteristics: Flame spread Class C rating; ASTM E 84.
 - b. Screw Holding Face: 300 lbs
 - c. Screw Holding Edge: 245 lbs
 - d. Density: Not less than 40 pounds per cu foot..
 - e. Water Absorption: 6.5 percent average, 24 soak.
 2. Plywood: DOC PS 1; Exterior Grade A-C plugged (Marine Grade where noted)
- C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
1. Manufacturer – Basis of Design: Subject to compliance with requirements, provide high-pressure decorative laminates by Formica.
 2. Type: Standard type, unless Special Purpose type is indicated.
 3. High-Pressure Decorative Laminate Grades: AWI and WI standards require minimum thickness of 0.028 inch (0.7 mm) regardless of surface type.
 - a. Grade HGS is 1.2 mm thick.

- b. Grades HGL and HGP are 1.0 mm thick.
 - c. Grade VGS is 0.7 mm thick.
 4. Colors and Patterns: Architect will select from manufacturer's full range of colors, patterns and textures as many as seven (7) different laminates of distinct color, texture and pattern including as many as (3) premium, wood grain and/or metallic laminates.
- D. Wood for Exposed Surfaces (as indicated on Drawings):
 1. Species: White Maple
 2. Blueprint Matching: Comply with veneer and other matching requirements indicated for blueprint-matched paneling.
 3. Cut: **Quarter cut/quarter sawn.**
 4. Grain Direction: **Vertically for drawer fronts, doors, and fixed panels**
 5. Matching of Veneer Leaves: **Book** match.
 6. Veneer Matching within Panel Face: **Running** match.
 7. Veneer Matching within Room: Provide cabinet veneers in each room or other space from a single flitch with doors, drawer fronts, and other surfaces matched in a sequenced set with continuous match where veneers are interrupted perpendicular to the grain.
- E. Solid Surfacing:
 1. Manufacturer – Basis of Design: Subject to compliance with requirements, Solid Surface Acrylic Resin by Wilson Art LLC or comparable product:
 - a. Tensile Strength: [6800 psi]; ASTM D 638.
 - b. Tensile Modulus: [1.5×10^6 psi]; ASTM D 638.
 - c. Tensile Elongation: 0.4 percent minimum; ASTM D 638.
 - d. Flexural Strength: [10,000 psi]; ASTM D 790.
 - e. Flexural Modulus: [1.5×10^6 psi]; ASTM D 790.
 - f. Thermal Expansion Coefficient: 1.37×10^{-5} in./in.°F; ASTM D 696.
 - g. Hardness (Barcol Impressor): 55-62; ASTM D 2583.
 - h. Impact Resistance: [144 in.] drop with no fracture; NEMA LD-3, Method 3.8.
 - i. Izod Impact: 0.28 (ft-lb.)/in.; ASTM D 256, Method A.
 - j. Light Resistance - Xenon: No effect; NEMA LD-3, Method 3.3.
 - k. Stain Resistance: Pass; ANSI Z 124.3, modified.
 - l. Wear and Cleanability: Pass; ANSI Z 124.3.
 - m. Fungi Resistance: Pass; ASTM G 21.
 - n. Bacterial Resistance: Pass; ASTM G 22.
 - o. Boiling Water Resistance: No effect; NEMA LD-3, Method 3.5.
 - p. High Temperature Resistance: No effect; NEMA LD-3, Method 3.6.
 - q. Weatherability: Delta E less than 5; ASTM G 155.
 - r. Moisture Absorption: Less than 0.25 percent; ASTM D 570, long term.
 - s. Specific Gravity: [1.7 gram/cm^3]; ASTM D 792.
 - t. Weight: [4.4 lb./ft²].
 - u. Surface Burning Characteristics: Class I and Class A; ASTM E 84.
 2. Finish: As selected by architect from approved samples.

2.2 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural woodwork, except for items specified in Division 08 Section "Finish Hardware".
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 120 degrees of opening, self-closing.
- C. Wire Pulls: Back mounted, solid metal, 4 inches (100 mm) long, 5/16 inch (8 mm) in diameter, stainless steel finish.
- D. Edge Pulls:
 - 1. Basis of Design: Richelieu; Contemporary Aluminum Edge Pull, Model No 9898 - 3 15/16" length
 - a. Color as selected from manufacturers full range
 - b. Location: Display Case and Ham Radio Cabinet only
- E. Catches: Magnetic catches, BHMA A156.9, B03141.
- F. Drawer Slides: BHMA A156.9, B05091.
 - 1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
 - 2. Box Drawer Slides: Grade 1HD-100; for drawers not more than 6 inches high and 24 inches wide.
 - 3. File Drawer Slides: Grade 1HD-200; for drawers more than 6 inches high or 24 inches wide and slide out shelves
- G. Pocket Door Hardware:
 - 1. Basis of Design: Hafele; Pocket Door System, Accuride CB1332-30D with 35 mm Hinge Kit.
 - a. Load Bearing Capacity: 75 lbs (34 kg)
 - b. Quantity: Verify number of number of hinges required based on door height
- H. Clothes Rod:
 - 1. 1-1/2" diameter, stainless steel, typical.
 - 2. 1-1/16" diameter, chrome plated steel tube at wardrobe cabinets.
 - 3. Flanges and End caps: Chrome-look compatible with steel tubing
- I. Grommets: 2" diameter for cords vinyl with removable cap.
 - 1. Color: As selected from manufacturer's standard colors.
- J. Shelf Pins: All shelf pins to be seismic double pin captive shelf support.

- K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
1. Satin Stainless Steel: BHMA 630.
- L. Support Brackets:
1. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following: CounterBalance Concealed Bracket (1 inch), <http://www.counterbalanceshop.com>, or equal.
 - a. Model No.: CCH-CBCBM-24WH.
 - 1) Size: 24 inch at 30-inch counters.
 - b. Model No: CCH-CBCBM-18WH
 - 1) Size: 18 inch at 24-inch desktops and counters.
 - c. Model No.: CCH-CBCBM-12WH.
 - 1) Size: 12 inch at 12 and 14 inch shelves.
 2. Hot rolled 1/8 inch steel with powder coated finish.
 3. Support Placement: Every 16 inches to 20 inches.
 4. Color: A or s selected by Architect.

2.3 DISPLAY CASE WINDOWS

- A. By-passing Glass Doors, Track, Pulls and Lock
1. Track: Manufacturer: C. R. Laurence Company, Inc., or approved equal.
 - a. Model and Type: KV992, CLR Ball Bearing Roll-EZY Track Assembly, including top and bottom double track, ball bearing carrier and shoe for glass door.
 - b. Color: Zinc Plated Steel
 - c. Length: See drawings for dimension and detail. Verify before ordering.
 2. Lock and Pull
 - a. C.R. Laurence, Sliding Glass Door Lock, KML41GL, chrome finish, with key.
 - b. C.R. Laurence, Sliding Glass Door Finger Pull, FP88BX, 3/4" x 2-3/4", adhesive application, clear.
 3. Glass Doors
 - a. Heat Treated Float Glass, ASTM C 1048, Kind FT (fully tempered), Condition A, Type I, Class 1 (clear), 1/4 inch (6 mm thick), unless otherwise indicated. See Section 8 "Glazing".
 - b. Length: See drawings for dimension and detail. Verify before ordering.
 4. Glass Shelves
 - a. Heat Treated Float Glass, ASTM C 1048, Kind FT (fully tempered), Condition A, Type I, Class 1 (clear), Quality-Q3, 1/4 inch (6 mm thick), with exposed edges seamed before tempering. See Section 8 "Glazing".
 - b. Size: See drawings for dimension. Verify size.

5. Glass Shelf Support Standards and Brackets
 - a. Products by Rakks/ Rangine Corporation (www.rakks.com)
 - 1) Wall Standards – C-Standard (cut to 38”), recessed with clear anodized finish. Verify required length prior to fabrication. Provide 3 standards spaced at 24” o.c. max.
 - 2) Shelf Support Brackets: TB2-18, Rakks T-Style for 18” self, clear anodized finish with transparent PVC extrusion and pair of transparent bumpers per bracket. Provide three shelf brackets per standard.
 - b. Glass Shelves: 30”x18”x3/8” tempered glass (provide 6 shelves)

2.4 ADHESIVES, SEALANTS AND ACCESSORIES

- A. General: Use only adhesives formulated for stone and recommended by their manufacturer for the application indicated.
- B. Color: Match stone. As per sample.
- C. Sealant for Countertop: Manufacturer’s standard sealant of characteristics indicated below that comply with applicable requirements in Division 07 Section “Joint Sealants” and will not stain the stone it is applied to.
 1. Single-component, neutral-curing silicone sealant.
 2. Color: Custom color matched and approved by architect.
- D. Do not use adhesives that contain urea formaldehyde.
- E. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the more restrictive following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 1. That comply with the requirements of section 01 81 13, “Sustainable Design Requirements

2.5 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Metal Reinforced Support Structure:
 1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 2. Steel Tubing: ASTM A 500, cold-formed steel tubing.

2.6 PLASTIC-LAMINATE CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Cabinets:
 - a. Classic Fixtures, Inc
 - b. Custom Source Woodworking, Inc
 - c. Genothen
 - d. SH Fine Wood Products, Inc.
 - e. Pacific Cabinets, Ferdinand, ID.
 - f. Valley Cabinets
 - g. AAA Cabinets & Millwork
 - h. Or approved Equal
- B. Grade: Premium.
- C. AWI Type of Cabinet Construction: Flush overlay.
- D. Laminate Cladding for "Exposed Surfaces":
1. High-pressure decorative laminate complying with the following requirements:
 - a. Countertops: Grade HGS 1.2 mm thick.
 - b. Horizontal Surfaces Other Than Countertops: Grade HGL 1.0 mm thick.
 - c. Vertical Surfaces: Grade VGS 0.7 mm thick..
 - d. Edges: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish as selected by architect unless otherwise noted
 - e. Cabinet Door and Drawer Edges: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish as selected by architect.
- E. Materials for "Semi-exposed Surfaces":
1. All Semi-exposed Surfaces (except as noted below): High-pressure decorative laminate, Grade VGS, 0.7 mm thick..
 - a. Edges: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish as selected by architect, unless otherwise noted.
 2. Interior surfaces not seen when cabinet doors are closed excluding back of door: Thermoset decorative panels (Melamine).
 - a. Edges: PVC edge banding, 0.12 inch (3 mm) thick, color, pattern, and finish as selected by architect from full line of edging.
 3. Drawer Body Sides and Backs and Bottom: Thermoset decorative panels (Melamine).
 - a. Edges: PVC tape 0.018 inch thick edge banding, matching Thermoset facing in color, pattern, and finish.
 4. Adjustable Shelves behind Doors: Thermoset decorative panels (Melamine) color, as selected by architect.

- a. Edges: PVC edge banding, 0.12 inch (3 mm) thick, color, pattern, and finish as selected by architect from full line of edging.
- F. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- G. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. Colors and Patterns: As selected by Architect from manufacturer's full range of color including standard and premium laminate.

2.7 GENERAL PLASTIC-LAMINATE COUNTERTOPS FABRICATION

- A. Grade: Premium.
- B. High-Pressure Decorative Laminate Grade: HGS .
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As selected by Architect from manufacturer's full range of standard and premium laminates in the following categories:
 - a. Solid colors, gloss or matte finish.
 - b. Wood grains, gloss or matte finish.
 - c. Patterns, gloss or matte finish.
- D. Grain Direction: Parallel to cabinet fronts.
- E. Edge Treatment: PVC edge banding, 0.12 inch (3 mm) thick, color, pattern, and finish to match countertop as selected by architect from full line of edging.
- F. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.
- G. Paper Backing: Provide paper backing on underside of countertop substrate.

2.8 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Grade: Premium
- B. Solid-Surfacing-Material Thickness: **1/2 inch** (13 mm).
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:

1. As selected by Architect from manufacturer's full range.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 1. Fabricate tops with shop-applied edges of materials and configuration indicated.
 2. Fabricate tops with loose backsplashes for field application.
 3. Drill holes in countertops for plumbing fittings and soap dispensers in shop.
 4. Fabricate for installation of undermount sink where occurs.

2.9 WINDOW SILL, STOOL AND APRON

- A. Grade: Premium.
- B. High-Pressure Decorative Laminate Grade: HGS .
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 1. As selected by Architect from manufacturer's full range of colors and textures including standard and premium laminates in the following categories:
 - a. Solid colors, gloss or matte finish.
 - b. Wood grains, gloss or matte finish.
 - c. Patterns, gloss or matte finish.
- D. Grain Direction: Parallel to wall.
- E. Edge Treatment: Same as laminate cladding on horizontal surfaces.
- F. Core Material: Exterior grade plywood, unless otherwise noted

2.10 ACOUSTIC WOOD PANELS

- A. Exterior Ceiling:
 1. Product: 2100 Panelized Linear
 - a. Style: 2100 style cross piece grille 2114-3
 - b. Edge Profile: Square
 - c. Species: PEFC Western Hemlock - for interior and exterior use. solid, clear, mixed grain
 - d. Size: 5/8 x 3 1/4 with 3 Members per LF. in 12" wide panel
 - e. Reveal/Spacing: 3/4"
 - f. Finish: Clear pre-catalyzed lacquer with satin sheen. Stain to match architect's control sample
 - g. Assembly Style: Cross Piece Backer - Black

2. Provide with insect screen.
 3. Provide direct mount metal safety clips
 4. Provide for (1) fabricated access panel for soffit area.
 - a. Locate per architect's direction
- B. Interior Ceiling:
1. Product: 1100 S Wood Grille
 - a. Style: 1100 style cross piece grille 1114-6
 - b. Edge Profile: Square
 - c. Species: PEFC Western Hemlock - solid, clear, mixed grain
 - d. Size: 3/4" X 3-1/4" (Net) 6 members / LF. in 12" wide panel
 - e. Reveal/Spacing: 1 3/4"
 - f. Finish: Clear pre-catalyzed lacquer with satin sheen. Stain to match architect's control sample
 - g. Assembly Style: Cross Piece Backer - Black
 2. Provide for (1) fabricated access panel for each separate ceiling area. (5) total
 - a. Locate per architect's direction
- C. Wall product
1. Product: 1100 S Wood Grille
 - a. Style: 1100 style cross piece grille 1114-6
 - b. Edge Profile: Square
 - c. Species: PEFC Western Hemlock - solid, clear, mixed grain.
 - d. Member Size: 3/4" X 3-1/4" (Net) 6 members / LF. in 12" wide panel
 - e. Reveal/Spacing: 1 3/4"
 - f. Finish: Clear pre-catalyzed lacquer with satin sheen. Stain to match architect's control sample
 - g. Assembly Style: Cross Piece Backer - Black
 2. Provide direct mount metal safety clips

2.11 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.
- B. Verification of Dimensions: Verify all approved appliance sizes prior to fabrication of cabinetwork, to avoid conflict.
- C. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- D. Fabricate woodwork to dimensions, profiles indicated on drawings and in these specifications.

- E. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch (25 mm) over base cabinets.
- F. Provide valance at wall cabinets with under cabinet light fixtures and as indicated on drawings.
- G. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- H. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

2.12 SOLID SURFACE COUNTERTOP FABRICATION, GENERAL

- A. Fabricate components in shop, to greatest extent practicable, in sizes and shapes indicated according to approved shop drawings and Wilsonart published fabrication requirements.
- B. Form joint seams between solid surfacing components with specified seam adhesive. Completed joints inconspicuous in appearance and without voids. Provide joint reinforced if required by manufacturer for particular installation conditions.
- C. Cutouts and Holes:
 - 1. Undercounter and Deck mounted Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.

2.13 WOOD VENEER FABRICATION:

- A. General: Finish architectural cabinets at manufacturer's shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

- B. General: Shop finish transparent-finished architectural cabinets at manufacturer's shop as specified in this Section. See Section 099123 "Interior Painting" for field finishing of opaque-finished architectural cabinets.
- C. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural cabinets, as applicable to each unit of work.
 - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of cabinets.
- D. Transparent Finish:
 - 1. Architectural Woodwork Standards Grade: **Premium**
 - 2. Finish: System - **4, water-based latex acrylic**
 - 3. Wash Coat for Closed-Grain Woods: Apply wash-coat sealer to cabinets made from closed-grain wood before staining and finishing.
 - 4. Staining: **Match approved sample for color**
 - 5. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
 - 6. Filled Finish for Open-Grain Woods: [**After staining, apply wash-coat sealer and allow to dry.**] Apply paste wood filler and wipe off excess. Tint filler to match stained wood.
 - 7. Sheen: **Satin, 31-45** gloss units measured on 60-degree gloss meter per ASTM D523.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify proper blocking and supports are installed prior to beginning fabrication.
- B. Field measure and verify measurements prior to fabrication.
- C. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- D. Install woodwork in conformance to details on drawings, level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- E. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Unless noted otherwise in these specifications, anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- G. Cabinets and Countertops: Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.

- H. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into sheet metal wall strip backing.

- I. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop, and supplementary attachment by use of mastic adhesive as recommended by the countertop materials manufacturers.
 - 1. Seal edges of cutouts by saturating with varnish
 - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 3. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

 - 4. Secure backsplashes to walls with adhesive.
 - 5. Caulk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants." Color to match laminate.

- J. Solid Surface Countertop Installation
 - 1. Install solid surfacing components plumb, level, and true according to approved shop drawings and manufacturer's published installation instructions. Use woodworking and specialized fabrication tools acceptable to manufacturer.
 - 2. Form joint seams with specified seam adhesive. Seams to be inconspicuous in completed work. Seams in locations shown on approved shop drawings and acceptable to manufacturer. Promptly remove excess adhesive.
 - 3. Provide minimum 1/2 inch radius for countertop inside corners.
 - 4. Fill gaps between countertop and terminating substrates with specified silicone sealant.
 - 5. Install undermount sink units to countertops with specified adhesives and mechanical fastener's per manufacturer's requirements.
 - 6. Install backsplashes and endsplashes where indicated on Drawings. Adhere to countertops with specified construction adhesive.
 - 7. Vanities: Secure front panels to solid substrate with specified construction adhesive. Maintain 1/16 inch gap between fixed and removable panels.
 - a. ADA Vanities: Angled front panel to permit wheelchair access to comply with referenced accessibility standard.

- K. Shop Finishes: Touch up finishing after installation of architectural cabinets. Fill nail holes with matching filler
 - 1. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

- L. Acoustic Wood Panels: Generally install per manufactures' written and approved installation instructions.
- M. Install Acoustic Wood ceiling and wall panels in accordance with manufacturer's installation instructions and in compliance with all local codes and regulations. Install with undamaged edges and fitted accurately to suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit, as required.
- N. Suspension Runners: Install suspension system runners per section 09 51 13 so they are square and securely interlocked with one another. Install number and use on-center spacing per Acoustic Wood Panel manufacturer's instructions, as indicated on approved Shop Drawings and in compliance with all local codes.
- O. Direct Mount Safety Clips: Install direct mount safety clips straight and square to allow a flush, plumb installation. Install number and use on-center spacing per Acoustic Wood Panel manufacturer's instructions, as indicated on approved Shop Drawings and in compliance with all local codes.
- P. Pre-drill screw holes of horizontal cross members slightly smaller than screw width to prevent wood members from splitting.
- Q. Paint exposed screw heads black to match backing members.

3.2 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets and countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.
- C. Sealer Application: Apply solid surface counter sealer to comply with manufacturer's written instructions.
- D. For wood ceiling and wall system assemblies, clean exposed wood surfaces and comply with manufacture's instructions for cleaning and touchup of minor finish damage. Remove and replace wood ceiling components that cannot be successfully clean and repaired to permanently eliminate evidence of damage.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Work under this section includes finishing and installing the finish and security hardware requirements for the project. Items not specifically mentioned but necessary to complete the work, shall be furnished, matching the items specified in quality, and finish.

- B. Key Abbreviations: The following Key abbreviations apply to this section:

1.	HW	Hardware
2.	MHO	Magnetic Hold Open
3.	PH	Panic Hardware
4.	RM	Removable Mullion
5.	TH	Threshold

- C. Related Sections:

- 1. Steel Doors and Frames covered under Section 08 11 13.
- 2. Flush Wood Doors covered under Section 08 14 16.
- 3. Folding Aluminum-Framed Glass Doors covered under Section 08 35 00.
- 4. Aluminum Framed Entrances and Storefronts covered under Section 08 41 13.
- 5. Fiberglass Windows and Storefronts covered under Section 08 54 13.

1.3 QUALITY CONTROL

- A. Supplier: Finish Hardware shall be supplied by recognized builder's hardware supplier who has been furnishing hardware in the same area as the project for a period of not less than two years. The supplier's organization shall include a member of the American Society of Architectural Hardware Consultants who is available at all reasonable times during the course of the work to meet with the Owner, Architect, or Contractor for project hardware consultation. Supplier shall be located within 200 miles of the project. Supplier shall be a distributor for the specified products, not a broker. Supplier shall maintain a warehouse and stock of specified hardware and replacement parts.

- B. Installer: Finish Hardware shall be installed only by experienced tradesmen in compliance with trade union jurisdictions, either at the door and frame fabrication plant or at the project site.

- C. Codes: All Finish Hardware shall comply with applicable local and/or state current building codes. Hardware for fire-rated openings shall also be in compliance with all fire building codes

applicable to the district in which the building is located. Provide only hardware which has been tested and listed by UL for the types and sizes of doors required, and which complies with the requirements of the Door and Door Frame Labels.

1.4 ACTION SUBMITTALS

- A. Product Data: Submit Manufacturer's Product Data for each item of finish hardware.
- B. Hardware Schedule:
 - 1. Organized into "Hardware Sets" and indicating complete designation of every item required for each door or opening. List in a vertical form. Review of hardware schedule does not relieve the Contractor of responsibility to fulfill project requirements in accordance with contract documents.
 - 2. Schedule must be in vertical form, including all quantities, stock numbers, finishes, and sizes. List hardware for each door opening separately. Schedules prepared in a coded form are not acceptable and will be returned without review.

FORMAT OF SCHEDULE:

Heading 5

1 single Door 5 Corridor 1120 from Dental Lab 1320 – RHR 110
3'0 x 7'0 x 1-3/4" Wd x Hm HW-4

1-1/2 Pr.	Butts	TA2714 26D 4-1/2 x 4-1/2
1	Lockset	45H7INL 15M x 32D
1	Closer	QDC115- 689
1	Kick Plate	5153 12 x 34 (Push Side)
1	Wall Stop	QU W307 26D
3	Silencers	IV 20R

- 3. After the schedules have been reviewed, distribute corrected schedules to Owner and Architect.
- C. Templates: Furnish hardware templates for fabricators of doors, frames and other work to be factory prepared for hardware. Upon request, check shop drawings of such other work to confirm that adequate provisions will be made for the prior installation of hardware.
- D. Provide electrical drawings & point to point drawings for electric hardware.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For all door hardware products with sequence of items, materials and methods used for proper cleaning and maintenance of each item.

1.6 PRODUCT HANDLING AND STORAGE

- A. Packaging: Each item or package is to be separately tagged with identification related to final hardware schedule. Basic installation instructions shall be included.

- B. Storage: Provide locked room at the jobsite for storage of hardware.

1.7 GUARANTEE

- A. Finish hardware shall be guaranteed against defects in workmanship and operation for a period of one year, backed by a factory guarantee of the hardware manufacturer, except the door closers shall be so guaranteed for ten years. No liability shall be assumed by the hardware supplier where faulty operation is due to improper installation or failure to exercise normal maintenance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Items used are from the catalogs of:

1. ABH
2. Best
3. Rockwood
4. Dormakaba
5. Pemko
6. Detex
7. Record
8. Cavity sliders
9. Securitron
10. Precision
11. Stanley

- B. Except as shown in the following paragraphs, no other substitutions are allowed.

2.2 HINGES

- A. Manufacturer Listed: Stanley

1. Acceptable Substitutions: Hager, Mckinney
2. Finish: US32D Satin Stainless Steel exterior / US26D Satin chrome interior.
3. Type as listed.
4. Exterior hinges will have NRP pins.

- B. Continuous Hinges listed: Pemko

1. Acceptable substitutions: Markar, ABH
2. Finish: 628 aluminum
3. Type as listed.

2.3 MORTISE LOCKS

- A. Manufacturer Listed: Best 45H series mortise.
 - 1. Acceptable Substitutions: None
 - 2. Design: Lever 15H
 - 3. Finish: US32D (Satin Stainless)
 - 4. All locksets and latchsets shall be the product of one manufacturer

2.4 CYLINDERS

- A. Manufacturer Listed: Best interchangeable core x Cormax patented
 - 1. Acceptable Substitutions: None
 - 2. Finish: US26D (Satin Chrome).
 - 3. Provide cylinders for all key operated locks, exit devices and mullions.

2.5 EXIT DEVICES AND MULLIONS

- A. Manufacturer Listed: Precision
 - 1. Acceptable Substitutions: None
 - 2. Finish: US32D (Satin Stainless) mullions prime coat.
 - 3. Provide lever handles where noted to match mortise locksets.
 - 4. Provide shim kits as required to clear projecting lite frames.
 - 5. Provide keyed mullion box type 2"x3" at all locations.
 - 6. Provide through bolts at all wood doors.

2.6 DOOR CLOSERS, SURFACE

- A. Manufacturer Listed: Dormakaba QDC100
 - 1. Acceptable Substitutions: None
 - 2. Finish: Sprayed to match adjoining hardware.
 - 3. Provide drop plates where required.
 - 4. Provide extra duty arms QDC115 push side mount
 - 5. Provide regular arms QDC111-REG pull side mount.
 - 6. Furnish sex nuts and bolts for wood doors
 - 7. Furnish shoe supports for all closers.
 - 8. Provide closers with proper spring power adjustment to meet ADA.
 - 9. Provide special closer mounting as required where interference with weatherstrip or sound seal occurs. Do not notch Weather Strip at frame head for closer foot.

2.7 AUTO DOOR OPERATOR

- A. Manufacture Listed: Record 8100 X Full width header
 - 1. Acceptable Substitution: None

2. Door operator must be installed by a factory certified installer.
3. Certified installer = Western Entrance Technology ph# 360-863-9382.

2.8 KICK PLATES, PUSH & PULLS

A. Manufacturer Listed: Rockwood

1. Acceptable Substitutions: Trimco, ABH, Tice.
2. Finish: US32D (Satin Stainless)
3. Size: All plates shall be 2" less than door width on push side of door, except pairs of doors shall be 1" less than door width.
 - a. Kick Plates shall be 10" in height
 - b. Armor Plates shall be 34" in height
 - c. Mop Plates shall be 6" in height

2.9 STOPS, HOLDERS, AND MISCELLANEOUS

A. Manufacturer Listed: Rockwood

1. Acceptable Substitutions: Tice, Trimco,
2. Finish: US26D (Satin Chrome).
3. Type:
 - a. Wall Stops: 400
 - b. Floor Stops: 445
4. Provide stops to protect all walls, cabinet work or hardware operation.
5. Wall stops shall be used wherever possible, unless otherwise called for in hardware sets.
6. Where wall stops are not applicable, furnish floor stop or vise-versa. Provide proper height floor stops to suit conditions.
7. Contractor to provide solid blocking for all wall mounted stops.
8. Provide 30 extra floor stops 445 for use where wall stop won't work.
9. At the end of the job turn over all extra wall and floor stops to the owner.

2.10 OVERHEAD STOPS

A. Manufacture Listed: ABH

1. Acceptable Substitutions: Sargent, Rockwood
2. Finish: US32D Satin Stainless
3. Provide proper size and degree of swing to suit conditions.

2.11 WEATHERSTRIP AND THRESHOLD

A. Manufacturer Listed: Pemko

1. Acceptable Substitutions: National Guard.

2. Finish:
 - a. Weatherstripping: Clear Anodized Aluminum.
 - b. Thresholds: Mill Finish Aluminum.
3. Where smoke gasket is specified, provide Pemko S88D
4. Provide Pemko FHSL-14 anchors for all thresholds.

2.12 DOOR SILENCERS

A. Manufacturer Listed: Rockwood

1. Acceptable Substitutions: Trimco, ABH.
2. Type: 608
3. Quantity: Furnish three (3) for each single door frame, and four (4) for each pair of door frames.

2.13 KEYING

A. Keying shall be provided directly to the owner by Best lock Co. Permanent Cores and Keys shall be sent direct from the lock manufacture via Registered Mail, Return Receipt Requested, to the Owner.

1. Supply brass construction cores during construction. Provide permanent cores to the owner. The Owner will install the permanent cores
2. Provide Keys:
 - a. Four Building Grand Master Keys.
 - b. Four Master Keys per set.
 - c. Two Change Keys per Lockset or Cylinder.
 - d. Two Control Keys.
 - e. Two Construction Control Keys
 - f. Six Construction Keys.

B. Best interchangeable cores will be Cormax patented

C. Provide two copies of corrected Finish Hardware Schedules along with two each Construction Master and Control Keys, 90 days prior to Substantial Completion to the owner

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation by skilled mechanics to architect's satisfaction.

1. Conform strictly to manufacturer's templates and directions.
2. Conform to referenced IBC and UL requirements.

- B. Adjust movable parts to operate perfectly at time of final acceptance.
 - 1. Make further adjustments required during guarantee period.
- C. Replace hardware which has been damaged by use when damage is caused by faulty installation.
- D. Make mortises accurately to exactly receive hardware. Depth or Mortises such that hardware is flush with finish surfaces.
- E. Fasteners: Drill appropriate size guide holes for all wood screws. Drill and tap metal doors and frames to receive manufacturer's machine screws.
 - 1. Do not use sheet metal or "TEK" screws to install hardware.
 - 2. Self tapping screws will not be allowed.
 - 3. Use cast-in-place anchor bolts or steel expansion shield for all items supported by, or on, concrete.
 - 4. Do not use through bolted fasteners that are exposed on the face of doors. Coordinate all hardware with door manufacturer for blocking locations
- F. Place door stops and holders to allow maximum swing.
 - 1. Doors not to contact anything but stop.
- G. Thresholds: Cut and fit thresholds to profiles of door jambs with mitered corners and precision joints.
 - 1. Set exterior thresholds in bed of butyl rubber sealant and fill all voids to exclude moisture.
 - a. Do not block any weep holes
 - b. Remove excess sealant.
 - 2. Align the bevel of exterior thresholds with exterior face of door, unless detailed otherwise.
 - 3. Thresholds shall be installed level.
- H. Hardware Placement: Locate hardware on doors as follows:
 - 1. Comply with accessibility code where more stringent requirements are indicated.
 - 2. Dimensions are from the finished floor to centerline unless shown otherwise.
 - a. Lock/Latch: 40" centerline of strike.
 - b. Exit Device Cross Bar: 40" centerline of bar
 - c. Deadlock Cylinder: 48"
 - d. All other items are manufacturer's instructions or as directed.

3.2 HARDWARE GROUPS

Hardware Group 1

Doors: 100A

- 1 EA Continuous Hinge CFM83SLI-HD1 PT
- 1 EA Rim Exit Device MLR TS 2403 xNCA-03 No Trim 630-C
- 1 EA Cylinder 12E-72 S2 RP 626 Patented
- 1 EA Construction Core IC7 Green
- 1 EA Door Pull BF157 Mtg-Type 12HD US32D
- 1 EA Surface Closer QDC115 689
- 1 EA Drop Plate 8Q00471 689
- 1 EA Screw Pack 8Q00473 689
- 1 EA Spacer P45HD-110 689
- 1 EA Wall Stop 400 US26D
- 1 EA Threshold 2727A x 36" FHSL14
- 1 EA Sweep 315CN x 36"
- 1 EA Electric Power transfer EPT-12C
- 1 EA Cable WH-192P
- 1 EA Cable WH-26P
- 1 EA Power Supply RPSMLR2
- 1 EA Card Reader By security

Card reader unlocks electric latch retraction panic.

Hardware Group 2

Doors: 101A

- 4 EA Hinge FBB168- 4-1/2x4-1/2-26D
- 1 EA Door Pull BF157 Mtg-Type 12HD US32D
- 1 EA Push Bar 47-PB x type12HD 33" US32D
- 1 EA Surface Closer QDC115 689
- 1 EA Drop Plate 8Q00471 689
- 1 EA Screw Pack 8Q00473 689
- 1 EA Spacer P45HD-110 689
- 1 EA Wall Stop 400 US26D
- 1 EA Gasketing S88D 18'
- 1 EA Sweep 315CNB x 36"

Hardware Group 3

Doors: 103A

- 3 EA Hinge FBB179 4-1/2x4-1/2 US26D
- 1 EA Electrified Mort lock 45HW7DEU 15H 630 Patented RQE-C
- 1 EA Surface Closer QDC111- REG 689
- 1 EA Wall Stop 400 US26D
- 1 EA Electric Power transfer EPT-12C
- 1 EA Cable WH-192P
- 1 EA Cable WH-38P
- 1 EA Armor plate K1050 34x34 US32D
- 1 EA Card Reader By security

Card reader unlocks electric lock.

Hardware Group 4

Doors: 102A, 108A, 121A, 130A, 131A, 132A, 133A

- 3 EA Hinge, Full Mort FBB179 4-1/2" x 4-1/2" US26D
- 1 EA Mortise Lock 45HOL 15H 630 VIN
- 1 EA Armor Plate K1050 34" x 34" US32D
- 1 EA Wall Stop 400 US26D
- 1 EA Gasketing S88D 18'

Hardware Group 5

Doors: 104A

- 3 EA Hinge, Full Mort FBB179 4-1/2" x 4-1/2" US26D
- 1 EA Mortise Lock 45HON 15H 630 VIN
- 1 EA Armor Plate K1050 34" x 34" US32D
- 1 EA Wall Stop 400 US26D
- 1 EA Gasketing S88D 18'

Hardware Group 6

Doors: 107A

- 1 EA Hinge by door supplier
 - 1 EA Rim Exit Device QEL-RX-35A- NL-OP- 32D-CON
 - 1 EA Cylinder 12E-72 S2 RP 626 Patented
 - 1 EA Construction Core IC7 Green
 - 1 EA Door Pull BF157 Mtg-Type 12HD US32D
 - 1 EA Screw Pack 8Q00473 689
 - 1 EA Spacer P45HD-110 689
 - 1 EA Electric Power transfer EPT-10-CON
 - 1 EA Cable CON-26P
 - 1 EA Cable CON-192P
 - 1 EA Power Supply PS902-900-2RS
 - 1 EA Card Reader By security
- Card reader unlocks electric latch retraction panic.

Hardware Group 7

Doors: 106A

- 1 EA Door Pull 110-RKW US32D
- 1 EA Flush Pull 95A US26D
- 1 EA Sliding track TSWMNA-12
- 2 EA Hangers DKMO821
- 1 EA Floor guide T guide

Hardware Group 8

Doors: 122A

- 4 EA Hinge, Full Mortise FBB199 NRP 4-1/2" x 4-1/2" US32D
 - 1 EA Electrified Mort lock 45HW7DEU 15H 630 Patented RQE-C
 - 1 EA Surface Closer QDC115 689
 - 1 EA Armor Plate K1050 34" x 40" US32D
 - 1 EA Door Stop 471 US26D
 - 1 EA Threshold 2727A x 42" FHSL14
 - 1 EA Gasketing S88D 18'
 - 1 EA Sweep 315CN x 42"
 - 1 EA Electric Power transfer EPT-12C
 - 1 EA Cable WH-192P
 - 1 EA Cable WH-26P
 - 1 EA Power Supply RPSMLR2
 - 1 EA Card Reader By security
- Card reader unlocks electric lock.

Hardware Group 9

Doors: 109A, 109B, 119A, 119B

- 4 EA Hinge, Full Mortise FBB168 4-1/2" x 4-1/2" US26D
- 1 EA Rim Exit Device FL 2114 4914A x36" 630
- 1 EA Surface Closer QDC115 689
- 1 EA Armor Plate K1050 34" x 34" US32D
- 1 EA Wall Stop 400 US26D
- 1 EA Threshold 276A x 36" FHSL14
- 1 EA Gasketing S88D 18'
- 1 EA Sweep 315CN x 36"

Hardware Group 10

Doors: 112A

- 4 EA Hinge, Full Mortise FBB179 4-1/2" x 4-1/2" US26D
 - 1 EA Electrified Mortise lock 45HW7DEU 15H 630 Patented RQE-C
 - 1 EA Construction Core IC7 Green
 - 1 EA Surface Overhead stop 9024 US32D
 - 1 EA Armor Plate K1050 34" x 34" US32D
 - 3 EA Silencer 608-RKW
 - 1 EA Electric Power transfer EPT-12C
 - 1 EA Cable WH-192P
 - 1 EA Cable WH-26P
 - 1 EA Card Reader By security
- Card reader unlocks electric latch retraction panic.

Hardware Group 11

Doors: 118A

- 3 EA Hinge, Full Mortise FBB168 4-1/2" x 4-1/2" US26D
- 1 EA Mortise Lock 45HON 15H 630
- 1 EA Surface Closer QDC111- REG 689
- 1 EA Armor Plate K1050 34" x 34" US32D
- 1 EA Wall Stop 400 US26D
- 3 EA Silencer 608-RKW

Hardware Group 12

Doors: 115A, 117A, 134A

- 3 EA Hinge, Full Mortise FBB179 4-1/2" x 4-1/2" US26D
- 1 EA Mortise Lock 45H0N 15H 630
- 1 EA Surface Closer QDC111- REG 689
- 1 EA Armor Plate K1050 34" x 34" US32D
- 1 EA Wall Stop 400 US26D
- 1 EA Gasketing S88D 18'

Hardware Group 13

Doors: 113A

- 3 EA Hinge, Full Mortise FBB179 4-1/2" x 4-1/2" US26D
- 1 EA Rim Exit Device FL 2103 4903A 630
- 1 EA Cylinder 12E-72 S2 RP 626 Patented
- 1 EA Construction Core IC7 Green
- 1 EA Surface Closer QDC115 689
- 1 EA Wall Stop 400 US26D
- 1 EA Gasketing S88D 18'

Hardware Group 14

Doors: 122B

- 3 EA Hinge FBB168 4-1/2" x 4-1/2" US26D
- 1 EA Mortise Lock 45H0N 15H 630
- 1 EA Surface Closer QDC115 689
- 1 EA Wall Stop 400 US26D
- 1 EA Armor Plate K1050 34" x 34" US32D
- 3 EA Silencer 608-RKW

Hardware Group 15

Doors: 120D, 120H

- 4 EA Hinge, Full Mortise FBB199 NRP 4-1/2" x 4-1/2" US32D
 - 1 EA Rim Exit Device MLR TS 2103 1703A x36" 630-C
 - 1 EA Cylinder 12E-72 S2 RP 626 Patented
 - 1 EA Construction Core IC7 Green
 - 1 EA Surface Closer QDC115 689
 - 1 EA Armor Plate K1050 34" x 34" US32D
 - 1 EA Door Stop 471 US26D
 - 1 EA Threshold 2727A x 36" FHSL14
 - 1 EA Gasketing S88D 18'
 - 1 EA Sweep 315CN x 36"
 - 1 EA Electric Power transfer EPT-12C
 - 1 EA Cable WH-192P
 - 1 EA Cable WH-26P
 - 1 EA Power Supply RPSMLR2
 - 1 EA Card Reader By security
- Card reader unlocks electric latch retraction panic.

Hardware Group 16

Doors: 140A

- 3 EA Hinge FBB179- 4-1/2x4-1/2-26D
- 1 EA Door Pull BF157 Mtg-Type 12HD US32D
- 1 EA Push Bar 47-PB x type12HD 33" US32D
- 1 EA Surface Closer QDC115 689
- 1 EA Drop Plate 8Q00471 689
- 1 EA Screw Pack 8Q00473 689
- 1 EA Spacer P45HD-110 689
- 1 EA Armor plate K1050- 34x34- 32D
- 1 EA Door Stop 445 US26D
- 1 EA Gasketing S88D 18'

Hardware Group 17

Doors: 140B

- 1 EA Continuous Hinge CFM83SLI-HD1 PT
- 1 EA Rim Exit Device MLR TS 2403 xNCA-03 No Trim 630-C
- 1 EA Cylinder 12E-72 S2 RP 626 Patented
- 1 EA Construction Core IC7 Green
- 1 EA Door Pull BF157 Mtg-Type 12HD US32D
- 1 EA Surface Closer QDC115 689
- 1 EA Drop Plate 8Q00471 689
- 1 EA Screw Pack 8Q00473 689
- 1 EA Spacer P45HD-110 689
- 1 EA Door Stop 471 US26D
- 1 EA Threshold 2727A x 36" FHSL14
- 1 EA Sweep 315CN x 36"
- 1 EA Electric Power transfer EPT-12C
- 1 EA Cable WH-192P
- 1 EA Cable WH-26P
- 1 EA Power Supply RPSMLR2
- 1 EA Card Reader By security

Card reader unlocks electric latch retraction panic.

Hardware Group 18A

Doors: 124B, 125B, 126B, 127B, 136B, 137B, 138B, 139B

- 1 EA Door Pull 110-RKW US32D
- 1 EA Flush Pull 95A US26D
- 1 EA Sliding track TSWMNA-12
- 2 EA Hangers DKMO821
- 1 EA Floor guide T guide

Hardware Group 18B

- Doors: 124A, 125A, 126A, 127A, 136A, 137A, 138A, 139A
- 3 EA Hinge, Full Mortise FBB179 4-1/2" x 4-1/2" US26D
 - 1 EA Mortise Lock 45HON 15H 630 VIN
 - 1 EA Surface Overhead stop 9024 US32D
 - 1 EA Surface Closer QDC111- REG 689
 - 1 EA Armor Plate K1050 34" x 34" US32D
 - 1 EA Gasketing S88D 18'

Hardware Group 19

- Doors: 135A
- 4 EA Hinge, Full Mortise FBB199 NRP 4-1/2" x 4-1/2" US32D
 - 1 EA Rim Exit Device FL 2100 4903A 630 (Exit only)
 - 1 EA Cylinder 12E-72 S2 RP 626 Patented
 - 1 EA Construction Core IC7 Green
 - 1 EA Surface Closer QDC115 689
 - 1 EA Armor Plate K1050 34" x 34" US32D
 - 1 EA Door Stop 471 US26D
 - 1 EA Threshold 2727A x 36" FHSL14
 - 1 EA Gasketing S88D 18'
 - 1 EA Sweep 315CN x 36"

Hardware Group 20

- Doors: G1 (Courtyard Man Gate)
- 1 EA Mortise Lock 45HONX 15H 630 VIN (exit Only)
 - 1 EA Surface Closer QDC115 689
 - 1 EA Drop Plate 8Q00471 689
 - 1 EA Screw Pack 8Q00473 689

Hardware Group 21

- Doors: G2 (Man Gate adjacent to Trash Enclosure)
- 1 EA Keypad Mortise Lock 40HZ-DV-15-32D Patented
 - 1 EA Const core IC7 green
 - 1 EA Surface Closer QDC115 689
 - 1 EA Drop Plate 8Q00471 689
 - 1 EA Screw Pack 8Q00473 689

END OF SECTION

KIRKLAND FIRE STATION 24

SPECIAL PROVISIONS

APPENDIX A – TRAFFIC SIGNAL AND ILLUMINATION SYSTEM SPECIFICATIONS

1 INTRODUCTION

2
3 This Contract shall be constructed in accordance with the 2020 Standard Specifications for
4 Road, Bridge, and Municipal Construction.

5
6 SPECIAL PROVISIONS

7
8 Several types of Special Provisions are included in this contract; General, Region, Bridges
9 and Structures, and Project Specific. Special Provisions types are differentiated as follows:

10
11 (date) General Special Provision
12 (*****) Notes a revision to a General Special Provision
13 and also notes a Project Specific Special
14 Provision.
15 (Regions¹ date) Region Special Provision

16
17 **General Special Provisions** are similar to Standard Specifications in that they typically apply
18 to many projects, usually in more than one Region. Usually, the only difference from one
19 project to another is the inclusion of variable project data, inserted as a “fill-in”.

20
21 **Region Special Provisions** are commonly applicable within the designated Region. Region
22 designations are as follows:

23
24 Regions¹

25 ER	Eastern Region
26 NCR	North Central Region
27 NWR	Northwest Region
28 OR	Olympic Region
29 SCR	South Central Region
30 SWR	Southwest Region
31	
32 WSF	Washington State Ferries Division

33
34 **Project Specific Special Provisions** normally appear only in the contract for which they were
35 developed.

1 **DIVISION 8 MISCELLANEOUS CONSTRUCTION**

2
3 **8-20 Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and**
4 **Electrical**

5
6 **8-20.1 Description**

7
8 **(*****)**

9 **8-20.1(1) Regulations and Code**

10 Section 8-20.1(1) is supplemented with the following:

11
12 All electrical work on this project shall be accomplished in accordance with the
13 Standard Specifications for Road, Bridge, and Municipal Construction, 2020
14 edition (Standard Specifications), and the Standard Plans for Road, Bridge, and
15 Municipal Construction, latest edition (Standard Plans), and the Amendments to
16 the Standard Specifications, all as published by the Washington State
17 Department of Transportation unless supplemented otherwise by these Special
18 Provisions and the Plans.

19
20 Where applicable, materials and installation procedures shall conform to the
21 Washington State Department of Labor and Industries and City of Kirkland
22 standards.

23
24 Safe wiring labels and an Electrical Work Permit per the State Department of
25 Labor and Industries are required for this project, as well as an Electrical Permit
26 from the City of Kirkland.

27
28 Prior to the start of work, the Contractor shall obtain all necessary licenses,
29 permits, and approvals including a City of Kirkland electrical permit. The
30 Contractor shall comply with all laws, ordinances, rules, orders, and regulations
31 relating to the performance of the Work, the protections of adjacent property,
32 and the maintenance of all facilities. The Contractor shall be required to comply
33 with all of the provisions of these instruments and shall save and hold the City
34 of Kirkland harmless from any damage that may be incurred as a result of the
35 Contractor's failure to comply with all of the terms of these permits.

36
37 **8-20.2 Materials**

38
39 **8-20.2(1) Equipment List And Drawings**

40
41 Section 8-20.2(1) is supplemented with the following:

42
43 **(*****)**

44 The Contractor shall also be required to submit product data for the following:

- 45
46
47
48
- Ethernet switch
 - Video detection equipment and mounting hardware
 - Video detection cabling
 - CCTV cameras, mounting hardware, and cabling

- 1 • Conduit and innerduct
- 2 • Conductors
- 3 • Junction boxes and cable vaults
- 4 • Service cabinets and service connections
- 5 • APS pushbuttons, control unit, and mounting hardware
- 6
- 7 Approval of submittals may require up to 20 calendar days from the date the Engineer
- 8 receives the submittals until they are returned to the Contractor. The actual time
- 9 required for approval is dependent upon the completeness and appropriateness of
- 10 the drawings as submitted.
- 11
- 12 Any deficiencies will require additional time for approval based on the degree of the
- 13 deficiency and the additional review time required. If the submittals are returned to
- 14 the Contractor to correct deficiencies, an additional 20 calendar days may be
- 15 required for the approval process.
- 16
- 17 If more than 20 calendar days are required for routine approval of submittals that are
- 18 completed and accurate, the Contractor will be granted an extension of time equal to
- 19 the additional review time.
- 20
- 21 Materials not approved by the Engineer will not be permitted on the jobsite.
- 22 All materials for review shall be submitted in a single package.
- 23
- 24 (March 13, 1995)
- 25 Pole base to light source distances (H1) for lighting standards with pre-approved
- 26 plans shall be as noted in the Plans.
- 27
- 28 Pole base to light source distances (H1) for lighting standards without pre-approved
- 29 plans will be furnished by the Engineer as part of the final approved shop drawings,
- 30 prior to fabrication.
- 31
- 32 (March 13, 1995)
- 33 If traffic signal standards, strain pole standards, or combination traffic signal and
- 34 lighting standards are required, final verified dimensions including pole base to signal
- 35 mast arm connection point, pole base to light source distances (H1), mast arm length,
- 36 offset distances to mast arm mounted appurtenances, and orientations of pole
- 37 mounted appurtenances will be furnished by the Engineer as part of the final
- 38 approved shop drawings prior to fabrication.
- 39

8-20.3 Construction Requirements

8-20.3(1) General

Section 8-20.3(1) is supplemented with the following:

(*****)

Signal turn-ons shall be limited to Tuesdays through Thursdays, 7AM to 2PM only.
The City of Kirkland prefers that cabinet turn-ons be scheduled on Tuesdays, if

1 possible. All wires are to be pulled and brought to the terminal cans when possible,
2 prior to scheduling a switch over to ensure all pathways are usable and cables are
3 of the proper length. Signal turn-on and flash-out will be coordinated with the City of
4 Kirkland's Signal Technicians a minimum of 5 working days in advance of performing
5 the turn-on. Flash-out will be scheduled approximately 2 working days prior to signal
6 turn-on between 7AM and 2PM. Upon completion of flash-out, contractor will have 2
7 working days to address issues. During this period, contractor will conduct Ohms test
8 for APS pushbuttons per Section 8-20.3(14)G and City Traffic Engineer will confirm
9 all head directionality, signage, and channelization. Signal turn-on will then be
10 performed.

11
12 All equipment shall be handled and protected so as to prevent damage. Damaged
13 equipment, if any, shall be repaired or replaced by the Contractor to the satisfaction
14 of the Engineer at no additional cost to the Owner.

15
16 No new fixtures shall be constructed as part of this Contract, which are in conflict
17 with any existing utilities, or the code required thereby. It shall be the Contractor's
18 responsibility to locate all utilities whether above, on, or below the ground, and to
19 protect against any and all damages arising from work under this project. At least 48
20 hours before digging, the Contractor shall call the Utilities Underground Locator
21 Center (telephone 1-800-424-5555). Contractor must maintain locates during the
22 duration of the project once they have been identified.

23
24 All manufacturers' warranties or guarantees on all electrical and mechanical
25 equipment, consistent with those provided as customary trade practice, shall be
26 assigned to the City of Kirkland.

27
28 **8-20.3(2) Excavating and Backfilling**

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

30
31 **(*****)**
32 Backfill for all electrical trenches shall consist of crushed surfacing top course
33 meeting the requirements of Section 9-03.9(3) of the Standard Specifications.

34
35 All trenches shall be mechanically compacted by a power operated mechanical
36 tamper or other mechanical compaction device approved by the Engineer.
37 Compaction shall be in conformance with Section 2-30.3(14), Method C of the
38 Standard Specifications. The temporary restoration of conduit trenches shall be as
39 directed by the Engineer.

40
41 The Contractor warrants and represents awareness of the statutory provisions
42 contained in RCW 19.122.010 through .900, that the Contractor has read and fully
43 understands the same, and will comply with the requirements of these provisions,
44 which are incorporated by reference herein. The Contractor agrees that all trenching
45 as well as excavating for all pole foundations shall be an "excavation" as defined
46 under RCW Chapter 19.122 and that such utilities constitute underground facilities.
47 The parties agree that remedies affected under RCW Chapter 19.122 are also

1 incorporated by reference herein. Any cost to the Contractor as a result of this law
2 shall be at the Contractor's expense.

3

4 Add the following new sub-sections:

5

6

(*****)

7

8-20.3(2)A Resolving Utility Conflicts

8

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Underground utilities of record will be shown on the construction plans insofar as it is possible to do so. These, however, are shown for convenience only and the City and Engineer assumes no responsibility for improper locations or failure to show utility locations on the construction plans.

The location of existing underground utilities, when shown on the plans, is approximate only, and the Contractor shall be responsible for determining their exact location. The Contractor shall check with the utility companies concerning any possible conflict prior to commencing excavation in any area, as not all utilities may be shown on the plans.

The Contractor shall be entirely responsible for coordination with the utility companies and arranging for the movement or adjustment, either temporary or permanent, of their facilities within the project limits.

If a conflict is identified, the Contractor shall contact the Engineer. The Contractor and City shall locate alternative locations for cabinet or junction boxes. The Contractor shall get approval from the Engineer prior to installation. The Contractor may consider changing depth or alignment of conduit to avoid utility conflicts. Potholing alternative locations, as directed by the Engineer, will be paid for by a separate bid item with approval of the engineer.

Before beginning any excavation work for foundations, vaults, junction boxes or conduit runs, the contractor shall confirm that the location proposed on the Contract Plans does not conflict with utility location markings placed on the surface by the various utility companies. If a conflict is identified, the following process shall be used to resolve the conflict:

1. Contact the Engineer and determine if there is an alternate location for the foundation, junction box, vault or conduit trench.
2. If an adequate alternate location is not obvious for the underground work, select a location that may be acceptable and pothole to determine the exact location of other utilities. Potholing must be approved by the Engineer.
3. If an adequate alternate alignment still cannot be identified following potholing operations, the pothole area should be restored and work in the area should stop until a new design can be developed.

The Contractor shall not attempt to adjust the location of an existing utility unless specifically agreed to by the utility owner.

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8-20.3(4) Foundations

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

(*****)

The foundations for the traffic signal controller cabinet with service cabinet shall conform to Kirkland Standard Plan CK-TS.04.

8-20.3(5) Conduit

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

(*****)

Each empty conduit run shall contain a 200-pound breaking strength polyolefin pull cord, which shall be tied off at both ends. Pull rope or tape removed from fiber optic conduit runs shall be replaced with new pull tape as described in 9-29.27 of these special provisions.

All conduits that are not in use shall be plugged with a watertight duct plug designed specifically to prevent entrance of water and debris.

All conduit installed underground shall have polyethylene Underground Hazard Marking Tape, 6 inches wide, red legend "Caution-Electric Line Buried Below," placed approximately 12 inches above the conduit.

The location of the conduit within the junction box shall be such that the side of the junction box through which the conduit enters shall indicate from which direction the conduit came.

Where intercepting and splicing to an existing conduit is called out on the plans, the Contractor shall verify the conduit size and schedule before ordering the new conduit sections. The size provided on the plans is an estimation.

8-20.3(5)B Detectable Pull Tape

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

(*****)

For all conduits that do not contain electrical conductors, the Contractor shall add a detectable pull tape as indicated on the plans. The pull tape shall be in conformance with Section 9-29.27 of these Special Provisions.

8-20.3(6) Junction Boxes, Cable Vaults, and Pull boxes

Section 8-20.3(6) is supplemented with the following:

(*****)

1 Junction boxes shall be located and oriented as shown on the Plans but may be
 2 adjusted in the field by the Engineer to better fit existing conditions. No junction boxes
 3 shall be located in pedestrian ramp areas.
 4

5 **8-20.3(8) Wiring**

6
 7 Section 8-20.3(8) is supplemented with the following:
 8

9 **(March 13, 1995)**
 10 **Field Wiring Chart**

11 501	AC+ Input	516-520 Railroad Pre-empt
12 502	AC- Input	5A1-5D5 Emergency Pre-empt
13 503-510	Control-Display	541-580 Coordination
14 511-515	Sign Lights	581-599 Spare

16 Movement Number	1	2	3	4	5	6	7	8	9
17									
18 Vehicle Head									
19 Red	611	621	631	641	651	661	671	681	691
20 Yellow	612	622	632	642	652	662	672	682	692
21 Green	613	623	633	643	653	663	673	683	693
22 Spare	614	624	634	644	654	664	674	684	694
23 Spare	615	625	635	645	655	665	675	685	695
24 AC-	616	626	636	646	656	666	676	686	696
25 Red Auxiliary	617	627	637	647	657	667	677	687	697
26 Yellow Auxiliary	618	628	638	648	658	668	678	688	698
27 Green Auxiliary	619	629	639	649	659	669	679	689	699
28 Pedestrian Heads & Dets.									
29 Hand	711	721	731	741	751	761	771	781	791
30 Man	712	722	732	742	752	762	772	782	792
31 AC-	713	723	733	743	753	763	773	783	793
32 Detection	714	724	734	744	754	764	774	784	794
33 Common-Detection	715	725	735	745	755	765	775	785	795
34 Spare	716	726	736	746	756	766	776	786	796
35 Spare	717	727	737	747	757	767	777	787	797
36 Spare	718	728	738	748	758	768	778	788	798
37 Spare	719	729	739	749	759	769	779	789	799
38 Detection									
39 AC+	811	821	831	841	851	861	871	881	891
40 AC-	812	822	832	842	852	862	872	882	892
41 Common-Detection	813	823	833	843	853	863	873	883	893
42 Detection A	814	824	834	844	854	864	874	884	894
43 Detection B	815	825	835	845	855	865	875	885	895
44 Loop 1 Out	816	826	836	846	856	866	876	886	896
45 Loop 1 In	817	827	837	847	857	867	877	887	897
46 Loop 2 Out	818	828	838	848	858	868	878	888	898
47 Loop 2 In	819	829	839	849	859	869	879	889	899
48 Supplemental Detection									

1	Loop 3 Out	911	921	931	941	951	961	971	981	991
2	Loop 3 In	912	922	932	942	952	962	972	982	992
3	Loop 4 Out	913	923	933	943	953	963	973	983	993
4	Loop 4 In	914	924	934	944	954	964	974	984	994
5	Loop 5 Out	915	925	935	945	955	965	975	985	995
6	Loop 5 In	916	926	936	946	956	966	976	986	996
7	Loop 6 Out	917	927	937	947	957	967	977	987	997
8	Loop 6 In	918	928	938	948	958	968	978	988	998
9	Spare	919	929	939	949	959	969	979	989	999

10

11 **8-20.3(10) Services, Transformer, Intelligent Transportation System (ITS) Cabinets**

12

13 Section 8-20.3(14) is supplemented with the following:

14

15 (*****)

16 Connection to Puget Sound Energy power source shall be where shown on the plans.
17 All connections and interfacing with Puget Sound Energy shall conform to Puget
18 Sound Energy requirements.

19

20 **8-20.3(14) Signal Systems**

21

22 Section 8-20.3(14) is supplemented with the following:

23

24 **8-20.3(14)A Signal Controllers**

25

26 Section 8-20.3(14)A is supplemented with the following:

27

28 (*****)

29 The persons performing the controller cabinet installation and wiring and their
30 Supervisor shall be personally experienced in traffic signal and controller cabinet
31 systems and shall have been engaged in this work for a minimum of three years.
32 Qualifications shall be submitted to the Engineer at least 30 calendar days prior
33 to the start of the first controller cabinet replacement. These qualifications shall
34 include:

35

- 36 1. The name of each person who will be performing controller cabinet and
37 traffic signal wiring work and their employer's name, business address
38 and telephone number.
- 39 2. The name and addresses of 5 similar projects that the foregoing people
40 have worked on during the past 3 years.
- 41 3. All information required showing the experience criteria have been met.

42

43 **8-20.3(14)C Induction Loop Vehicle Detectors**

44

45 Section 8-20.3(14)C is supplemented with the following:

46

47 (*****)

48 **Construction Requirements**

1 Install loop detectors during conditions of zero precipitation and when the
2 pavement temperature is between 40 degrees F and 100 degrees F.

3
4 Clean roadway surface of debris, standing water, or other material which may
5 enter the saw cut and thereby degrade the quality of the installation.

6
7 Loops shall be installed as shown in the Plans.

8
9 Loop wires shall be connected to lead –in cable using uninsulated butt splices.
10 The connection shall be soldered and the connection shall then be encapsulated
11 using approved heat shrinkable, thin wall, flexible, polyolefin tubing or 3M Scotch
12 2200 Vinyl Mastic Pads wrapped in 3M Scotch Super 88 Vinyl Electrical Tape.

13
14 In areas where no conduit exists between the junction box and the edge of the
15 roadway, conduit stub outs shall be installed. This installation may require curb
16 and/or side walk replacement to install the required conduit sweeps. Holes
17 greater than 3.5 inches in diameter may require an asphalt patch. Existing stub
18 outs not being re-used shall be plugged or removed from the junction box. Install
19 a 2-inch conduit between each saw cut in the pavement surface and the junction
20 box.

21
22 **Saw Cutting Round Loops**

23 Round loops shall be constructed in accordance with requirements of Method A
24 (Circular Saw). Construction shall conform to WSDOT Standard Plans J-50.12
25 and J-50.15, as modified by the following:

- 26
27 1. Round saw cuts shall be 6 feet in diameter and shall be constructed
28 using equipment designed for cutting round loops. The equipment shall
29 use a concave, diamond-segmented blade. The saw cuts shall be
30 vertical and shall be a minimum of 0.25 inches wide. The saw cut depth
31 shall be a minimum of 2.5 inches measured at any point along the
32 perimeter. Other methods of constructing the saw cut, such as anchoring
33 a router or flat blade saw, will not be allowed.
- 34 2. The bottom of the saw cut shall be smooth. No edges created by the
35 differences in saw cut depths will be allowed.
- 36 3. All saw cuts corner shall be rounded to a minimum 1.6 inches radius.
- 37 4. All saw cuts shall be cleaned with a 1000-psi high pressure washer.
38 Wash water and slurry shall be vacuumed out. Saw cuts shall be blown
39 out dry with compressed air.
- 40 5. Loops shall be installed after paving the final lift of asphalt.
- 41 6. The loops shall be constructed using three turns of conductor if its home
42 run is less than 400 feet, and four turns of conductor if its home run is
43 greater than 400 feet. The conductor shall be installed one turn on top of
44 the previous turn. All turns shall be installed in clockwise direction.

45
46 **Loop Materials**

47 Loop sealant shall be MSI 34271. Loop sealant shall be installed in two layers.
48 The first layer shall be allowed to cool before the second layer is applied.

1 Installation of the sealant shall completely encapsulate the loop conductors. A
2 minimum of 1-inch of sealant shall be provided between the top conductors and
3 the top of the saw cut. All sealant shall be installed per manufacturer
4 recommendations using equipment recommended by the manufacturer.
5

6 Electrical conductors shall conform to the requirements of Section 9-29.3
7 Conductors, Cable of the Standard Specifications, unless otherwise noted.
8 Electrical wiring shall conform to the requirements of Section 8-20.3(8) Wiring of
9 the Standard Specifications.

10 Loop wire shall be No. 12 AWG Class B stranded copper wire with cross-linked
11 polyethylene type USE insulation. Loop lead-in wire shall be IMSA loop cable
12 specification 50-2-1984, #14 AWG
13

14 **Loop Wire Installation**

15 A minimum of 2-inch-diameter PVC conduit shall be used to contain the loop
16 lead-in from the saw cut in the roadway to the junction box.
17

18 The Contractor shall coil at least 10 feet extra wire at the junction box prior to
19 placing it in the saw cut so that the loop wire will not require any splices.
20

21 The loop wires shall be placed in the saw cut so that at no time is any tension
22 placed on the wires. The wires shall not bind against the pavement at any point
23 in the saw cut.
24

25 The loop wires in the lead-in saw cut and loop conduit shall be twisted in a
26 symmetrical fashion with a minimum of 3 twists per foot at a uniform rate of turns
27 per foot between the loop saw cut and the junction box. The twisted loop wire
28 shall be pulled into the junction box through the conduit placed between the saw
29 cut and the junction box. Unless specified by the Engineer there shall be wiring
30 for no more than 3 (three) loops (6 twisted loop wire conductors) in each lead-
31 in (home run) saw cut.
32

33 **Loop Testing**

34 Loop installation shall be tested in accordance with Section 8-20.3 (14) D Test
35 for Induction Loops and Lead-in Cable of the Standard Specifications. In
36 addition, prior to installing the loop sealant material the Contractor shall perform
37 the required inductance testing. The inductance reading shall not be less than
38 60 nor greater than 120 microhenries. If any of the installation fail to pass all
39 tests, the installation shall be repaired or re-tested until satisfactory results are
40 obtained.
41

42 **(*****)**

43 Add the following new section:

44 **8-20.3(14)F Video Detection**

45

46 The Contractor shall furnish, install, and test a complete Video Detection System
47 capable of providing presence and advance vehicle detection at locations
48 defined in the Contract Plans, consistent with manufacturer's recommendations.

- 1 All Video Detection System configurations will be completed by the City’s signal
2 technicians after installation. The Contractor shall coordinate with the City of
3 Kirkland Signal Shop for all configurations.
4
- 5 The Video Detection System and the Hybrid Radar/Video Detection System
6 shall be comprised of components from the same manufacturer, with the
7 exception of the LED monitors.
8
- 9 Detection cameras shall be located approximately as noted on the Plans;
10 however, the locations shall be field adjusted as directed by the Engineer and
11 equipment manufacturer for maximum coverage. Detection shall be fully
12 operable before request can be made for turn on of intersection. The installation
13 shall include all field equipment as well as all equipment required in the controller
14 cabinet, including but not limited to:
- 15 • Video detection cameras
 - 16 • Mounting equipment
 - 17 • Central control unit and extension modules, as needed.
 - 18 • 8-inch video monitor
 - 19 • Programming devices, configuration tools, licenses, and/or software
 - 20 • Surge suppressors
 - 21 • Communications and power cabling
 - 22 • All other equipment necessary for a fully operable detection system
- 23
- 24 If the installation cannot be completed in one day, the controller shall be put on
25 fixed time operation by the Contracting Agency.
26
- 27 Detection cameras shall be mounted at a sufficient height to prevent occlusion
28 from cross traffic. A factory-certified representative of the equipment
29 manufacturer shall install controller cabinet equipment, and program the
30 cameras to provide detection. The Contractor shall notify the Engineer 48 hours
31 in advance of changes that will require Contracting Agency staff to reprogram
32 cameras.
33
- 34 All detection system equipment shall remain the property of the City of Kirkland
35 upon completion of the Contract Work. The Contractor shall be responsible for
36 any damage to the detection equipment.
37
- 38 A factory-certified representative of the equipment manufacturer shall also be
39 on-site during the installation of the permanent equipment to supervise the
40 installation and testing of the equipment. The factory representative shall install,
41 make fully operational, and test the system as indicated in the Plans and in these
42 Special Provisions.
43
- 44 The equipment manufacturer shall provide 2 days training to Contracting Agency
45 personnel in the operation, setup, and maintenance of the permanent Video
46 Detection System. Instruction and materials shall be provided for a maximum of
47 10 persons and shall be conducted at a location selected by the Contracting

1 Agency. The Contracting Agency shall be responsible for travel, room and
2 board, and other related expenses for its own personnel.
3

4 (*****)
5 Add the following new section:
6

7 **8-20.3(14)G Hybrid Radar/Video Detection**

8 The Contractor shall furnish, install, and test a complete Hybrid Radar/Video
9 Detection System capable of providing presence and advance vehicle detection
10 at locations defined in the Contract Plans, consistent with manufacturer's
11 recommendations. All Hybrid Radar/Video Detection System configurations will
12 be completed by the City's signal technicians after installation. The Contractor
13 shall coordinate with the City of Kirkland Signal Shop for all configurations.
14

15 The Video Detection System and the Hybrid Radar/Video Detection System
16 shall be comprised of components from the same manufacturer, with the
17 exception of the LED monitors.
18

19 Detection cameras shall be located approximately as noted on the Plans;
20 however, the locations shall be field adjusted as directed by the Engineer and
21 equipment manufacturer for maximum coverage. Detection shall be fully
22 operable before request can be made for turn on of intersection. The installation
23 shall include all field equipment as well as all equipment required in the controller
24 cabinet, including but not limited to:

- 25 • Hybrid radar/video detection cameras
- 26 • Mounting equipment
- 27 • Central control unit and extension modules, as needed.
- 28 • 8-inch video monitor
- 29 • Programming devices, configuration tools, licenses, and/or software
- 30 • Surge suppressors
- 31 • Communications and power cabling
- 32 • All other equipment necessary for a fully operable detection system

33
34 If the installation cannot be completed in one day, the controller shall be put on
35 fixed time operation by the Contracting Agency.
36

37 Detection cameras shall be mounted at a sufficient height to prevent occlusion
38 from cross traffic. A factory-certified representative of the equipment
39 manufacturer shall install controller cabinet equipment, and program the
40 cameras to provide detection. The Contractor shall notify the Engineer 48 hours
41 in advance of changes that will require Contracting Agency staff to reprogram
42 cameras.
43

44 All detection system equipment shall remain the property of the City of Kirkland
45 upon completion of the Contract Work. The Contractor shall be responsible for
46 any damage to the detection equipment.
47

1 A factory-certified representative of the equipment manufacturer shall also be
2 on-site during the installation of the permanent equipment to supervise the
3 installation and testing of the equipment. The factory representative shall install,
4 make fully operational, and test the system as indicated in the Plans and in these
5 Special Provisions.
6

7 The equipment manufacturer shall provide 2 days training to Contracting Agency
8 personnel in the operation, setup, and maintenance of the permanent Hybrid
9 Radar/Video Detection System. Instruction and materials shall be provided for a
10 maximum of 10 persons and shall be conducted at a location selected by the
11 Contracting Agency. The Contracting Agency shall be responsible for travel,
12 room and board, and other related expenses for its own personnel.
13

14 (*********)
15 Add the following new section:
16 **8-20.3(18) CCTV Camera**
17

18 Add the following new sub-section:
19 **8-20.3(18)A CCTV Camera**
20

21 The CCTV cameras shall be furnished and installed by the Contractor as shown
22 in the mounting details in the Plans. CCTV cameras shall be mounted 90
23 degrees from attachment point (i.e. mast arm). The Contractor is responsible
24 for installing cameras and mounts per manufacturer recommendations,
25 including correct sealing to make camera housing watertight.
26

27 After all cameras are installed the Contractor shall arrange an interactive
28 session with the Engineer to fine-tune and test the cameras in the field. The
29 Contractor shall test the CCTV system using a Contractor-supplied control
30 device such as a laptop computer running Vendor-supplied software. All test
31 cables and connections shall be the responsibility of the Contractor. The
32 Contractor shall demonstrate to the Engineer the following features of the
33 camera installation:
34

- 35 1. Display camera video on the Contractor-provided monitor.
- 36 2. Pan and tilt the camera with no detectable delay.
- 37 3. Zoom and focus the camera in both fast and slow modes.
- 38 4. Turn the camera off and on.
- 39 5. Change the iris to auto and manual.
- 40 6. Demonstrate faceplate wiper operation.

41
42 The Contractor is required to document video output for the following video level
43 measurements and show their results in comparison to the required range
44 provided by the camera manufacturer:
45

- 46 1. Signal-to-noise ratio
- 47 2. Horizontal resolution
- 48 3. Vertical phase

- 1 4. Color and black and white Lux levels
- 2 5. Video output
- 3

4 **CCTV Camera Cabling**

5
6 The Contractor shall install and terminate the CCTV camera cabling into
7 the CCTV using a RJ45 IP67 coupler. The Contractor shall furnish and
8 install a PoE++ injector and termination block in each traffic signal cabinet
9 at camera locations per manufacturer's recommendation for termination of
10 the camera control cable and PoE++ injector power supply cable. Cable
11 shall be identified and marked by the Contractor.

1 **DIVISION 9 MATERIALS**
2

3 **9-29 Illumination, Signal, Electrical**
4

5 **9-29.1 Conduit, Innerduct, and Outerduct**
6

7 **9-29.1(11) Foam Conduit Sealant**

8 Section 9-29.1(11) is supplemented with the following:
9

10 (January 7, 2019)

11 The following products are accepted for use as foam conduit sealant:
12

- 13 • CRC Minimal Expansion Foam (No. 14077)
 - 14 • Polywater FST Foam Duct Sealant
 - 15 • Superior Industries Foam Seal
 - 16 • Todol Duo Fill 400
- 17

18 **9-29.2 Junction Boxes, Cable Vaults, and Pull Boxes**

19 Section 9-29.2 is supplemented with the following:
20

21 **(September 3, 2019)**

22 **Slip-Resistant Surfacing for Junction Boxes, Cable Vaults, and Pull Boxes**

23 Where slip-resistant junction boxes, cable vaults, or pull boxes are required, each
24 box or vault shall have slip-resistant surfacing material applied to the steel lid and
25 frame of the box or vault. Where the exposed portion of the frame is ½ inch wide or
26 less, slip-resistant surfacing material may be omitted from that portion of the frame.
27

28 Slip-resistant surfacing material shall be identified with a permanent marking on the
29 underside of each box or vault lid where it is applied. The permanent marking shall
30 be formed with a mild steel weld bead, with a line thickness of at least 1/8 inch. The
31 marking shall include a two character identification code for the type of material used
32 and the year of manufacture or application. The following materials are approved for
33 application as slip-resistant material, and shall use the associated identification
34 codes:
35

- 36 1. Harsco Industrial IKG, Mebac #1 - Steel: **M1**
 - 37 2. W. S. Molnar Co., SlipNOT Grade 3 – Coarse: **S3**
 - 38 3. Thermion, SafTrax TH604 Grade #1 – Coarse: **T1**
- 39

40 **(*****)**

41 Junction boxes with metal lids located in pedestrian walkway or sidewalk areas shall
42 have non-slip lids provided and installed. Retrofit or replacement lids shall be non-
43 slip.
44
45

46 **9-29.3 Fiber Optic Cable, Electrical Conductors, and Cable**
47
48

1 Add the following new sub-sections:
2

3 **(*****)**

4 **9-29.3(2)J Cat6 Ethernet Cable**
5

6 All Category 6 (Cat6) cabling shall be suitable for outdoor use with a UV
7 stabilized, lead-free, polyethylene jacket. The cable shall comply with TIA/EIA-
8 568-B.2-1 Category 6. The cabling shall be suitable for horizontal, vertical, and
9 aerial applications. The performance requirements shall be compatible with
10 Gigabit Ethernet.

11
12 Cabling shall be 23 AWG, 4-pair unshielded twisted pair conductors. Cabling
13 shall be shielded where cabling is shown on the Plans to be installed in conduit
14 with cabinet power cabling. Cable shall be listed to UL Standard 444.
15 Flammability shall comply to NEC article 800. Cable shall be constructed with
16 water blocking material.
17

18 **9-29.6 Light And Signal Standards**

19 Section 9-29.6 is supplemented with the following:
20

21 **(January 7, 2019)**

22 **Light Standards with Type 1 Luminaire Arms**

23 Lighting standards shall be fabricated in conformance with the methods and
24 materials specified on the pre-approved Plans listed below, provided the following
25 requirements have been satisfied:
26

27 (a) Light source to pole base distance (H1) shall be as noted in the Plans.
28 Verification of H1 distances by the Engineer, prior to fabrication, is not
29 required. Fabrication tolerance shall be ± 6 inches.
30

31 (b) All other requirements of the Special Provisions have been satisfied.
32

<u>Pre-Approved Plan</u>	<u>Fabricator</u>	<u>Mounting Hgt.</u>
Drawing No. DB01164 Rev. B Sheets 1, 2, 3, 4 & 5 of 5	Valmont Ind. Inc.	30', 35', 40' & 50'
Drawing No. WA15LT3721 Rev. A Sheet 1 and 2 of 2	Ameron Pole Prod. Div.	20', 25', 30', 35', 40', 45' & 50'

41 **(April 1, 2019)**

42 **Traffic Signal Standards**

43 Traffic signal standards shall be furnished and installed in accordance with the
44 methods and materials noted in the applicable Standard Plans, pre-approved plans,
45 or special design plans.
46
47

1		All welds shall comply with the latest AASHTO Standard Specifications for Structural	
2		Supports for Highway Signs, Luminaires and Traffic Signals. Welding inspection	
3		shall comply with Section 6-03.3(25)A Welding Inspection.	
4			
5		Hardened washers shall be used with all signal arm connecting bolts instead of	
6		lockwashers. All signal arm ASTM F 3125 Grade A325 connecting bolts tightening	
7		shall comply with Section 6-03.3(33).	
8			
9		Traffic signal standard types and applicable characteristics are as follows:	
10			
11	Type PPB	Pedestrian push button posts shall conform to Standard Plan J-	
12		20.10 or to one of the following pre-approved plans:	
13			
14		<u>Fabricator</u>	<u>Drawing No.</u>
15		Valmont Ind. Inc.	DB01165 Rev. B
16			Sheet's 1, 2, 3 & 4 of 4
17			
18		Ameron Pole	WA15TR10-1 Rev. C and
19		Prod. Div.	WA15TR10-3 Rev. B
20			
21	Type PS	Pedestrian signal standards shall conform to Standard Plan J-	
22		20.16 or to one of the following pre-approved plans:	
23			
24		<u>Fabricator</u>	<u>Drawing No.</u>
25		Valmont Ind. Inc.	DB01165 Rev. B
26			Sht. 1, 2, 3 & 4 of 4
27			
28		Ameron Pole	WA15TR10-1 Rev. C and
29		Prod. Div.	WA15TR10-2 Rev. C
30			
31	Type I	Type I vehicle signal standards shall conform to Standard Plan J-	
32		21.15 or to one of the following pre-approved plans:	
33			
34		<u>Fabricator</u>	<u>Drawing No.</u>
35		Valmont Ind. Inc.	DB01165 Rev. B
36			Sht. 1 2, 3 & 4 of 4
37			
38		Ameron Pole	WA15TR10-1 Rev. C and
39		Prod. Div	WA15TR10-2 Rev. C
40			
41	Type FB	Type FB flashing beacon standard shall conform to Standard Plan	
42		J-21.16 or the following pre-approved plan:	
43			
44		<u>Fabricator</u>	<u>Drawing No.</u>
45		Valmont Ind. Inc.	DB01165 Rev. B
46			Sht. 1 2, 3 & 4 of 4
47			
48		Ameron Pole	WA15TR10-1 Rev. C and

1		Prod. Div.	WA15TR10-2 Rev. C
2			
3	Type RM	Type RM ramp meter standard shall conform to Standard Plan J-22.15 or the following pre-approved plan:	
4			
5			
6		<u>Fabricator</u>	<u>Drawing No.</u>
7		Valmont Ind. Inc.	DB01165 Rev. B
8			Sht. 1, 2, 3 & 4 of 4
9			
10		Ameron Pole	WA15TR10-1 Rev. C and
11		Prod. Div.	WA15TR10-2 Rev. C
12			
13	Type CCTV	Type CCTV camera pole standards shall conform to one of the following pre-approved Plans:	
14			
15			
16		<u>Fabricator</u>	<u>Drawing No.</u>
17		Valmont Industries, Inc.	DB 01166 Rev. B
18			Sheet 1, 2, 3 and 4 of 4
19			
20		Ameron Pole Product Div.	WA15CCTV01 Rev. B
21			Sheet 1 and 2 of 2
22			
23	Type II	Characteristics:	
24			
25		Luminaire mounting height	N.A.
26		Luminaire arms	N.A.
27		Luminaire arm length	N.A.
28		Signal arms	One Only
29			
30		Type II standards shall conform to one of the following pre-approved plans, provided all other requirements noted herein have been satisfied. Maximum (x) (y) (z) signal arm loadings in cubic feet are noted after fabricator.	
31			
32			
33			
34			
35		<u>Signal Arm</u>	
36		<u>Length (max)</u>	<u>Fabricator-(x) (y) (z)</u>
37			<u>Drawing No.</u>
38		65 ft.	Valmont Ind. Inc.-(2894)
39			DB01162 Rev. B,
40			Shts. 1, 2,3, 4 & 5 of 5
41		65 ft.	Ameron Pole-(2900)
42			Prod. Div.
43			WA15TR3724-1 Rev. C and
44			WA15TR3724-2 Rev. D
45	Type III	Characteristics:	
46			
47		Luminaire mounting height	30 ft.,
48			35 ft.,

1			40 ft.,
2			or 50 ft.
3		Luminaire arms	One Only
4		Luminaire arm type	Type 1
5		Luminaire arm length (max.)	16 ft.
6		Signal arms	One Only
7			
8		Type III standards shall conform to one of the following pre-	
9		approved plans, provided all other requirements noted herein have	
10		been satisfied. Maximum (x) (y) (z) signal arm loadings in cubic	
11		feet are noted after fabricator.	
12			
13		Signal Arm	
14		<u>Length (max)</u>	<u>Fabricator-(x) (y) (z)</u>
15			<u>Drawing No.</u>
16		65 ft.	Valmont Ind. Inc.-(2947)
17			DB01162 Rev. B,
18			Shts. 1, 2, 3, 4 & 5 of 5
19			and "J" luminaire arm
20		65 ft.	Ameron Pole-(2900)
21			Prod. Div.
22			WA3724-1 Rev. C and
23			WA3724-2 Rev. D
24			and "J" luminaire arm
25		Type IV	Type IV strain pole standards shall be consistent with details in the
26			plans and Standard Plan J-27.15 or one of the following pre-
27			approved plans:
28			<u>Fabricator</u>
29			Valmont Industries, Inc.
30			<u>Drawing No.</u>
31			DB01167, Rev. B
32			Sheets 1 and 2
33			Ameron Pole
34			Prod. Div.
35			WA15TR15 Rev. A
36			Sheet 1 and 2 of 2
37		Type V	Type V combination strain pole and lighting standards shall be
38			consistent with details in the plans and Standard Plan J-27.15 or
39			one of the following pre-approved plans:
40			<u>Fabricator</u>
41			Valmont Industries, Inc.
42			<u>Drawing No.</u>
43			DB01167, Rev. B
44			Sheets 1 and 2
45			Ameron Pole
46			Prod. Div.
47			WA 15TR15 Rev. A
48			Sheet 1 and 2 of 2

The luminaire arm shall be Type 1, 16 foot maximum and the luminaire mounting height shall be 40 feet or 50 feet as noted in the plans.

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Type SD Type SD standards require special design. All special design shall be based on the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and pre-approved plans and as follows:

1. A 115 mph wind loading shall be used.
2. The Mean Recurrence Interval shall be 1700 years.
3. Fatigue category shall be III.

Complete calculations for structural design, including anchor bolt details, shall be prepared by a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural Engineering or by an individual holding valid registration in another state as a civil or structural Engineer.

All shop drawings and the cover page of all calculation submittals shall carry the Professional Engineer's original signature, date of signature, original seal, registration number, and date of expiration. The cover page shall include the contract number, contract title, and sequential index to calculation page numbers. Two copies of the associated design calculations shall be submitted for approval along with shop drawings.

Details for handholes and luminaire arm connections are available from the Bridges and Structures Office.

Foundations for various types of standards shall be as follows:

Type PPB	As noted on Standard Plan J-20.10
Type PS	As noted on Standard Plan J-21.10
Type I	As noted on Standard Plan J-21.10
Type FB	As noted on Standard Plan J-21.10
Type RM	As noted on Standard Plan J-21.10
Type CCTV	As noted on Standard Plan J-29.15
Type II	As noted in the Plans.
Type III	As noted in the Plans.
Type IV	As noted in the Plans and Standard Plan J-27.10
Type V	As noted in the Plans and Standard Plan J-27.10
Type SD	As noted in the Plans.

9-29.10 Luminaires

9-29.13(1) Conventional Roadway Luminaires

(*****)

1 **9-29.10(1)B Light Emitting Diode (LED) Conventional Roadway**
2 **Luminaires**

3 Section 9-29.10(1)B is supplemented with the following:

4
5 The LED Conventional Roadway Luminaire shall be as noted on the Plans.

6
7 **9-29.13 Control Cabinet Assemblies**

8 Section 9-29.13 is supplemented with the following:

9
10 **(*****)**

11 **9-29.13(3) Traffic Signal Controller**

12 Section 9-29.13(3) is supplemented with the following:

13
14 **Controller Unit (CMU)**

15
16 **1 General Description**

17 This specification describes the minimum requirements for a traffic controller.
18 The controller shall be configurable to meet, at a minimum, all applicable
19 sections of the referenced NEMA Standards.

20
21 **2 Hardware**

22 2.1 Required Standards

23 Siemens M62 control equipment shall be used in this contract.
24 All traffic signal controllers shall be furnished with Siemens
25 SEPAC Version 3.5x local intersection software. Traffic signal
26 controller shall meet the applicable standards as described
27 herein. Equipment supplier shall provide a letter from an
28 independent testing laboratory certifying controller compliance
29 to the standards and specifications referred to in this section.

30 2.1.1 NEMA TS2 Standard.

31 2.1.2 ATC 5.2b Specification

32 2.2 Configurations

33 2.2.1 It shall be possible to configure the controller for multiple
34 configurations:

35 2.2.1.1 ATC NEMA Configuration.

36 2.2.1.2 It shall be possible to configure the controller to
37 comply the NEMA ATC 5.2b specification.

38 2.2.2 TS-2 Type 2 NEMA Configuration.

39 It shall be possible to initially setup the controller for a
40 NEMA TS-2 Type 2 configuration without ATC
41 compliance.

42 2.2.3 The controller shall be suitable for both a direct parallel
43 connection to load switches and detectors and an SDLC
44 port to communicate with NEMA BIUs.

45 2.2.4 Vendor shall provide a field upgrade kit to easily upgrade
46 a Standard NEMA Configuration to a compliant ATC
47 Configuration.

48 2.3 Central Processor Unit (CPU) or Engine Board

- 1 In addition to NEMA requirements, the CPU shall provide the
2 following:
3 2.3.1 Linux Operating System with runtime license and Kernel
4 x.y.z.
5 2.3.2 MPC 8270 microprocessor operating at 266 MHz.
6 2.3.3 64 Megabytes minimum dynamic random-access
7 memory (DRAM).
8 2.3.4 512 Megabytes minimum FLASH memory organized as
9 a disk drive.
10 2.3.5 2 Megabytes minimum static random-access memory
11 (SRAM).
12 2.3.6 Time of Day (TOD) clock with hours, minutes, seconds,
13 month, year, and automatic day- light savings time
14 adjustment. TOD may be implemented in the CPU via
15 electronic circuitry, operating system software, or a
16 combination.
17 2.3.7 During power failures, the SRAM and TOD shall be
18 powered by STANDBY voltage from the power supply.
19 2.4 ATC Communications Module
20 2.4.1 The ATC Communication module shall be a plug-in type
21 module.
22 2.4.2 The ATC Communication module shall provide the
23 following communications options:
24 2.4.2.1 Four built-in USB 2.0 ports.
25 2.4.2.2 Built-in 10 Base-T Ethernet with four RJ-
26 45 connectors.
27 2.4.2.3 Built-in 9pin EIA-574 SP8 Port for GPS
28 connection.
29 2.4.2.4 Built-in 8MB Data key Port.
30 2.4.2.5 Dedicated normally flashing red 'CPU
31 Active' LED to indicate CPU failure.
32 2.5 Power Supply
33 In addition to ATC 5.2b requirements, the Power Supply shall
34 provide the following:
35 2.5.1 Line Frequency Reference signal shall be generated by
36 a crystal oscillator, which shall synchronize to the 60-Hz
37 VAC incoming power line at 120 and 300 degrees. A
38 continuous square wave signal shall be +5 VDC
39 amplitude, 8.333 mS half-cycle pulse duration, and 50
40 +/- 1% duty cycle. The Line Frequency Reference shall
41 compensate for missing pulses and line noise during
42 normal operation. The Line Frequency Reference shall
43 continue through 450 mS power interruptions.
44 2.5.2 STANDBY voltage via supercapacitor for backup power
45 during loss of service voltage shall be provided.
46 Supercapacitor shall have a minimum of 15-farad
47 nominal size. No batter- ies of any type are allowed.
48 2.6 Keyboard and Display

- 1 In addition to ATC 5.2b requirements, Keyboard and Display
2 shall provide the following:
3 2.6.1 Removable by pulling off, installed by pushing on, with
4 retaining screw.
5 2.6.2 Emulation of terminal per Joint NEMA/AASHTO/ITE ATC
6 Standard
7 2.6.3 Key quantity and function per Joint NEMA/AASHTO/ITE
8 ATC Standard.
9 2.6.4 Liquid Crystal Display (LCD) with 16 lines of 40
10 characters.
11 2.6.5 LCD contrast adjustment accomplished via the keypad,
12 no contrast knob allowed.
13 2.6.6 Light-emitting diode backlight for the LCD.
14 2.6.7 Audible electronic bell.
15 2.6.8 Connector compatible with C60 of Joint
16 NEMA/AASHTO/ITE ATC Standard, with the addition of
17 +5 VDC supplied by the controller on C60, Pin 1.
18 2.6.9 Keyboard and display may be removed for cost savings
19 by the Agency.
20 2.6.10 In order to reduce errors, it shall be possible to view the
21 active status screens simultaneously with other
22 programming menu screens.
23 2.6.11 It shall be possible to assign a specific menu screen to
24 one of the available function buttons on the keyboard.
25 2.6.12 The operator shall be able to evoke a context sensitive
26 help screen using a clearly identified HELP button.
27 2.6.13 For ease of operation for first responders and agency
28 staff, the controller shall provide a clearly identified
29 Auxiliary ON/OFF switch on the keypad.
- 30 2.7 Communications
31 In addition to ATC 5.2b requirements, the controller shall provide
32 the following:
33 2.7.1 Built-in 10 Base-T Ethernet with five RJ-45 connectors
34 on controller front panel.
35 2.7.2 Built-in Internet Protocol (IP) address assigned by
36 Institute of Electrical and Electronic Engineers (IEEE),
37 two unique IP addresses for each controller.
38 2.7.3 Built-in 1200 bps Frequency Shift Keying (FSK) modem.
39 Modem is optional per Agency specification. Choice of 2
40 or 4 wire operation per Agency specification.
41 2.7.4 Built-in EIA-232 port for uploading and downloading
42 applications software, as well as to update the operating
43 system.
44 2.7.5 Built-in C60 connector for use with removable Keyboard
45 and Display, Personal Computer COM1 or Personal
46 Digital Assistant (PDA). C60 protocol per Joint
47 NEMA/AASHTO/ITE ATC standard.
48 2.7.6 Four built-in USB 2.0 ports on controller front panel.

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2.8 Enclosure

In addition to the ATC 5.2b requirements, the controller housing shall provide the following:

- 2.8.1 One slot with card guides for standard Joint NEMA/AASHTO/ITE ATC modems. The modems are optional, per Agency specification.
- 2.8.2 Polycarbonate construction, except back panel, rear mounting tabs and power supply mounting plate shall be aluminum for electrical grounding.
- 2.8.3 Built-in carrying handle
- 2.8.4 Two adjustable front mounting feet, used to raise the front cables and vary the display viewing-angle.

(*****)

9-29.13(10)C NEMA Controller Cabinets

Section 9-29.13(10)C is supplemented with the following:

Cabinet Minimum Requirements

The cabinet shall be completely wired and tested to the 2003 NEMA Traffic Controller Assemblies specification with NTCIP Requirements Version 02.06 (as amended here in). In addition, and at a minimum, the following requirements shall be met:

City of Kirkland traffic signal cabinet specification shall supersede any applicable parts of the State of Washington, Department of Transportation Standard Specifications and Standard plans. This specification shall apply to all controller cabinet types with noted exceptions.

All items not covered by these specifications shall conform to State of Washington, Department of Transportation Standard Specifications and Standard Plans. Traffic signal cabinets shall also comply with NEMA specifications where applicable.

The controller cabinet shall be furnished and installed by the contractor. The controller cabinet shall be equipped with all auxiliary equipment and plug-ins required to operate 8 vehicle phases, 4 pedestrian phases and 4 overlap phases (NEMA TS-2, Type 1). Solid state switching devices shall conform to the provisions in Section Solid State Switching Devices," of these Special Provisions and the following:

The cabinet manufacturer shall install and wire a 768 Opticom interface panel.

The cabinet manufacturer shall install and wire the complete cabinet portion of the Polara pushbutton system.

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The cabinet manufacturer shall have pre-approval by the City of Kirkland on any cabinet that they propose to provide to the City. Said pre-approval shall have been obtained no less than 60 days prior to the closing date of the bid.

All cabinets shall be pre-approved by the City of Kirkland prior to bid letting.

The cabinet shall be designed for 16 channel operation. Load switch(s) 1-8 shall be vehicle phases 1-8; load switch(s) 9-12 shall be pedestrian phases 2, 4, 6, 8; load switch(s) 13-16 shall be overlaps A, B, C & D. These load switch sockets shall be configured in this manor without rewiring the back side of the load-bay. BIU load switch drivers 1-16 shall be wired to appropriate load switch sockets via a terminal block located on the front side of the load bay so as to allow checking voltage inputs to the load switch sockets without dropping the load bay.

The cabinet shall be wired for up to a minimum of (64) channels of detection, (4) channels of Opticom™ preemption.

The use of PC boards shall not be allowed except in detector racks, SDLC interface panels or BIU cages.

The use of plug and play modules shall not be allowed, with the exception of detector rack(s).

The cabinet shall be wired to provide a 55-pin “A” connector.

All cabinet 120VAC wires shall be 18AWG or greater, including controller “A” and MMU “A & B” cables.

The complete cabinet assembly with electronics shall undergo complete input/output function testing by the manufacturer before being released to the City of Kirkland. Testing shall be done via service feed to the 120VAC field terminal. Service power shall be routed through the generator bypass switch, UPS inverter before being connected to the power panel so that all service load circuits are tested.

The following additional test shall be required:

1. If the cabinet comes with a UPS system (BBS) and batteries; the entire controller cabinet assembly shall undergo a BBS field test procedure where the cabinet is run off battery power.

The wired cabinet facility shall use the latest technology applicable and shall be 100% compliant with Section 1605 of the American Recovery

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and Reinvestment Act of 2009, requiring the use of American iron, steel and manufactured goods.

The cabinet assembly shall be completely manufactured in the United States of America.

Cabinet Enclosure

At a minimum, the Stretched P cabinets shall meet the following criteria:

1. It shall have nominal dimensions of 70” high x 44” width x 25.5” depth and meet the footprint dimensions as specified in Section 7.3, table 7-1 of NEMA TS2 standards for a Type P cabinet. The cabinet base shall have continuously welded interior mounting reinforcement plates with the same anchor bolt hole pattern as the footprint dimensions.
2. Shall be fabricated from 5052-H32 0.125-inch thick aluminum.
3. The cabinet shall be double-flanged where it meets the cabinet door.
4. The top of the cabinet shall be sloped 1” towards the rear to facilitate water runoff. And shall bend at a 90° angle at the front of the cabinet. Lesser slope angles are not allowed.
5. The inside of the cabinet shall have (2) separate compartments. The main compartment shall be accessible from the front door and shall house the cabinet load facilities and electronics. The BBS compartment shall be accessible from the side door and shall contain the UPS system batteries. The UPS system inverter and ATS assembly shall be mounted in the BBS compartment but shall be accessible when the front door is open.
6. The inside of the cabinet shall utilize C channel rails. (3) Welded on the back wall. The outer two are on 34” center. The third is 8.5” on center with the farthest right C channel. There are (4) welded on each side wall on 08” center with 04” between sets. The C channel rails shall on the back wall shall be 48” in length and start 5” from the bottom of the cabinet interior. The C channel rails on the side walls shall be 59” in length and start 5” from the bottom of the cabinet interior. Adjustable rails are not allowed.
7. The Cabinet shall be supplied with the following finishes; the interior natural mill finish. The exterior natural mill finish.
8. All external fasteners shall be stainless steel. Pop rivets shall not be allowed on any external surface.
9. The front door handle shall be ¾” round stock stainless steel bar. The side door shall use a recessed hexagonal socket in lieu of a door handle. All door handle mechanisms shall be interchangeable and field replaceable.
10. The front door shall contain (2) flush mount locking recessed compartments. The upper compartment that houses a police door and a lower compartment that houses a generator bypass

- 1 receptacle. A stiffener plate shall be welded to the inside of the
2 front door to prevent flexing. It shall have a two-position, three-
3 point door stop that accommodates open-angles at 90°, 125°,
4 and 150°. A louvered air entrance located at the bottom of the
5 main door shall satisfy NEMA rod entry test requirements for 3R
6 ventilated enclosures. Bearing rollers shall be applied to ends of
7 door latches to discourage metal-on-metal surfaces from
8 rubbing. The main front door lock assembly shall be positioned
9 so the door handle does not cause interference with the key when
10 opening the door.
- 11 11. The police door compartment shall come with a conventional
12 police lock.
- 13 12. The generator bypass receptacle compartment shall be equipped
14 with a universal lock bracket capable of accepting a Best™ style
15 lock and a Corbin #2 tumbler series lock. The lock shall be a
16 tapered lock using a Best™ style lock or Corbin #2 series core.
17 The door shall have an integrated door slide mechanism that
18 allows the door to be closed and locked after a generator has
19 been connected to the internal receptacle. This compartment is
20 used by maintenance personnel for emergency generator
21 operation in the absence of service power or BBS control.
- 22 13. The side door shall be one piece construction without any
23 recessed compartments. It shall have a three-position, two-point
24 door stop that accommodates open-angles at roughly 80°, 100°,
25 and 120°. A louvered air entrance located at the bottom of the
26 side door shall satisfy NEMA rod entry test requirements for 3R
27 ventilated enclosures. Bearing rollers shall be applied to ends of
28 door latches to discourage metal-on-metal surfaces from
29 rubbing. Lock assembly shall be positioned so handle does not
30 cause interference with key when opening the door.
- 31 14. Closed-cell, neoprene gaskets shall be bonded to the inside of
32 the cabinet doors. The gaskets shall cover all areas where the
33 doors contact the double flanged cabinet housing exterior and be
34 thick enough to provide a watertight seal.
- 35 15. A complete set of keys shall be supplied providing access to the
36 cabinet front door, cabinet side door, the police door and the
37 generator receptacle door.
- 38 16. The cabinet shall be equipped with a universal lock brackets
39 capable of accepting a Best™ style lock and a Corbin #2 tumbler
40 series lock. The cabinet shall come equipped with a Best™ style
41 lock and green construction core.
- 42 17. The cabinet shall be supplied with three (3) door switches which
43 control the door and police door open status and the cabinet
44 interior lighting circuits.
- 45 18. All exterior seams shall be manufactured with neatly formed
46 continuously weld construction. The weld for the police box door
47 shall be done on the inside of the cabinet door. All welds shall be
48 free from burrs, cracks, blowholes or other irregularities.

- 1 19. The fan baffle panel seams shall be sealed with RTV sealant or
- 2 equivalent material on the interior of the cabinet.
- 3 20. The cabinet shall come with lifting ears affixed to the upper
- 4 exterior of the cabinet. These ears shall utilize only one bolt for
- 5 easy reorientation. (The cabinet lifting ears shall not be when the
- 6 batteries installed).
- 7 21. The cabinet shall come with two (2) dual-ply Dustlock™ Media
- 8 polyester, disposable air filter; and the filter performance shall
- 9 conform to listed UL 900 Class 2 and conform to MERV-8 &
- 10 ASHRAE Standard 52.2-1999. The filter element shall be
- 11 secured to louvered entrance on the main door with a metal filter
- 12 cover. The filter and metal cover shall be secured to entrance on
- 13 main door by two (2) horizontally-mounted restraints.
- 14 22. All cabinet doors shall be mounted with a single continuous
- 15 stainless steel piano hinge that runs the length of the door.
- 16 Attaching tamper resistant bolts shall also be stainless steel.
- 17 23. The cabinet enclosure shall be a SP+ style Western Systems
- 18 Part # 3017500000.
- 19 24. The cabinet shall be UL listed
- 20 25. All steel incorporated in the cabinet shell shall be manufactured
- 21 in the United States of America, and shall meet the requirements
- 22 of Section 1605 of the American Recovery and Reinvestment Act
- 23 of 2009.

24

25 **Labels**

26
27 A permanent printed thermo vinyl, engraved or silk screened label shall
28 be provided for all terminals and sockets. Labels shall be legible and
29 shall not be obstructed by cabinet wiring, panels or cables. All labels shall
30 conform to the designations on the cabinet wiring prints.

31

32 **Shelves**

33
34 Shall come with (3) double beveled shelves 10" deep that are reinforced
35 welded with V channel, fabricated from 5052-H32 0.125-inch thick
36 aluminum with double flanged edges rolled front to back. Slotted hole
37 shall be inserted every 7" for the purpose of tying off wire bundles. The
38 BBS compartment shall come with (4) shelves designed to hold batteries
39 and capable of supporting 75lbs each.

40

41 **Cabinet Layout**

42
43 The shelves shall be populated as follows. The controller and monitor
44 shall be placed on the bottom shelf. The power supply and four (4)
45 detector racks shall be placed on the middle shelf. The top shelf shall be
46 left empty for future electronics.

47

- 1 The roll out drawer shall be mounted under the bottom shelf just left of
2 center.
3
- 4 Load bay shall be mounted on the back wall with 7" of clearance to the
5 bottom of the cabinet.
6
- 7 A 12"x10" blank panel for the Polara iNavigator iN2-ICB interconnect
8 board shall be mounted on the lower left wall.
9
- 10 The detector panel for all field inputs shall be mounted on the left wall
11 above the Polara panel.
12
- 13 video panel shall be mounted on the left wall above the detector panel
14 One 120VAC quad convenience outlet shall be mounted on the left wall
15 above the top shelf.
16
- 17 The SDLC and power supply interface panels shall be mounted on the
18 left wall between the middle and bottom shelves.
19
- 20 The power panel shall be mounted on the lower right wall.
21
- 22 A 12"x36" blank panel shall be mounted on the right wall above the power
23 panel.
24
- 25 One 120VAC quad convenience outlet shall be mounted on the right wall
26 above the top shelf.
27
- 28 The 768 panel shall be mounted on the right wall under the bottom shelf.
29
- 30 **Ventilating Fans**
31
- 32 The cabinet shall be provided with two (2) finger safe din rail mounted
33 thermostatically controlled (adjustable between 4-176° Fahrenheit)
34 ventilation fan. The fan shall be installed in the top right side of the
35 cabinet plenum. The safe touch thermostat fuse holder and power
36 terminal block(s) shall be din rail mounted on right side of cabinet
37 plenum.
38
- 39 **Computer Shelf**
40
- 41 A slide-out computer shelf 16" length by 12" width by 2" depth shall be
42 installed below the middle shelf underneath the controller. The shelf shall
43 be mounted just right of center so that controller cables will not interfere
44 with the operation of the shelf when equipment is installed. The shelf
45 shall have a hinged cover that opens from the front and shall be powder-
46 coated black. It shall be a General Devices Part # VC4080-99-1168. The
47 drawer when fully extended shall hold up to 50lbs.
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Main Panel Configuration (Load-Bay)

The design of the panel shall conform to NEMA TS2 Section 5, Terminals and Facilities, unless modified herein. This panel shall be the termination point for the controller unit (CU) MSA, (MMU) MSA & B cables, bus interface units 1 & 2 (BIU) and field terminal facilities. The terminal and facilities layout shall be arranged in a manner that allows all equipment in the cabinet and all screw terminals to be readily accessible by maintenance personnel.

The load-bay shall be fully wired and meet the following requirements:

- The load-bay shall have the following dimensions; constructed from aluminum with a nominal thickness of 0.125", a maximum height of 24" and maximum width of 28.5". The field terminals width shall be 31.5" including attached wiring bundles.
- The entire assembly shall roll down and provide access to all of the back of panel wiring. All solder terminals shall be accessible when the load-bay is rolled down. The assembly shall be able to roll down without requiring other components, cables or switches to be removed.
- The load-bay shall be designed so that all other cabinet screw terminals are accessible without removing cabinet electronics.
- All the controller (CU) and malfunction management (MMU) cables shall be routed through the back of the load-bay so that they will not be subject to damage during load-bay roll down.
- The top of the load-bay panel shall attach directly to "C" channel and detach without the use of tools or loose hardware for roll down purpose.
- The load-bay shall be balanced such that it will not roll down when the top of the load bay is detached from the "C" channel, even when fully loaded with BIUs load switches, flasher and flash transfer relays.
- The load-bay facility shall be wired for 16 channels. Load switch(s) 1-8 shall be vehicle phases 1-8; load switch(s) 9-12 shall be pedestrian phases 2, 4, 6 & 8; load switches 13-16 shall be overlaps A, B, C & D. Load switches 1-8 and 13-16 shall be routed through a flash transfer relay.
- (16) Load switch sockets in two rows of (8) spaced on 2" center per NEMA TS2 section 5.3.1.2, figure 5-2.
- (6) Flash transfer relay sockets.
 - Flasher socket.
- All load switches and flasher shall be supported by a bracket extending at least 1/2 the length of the load switch.

1	larger shall be permitted to be UL type THHN. Main panel wiring	
2	shall conform to the following colors and minimum wire sizes:	
3		
4	Vehicle green load switch output	14 gauge brown
5		
6	Vehicle yellow load switch output	14 gauge yellow
7		
8	Vehicle red load switch output	14 gauge red
9		
10	Pedestrian Don't Walk switch	14 gauge orange
11		
12	Pedestrian Walk switch	14 gauge blue
13		
14	Pedestrian Clearance load switch	14 gauge yellow
15		
16	Vehicle green load switch input	22 gauge brown
17		
18	Vehicle yellow load switch input	22 gauge yellow
19		
20	Vehicle red load switch input	22 gauge red
21		
22	Pedestrian Don't Walk input	22 gauge orange
23		
24	Pedestrian Walk input	22 gauge blue
25		
26	Pedestrian Clearance input	22 gauge yellow
27		
28	Logic Ground	18 gauge white
29		with red tracer
30		
31	+24V DC	18 gauge red with
32		white tracer
33		
34	+12V DC	18 gauge pink
35		
36	AC+ Line	14 gauge black
37		
38	AC- Line	14 gauge white
39		
40	Earth Ground	16 gauge green
41		
42	AC line (load bay)	12/14 gauge black
43		
44	AC neutral (load bay)	12/14 gauge white
45		
46	Controller A cables	22 gauge blue
47		with the exception
48		of power wires

1		(AC+ Black, AC-
2		White & Earth
3		Ground Green)
4		these wires shall
5		be 18AWG
6		
7	MMU A & B cables	22 gauge orange
8		with the exception
9		of power wires
10		(AC+ Black, AC-
11		White & Earth
12		Ground Green
13		Start Delay Relay
14		Common Black,
15		Normally open
16		Black & Normally
17		Closed Black)
18		These wires shall
19		be 18AWG
20		
21		Four conductors will supply alternating current (AC) power to the
22		load switch sockets. The load switch sockets shall be supplied 1-4,
23		5-8, 9-12 & 13-16 by each conductor.
24		
25		The vehicle field terminal blocks shall have a screw Type No. 10
26		post capable of accepting no less than 3 No. 12 AWG wires fitted
27		with spade connectors. Four (4) 12-position terminal blocks shall
28		be provided in a single row across the bottom of the main panel.
29		Spade lugs from internal cabinet wiring are not allowed on field
30		terminal screws. There shall be a second row of four (4) 12-
31		position terminal blocks with screw type #10 above the field
32		terminal blocks. These blocks shall operate the flash program. It
33		shall be changeable from the front of the load bay.
34		
35		The terminal block above the Pedestrian field blocks shall be tied
36		to the Don't Walks and Walks with orange and blue 14AWG wire.
37		This shall provide termination for pushbutton control wires without
38		utilizing field terminals. There shall also be access to flash circuits
39		1 and 2.
40		
41		The power terminal blocks shall have a screw Type No. 10 post
42		capable of accepting no less than 3 No. 12 AWG wires fitted with
43		spade connectors. One (1) 12-position terminal block and one (1)
44		6-position terminal block shall be provided vertically on the right
45		side of the load bay. The placement of the power terminal block on
46		any other panel shall not be allowed.
47		

1 All load switches, flasher, and flash transfer relay sockets shall be
2 marked and mounted with screws. Rivets and clip-mounting is
3 unacceptable.
4 Wire size 16 AWG or smaller at solder joints shall be hooked or
5 looped around the eyelet or terminal block post prior to soldering to
6 ensure circuit integrity. All wires shall have lugs or terminal fittings
7 when not soldered. Lap joint/tack on soldering is not acceptable.
8 All soldered connections shall be made with 60/40 solder and non-
9 corrosive, non-conductive flux. All wiring shall be run neatly and
10 shall use mechanical clamps and conductors shall not be spliced
11 between terminations. Cables shall be sleeved in braided nylon
12 mesh and wires shall not be exposed.

13
14 **Load-Bay and Panel Wire Termination**

15
16 All wires terminated behind the main panel or on the back side of
17 other panels shall be SOLDERED. No pressure or solder-less
18 connectors shall be used. Printed circuit boards shall only be used
19 on the load bay where connecting to the bus interface units (BIU).
20

21 **Cabinet Light Assembly**

22
23 The cabinet shall have two (2) LED lighting fixture with 15 high
24 power LEDs using a cool white color emitting 300lm min @
25 12VDC/750mA. The LED shall be a Rodeo Electronics TS-LED-
26 05M02. The LED fixture shall be powered by a Mean Well class 2
27 power supply LPV-20-12 that shall be mounted on the inside top of
28 the cabinet near the front edge. The cabinet light circuit shall be
29 designed for a second LED fixture to be installed in the cabinet
30 without the need a of a second power supply. It shall be attached
31 under the cabinet drawer so that it remains stationary when drawer
32 is extended. An on/off switch that is turned on when the cabinet
33 door is opened and off when it is closed shall activate the lighting
34 fixture(s) power supply.
35

36 **Convenience Outlet**

37
38 The cabinet shall be wired with one convenience outlet with a
39 ground fault interrupter and two quad convenience outlets without
40 ground fault interrupters. The ground fault outlet shall be mounted
41 on the right side of the cabinet on or near the power panel. The
42 two quad convenience outlets shall be near the top shelf on both
43 the right and left walls. No outlets shall be mounted on the door.
44 The GFI power shall be fed through the auxiliary breaker (CB2).
45 The two quad convenience outlets shall be fed through an EDCO
46 SHP300-10 transient voltage suppressor located on the cabinet
47 power panel.
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Auxiliary Panel

The cabinet shall include an auxiliary switch panel mounted to the interior side of the police panel compartment on the cabinet door. The panel shall be secured to the police panel compartment by (2) screws and shall be hinged at the bottom to allow access to the soldered side of the switches with the use of only a Phillips screwdriver. Both sides of the panel shall be silkscreened. Silk-screening on the backside of the switch panel shall be upside down so that when the panel is opened for maintenance the silk-screening will be right side up. All of the switches shall be protected by a hinged see-through Plexiglas cover.

At a minimum the following switches shall be included;

Controller ON/OFF Switch: There shall be a switch that renders the controller and load-switching devices electrically dead while maintaining flashing operations for purpose of changing the controller or load-switching devices. The switch shall be a general-purpose bat style toggle switch with .688-inch long bat.

Stop Time Switch: There shall be a 3-position switch labeled "Normal" (up), "Off" (center), and "On" (down). With the switch in the "Normal" position, a stop timing command shall be applied to the controller by the police flash switch or the MMU (Malfunction Management Unit). When the switch is in its "Off" position, stop timing commands shall be removed from the controller. The "On" position shall cause the controller to stop time. The switch shall be a general-purpose bat style toggle switch with .688-inch long bat.

Technician Flash Switch: There shall be a switch that places the field signal displays in flashing operation while the controller continues to operate. This flash shall have no effect on the operation of the controller or MMU. The switch shall be a general-purpose bat style toggle switch with .688-inch long bat.

Vehicle Test Switches: All eight vehicle phase inputs shall have momentary pushbutton test switches with black caps. The switches shall directly input a call to the related controller vehicle phase without routing the call through the detector rack(s) when pushed. These switches shall be labeled 1, 2, 3, 4, 5, 6, 7 and 8.

Pedestrian Test Switches: All eight pedestrian phase inputs shall have momentary pushbutton test switches with black

1 caps. The switches shall directly input a call to the related
2 controller pedestrian phase. These switches shall be labeled 1,
3 2, 3, 4, 5, 6, 7 and 8.
4

5 Pre-Empt Test Switches: All four preempt inputs shall have
6 disconnect/test switches. These switches shall have 3
7 positions labeled “On” (up) which shall connect the Opticom
8 output to the controller, “Off” (center) which shall disconnect
9 the Opticom output to the controller, and “Test” (down) which
10 shall provide a momentary true input to the controller. These
11 switches shall be labeled 1, 2, 3, 4.
12

13 **Police Panel**

14 Behind the police door the following switches included;
15

16 Flash Switch: There shall be a switch for the police that puts
17 the cabinet into flashing operations. The switch shall have two
18 positions, “Auto” (up) and “Flash” (down). The “Auto” position
19 shall allow normal signal operation. The “Flash” position shall
20 immediately cause all signal displays to flash as programmed
21 for emergency flash and apply stop time to the controller.
22 When the police flash switch is returned to “Auto”, the
23 controller shall restart except when the MMU has commanded
24 flash operation. The effect shall be to disable the police panel
25 switch when the MMU has detected a malfunction and all
26 controller and MMU indications shall be available to the
27 technician regardless of the position of the police flash switch.
28 The switch shall be a general-purpose bat style toggle switch
29 with .688-inch long bat.
30

31 **Cables**

32 All wire cable bundles shall be encased in flex or expandable
33 braided sleeving along their entire free length.
34

35 All SDLC cables shall be terminated on both ends, securely
36 terminated to the SDLC interface panel with screw type connection
37 and professionally routed in the cabinet interior to easily reach the
38 load bay, controller, malfunction management unit and detector
39 racks. All SDLC connectors shall be fully populated with 15 pins
40 each.
41

42 **Flashing Operation**

43 All cabinets shall be wired to flash for all vehicle channels.
44 Flashing operation shall alternate between the used vehicle
45 phases 1, 4, 5, 8, OLA, OLD and 2, 4, 6, 8, OLB, OLD. Flash
46
47
48

1 programming shall be either red, yellow or no flash simply by
2 changing wires on the front of the load-bay.
3

4 **Detector Racks**

5
6 At a minimum, the cabinet shall be wired to accommodate (64)
7 channels of detection. One detector rack shall be half width size
8 and support (16) channels of loop detection, one (1) Buss Interface
9 Unit (BIU) and (4) channel of Opticom™. Three detector racks
10 shall be half width size and support (16) channels of loop detection
11 and one (1) Buss Interface Unit (BIU). These racks shall be
12 capable of using half width four channel detection devices. The
13 loop cabling shall be connected via a 37 pin DB connector using
14 spring clips. The Opticom cable shall be connected via a 24 pin
15 connector using locking latches. The power cable shall be a 6 pin
16 connector. All power wires shall be 18AWG. The addressing of
17 detector racks shall be accomplished via dipswitches mounted to
18 the PCB. There shall be the capability to turn off the TS2 status to
19 the BIU for the uses of TS1 detector equipment via dipswitches
20 mounted to the PCB. There shall be a 34 pin connector using
21 locking latches that breaks the output from the detector to the input
22 of the BIU, there shall also be +24VDC and logic ground on this
23 connector. All racks shall have space at the bottom front for
24 labeling. All racks shall be designed for horizontal stacking.
25 Separate racks for detection and preemption are not allowed.

26
27 **768 Panel**

28
29 There shall be an Opticom™ GTT 768 interface panel installed in
30 the cabinet. At a minimum it shall be soldered to the load switch
31 green outputs and to the advanced vehicle preemption terminal
32 block on the detector panel. This panel shall have a protective
33 plastic cover. It shall be mounted on the lower right wall of the
34 cabinet, under the bottom shelf.
35

36 **Detection Panel**

37
38 The detection panel shall support (64) channels of vehicle
39 detection, (4) channels of emergency vehicle preemption, (8)
40 channels of pedestrian detection and (8) pedestrian returns on a
41 single panel. The loop wires shall be a 22AWG twisted pair, color
42 coded as follows. Channel one brown, channel two red, channel
43 three orange and channel four yellow. One of the twisted pair wires
44 of all colors shall have a white tracer and land on the second
45 position terminal of each loop. The emergency preempt wires shall
46 be color coded as follows. +24VDC orange, preempt inputs yellow
47 and ground blue. This panel will be mounted on the left side of the
48 cabinet below the bottom shelf. The panel shall also include a (19)

1 position solid aluminum, tin plated neutral and ground buss bars
2 with raised slotted & torque style screws heads. They shall be
3 mounted vertically at the bottom of the panel.
4

5 **Power Supply Interface Panel**
6

7 The power supply interface panel shall include terminations for all
8 the cabinet power supply inputs and outputs. It shall have a
9 protective plastic cover. This panel shall be mounted on the left
10 wall of the cabinet.
11

12 **Generator Bypass Compartment and Cable**
13

14 The cabinet front door shall have a locking generator bypass
15 compartment that shall be used to connect a generator to operate
16 the cabinet during extended loss of service line power. The
17 generator compartment shall be capable of being closed and
18 locked while a generator is connected. The mechanism for
19 allowing generator cable access, while the compartment is closed,
20 shall be an integral part of the generator bypass door, via a sliding
21 panel that will normally be in the closed position. Inside the
22 compartment there shall be a silkscreened panel housing a
23 Hubbell HBL2615 30A / 125V flanged inlet receptacle capable of
24 accepting a standard 30 amp generator plug, a BACO HC52DQG
25 cam switch with split 120VAC line and neutral feeds. The switch
26 shall be a break before make type. (2) LED lamps with sockets.
27 One LED shall be illuminated when the cabinet has service line
28 power available and the other when the cabinet has generator
29 power available. All LED's shall be field replaceable without putting
30 the intersection in flash and shall carry a 5-year manufacturer
31 warranty.
32

33 All wiring to and from the generator bypass compartment shall be
34 contained in a single cable bundle. The cable shall connect to the
35 backside of the electrical components and shall only be accessible
36 from the inside of the cabinet front door. All electrical components
37 on the inside of the front door that carry AC voltage shall be
38 covered by a see-through plexi-glass cover. The generator bypass
39 cable shall terminate at the same power panel location as service
40 line voltage.
41

42 **Additional Panels**
43

44 Sheet metal panels shall be installed in the available space on the
45 lower left and upper right & left sides of the cabinet. The lower left
46 side panel shall be 10" x 12". The upper right side panel shall be
47 36" x 12". The upper left side shall be as determined by City of
48 Kirkland.

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Supplemental Loads

Vehicle phase 1, 3, 5, 7, 13, 14, 15 and 16 yellows and greens shall be loaded with a 2K-ohm, 10-watt resistor. Pedestrian phases 2, 4, 6 and 8 don't walks and walks shall be loaded with a 2K-ohm, 10-watt resistor. Each load resistor shall be soldered to the backside of the load switch socket and easily accessed from the back of the main panel (load-bay).

Service Surge Suppression

The cabinet shall be equipped with an EDCO model SHP300-10 or approved equivalent surge arrestor mounted on the power panel. Power to all cabinet electronic equipment and convenience outlets shall come through this surge suppression circuit.

Power Panel

The power panel shall handle all the power distribution and protection for the cabinet and shall be mounted in the bottom right side of the facility. All equipment shall be mounted on a 12" x 17" silkscreened aluminum panel and include at a minimum the following equipment:

- A 30-amp main breaker shall be supplied. This breaker shall supply power to the controller, MMU, signals, cabinet power supply, detector racks and auxiliary panels.
- A 15-amp auxiliary breaker shall supply power to the fan, light and GFI.
- A 15-amp auxiliary breaker wired for future use.
- A 60-amp, 125 VAC radio interference line filter.
- An EDCO model SHP300-10 surge arrestor.
- A normally open, 50-amp, solid-state relay. The relay shall have a green LED light that is on when energized. (No Mercury Contactors shall be allowed)
- One see-through Plexiglas cover on stand-offs to protect maintenance personnel from AC line voltages. This shall be removable by loosening screws but without removing screws.
- Two (19) position solid aluminum, tin plated neutral buss bar with raised slotted & torque style screw heads. No tube bars shall be allowed.
- One (19) position solid aluminum, tin plated ground buss bar with raised slotted & torque style screw heads. No tube bars shall be allowed.

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- Two MOVs shall be terminated on the 120AC in field terminal. One tied between line and ground, the other between neutral and ground.

Manuals & Documentation

The cabinet shall be furnished with (3) complete sets of cabinet prints. All cabinet wiring, and layout shall come on (1) E1 size sheet, multiple pages shall not be allowed. Upon request (1) CDROM with AutoCAD v2008 cabinet drawing for the cabinet wiring.

Malfunction Management Unit (MMU)

The cabinet shall come with a (MMU) that meets all the requirements of NEMA TS2-2003 while remaining downward compatible with NEMA TS1. It shall have (2) high contrast LCD displays and an internal diagnostic wizard. It shall come with a 10/100 ethernet port. It shall come with software to run flashing yellow arrow operation. The MMU shall be an Eberle Design, Inc. model MMU-16LEip.

Load Switch

The cabinet shall come with (16) load switches. All load switches shall be cube type and have LED indications for both the input and output side of the load. The load switches shall be PDC model SSS87 I/O.

Flasher

The cabinet shall come with (1) flasher. The flasher shall be cube type and have LED indications. The flasher shall be PDC model SSF87.

Flasher Transfer Relay

The cabinet shall come with (6) heavy duty flash transfer relays. The relays shall be Detrol Controls model 295.

Bus Interface Unit (BIU)

The cabinet shall come with (6) bus interface units (BIU). These shall meet all the requirements of NEMA TS-2 1998 standards. In addition, all BIUs shall provide separate front panel indicator LED's for DC power status and SDLC Port 1 transmit and receive status. The BIU's shall utilize only 1 rack position. The (BIU)'s shall be Eberle Design, Inc. model BIU700H.

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Power Supply (PS)

The cabinet shall come with a shelf mounted cabinet power supply meeting at minimum TS 2-2003 standards. It shall be a heavy duty device that provides +12VDC at 5 Amps / +24VDC at 2 Amps / 12VAC at .25 Amp, and line frequency reference at 50 mA. The power supply shall provide a separate front panel indicator LED for each of the four outputs. Front panel banana jack test points for 24VDC and logic ground shall also be provided. The power supply shall provide 5A of power and be able to cover the load of four (4) complete detector racks. The (PS) shall be Eberle Design, Inc. model PS250.

Loop Detector

The cabinet shall come with (16) 4-channel rack mounted loop detectors. These devices shall have LCD displays and be capable of monitoring the call strength from (2) of the channels simultaneously. These devices must have the capability to perform directional logic and 3rd car queuing for protected/permissive operation. Each 4 channel loop amplifier card shall utilize only (1) card rack position. The loop detectors shall be Reno A&E model E/2-1200-SS.

Opticom

The cabinet shall come with (1) 4-channel rack mounted Opticom™ phase selector. These devices shall be capable of receiving encoded signals from Opticom series 700 emitters and detectors. The Opticom™ phase selectors shall be Global Traffic Technologies model 764 or approved equivalent. (1) Opticom™ 768 auxiliary interface panels shall be supplied for each Opticom™ phase selector supplied.

BBS System

The cabinet shall come with a complete uninterruptable power system (BBS) which shall include at a minimum a UPS module with SNMP, ATS assembly, batteries, battery heater mats, battery cables and a battery management system. All other ancillary equipment for a complete functioning UPS system shall be included.

The key BBS system components include:

UPS Module

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The cabinet shall come with (1) FXM 1100W uninterruptible power supply that supplies clean reliable power control and management. It shall have Automatic Voltage Regulation (AVR), an Ethernet SNMP interface and a control and power connection panel that is rotatable for viewing in any vertical or horizontal orientation. It shall have nominal dimensions of 5.22” x 15.5” x 8.75” and come with mounting brackets. The UPS module shall be an Alpha model 017-201-23.

UATS/UGTS Assembly

The cabinet shall come with (1) universal automatic transfer switch and universal generator transfer switch connected between the UPS module and the batteries. It shall have surge protection, have dimensions of 3.25” x 15.5” x 6.00” and come with mounting brackets. The ATS module shall be an Alpha model 020-168-25.

UPS Batteries

The cabinet shall come with (4) high performance silver alloy sealed valve regulated lead acid AlphaCell™ GXL Gel Cell batteries with 109Ah runtime. The BBS batteries shall be Alpha model 220GOLD-HP.

UPS Battery Harness

The cabinet shall come with (1) battery cable (10) foot long wired for (4) batteries. The battery harness shall be Alpha model 740-628-27.

Battery Management System

The cabinet shall come with AlphaGuard™ battery charge management system and Remote Battery Management System which extends and monitors the battery operational life. It shall be an AlphaGuard model 012-306-21 and Remote Battery Management System 0370260-001.

(*****)

9-29.18 Vehicle Detector

Section 9-29.18 is supplemented with the following:

Video Detection

The Video Detection System shall be Iteris Vantage Next and associated central control unit. The Video Detection System and the Hybrid Radar/Video Detection System shall utilize the same central control unit.

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Hybrid Radar/Video Detection

The Hybrid Radar/Video Detection System shall be Iteris Vantage Vector Hybrid and associated central control unit. The Video Detection System and the Hybrid Radar/Video Detection System shall utilize the same central control unit.

Warranty

The supplier shall provide a limited three-year warranty on the detection system.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to detection software shall be available from the supplier without charge.

Maintenance and Support

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on site technical support services.

Installation or training support shall be provided by a factory-authorized representative and shall be a minimum IMSA-Level II Traffic Signal Technician certified.

All product documentation shall be written in the English language.

4-Channel Loop Detector

The induction loop detectors shall be Reno A&E 4-channel loop detectors, model E/2-1200-SS.

Manufacturer:

Reno A&E
4655 Aircenter Circle
Reno, NV. 89502
Tel: (775) 826-2020
www.renoae.com

1 **9-29.19 Pedestrian Push Buttons**

2 Section 9-29.19 is supplemented with the following:

3
4 **(*****)**

5 **Accessible Pedestrian Signal (APS) Pushbuttons**

6 When required in the Contract, APS Pushbuttons shall be provided. Each accessible
7 pedestrian signal (APS) shall be a complete APS pushbutton system at each
8 pedestrian pushbutton location shown in the Plans. Equipment shall be the following
9 system:

- 10
11 1. Polara Engineering: iNavigator 2-Wire (iNS2); Part Number: iNS29VN1

12
13 Each pushbutton station shall include the following:

- 14
15 1. Flat black colored housing.
- 16
17 2. High contrast pushbutton arrow (dark on a light background or light on a
18 dark background). White on silver or silver on white are not acceptable as
19 high contrast.
- 20
21 3. Integral 9" x 12" R10-3 Sign. Braille shall not be included. Adaptor plates
22 shall be included if required to accommodate the sign.
- 23
24 4. Appropriate controller module equipped in the traffic signal controller
25 cabinet:
- 26
27 a. Polara: iCCU-S2 SDLCCP Shelf Mount Control Unit
- 28
29 5. Percussive tone / rapid tick walk indication.
- 30
31 6. Voice messages, as specified below, pre-installed. Voice shall be male.

32
33 The following shall be provided at each intersection:

- 34
35 1. One USB flash drive with copies of all voice message audio files for that
36 intersection, placed in the traffic signal cabinet drawer or drawing envelope.
37 A separate flash drive is required for each intersection.
- 38
39 2. One USB cable of the appropriate type (A to A, A to B, male/female, etc.),
40 placed in the traffic signal cabinet drawer or drawing envelope.

41
42 Provide one Polara iNavigator iN-DGL Bluetooth Dongle for the entire Contract.

43
44 Dual button adaptor brackets are required for all installations with two APS
45 pushbuttons on the same Type PPB, Type PS, or Type I Signal Standard. Where
46 dual button adaptor brackets or extension brackets are required, they shall be
47 obtained from the same manufacturer as the pushbutton station. Brackets and
48 extensions from other manufacturers shall not be used.

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APS Speech Messages

Speech messages shall be provided in the following format:

- “Wait.”
- “Wait to cross ___ (A) ___ at ___ (B) ___.”
- “Walk sign is on to cross ___ (A) ___.”

The following table lists the entries for (A) and (B) above, as well as quantities for button and arrow orientations:

PPB	(A)	(B)	Quantity	Arrow Orientation
A1	Fire Station Driveway	NE 132nd St	1	Right
A2	Fire Station Driveway	NE 132nd St	1	Left
C1	Juanita Elementary Driveway	NE 132nd St	1	Left
C2	Juanita Elementary Driveway	NE 132nd St	1	Right
D1	NE 132nd St	Fire Station Driveway	1	Left
D2	NE 132nd St	Juanita Elementary Driveway	1	Right

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Order forms shall be completed by the Contractor using the information presented above.

(*****)

9-29.24 Service Cabinets

Section 9-29.24 is supplemented with the following:

New contractor furnished service cabinet shall meet the requirements of Kirkland Pre-Approved Plans CK-TS-05A through C. The cabinet shall be a Skyline Electric & Mfg. Company Series #62460 or approved equivalent.

(*****)

Add the following new section:

9-29.26 CCTV Camera Equipment

Television Camera Assembly

The CCTV camera shall consist of Siquira PD910 system equipment, software and mounting components.

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The following CCTV camera components shall be manufactured by Siqua:

1. CCTV Camera Equipment:

Siqua PD910 CCTV Camera (Part Number: 6399989965)

61W PoE Injector (Part Number: 6399991001)

The following CCTV camera mounting equipment shall be manufactured by Western Systems:

1. CCTV Camera Mounting Equipment:

Mast Arm Camera Mount Adapter Channel for TKH Gooseneck Mount (Part Number: 6349000505)

Luminaire Arm "L" Mount with Base (Part Number: 6349000000)

Adapter 2" x 1.5" Galv. Threaded Pipe Adapter for TKH Camera Mount (Part Number: 6349000520)

Adjustable Bracket to level Out Camera on Mast Arm (Part Number: 6349000490)

The Contractor shall submit catalog cuts with the Request for Approval of Material prior to ordering this material for review and approval by the Project Engineer.

CCTV System Cabling

Cable connections between the camera control cabinet and the traffic signal cabinet shall be provided per the manufacturer's recommendation to support the Siqua PD910 model provided.

(*****)

Add the following new section:

9-29.27 Detectable Pull Tape

The Contractor shall furnish and install a flat polyester woven pre-lubed tape that contains a 22-gauge wire. The tape will be marked with sequential footage markings and be continuous. The tape shall meet or exceed a breaking strength of 900 lb., with a width of 1/2 inch.

(*****)

Add the following new section:

9-29.28 Video and Data Transmission and Distribution

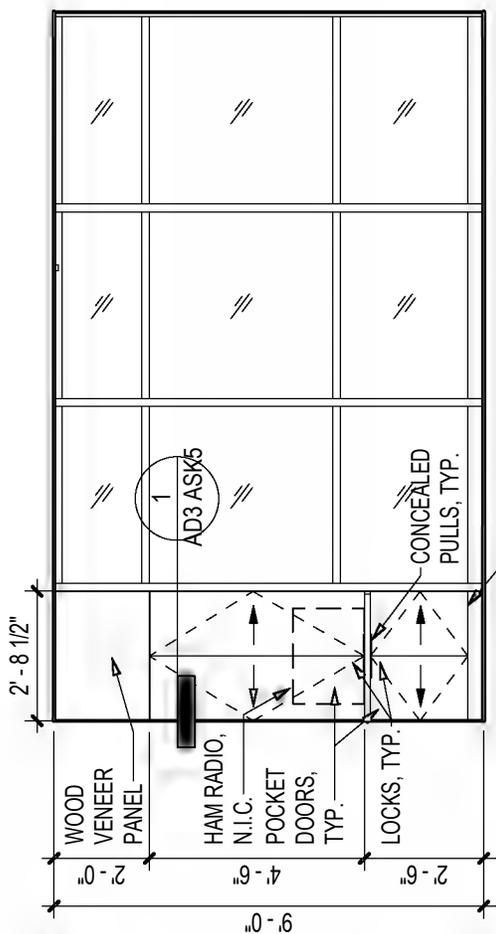
If any equipment specified in this section has been superseded by a newer product that is interchangeable, the newer product shall be supplied. If the product is no

1 longer available and has no replacement, the Contractor shall propose a different
2 product meeting the same performance and material specifications as the
3 discontinued one.

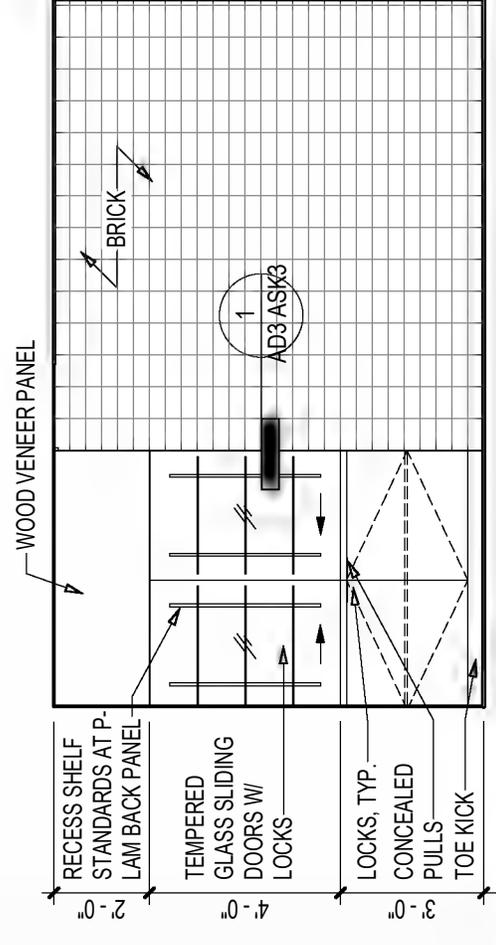
4
5 The following data distribution equipment shall be by Cisco Systems, Inc.

6
7 1. Equipment Model Numbers:
8
9 Ethernet Switch IE-3000-8TC
10 Power Supply PWR-IE3000-AC
11

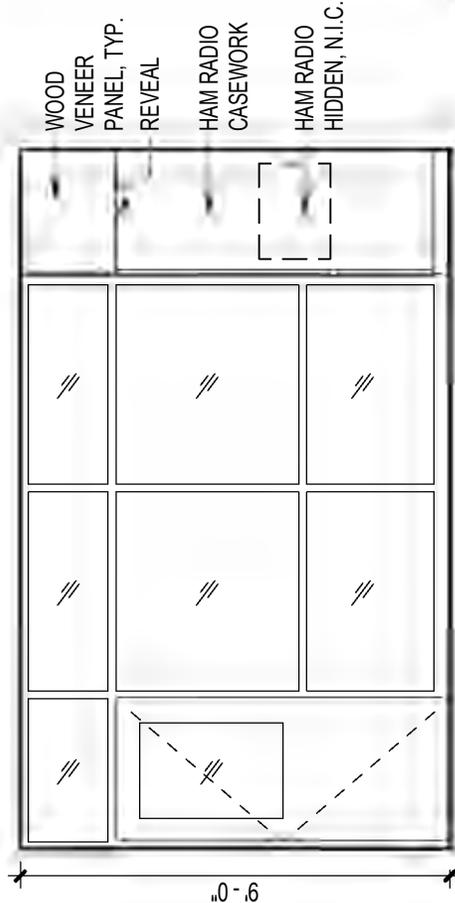
12 2. Manufacturer:
13
14 Cisco Systems Inc.
15 170 West Tasman Dr.
16 San Jose, CA 95134
17 Telephone: 1 (800) 553-6387



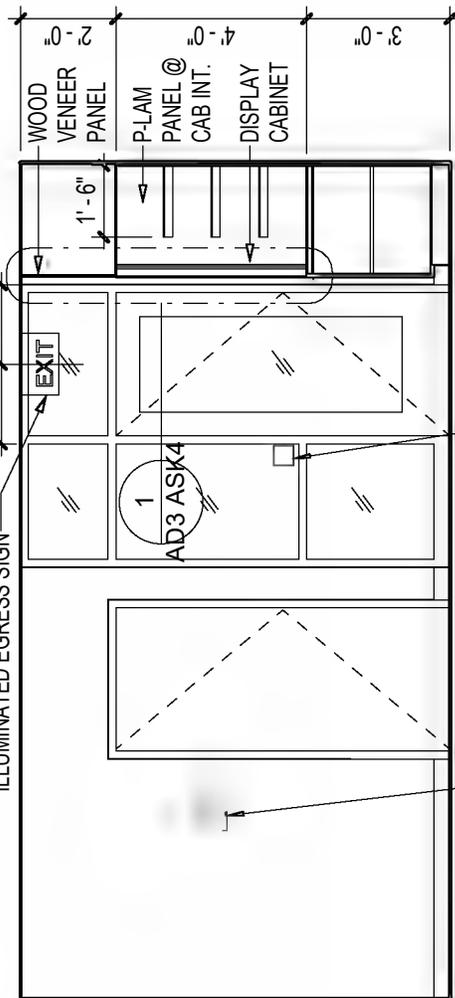
NORTH



SOUTH



EAST



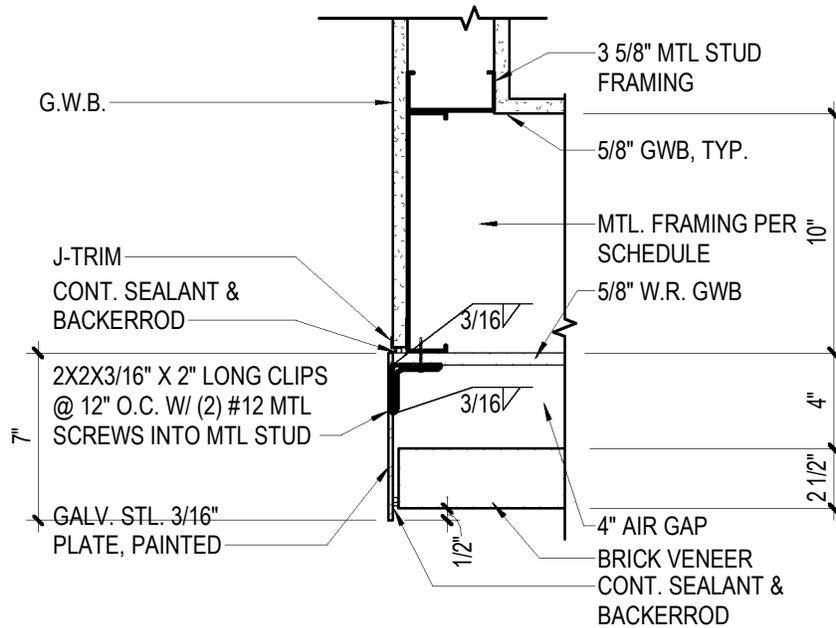
WEST

REVISED 101 LOBBY INTERIOR ELEVATIONS

Scale: 1/4" = 1'-0"

1

	REVISED 101 LOBBY INTERIOR ELEVATIONS		REFERENCE NUMBER: AD3 ASK1
	SCALE: 1/4" = 1'-0"	DATE: 08/13/20	PROJECT NO: 16-46
6211 ROOSEVELT WAY NE SEATTLE, WA 98115 tel: (206) 522-3830			



ARCHITECTURE + PLANNING + DESIGN
 6211 ROOSEVELT WAY NE
 SEATTLE, WA 98115
 tel: (206) 522-3830

REVISED INT. CORNER @ INT. BRICK VENEER

Fire Station 24

SCALE: 1 1/2" = 1'-0"

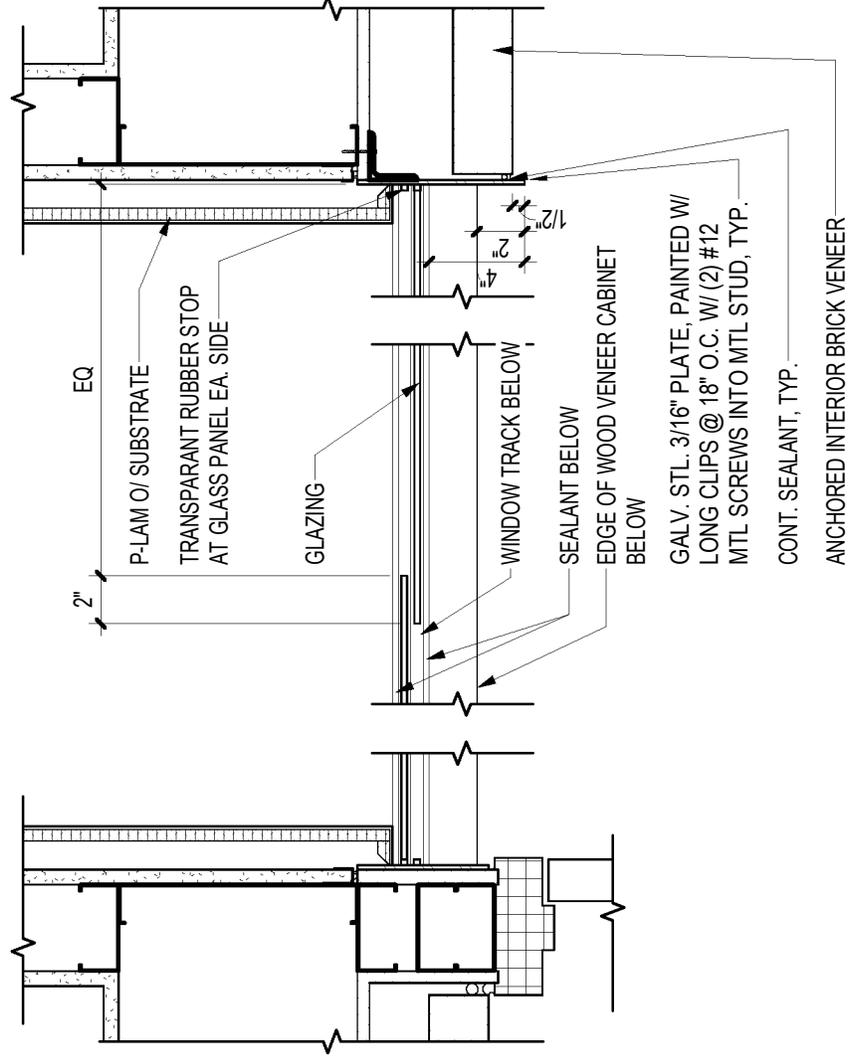
DATE: 08/13/20

PROJECT NO: 16-46

REFERENCE NUMBER: **AD3 ASK2**

REFERENCE SHEET: **10/A8.2**

NOTE:
 REFER TO 10/A8.2 & 13/A9.6 FOR
 BALANCE OF NOTES & DIMS



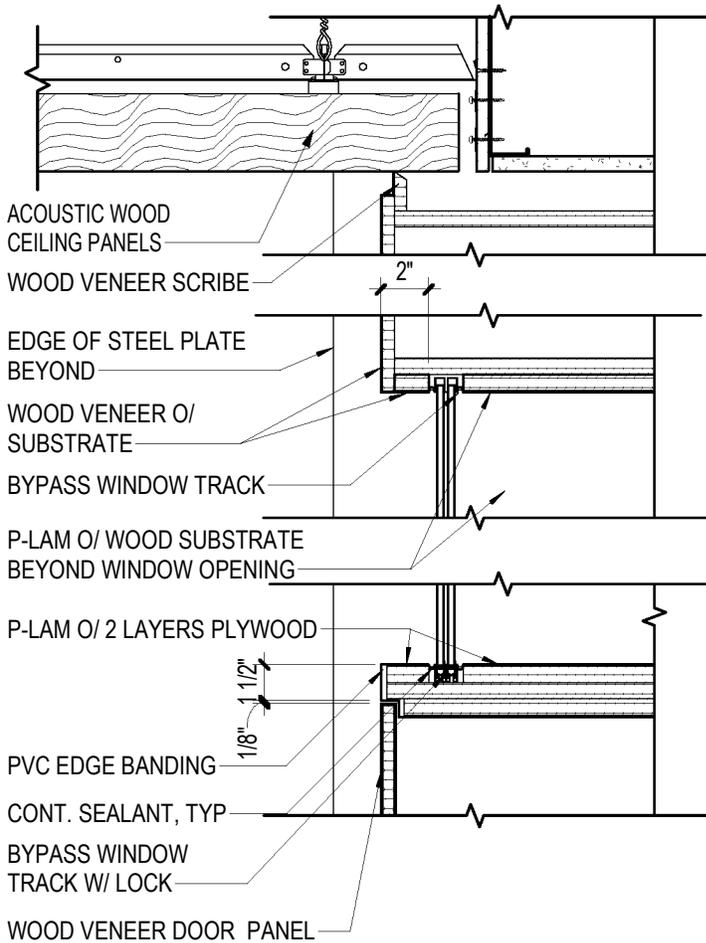
SCALE:	1 1/2" = 1'-0"	REFERENCE NUMBER:	AD3 ASK3
DATE:	08/13/20	REFERENCE SHEET:	11/A8.3
PROJECT NO.:	16-46		

DISPLAY CASE CABINET PLAN

Fire Station 24

T C A
 ARCHITECTURE + PLANNING + DESIGN
 6211 ROOSEVELT WAY NE
 SEATTLE, WA 98115
 tel: (206) 522-3830

NOTE:
REFER TO 1/A8.3 FOR
BALANCE OF NOTES &
DIMS



ARCHITECTURE + PLANNING + DESIGN
6211 ROOSEVELT WAY NE
SEATTLE, WA 98115
tel: (206) 522-3830

DISPLAY CASE CABINET SECTION

Fire Station 24

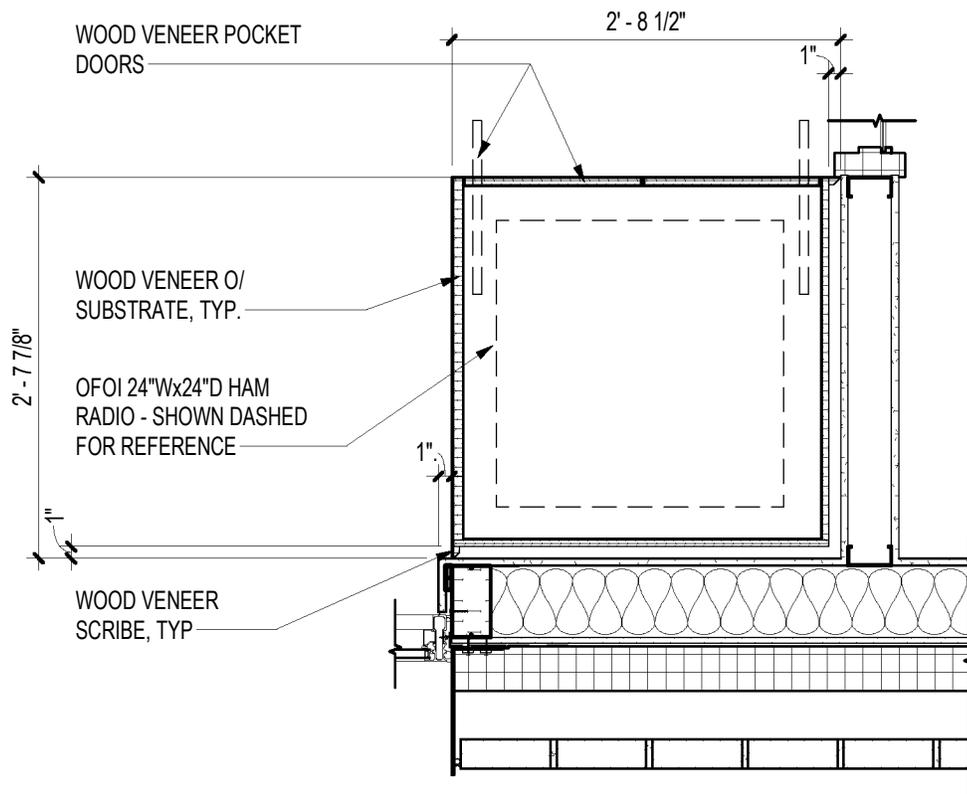
SCALE:
1 1/2" = 1'-0"

DATE:
08/13/20

PROJECT NO:
16-46

REFERENCE NUMBER:
AD3 ASK4

REFERENCE SHEET:
12/A8.3



ARCHITECTURE + PLANNING + DESIGN
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 SEATTLE, WA 98115
 tel: (206) 522-3830

RADIO CABINET PLAN

Fire Station 24

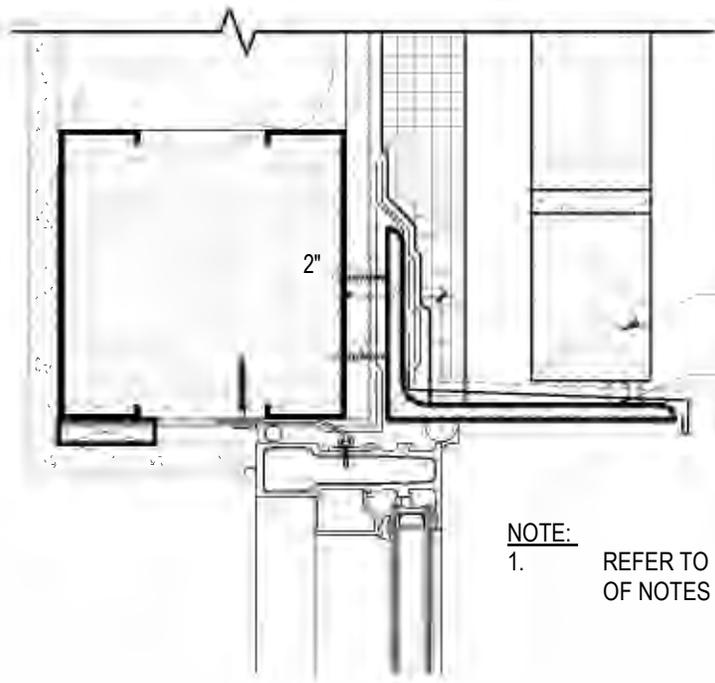
SCALE: 3/4" = 1'-0"

DATE: 08/13/20

PROJECT NO: 16-46

REFERENCE NUMBER: **AD3 ASK5**

REFERENCE SHEET: **13/13**



ANCHORED INTERIOR
BRICK VENEER

PRIMED, PTD ANGLE
LEDGER

NOTE:
1. REFER TO 1/A9.7 FOR BALANCE
OF NOTES & DIMS



ARCHITECTURE + PLANNING + DESIGN
6211 ROOSEVELT WAY NE
SEATTLE, WA 98115
tel: (206) 522-3830

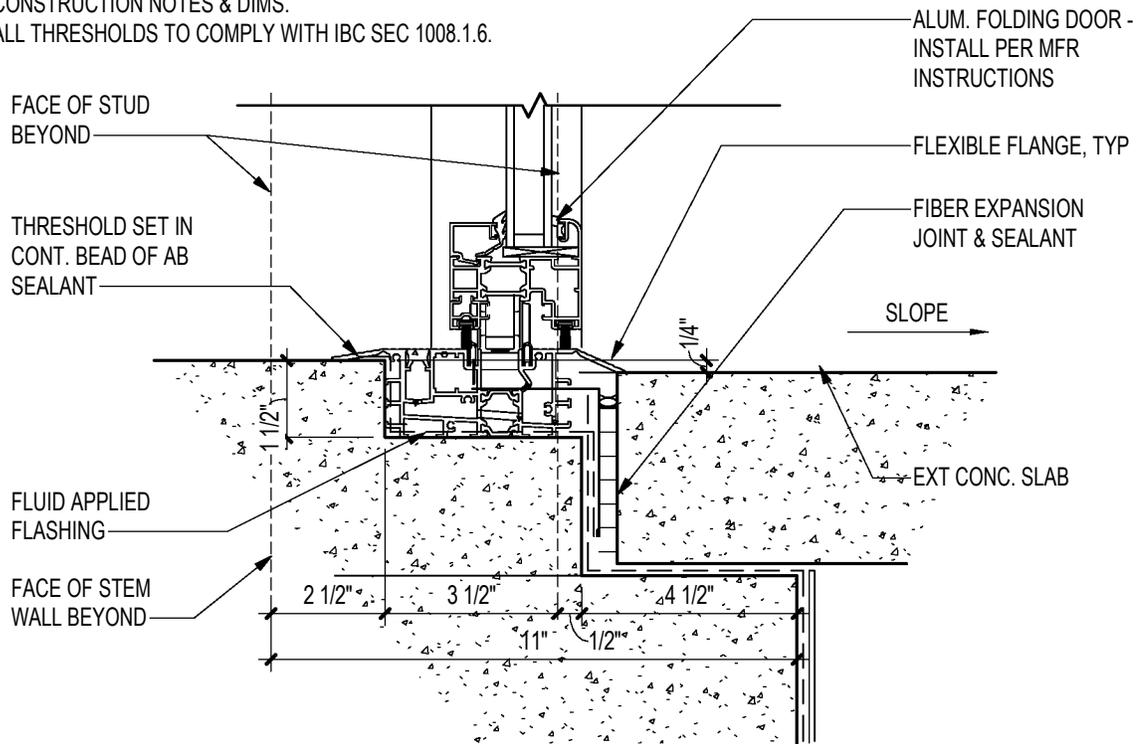
SF HEAD AT BRICK VENEER

Fire Station 24

SCALE: 3" = 1'-0"	REFERENCE NUMBER: AD3 ASK6
DATE: 08/13/20	REFERENCE SHEET: N/A
PROJECT NO: 16-46	

NOTE:

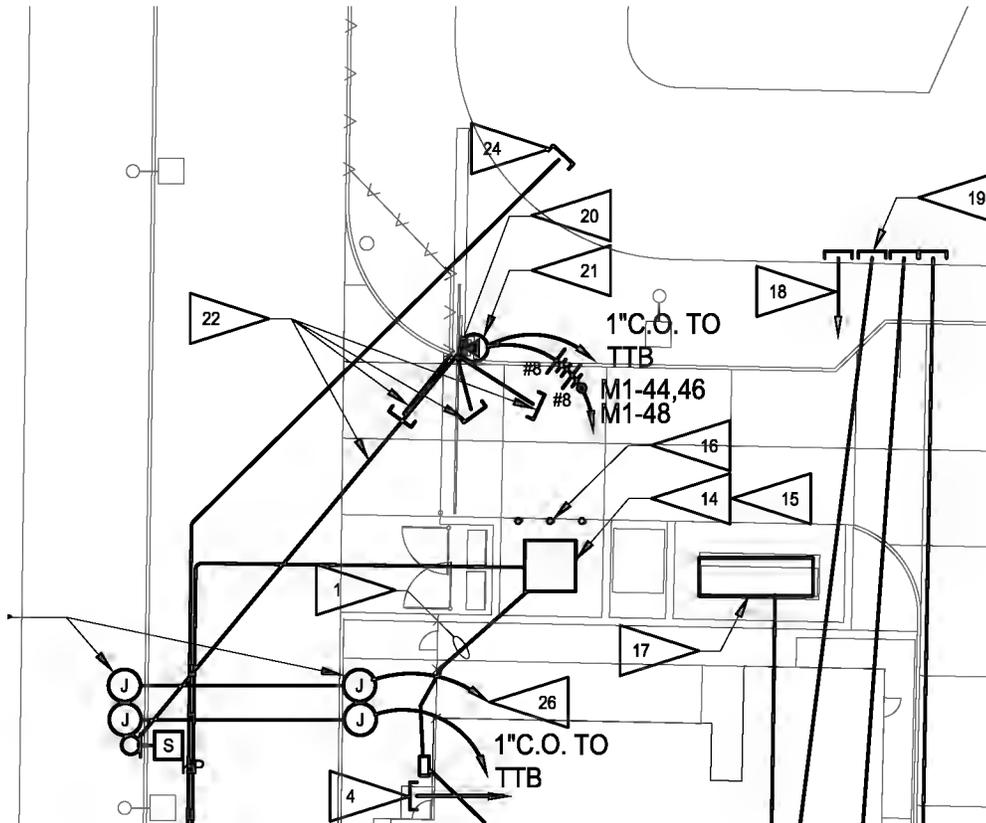
- REFER TO 8/A9.5 FOR PREP & FLASHING @ ROUGH OPENING
- REFER TO 12/A9.5 FOR THRESHOLD FLASHING REQUIREMENTS
- REFER TO A2.1 & A5.1 FOR WALL TYPES & A9.1 FOR WALL TYPE CONSTRUCTION NOTES & DIMS.
- ALL THRESHOLDS TO COMPLY WITH IBC SEC 1008.1.6.



REVISED FOLDING DOOR THRESHOLD

Fire Station 24

SCALE:	3" = 1'-0"	REFERENCE NUMBER:	AD3 ASK7
DATE:	08/13/20	REFERENCE SHEET:	19/A9.5
PROJECT NO:	16-46		



GATE POWER
CITY OF KIRKLAND
 Fire Station 24

SCALE: 1" = 30'-0"
 DATE: 08/13/20
 PROJECT NO: 16-46

REFERENCE NUMBER: AD3
 ESK-1
 REFERENCE SHEET:
E1.1

GENERAL NOTES

1. INSTALL ALL DEVICE BOXES PRIOR TO INSTALLATION OF CONDUIT. SCHEDULE WALK-THROUGH WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION OF ANY CONDUIT.
2. COORDINATE ALL CEILING MOUNTED DEVICE LOCATIONS WITH ARCHITECTURAL CEILING PLANS. WHERE CONFLICT OCCURS, ARCHITECTURAL R.C.P. TAKES PRECEDENT EXCEPT WHEN LOCATION IS MODIFIED BY CODE AUTHORITY.
3. FOR BRANCH CIRCUITS THAT EXCEED 75' IN LENGTH, INCREASE WIRE BY ONE AWG SIZE.
4. PROVIDE DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.
5. HOMERUNS SHALL NOT BE COMBINED ON MECHANICAL EQUIPMENT.
6. PROVIDE ALL CONDUIT, BOXES AND WIRE AS REQUIRED BY WAC, NEC, AND SPECIFICATIONS SECTIONS 26 05 00, 26 05 11, 26 05 19, 26 05 32 AND 26 05 33 FOR A FULLY FUNCTIONING SYSTEM.
7. SEE MECHANICAL EQUIPMENT CONNECTION SCHEDULE, SHEET E0.3 FOR ADDITIONAL INFORMATION.



ARCHITECTURE + PLANNING + DESIGN
 6211 ROOSEVELT WAY NE
 SEATTLE, WA 98115
 tel: (206) 522-3830

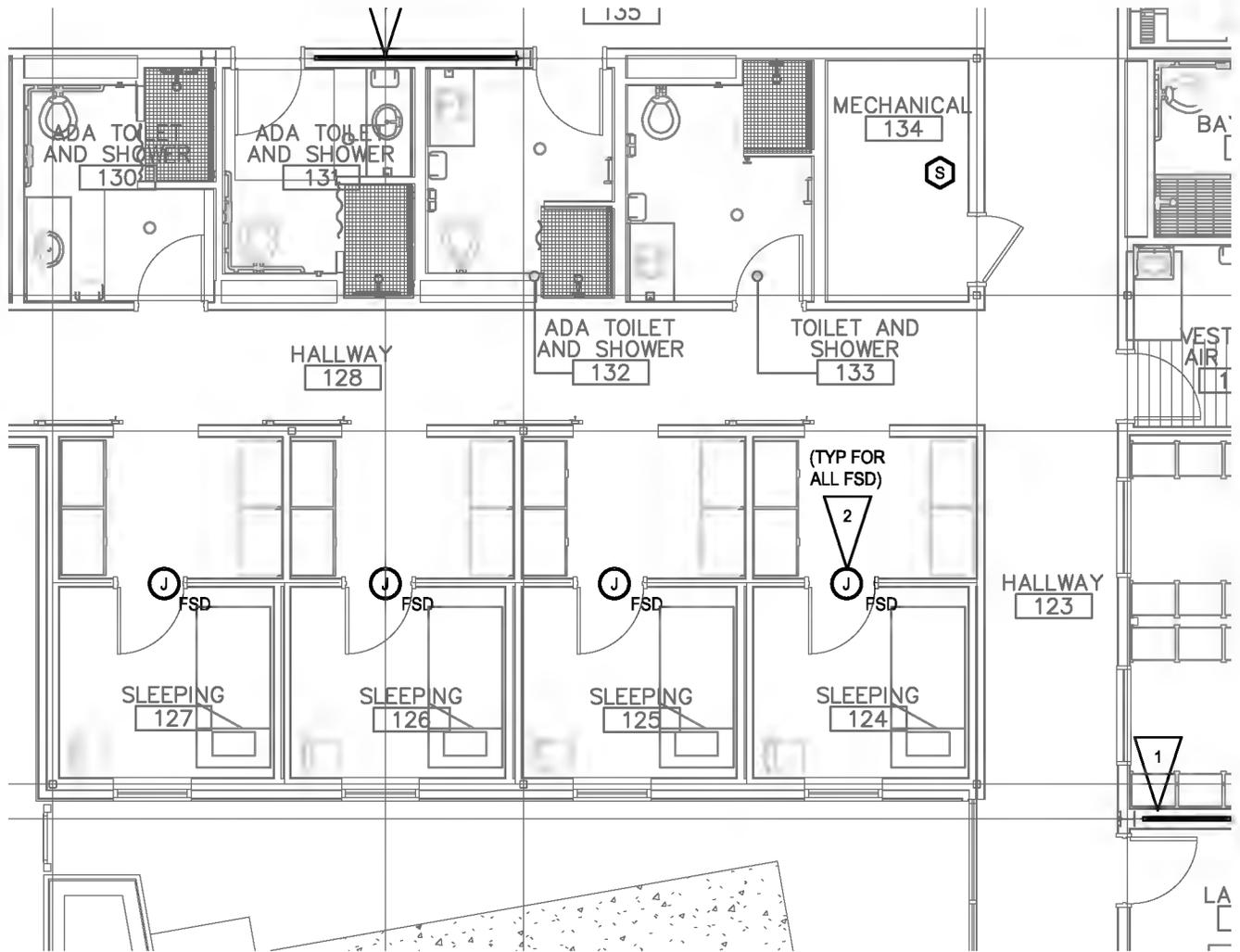
MECHANICAL PLAN GENERAL NOTES
CITY OF KIRKLAND
 Fire Station 24

SCALE:	NONE	REFERENCE NUMBER:	AD3 ESK-2
DATE:	08/13/20	REFERENCE SHEET:	E4.1/E4.2
PROJECT NO:	16-46		

FLAG NOTES

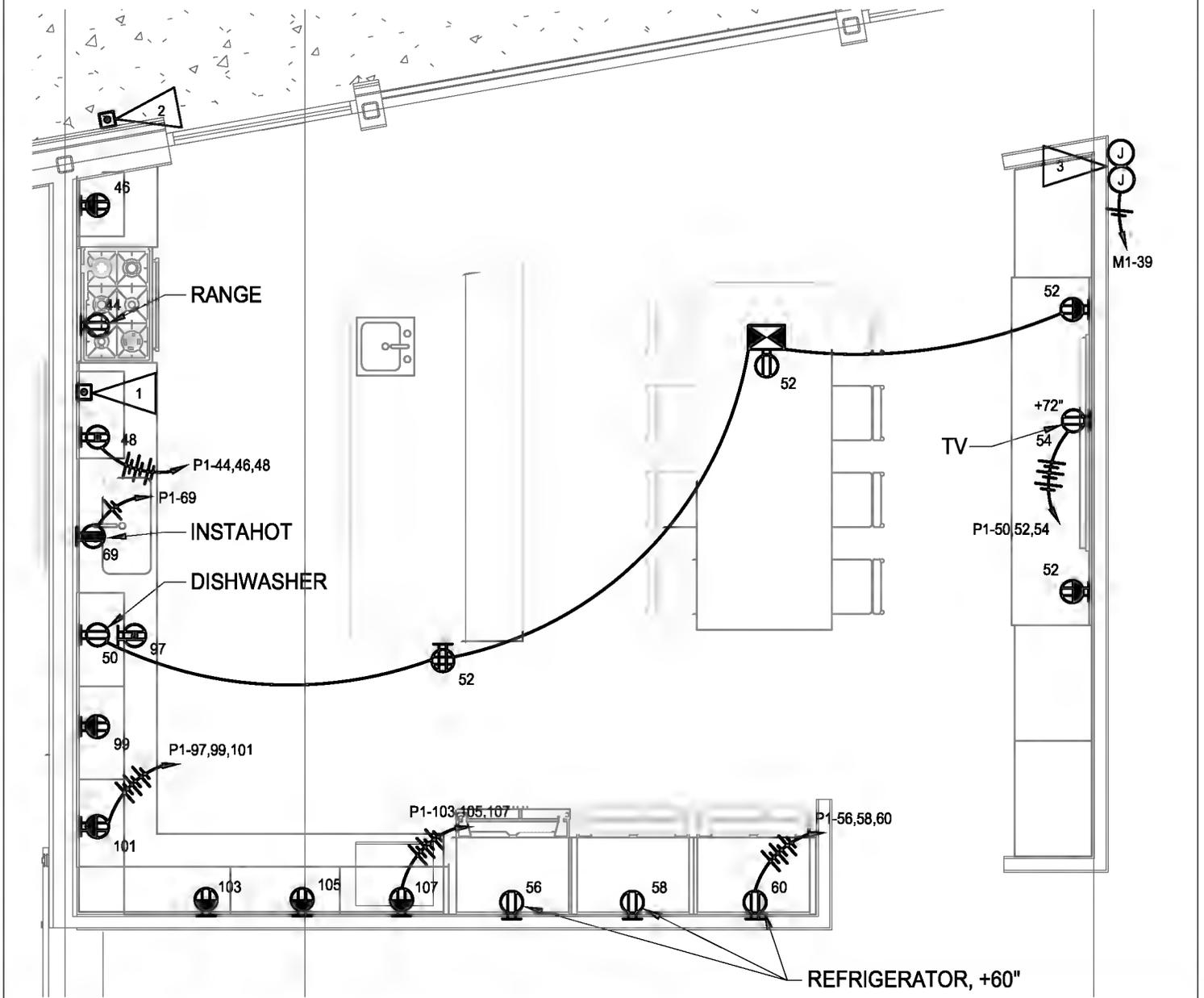
1 BRACE FRAME LOCATION. STUB CONDUIT FROM ABOVE BRACE FRAME OR UP FROM BELOW SLAB AS REQUIRED. SEE STRUCTURAL SHEETS S2.1 FOR ADDITIONAL INFORMATION.

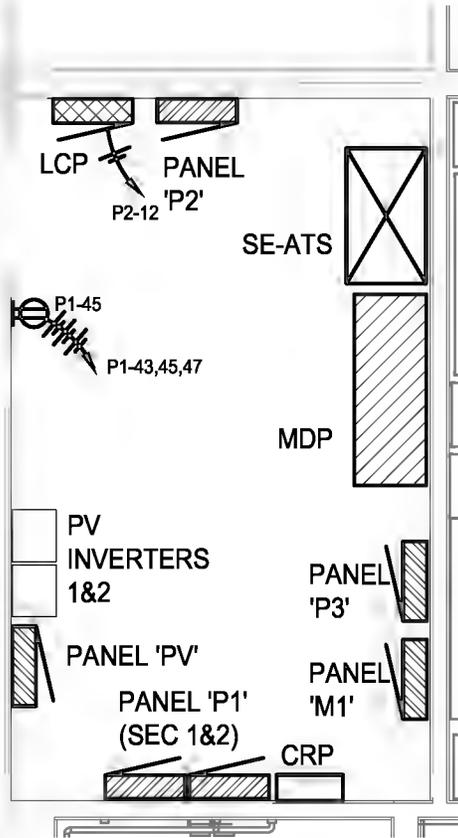
2 SEE DETAIL 5, SHEET E8.1 FOR ADDITIONAL INFORMATION.



FLAG NOTES

- 1 ▷ DISPATCH RELAY RESET PUSHBUTTON FOR GAS RANGE, SQUARE D CLASS 9001-BF101. SEE CONTROL RELAY PANEL DETAIL 1, SHEET E8.5. MOUNT +4" ABOVE BACKSPLASH. PROVIDE LABEL FOR PUSHBUTTON.
- 2 ▷ DISPATCH RELAY RESET PUSHBUTTON FOR GAS BBQ, SQUARE D CLASS 9001-BF101. SEE CONTROL RELAY PANEL DETAIL 1, SHEET E8.5. MOUNT AT +44". PROVIDE LABEL FOR PUSHBUTTON.
- 3 ▷ GAS SOLENOID VALVES MOUNTED ABOVE CEILING.





FEEDER SCHEDULE

TAG	COPPER CONDUCTORS				
	QUANTITY OF SETS	RACEWAY SIZE	CONDUCTORS		
			PHASE	NEUTRAL	GROUND
30N	1	3/4"	3#10	1#10	1#10
70NT	1	1-1/4"	3#4	1#4	1#8
100N	1	1-1/2"	3#1	1#1	1#8
150N	1	2"	3#1/0	1#1/0	1#6
225N	1	2-1/2"	3#4/0	1#4/0	1#4
300N	1	3"	3#350kcmil	1#350kcmil	1#4
800S	4	2"	3#3/0	1#3/0	-
800N	4	2"	3#3/0	1#3/0	1#3
800G	4	2-1/2"	3#3/0	1#3/0	1#1/0

NOTES:

1. COPPER FEEDERS ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION. CONDUCTOR DERATING IS BASED ON THHN/THWN CONDUCTORS WITH 75 DEGREES C RATING.
2. REFER TO SHEET(S) E9.1 FOR FEEDER LOCATIONS.

PANEL 'P1' SECTION 1

PROJECT NAME:		Kirkland Fire Station 24								PROJECT #:		17330	
LOCATION:		Kirkland, WA				FED FROM: MDP							
NOTE	CKT NO.	CIRCUIT NAME	CB SIZE	LOAD (KVA)							TOTAL	PANEL DESCRIPTION	
				Ø	AMP	P	R	H	M	L			K
1	1	REC - SLEEP ROOMS	A 20 1	0.90								0.90	PANEL AMPS : 225 FEEDER AMPS : 225 L - L VOLTS : 208 L - N VOLTS : 120 PHASE : 3 WIRE : 4 M.L.O. <input checked="" type="checkbox"/> MAIN CB <input type="checkbox"/> FLUSH <input type="checkbox"/> SURFACE <input checked="" type="checkbox"/> ISO GND <input type="checkbox"/> FEED-THRU <input type="checkbox"/>
1	3	REC - SLEEP ROOMS	B 20 1	0.72								0.72	
1	5	REC - SLEEP ROOMS	C 20 1	0.72								0.72	
1	7	REC - SLEEP ROOMS	A 20 1	0.54								0.54	
1	9	REC - SLEEP ROOMS / EXERCISE	B 20 1	0.72								0.72	
1	11	REC - SLEEP ROOMS / EXERCISE	C 20 1	0.36								0.36	
	13	REC - EXERCISE BIKE	A 20 1							0.50		0.50	
	15	REC - EXERCISE BIKE	B 20 1							0.50		0.50	
	17	REC - TREADMILL	C 20 1			1.20						1.20	
	19	RED - TREADMILL	A 20 1			1.20						1.20	
	21	REC	B 20 1	0.90								0.90	
	23	FITNESS GARAGE DOOR	C 20 1			1.10						1.10	
	25	REC	A 20 1	0.90								0.90	
	27	WASHER/DRYER STACK	B 20 1			1.50						1.50	
	29	REC - SHOP	C 20 1	0.36								0.36	
	31	REC - EMS	A 20 1	0.36								0.36	
	33	REC - EMS	B 20 1	0.36								0.36	
	35	REC - EXERCISE ROOM TVS	C 20 1						0.50			0.50	
	37	SPARE	A 20 1										
	39	SPARE	B 20 1										
	41	SPARE	C 20 1										
	43	SPARE	A 20 1										
	45	SPARE	B 20 1										
	47	SPARE	C 20 1										
	49	SPACE	A - 1										
	51	SPACE	B - 1										
	53	SPACE	C - 1										
	55	SPACE	A - 1										
	57	SPACE	B - 1										
	59	SPACE	C - 1										
	2	SPARE	A 20 1										
	4	SPARE	B 20 1										
	6	SPARE	C 20 1										
	8	IRRIGATION CONTROLLER	A 20 1						0.20			0.20	
	10	REC - TOILET/SHOWERS	B 20 1	0.90								0.90	
	12	REC - TOILET/SHOWERS	C 20 1	1.08								1.08	
1	14	REC - SLEEP ROOMS	A 20 1	0.72								0.72	
1	16	REC - SLEEP ROOMS	B 20 1	0.72								0.72	
1	18	REC - SLEEP ROOMS	C 20 1	0.72								0.72	
1	20	REC - SLEEP ROOMS	A 20 1	0.72								0.72	
1	22	REC - SLEEP ROOMS	B 20 1	0.54								0.54	
1	24	REC - SLEEP ROOMS	C 20 1	0.54								0.54	
	26	LAUNDRY - WASHER	A 20 1			0.80						0.80	
	28	LAUNDRY - DRYER	B 20 2		2.50							2.50	
	30	-	C - -		2.50							2.50	
	32	CATV AMPLIFIER	A 20 1							0.20		0.20	
	34	LOCUTION RACK	B 20 1							1.00		1.00	
	36	LOCUTION RACK	C 20 1							1.00		1.00	
	38	NETWORK RACK	A 20 1							1.50		1.50	
	40	ACCESS CONTROL POWER SUPPLY	B 20 1	0.18						0.10		0.28	
	42	FACP	C 20 1							0.50		0.50	
	44	GAS RANGE	A 20 1							0.10		0.10	
	46	REC - KITCHEN COUNTER	B 20 1	0.18								0.18	
	48	REC - KITCHEN COUNTER	C 20 1	0.18								0.18	
	50	DISHWASHER	A 20 1		1.50							1.50	
	52	REC - KITCHEN	B 20 1	0.90								0.90	
	54	REC - KITCHEN TV	C 20 1						0.30			0.30	
	56	REFRIGERATOR	A 20 1			0.80						0.80	
	58	REFRIGERATOR	B 20 1			0.80						0.80	
	60	REFRIGERATOR	C 20 1			0.80						0.80	

NOTES/REMARKS :

1. PROVIDE AFCI BREAKER FOR SLEEP ROOMS
- 2.
- 3.

DEMAND / DIVERSITY FACTORS			
LOAD	DESCRIPTION	DEMAND	
R	RECEPTACLES - TO 10KVA	100%	= 10.00
	REMAINING OVER 10KVA	50%	= 3.19
H	HEATING	100%	= 11.75
M	MOTORS	100%	= 6.70
LM	LARGEST MOTOR	125%	= 1.88
L	LIGHTING	125%	= 0.13
K	KITCHEN	100%	=
O	OTHER	100%	= 20.76

SCALE:	NONE	REFERENCE NUMBER:	AD3 ESK-7
DATE:	08/13/20	REFERENCE SHEET:	E10.1
PROJECT NO:	16-46		

PANEL 'P1' SCHEDULE
CITY OF KIRKLAND
 Fire Station 24

PANEL 'P1' SECTION 2

PROJECT NAME: **Kirkland Fire Station 24** PROJECT #: **17330**
 LOCATION: **Kirkland, WA** FED FROM: **P1 SEC 1**

NOTE	CKT NO.	CIRCUIT NAME	CB SIZE	LOAD (KVA)							TOTAL	PANEL DESCRIPTION	
				Ø	AMP	P	R	H	M	L			K
	61	REC	A 20 1		0.54							0.54	PANEL AMPS : 225
	63	REC	B 20 1		0.54							0.54	FEEDER AMPS : 225
	65	REC - TV	C 20 1							0.30		0.30	L - L VOLTS : 208
	67	EXTERIOR ART	A 20 1					0.10				0.10	L - N VOLTS : 120
	69	KITCHEN INSTAHOT	B 20 1		1.50							1.50	PHASE : 3
	71	SPARE	C 20 1										WIRE : 4
	73	SPARE	A 20 1										
	75	SPARE	B 20 1										
	77	GENERATOR BLOCK HEATER	C 20 1		1.50							1.50	M.L.O. <input checked="" type="checkbox"/>
	79	GENERATOR STRIP HEATER	A 20 1		1.50							1.50	MAIN CB <input type="checkbox"/>
	81	GENERATOR BATTERY CHARGER	B 20 1							0.50		0.50	FLUSH <input type="checkbox"/>
	83	GENERATOR BATTERY HEATER	C 20 1		0.75							0.75	SURFACE <input checked="" type="checkbox"/>
	85	SPARE	A 20 1										ISO GND <input type="checkbox"/>
	87	SPARE	B 20 1										FEED-THRU <input type="checkbox"/>
	89	SPARE	C 20 1										
	91	SPARE	A 20 1										
	93	SPARE	B 20 1										
	95	SPARE	C 20 1										
	97	REC - KITCHEN	A 20 1		0.18							0.18	
	99	REC - KITCHEN	B 20 1		0.18							0.18	
	101	REC - KITCHEN	C 20 1		0.18							0.18	
	103	REC - KITCHEN	A 20 1		0.18							0.18	
	105	REC - KITCHEN	B 20 1		0.18							0.18	
	107	REC - KITCHEN	C 20 1		0.18							0.18	
	109	SPACE	A - 1										
	111	SPACE	B - 1										
	113	SPACE	C - 1										
	115	SPACE	A - 1										
	117	SPACE	B - 1										
	119	SPACE	C - 1										
	62	EV CHARGER	A 40 2							3.29		3.29	LOAD SUMMARY
	64	-	B - -							3.29		3.29	(TOTAL, ALL SECTIONS)
	66	FUTURE EV	C 40 2							3.29		3.29	
	68	-	A - -							3.29		3.29	
	70	DOOR HARDWARE POWER SUPPLY	B 20 1							0.40		0.40	REC KVA : 2.2
	72	SPARE	C 20 1										HEAT KVA : 5.3
	74	SPARE	A 20 1										MOTOR KVA :
	76	SPARE	B 20 1										LIGHTING KVA : 0.1
	78	SPARE	C 20 1										KITCHEN KVA :
	80	SPARE	A 20 1										OTHER KVA : 14.4
	82	SPARE	B 20 1										PHASE A KVA : 9.1
	84	SPARE	C 20 1										AMPS : 75.7
	86	SPACE	A - 1										PHASE B KVA : 6.6
	88	SPACE	B - 1										AMPS : 54.9
	90	SPACE	C - 1										PHASE C KVA : 6.2
	92	SPACE	A - 1										AMPS : 51.7
	94	SPACE	B - 1										
	96	SPACE	C - 1										
	98	SPACE	A - 1										
	100	SPACE	B - 1										
	102	SPACE	C - 1										
	104	SPACE	A - 1										
	106	SPACE	B - 1										
	108	SPACE	C - 1										
	110	SPACE	A - 1										CONNECTED LOAD
	112	SPACE	B - 1										KVA : 21.9
	114	SPACE	C - 1										AMPS : 60.7
	116	SPD	A 30 3										DEMAND LOAD
	118	-	B - -										KVA : 21.9
	120	-	C - -										AMPS : 60.8

NOTES/REMARKS :
 1.
 2.
 3.

DEMAND / DIVERSITY FACTORS		
LOAD	DESCRIPTION	DEMAND
R	RECEPTACLES - TO 10KVA	100% = 2.2
	REMAINING OVER 10KVA	50% =
H	HEATING	100% = 5.3
M	MOTORS	100% =
LM	LARGEST MOTOR	125% =
L	LIGHTING	125% = 0.1
K	KITCHEN	100% =
O	OTHER	100% = 14.4

PANEL 'P2'

PROJECT NAME: **Kirkland Fire Station 24** PROJECT #: **17330**

LOCATION: **Kirkland, WA** FED FROM: **MDP**

NOTE	CKT NO.	CIRCUIT NAME	CB SIZE		LOAD (KVA)							TOTAL	PANEL DESCRIPTION	
			Ø	AMP	P	R	H	M	L	K	O			
	1	LTS-CORRIDOR	A	20	1					1.00			1.00	PANEL AMPS : 100
	3	LTS-OFFICE AND SUPPORT	B	20	1					1.00			1.00	FEEDER AMPS : 100
1	5	LTS-SLEEPING ROOM	C	20	1					0.50			0.50	L - L VOLTS : 208
	7	LTS-SUPPORT	A	20	1					1.40			1.40	L - N VOLTS : 120
	9	LTS-APPARTUS BAY	B	20	1					0.90			0.90	PHASE : 3
	11	LTS-APPARTUS BAY	C	20	1					0.90			0.90	WIRE : 4
	13	LTS-APPARTUS BAY	A	20	1					0.90			0.90	
	15	LTS-NIGHT LIGHTING	B	20	1					0.20			0.20	
	17	SPARE	C	20	1									M.L.O. <input checked="" type="checkbox"/>
	19	SPACE	A	-	1									MAIN CB <input type="checkbox"/>
	21	SPACE	B	-	1									FLUSH <input type="checkbox"/>
	23	SPACE	C	-	1									SURFACE <input checked="" type="checkbox"/>
	25	SPACE	A	-	1									ISO GND <input type="checkbox"/>
	27	SPACE	B	-	1									FEED-THRU <input type="checkbox"/>
	29	SPACE	C	-	1									
	31	SPACE	A	-	1									
	33	SPACE	B	-	1									
	35	SPACE	C	-	1									
	37	SPACE	A	-	1									
	39	SPACE	B	-	1									
	41	SPACE	C	-	1									
												LOAD SUMMARY (TOTAL, ALL SECTIONS)		
	2	LTS-SITE LIGHTING	A	20	2					0.30			0.30	REC KVA :
	4	-	B	-	-					0.30			0.30	HEAT KVA :
	6	LTS-BUILDING MTD	C	20	1					1.20			1.20	MOTOR KVA :
	8	LTS-FLAG POLE	A	20	1					0.20			0.20	LIGHTING KVA : 9.80
	10	LTS-SIGNAGE	B	20	1					1.00			1.00	KITCHEN KVA :
	12	LCP	C	20	1						0.30		0.30	OTHER KVA : 0.40
	14	SPARE	A	20	1									PHASE A KVA : 3.80
	16	SPARE	B	20	1									AMPS : 32
	18	CONTROL RELAY PANEL	C	20	1						0.10		0.10	PHASE B KVA : 3.40
	20	SPACE	A	-	1									AMPS : 28
	22	SPACE	B	-	1									PHASE C KVA : 3.00
	24	SPACE	C	-	1									AMPS : 25
	26	SPACE	A	-	1									
	28	SPACE	B	-	1									
	30	SPACE	C	-	1									
	32	SPACE	A	-	1									CONNECTED LOAD
	34	SPACE	B	-	1									KVA : 10.20
	36	SPACE	C	-	1									AMPS : 28
	38	SPD	A	30	3									DEMAND LOAD
	40	-	B	-	-									KVA : 12.65
	42	-	C	-	-									AMPS : 35

NOTES/REMARKS :

1. ARC FAULT INTERRUPTER BKR
- 2.
- 3.

DEMAND / DIVERSITY FACTORS

LOAD	DESCRIPTION	DEMAND	
R	RECEPTACLES - TO 10KVA	100%	=
	REMAINING OVER 10KVA	50%	=
H	HEATING	100%	=
M	MOTORS	100%	=
LM	LARGEST MOTOR	125%	=
L	LIGHTING	125%	= 12.25
K	KITCHEN	65%	=
O	OTHER	100%	= 0.40

PANEL 'M1'

PROJECT NAME:		Kirkland Fire Station 24							PROJECT #:		17330			
LOCATION:		Kirkland, WA				FED FROM: MDP								
NOTE	CKT NO.	CIRCUIT NAME	CB SIZE		LOAD (KVA)						TOTAL	PANEL DESCRIPTION		
			Ø	AMP	P	R	H	M	L	K			O	
	1	FC-1, FC-2, FC-3, FC-4, FC-5, FC-6	A	20	2				0.85				0.85	PANEL AMPS : 400
	3	-	B	-	-				0.85				0.85	FEEDER AMPS : 300
	5	MUA	C	20	1				1.23				1.23	L - L VOLTS : 208
	7	DH-1	A	60	3			5.00					5.00	L - N VOLTS : 120
	9	-	B	-	-			5.00					5.00	PHASE : 3
	11	-	C	-	-			5.00					5.00	WIRE : 4
	13	HOOD	A	20	1						0.20		0.20	
	15	L-2	B	20	1				0.05				0.05	
	17	EWB-2 - AIRLOCK 109	C	20	1			1.50					1.50	
	19	BC-1	A	20	2							0.07	0.07	M.L.O. <input checked="" type="checkbox"/>
	21	-	B	-	-							0.07	0.07	MAIN CB <input type="checkbox"/>
	23	IH-1	C	20	1			0.60					0.60	FLUSH <input type="checkbox"/>
	25	IH-2	A	20	1			0.60					0.60	SURFACE <input checked="" type="checkbox"/>
	27	IH-3	B	20	1			0.60					0.60	ISO GND <input type="checkbox"/>
	29	CF-1	C	20	1				0.67				0.67	FEED-THRU <input type="checkbox"/>
	31	CF-2	A	20	1				0.67				0.67	
	33	L-1, NO/CO2 SENSORS	B	20	1				0.05			0.10	0.15	
	35	SPARE	C	20	1									
	37	VRF CONTROLLER	A	20	1							0.04	0.04	
	39	GAS SOLENOIDS	B	20	1							0.10	0.10	
	41	SPARE	C	20	1									
	43	SPACE	A	-	1									
	45	SPACE	B	-	1									
	47	SPACE	C	-	1									
	49	SPACE	A	-	1									
	51	SPACE	B	-	1									
	53	SPACE	C	-	1									
	55	SPACE	A	-	1									
	57	SPACE	B	-	1									
	59	SPACE	C	-	1									
												LOAD SUMMARY		
												(TOTAL, ALL SECTIONS)		
	2	EF-1	A	15	3				0.69				0.69	REC KVA : 0.18
	4	-	B	-	-				0.69				0.69	HEAT KVA : 18.30
	6	-	C	-	-				0.69				0.69	MOTOR KVA : 54.47
	8	EF-2	A	20	1				0.51				0.51	LIGHTING KVA :
	10	REC - ROOFTOP	B	20	1	0.18							0.18	KITCHEN KVA :
	12	KEF	C	20	1				1.59				1.59	OTHER KVA : 0.67
	14	CM-1	A	45	3				3.72				3.72	PHASE A KVA : 24.43
	16	-	B	-	-				3.72				3.72	AMPS : 204
	18	-	C	-	-				3.72				3.72	PHASE B KVA : 23.50
	20	ERV-2	A	45	3				4.93				4.93	AMPS : 196
	22	-	B	-	-				4.93				4.93	PHASE C KVA : 25.69
	24	-	C	-	-				4.93				4.93	AMPS : 214
	26	ERV-1	A	50	3				5.66				5.66	
	28	-	B	-	-				5.66				5.66	
	30	-	C	-	-				5.66				5.66	
	32	SPACE	A	-	1									
	34	SPACE	B	-	1									
	36	SPACE	C	-	1									
	38	SPARE	A	20	1									
	40	SPARE	B	20	1									
	42	SPARE	C	20	1									
	44	MOTORIZED GATE	A	20	2				1.50				1.50	
	46	-	B	-	-				1.50				1.50	
	48	CLICK-2-ENTER POWER SUPPLY	C	20	1							0.10	0.10	
	50	SPACE	A	-	1									
	52	SPACE	B	-	1									
	54	SPACE	C	-	1									
	56	SPD	A	30	3									
	58	-	B	-	-									
	60	-	C	-	-									

NOTES/REMARKS :

- 1.
- 2.
- 3.

DEMAND / DIVERSITY FACTORS

LOAD	DESCRIPTION	DEMAND	
R	RECEPTACLES - TO 10KVA	100%	= 0.18
	REMAINING OVER 10KVA	50%	=
H	HEATING	100%	= 18.30
M	MOTORS	100%	= 37.48
LM	LARGEST MOTOR	125%	= 21.24
L	LIGHTING	125%	=
K	KITCHEN	65%	=
O	OTHER	100%	= 0.67

PANEL 'M1' SCHEDULE
CITY OF KIRKLAND

Fire Station 24