

**LIBRARY & COMMUNITY CENTER
CITY of UNION GAP**

BORArchitecture, pllc.
1320 North 16th Avenue, Suite C
Yakima, Washington 98902
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NOTICE TO BIDDERS:

To the Prime Bidders and all "Plan Holders of Record":

You are hereby notified of the following additions, deletions, modifications or clarifications to the drawings and specifications for the above-referenced project. This Addendum forms a part of the Contract Documents and shall be bound inside the front cover of the Construction Specifications Book.

BE SURE TO ACKNOWLEDGE THIS ADDENDUM ON YOUR BID / PROPOSAL FORM

The following information is to be issued to all Plan Holders of Record. However, prior to the Bid Opening, it is the specific responsibility of each general and separate contractor to notify his sub-contractors, suppliers, etc., and to verify with them all items covered by the Contract Documents, including Addenda, as relating to their Bids.

CONSTRUCTION SPECIFICATIONS

INDEX

- A. Page 4, line 16; **Delete** 230719 HVAC Piping Insulation
- B. Page 4, line 19; **Delete** 232300 Refrigerant Piping
- C. Page 4, line 22; **Delete** 233300 Air Duct Accessories
- D. Page 4, line 34; **Replace** 237339 — Indoor Direct Fired Heating and Ventilating Units with
237423.16 Packaged Direct Fired Outdoor Makeup Air Units

PART 1 – BIDDING REQUIREMENTS

SECTION 000030 – INVITATION TO BID

- A. Page 1, line 48 through 56; **Replace** with the following:

Documents are on file at the following plan centers:

Abadan Reprographics	Spokane
AGC Plan Center	Boise, ID
Builders Exchange of Washington	Everett
Contractor Plan Center	Milwaukie, OR
OMWBE Bids & Contracting Opportunities	On-Line
(Office of Minority and Women's Business Enterprises)	
Seattle Daily Journal of Commerce	Seattle
Spokane Regional Plan Center	Spokane
Tri-City Construction Council	Kennewick
Wenatchee Plan and Copy Center	Wenatchee
Yakima Plan Center	Yakima

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SECTION 003000 – BID FORM

- A. **Replace** the Bid Form with revised attached Bid Form (3 pages).

Clarification: ALTERNATE NO. 11 has been revised to read as follows:

ALTERNATE NO. 11 – Interior Amenities:

Provide and install various interior amenities, including but not limited to; casework benches, casework book shelves, signage, casework uppers, casework Teen's bench, ceiling mounted retractable storage racks, as indicated in the drawings (Div. 10, Section 108500, Div. 12, Section 123700).

PART 3 – TECHNICAL SPECIFICATIONS

SECTION 010300 – ALTERNATES

- A. Page 3, line 10 through 14; **Replace** with the following:

ALTERNATE NO. 11 – Interior Amenities:

Provide and install various interior amenities, including but not limited to; casework benches, casework book shelves, signage, casework uppers, casework Teen's bench, ceiling mounted retractable storage racks, as indicated in the drawings (Div. 10, Section 108500, Div. 12, Section 123700).

SECTION 081100 – STEEL DOORS AND FRAMES

- A. Page 3, lines 39 through 47; **Replace** with the following:

Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than **R-3.4** minimum when tested according to ASTM C 1363.

At exterior locations provide doors that have been fabricated as thermal insulating door and thermally broken frame assemblies and tested in accordance with ASTM C **1363**.

Unless otherwise indicated, provide thermal-rated units with an overall apparent U factor of **0.29** Btu (/hr x ft² x degrees F) or better based on a 1-3/4" thick full flush door.

SECTION 082110 – FLUSH WOOD DOORS

- A. **Insert** the following attached section:

082110 FLUSH WOOD DOORS (5 pages)

SECTION 101010 – VISUAL DISPLAY BOARDS

- A. Page 1, line 34; **Revise** to read as follows:

Locking Tackboard Display (LTB) Units:

SECTION 124910 – HORIZONTAL LOUVER BLINDS

- A. Pages 1 through 3; **Delete** the duplicate copy of this section, in its entirety.

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SECTION 237423.16 - PACKAGED INDIRECT FIRED OUTDOOR MAKEUP AIR UNITS

A. **Insert** the following attached section:


237423.16 PACKAGED DIRECT FIRED OUTDOOR MAKEUP AIR UNITS (9 pages)

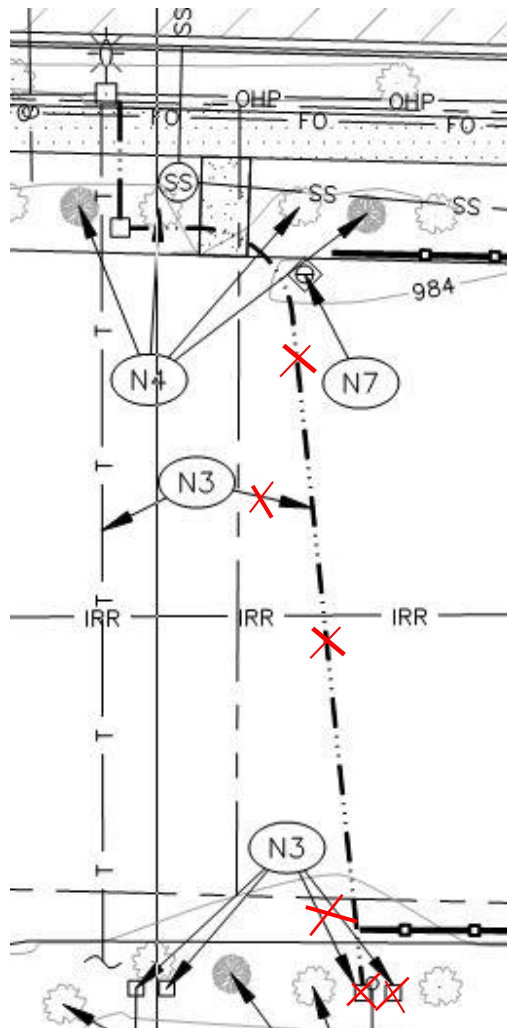
CONSTRUCTION DRAWINGS

SHEET C301 – DEMOLITION SITE PLAN

A. **Demolition Note N3; Revise** to read as follows;

EXISTING TELEPHONE CIRCUITS, TERMINATE AT BASE OF EXISTING POLE AND REMOVE AND REMOVE EXISTING IN-GROUND BOXES, SEE ELECTRICAL AND COORDINATE WITH UTILITY.

B. **Demolition Site Plan; Delete** the line  and boxes indicating the relocated telephone circuits and in-ground boxes, as shown below:



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CITY of UNION GAP**

SHEET C401 – SITE PLAN

A. Construction Note N16; **Revise** to read as follows;

CONSTRUCT NATURAL GAS LINE STUB FOR FUTURE BARBEQUE. TERMINATE IN LOCKING INGROUND BOX (**STORMDRAIN FSD-100 WITH DISC TUMBLER KEYED CAM LOCK, OR EQUAL**) WITH CONNECTION FOR BBQ. CONTRACTOR TO COORDINATE SERVICE INSTALLATION WITH MECHANICAL PLANS AND UTILITY COMPANY.

SHEET A000 – DEMOLITION SITE PLAN

A. Keynote Legend; Revise Keynote 311000.RTL to read as follows:

REMOVE TELEPHONE LINES – SEE CIVIL AND ELECTRICAL

B. Keynote Legend; **Revise** Keynote 311000.RUB to read as follows:

REMOVE EXISTING UTILITY BOX – SEE CIVIL AND ELECTRICAL

SHEET A001 – SITE PLAN

A. Keynote Legend; **Delete** Keynote 260010.RTL.

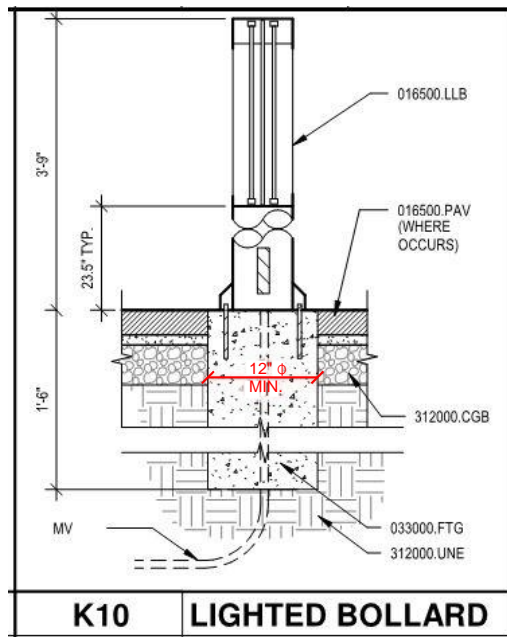
B. Keynote Legend; **Delete** Keynote 260010.RUB.

C. A1 – SITE PLAN; **Delete** the line — — T — — and boxes indicating the relocated telephone circuits and in-ground boxes.

D. A1 – SITE PLAN; **Revise** the detail reference for key note 260010.LLB, near the southwest corner of the building outline, to read SEE K10/A021 in lieu of **SEE K10/A002**.

SHEET A021 – ENLARGED COURTYARD PLAN

A. Detail K10 LIGHTED BOLLARD; **Add** a dimension indicating the minimum diameter of the footing, as shown below:



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SHEET M002 – EQUIPMENT SCHEDULES

- A. Louver Schedule, L-1 through L-4; **Add** the following in the Accessories/Remarks column:

ACCEPTABLE SUBSTITUTIONS: NAC, POTTORFF

SHEET E102 – MODIFIED ELECTRICAL SITE PLAN

- A. General Note 4: **Revise** the last sentence to read as follows:

SEE ARCHITECTURAL SHEET A021, DETAIL K10 FOR CONCRETE BASE DETAIL.

SHEET E300 – POWER PLAN

- A. **Revise** the Note associated with the fireplace in Library-Adult's 108A to read:

UNDER ALTERNATE BID NO. 3, RELOCATE CIRCUIT TO FIREPLACE AND PROVIDE HARDWIRED CONNECTION.

- B. **Revise** the Note associated with MUA-1 located west of Kitchen 107 to read:

PROVIDE UNDER ALTERNATE BID NO. 5 – UNIT IS LOCATED ON ROOF (NOTE 13).

- C. General Notes: **Add** Note 13 as follows:

HVAC UNIT IS LOCATED ON ROOF. UNDER ALTERNATE BID NO.5, PROVIDE GFCI RECEPTACLE IN WEATHERPROOF ENCLOSURE AND MOUNT ON HVAC UNIT. CONNECT RECEPTACLE TO PANEL PGEN, CIRCUIT 14.

- D. General Note 8: **Revise** the last sentence to read as follows:

SEE ARCHITECTURAL SPECIFICATION SECTION 108500 AND INTERIOR ELEVATIONS FOR MODEL NUMBER AND EXACT LOCATION ON WALL.

SHEET E301 – PARTIAL POWER PLANS

POWER PLAN – OFFICE 105/UTIL 106/KITCHEN 107

- A. **Revise** the Note associated with the Motorized Storage Rack Receptacle located in Utility/Storage 106 to read as follows:

MOTORIZED STORAGE RACK RECEPTACLE - PROVIDE UNDER ALTERNATE BID NO. 11

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CITY of UNION GAP**

APPROVED SUBSTITUTIONS

The following items shall be added to the approved list of manufacturers at this time. This approval is an approval of quality only and is subject to compliance with specified technical requirements unless indicated otherwise. No attempt has been made to check each item of equipment as to the special feature, capacities or physical dimensions specifically required for this project. It is the responsibility of the supplier and the Contractor to check all requirements before submitting for approval. Final approval of exact equipment size, capacity, etc., will be determined when the successful Contractor submits for construction.

SECTION	ITEM	APPROVED
075300	Single Ply Membrane Roofing	GAF Manufacture, EverGuard 60
075300	Single Ply Membrane Roofing	Sikaplan, PVC 60-mil
093100	Tile	Ardex Americas, Tile Setting Products
095110	Acoustical Panel Ceilings	Certainteed: ACP-2 - Fine Fissured Customline, Item #: FFCL-224, Reveal / Bevel Edge ACP-3 – Fine Fissured, Item #: HHF-194 Reveal / Bevel Edge ACP-4 - Vinylrock, Item#: 1140-CRF-1
101550	Toilet Compartments	Scranton Products, Hiny Hiders Solid HDPE
221323	Sanitary Waste Interceptors	Schier, GB-50
235416.13	Gas Fired Furnaces	Daikin AC
238126	Split-System Air Conditioners	Daikin AC
238126	Split-System Air Conditioners	LG
264500	Lighting Fixtures	
<u>Type</u>	<u>Manufacturer</u>	<u>Catalog Number</u>
B1	Lithonia	ZL1D L48 5000LM FST MVOLT 35K 80CRI WH
B1E	Lithonia	ZL1D L48 5000LM FST MVOLT 35K 80CRI E7W WH
F	Lithonia	ICO4ADJ 35/15 AR T30 LD 20D 120 GZ1 90CRI
F1	Lithonia	4VLFL2X1100C935KDA 4VLEDSCL
GX	Mark Lighting	SL2L LOP 6FT FLP FL 90CRI 35K I400LMF MIN1 120 ZT
H	Mark Lighting	S1LWID LLP 10FT MSL5 90CRI 35K 400LMF 190CRI 35K 1400LMF SCT MIN1 MVOLT WHT ZT
DD	Luminis	OC950 L1L20 R30 120 BZT K35 FS
GG	Hydrel	M9710C A LED P2 30K MVLOT WWD FLCSR 12B LDIM BZ
HH	Hydrel	M9410C A LED P2 30K MVLOT NSP FLCSR 12B LDIM BZ

ATTACHMENTS

- 04/07/2021 Pre-Bid Conference Sign-In Sheet (1 page)
- Section 003000 – BID FORM (3 pages)
- Section 082110 - FLUSH WOOD DOORS (5 pages)
- Section 237423.16 - PACKAGED DIRECT FIRED OUTDOOR MAKEUP AIR UNITS (9-PAGES)

END OF ADDENDUM NO. 1

**LIBRARY & COMMUNITY CENTER
CITY of UNION GAP**

**BID FORM
SECTION 003000 - 1**

City of Union Gap
102 West Ahtanum Road
Union Gap, Washington 98903-0008

Mayor, City Council & City Manager,

The undersigned, having carefully examined the Instructions to Bidders, the General and Supplementary Conditions, the General Requirements, the Technical Specifications, the Drawings, Schedules and other documents included in the various volumes of the Construction Documents; having visited and examined the conditions at the site; being familiar with all of the conditions relating to the Work of the proposed project, including the availability of materials and labor, hereby proposes to furnish, within the requirements of the schedule for completion of work phases and the entire project, all labor, supervision, materials, services and equipment required in connection with or incidental to the construction of a new Library and Community Center building and shall perform all Work of the Contract in strict accordance with the proposed Construction Documents prepared by BORArchitecture, pllc and dated **March 25, 2021**, for the amount calculated, for the Scope of Work selected, from the following amounts entered by the undersigned.

I / we bid as follows:

TOTAL BASIC BID:

_____ Dollars (\$_____)

This sum is hereby designated the Total Basic Bid. No sales tax is included in this Bid. Contract award will be made on the basis of the Total Basic Bid and Alternates selected, if any. Refer to Section, Alternates, for a complete description of all alternates.

BASIC BID BREAKDOWN:

The following Basic Bid Breakdown is requested.

Mechanical Construction \$ _____
Electrical Construction \$ _____

The Contractor is to include within his bid the following allowances. Refer to Section.

ALLOWANCE NO. 1: Project Sign Panel **\$1,500**

ALTERNATES:

Amounts for the following alternates may be added to or deducted from the Basic Bid Amount for each Alternate, if any, selected by the Owner. Refer to Div. 1, Section, Alternates. Alternates may be reinstated by the Owner for a period of sixty (60) days after the date of the Contract. Bidders shall fill in an amount for each Alternate. Amounts shall not include sales tax.

ALTERNATE NO. 1 - Concrete Pavers in Entry Courtyard:

Provide and install concrete pavers (Div. 32, Section 321400) in lieu of concrete paving.

\$ _____

ALTERNATE NO. 2 - East Patio:

Provide and install east patio constructed of concrete border (Div. 3, Section 033000) and a field of concrete pavers (Div. 32, Section 321400) in lieu of landscaping and concrete sidewalk paving.

\$ _____

ALTERNATE NO. 3 – Library Fireplace:

Provide and install; gas fireplace, hearth, surround and mantel in Room 108 'Stacks', in lieu of casework bench seating and cushions, including all electrical and ventilation.

\$ _____

ALTERNATE NO. 4 – Community Center Fireplace:

Provide and install; foundation, wall framing and cladding on the east side of the building and a 2-sided gas fireplace, surround and mantel in Room 104 'Community Room', including all electrical and ventilation.

\$ _____

ALTERNATE NO. 5 – Commercial Kitchen:

Provide and install; stainless steel wall panels (Div. 5, Section 051200) in lieu of fiberglass reinforced wall panels (Div. 9, Section 099860), architectural casework island with stainless steel counter top (Div. 12, Section 123700), commercial exhaust hood with fire suppression system, roof mounted exhaust fan and ducting with fire resistant duct protection, roof mounted make-up air unit and ducting, curbing and curb/roof mounted equipment screening.

\$ _____

ALTERNATE NO. 6 – Children's Story Wall:

Provide and install architectural casework (Div. 12, Section 123700) to create shelving and bench seating, including electrical and data in Room 108C 'Children's'.

\$ _____

ALTERNATE NO. 7 – Tops and End-Caps for Library Shelving:

Provide and install architectural casework (Div. 12, Section 123700) end-caps and tops on the library shelving as indicated in the drawings.

\$ _____

ALTERNATE NO. 8 – Sliding Door:

Provide and install a custom flush wood door, hardware including overhead track (Div. 8, Sections 082110 and 087100) and structural header as indicated in the drawings.

\$ _____

ALTERNATE NO. 9 – Aluminum Curtain Wall Sunshade System:

Provide and install aluminum curtain wall sunshade system (Div. 8, Sections 84400) as indicated in the drawings.

\$ _____

ALTERNATE NO. 10 – Exterior Composite Wall Panels:

Provide and install exterior composite wall panels, furring and trim (Div. 7, Section 074243) as indicated in the drawings in lieu of direct applied stucco cement board system.

\$ _____

ALTERNATE NO. 11 – Interior Amenities:

Provide and install various interior amenities, including but not limited to; casework benches, casework book shelves, signage, casework uppers, casework Teen's bench, ceiling mounted retractable storage racks, as indicated in the drawings (Div. 10, Section 101010 and 108500, Div. 12, Section 123700).

\$ _____

SALES TAX:

The undersigned agrees that none of the above-named Basic Bid and Alternate amounts include state, city or county obligation for sales tax. The Contractor shall collect from the Owner and pay the current sales tax rate on the Contract amount.

BID SECURITY:

The undersigned further agrees that the check or bid bond accompanying this bid is left in escrow with the Owner, that its amount or penal sum is the measure of damages which the Owner will sustain by the failure of the undersigned to execute said agreement and bond, and that if the undersigned fails to deliver said documents within ten (10) days after written notice of the award of the contract to the undersigned, then the check shall become the property of the Owner or the bid bond shall remain in full effect. But if this bid is not accepted within forty-five (45) days after the time set for opening bids, or if the undersigned delivers said contract and bond, then the check shall be returned to the bidder or the bid bond shall become void.

COMPLETION DATE:

I/we agree to substantially complete the work of the project and the total work required by the Contract within Two Hundred Sixty-Five (265) calendar days after receipt of written Notice-To-Proceed. This information may be used in selection of a responsive bidder. If the project is not substantially complete within the time period stated above, it will be subject to liquidated damages provisions specified in the Supplementary Conditions.

CONTRACT:

If the undersigned is notified of the acceptance of this Bid within forty-five (45) days of the time set for Bid Opening, the undersigned agrees to execute a Contract for the above Work for a compensation computed from the above stated sums, and to give bond as required by the Specifications.

LIQUIDATED DAMAGES:

The undersigned acknowledges and agrees to abide by all provisions of the "Liquidated Damages" Section of General and Supplementary Conditions as it pertains to the Contractor for all work under this Contract. The undersigned agrees to pay the Owner, as liquidated damages, the sum of \$1,000.00 for each consecutive calendar day that they are in default after the time of the date indicated for Substantial Completion and \$1,500.00 for each consecutive calendar day after date scheduled for Final Completion.

ADDENDA: Receipt of Addenda numbered _____ is hereby acknowledged.

BID SECURITY:

Enclosed is a cashier's check or Bid Bond in the amount of _____
_____ Dollars (\$ _____) which is 5% or more of this Bid.

BID FORM SIGNATURES:

(FIRM NAME)

BY _____
(AUTHORIZED OFFICIAL)

PROPOSAL MUST BE SIGNED

(ADDRESS)

(Telephone Number)

(Washington State Registration No.)

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

END OF SECTION 003000

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to of this Section.

SUMMARY:

Extent and location of each type of flush wood door is indicated on drawings and in schedules.

Types of doors required include the following:

Solid core flush wood doors with wood veneer faces.

Related Sections: The following Sections contain requirements that relate to this Section:

Division 8 Section, Steel Doors and Frames

Division 8 Section, Door Hardware

Division 8 Section, Glass and Glazing

Division 9 Section, Painting

SUBMITTALS:

Product Data: Door Manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings, and factory-finishing Specifications.

Provide documentation for adhesives and composite wood products indicating that product contains no urea formaldehyde.

Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, requirements for factory finishing and other pertinent data.

Samples: Submit the following:

Doors: Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used

QUALITY ASSURANCE:

Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

Manufacturer: Obtain doors from a single manufacturer.

Quality Standards: Comply with the following standards:

NWWDA Quality Standards: I.S.1 "Industry Standard for Wood Flush Doors", of National Wood Window and Door Association (NWWDA).

AWI Quality Standards: "Architectural Woodwork Quality Standards", including Section 1300 'Architectural Flush Doors', of Architectural Woodwork Institute (AWI) for grade of door, core construction, finish and other requirements exceeding those of NWWDA quality standard.

3 Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152 and which are labeled and listed for ratings indicated by UL or Warnock Hersey.

6 **PRODUCT DELIVERY, STORAGE, AND HANDLING:**

9 Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with Manufacturer's instructions.

12 Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames and hardware, using temporary, removable or concealed markings.

15 **PROJECT CONDITIONS:**

18 Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:

21 Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

24 **WARRANTY:**

27 General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Construction Documents.

30 Door Manufacturer's Warranty: Submit written agreement on door Manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) more than 1/4 inch in a 42-by-84-inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not conform to tolerance limitations of referenced quality standards.

36 Warranty to also include reinstallation, which may be required due to repair or replacement of defective doors where defect was not apparent to hanging.

39 Warranty to be in effect during following period of time after date of Substantial Completion.

Solid Core Interior Doors: Life of installation.

42 Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of Manufacturer's warranty.

45 **PART 2 - PRODUCTS**

48 **MANUFACTURERS:**

51 Wood Door Manufacturer: Subject to compliance with requirements, provide products of one of the following, or equal with prior approval:

54 Cenco Architectural Wood	Eggers Industries, Architectural Door Division
Lynden Door (LD 2000 Basis of Design)	Vancouver Door
VT Industries	Western Oregon Door
Weyerhaeuser Company	

57

INTERIOR FLUSH WOOD DOORS:

3 Adhesives: Type I, waterproof. Do not use adhesives containing urea formaldehyde.

6 Solid Core Doors for Transparent Finish: Comply with the following requirements:

9 Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

12 AWI Grade: Premium.

15 Construction: PC-5 or PC-7 (Particleboard core, 5 or 7 ply) for non-rated doors, made with binder containing no urea-formaldehyde resin.

18 Faces: AWI "A" grade, white oak species, rift cut with book/running-matched grain for transparent finish.

21 Stiles and Rails: Structural composite lumber

24 Edges: Solid Hardwood, with veneer to match faces.

27 Joint Between Multi-leaf Doors – Alternate No. 8: Solid Hardwood, glued with dado and biscuit joint reinforcing along entire length of joint.

30 Glazing: Glazing for doors in section "Glass and Glazing".

33 Blocking: Reinforced blocking required for all surface mounted hardware when thru bolts are not used in the installation of the hardware, such as but not limited to; pulls, locks, latches and closers.

36 Future Hardware Raceway (FHR): Provide 1/2" wide raceway through all door leafs for future electrified/access control door hardware (strike, latch and hinge).

39 Coordinate location of raceway with electrified door hardware/access control sub-contractor prior to fabrication.

42 Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required. Provide fire-rated steel channel with concealed wood glazing stops for fire-rated doors. Tempered wire glass is specified in Section 088000.

45 Light Openings: Trim openings with moldings of material and profile indicated.

48 Wood Species: Match species of door faces.

51 Profile: Lipped tapered beads (Lip-Over).

FABRICATION:

54 Fabricate flush wood doors to produce doors complying with following requirements.

57 In sizes indicated for job-site fitting.

60 Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required. Bottom of all door lights shall not be higher than 43" per Washington State Barrier Free standards.

SHOP-SEALING:

63 Shop seal top and edges of doors to prevent warping during transit.

FINISH:

3 Transparent Finish: Factory Finish TR-6 Polyurethane blend UV cured system containing no Volatile Organic Compounds (VOC's).

6

PART 3 - EXECUTION

9

EXAMINATION:

12 Examine installed door frames prior to hanging door: Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.

15

Reject doors with defects.

Do not proceed with installation until unsatisfactory conditions have been corrected.

18

INSTALLATION:

21

Do not install doors until all walls, ceiling and flooring finish has been completed.

24

Hardware: See Division 8, Door Hardware, Section of these Specifications. Coordinate for hardware or install as applicable.

27

Doors: Install assemblies and components in accordance with best industry standards. Install true, square and plumb to required tolerances for smooth operation. Coordinate with installation of trim and related work. As a minimum, comply with AWI Section 1700D installation requirements.

30

Manufacturer's Instructions: Install wood doors to comply with Manufacturer's instructions and of referenced AWI standard and as indicated.

33

Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by Manufacturer or permitted. Machine doors for hardware. Seal cut surfaces after fitting and machining.

36

39 Fitting Clearances for Non-Rated Doors: Provide 1/8" at jambs and heads; 1/16" per leaf at meeting stiles for pairs of doors; and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.

42

Fitting Clearances for Fire-Rated Doors: Comply with NFPA 80.

45

Bevel non-rated doors 1/8" in 2" at lock and hinge edges.

48

Provide 1/2" clearance between bottom of door and finish floor except at exterior doors. Provide maximum of 1/4" between bottom of door and top of threshold.

51

Prefit Doors: Fit to frames for uniform clearance at each edge.

54

Labels: Verify that all doors requiring fire labels have them properly installed.

ADJUSTING AND PROTECTION:

54

Operation: Rehang or replace doors that do not swing or operate freely.

3 Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

6 Protect doors as recommended by door Manufacturer to assure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 082110

SECTION 237423.13 - PACKAGED, DIRECT-FIRED, OUTDOOR MAKEUP-AIR UNITS

PART 1 - GENERAL

3 **RELATED DOCUMENTS**

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

6 **SUMMARY**

Section includes outdoor, direct, gas-fired, makeup air units, including the following components:

- 9 Casings.
- Outdoor-air intake hood.
- Roof curbs.
- 12 Fans, drives, and motors.
- Air filtration.
- Dampers.
- 15 Direct, gas-fired burners.
- Unit control panel.
- Controls.
- Accessories.

18 **ACTION SUBMITTALS**

Product Data: For each outdoor, direct, gas-fired, makeup air unit.

- 21 Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- 24 Include unit dimensions and weight.

INFORMATIONAL SUBMITTALS

Startup service reports.

- 27 Field quality-control reports.

CLOSEOUT SUBMITTALS

- 30 Operation and Maintenance Data: For direct, gas-fired, makeup air units to include in emergency, operation, and maintenance manuals.

MAINTENANCE MATERIAL SUBMITTALS

- 33 Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Filters: One set(s) for each unit.
- Gaskets: One set(s) for each access door.

WARRANTY

3 Warranty: Manufacturer agrees to repair or replace components of direct-fired heating and ventilating units that fail in materials or workmanship within specified warranty period.

6 Warranty Period for Entire Unit: Manufacturer's standard, but not less than one year(s) from date of Substantial Completion.

 Warranty Period for Burners: Manufacturer's standard, but not less than five years from date of Substantial Completion.

PART 2 - PRODUCTS

9 **PERFORMANCE REQUIREMENTS**

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

12 NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of units and components.

15 ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

18 **MANUFACTURERS**

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

21 CaptiveAire Systems.

Greenheck Fan Corporation.

REZNOR, a brand of Nortek Global HVAC.

24 Sterling HVAC Products; a Mestek company.

UNIT CASINGS

Configuration: Horizontal unit with bottom discharge for roof-mounting installation.

27 Double-Wall Construction:

 Outside Casing Wall: Galvanized steel, minimum 18 gauge thick, with manufacturer's standard finish.

30 Inside Casing Wall:

 Inside Casing, Burner Section: Galvanized steel, solid, minimum 14-gauge- thick steel.

33 Inside Casing, All Other Sections: Galvanized steel perforated steel.

 Floor Plate: Galvanized steel, minimum 18 gauge thick.

 Casing Insulation:

36 Materials: Glass-fiber blanket or board insulation, Type I or Type II ASTM C1071.

 Insulation Thickness: 1 inch.

Thermal Break: Provide continuity of insulation with no through-casing metal in casing walls, floors, or roof of unit.

3 Airstream Surfaces: Surfaces in contact with airstream shall comply with requirements in ASHRAE 62.1.

Panels and Doors:

6 Panels:

Fabrication: Formed and reinforced, with same materials and insulation thickness as casing.

9 Fasteners: Two or more camlock type for panel lift-out operation. Arrangement shall allow panels to be opened against airflow.

Gasket: Neoprene, applied around entire perimeters of panel frames.

12 Size: Large enough to allow unobstructed access for inspection and maintenance of unit's internal components.

Doors:

15 Fabrication: Formed and reinforced with same materials and insulation thickness as casing.

18 Hinges: A minimum of two ball-bearing hinges or stainless steel piano hinge and two wedge-lever-type latches, operable from inside and outside. Arrange doors to be opened against airflow. Provide safety latch retainers on doors so that doors do not open uncontrollably.

21 Gasket: Neoprene, applied around entire perimeters of panel frames.

Size: Large enough to allow unobstructed access for inspection and maintenance of unit's internal components.

24 **OUTDOOR-AIR INTAKE HOOD**

Type: Manufacturer's standard hood or louver.

Materials: Match cabinet.

27 Bird Screen: Comply with requirements in ASHRAE 62.1.

Filter: Aluminum, 1 inch cleanable.

Configuration: Designed to inhibit wind-driven rain and snow from entering unit.

30 **ROOF CURBS**

Materials: Galvanized steel with corrosion-protection coating, watertight gaskets, and factory-installed wood nailer; complying with NRCA standards.

33 Curb Height: 14 inches.

FANS, DRIVES, AND MOTORS

36 Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.

Fans: Centrifugal, rated according to AMCA 210; galvanized steel; mounted on solid-steel shaft.

Drives: Factory-mounted V-belt drive, with adjustable alignment and belt tensioning, and with 1.5 service factor based on fan motor.

3 Motors:

Motor Sizes: Maximum sizes as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

6 Enclosure: Open, dripproof.

Enclosure Materials: Cast iron.

Efficiency: Premium efficient as defined in NEMA MG 1.

9 **AIR FILTRATION**

Panel Filters:

12 Description: Pleated factory-fabricated, self-supported, disposable air filters with holding frames.

Filter Unit Class: UL 900.

15 Media: Interlaced glass, synthetic or cotton fibers coated with nonflammable adhesive and antimicrobial coating.

Filter-Media Frame: Beverage board with perforated metal retainer, or metal grid, on outlet side.

18 **DAMPERS**

Dampers: Comply with requirements in Section 230923.12 "Control Dampers."

21 Outdoor- and Return-Air Dampers: Low-leakage, double-skin, airfoil-blade, galvanized-steel dampers with compressible jamb seals and extruded-vinyl blade edge seals in opposed-blade arrangement with zinc-plated steel operating rods rotating in sintered bronze or nylon bearings mounted in a single galvanized-steel frame, and with operating rods connected with a common linkage. Leakage
24 rate shall not exceed 4 cfm/sq. ft. (20 L/s per sq. m) at 1-inch wg (250 Pa) and 8 cfm/sq. ft. (40 L/s per sq. m) at 4-inch wg (1.0 MPa) rated in accordance with AMCA 500D.

Electronic Damper Operators:

27 Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.

Electronic damper position indicator shall have visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.

30 Operator Motors:

33 Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."

Size to operate with sufficient reserve power to provide smooth modulating action or two-position action.

36 Permanent Split-Capacitor or Shaded-Pole Type: Gear trains completely oil immersed and sealed. Equip spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or adjustment of limit
39 switches, auxiliary switches, or feedback potentiometer.

DIRECT-FIRED GAS BURNER

42 Description: Factory assembled, piped, and wired; and complying with ANSI Z21.47 and with NFPA 54.

CSA Approval: Designed and certified by and bearing label of CSA.

Burners: Aluminized steel with stainless-steel inserts.

- 3 Rated Minimum Turndown Ratio: 30 to 1.
- Fuel: Natural gas.
- Ignition: Electronically controlled electric spark with flame sensor.
- 6 Gas Control Valve: Modulating.
- Gas Train: Regulated, redundant, 24-V ac gas valve assembly containing pilot solenoid valve, electronic-modulating temperature control valve, pilot filter, pressure regulator, pilot shutoff, and manual shutoff all in one body.
- 9

Safety Controls:

- 12 Gas Manifold: Safety switches and controls complying with ANSI standards.
- Vent Flow Verification: Differential pressure switch to verify open vent or Flame rollout switch.
- High Limit: Thermal switch or fuse to stop burner.
- 15 Purge-period timer shall automatically delay burner ignition and bypass low-limit control.
- Airflow Proving Switch: Differential pressure switch senses correct airflow before energizing pilot.
- 18 Automatic-Reset, High-Limit Control Device: Stops burner and closes main gas valve if high-limit temperature is exceeded.
- Safety Lockout Switch: Locks out ignition sequence if burner fails to light after three tries.
- 21 Controls are reset manually by turning the unit off and on.
- Control Transformer: 24 V ac.

UNIT CONTROL PANEL

- 24 Factory-wired, fuse-protected control transformer, connection for power supply and field-wired unit to remote control panel.

27 Control Panel: Surface-mounted remote panel, with engraved plastic cover and the following lights and switches:

- On-off-auto fan switch.
- Heat-vent-off switch.
- 30 Supply-fan operation indicating light.
- Heating operation indicating light.
- Thermostat.
- 33 Damper position potentiometer.
- Dirty-filter indicating light operated by unit-mounted differential pressure switch.
- Safety-lockout indicating light.
- 36 Enclosure: NEMA 250, Type 1.

CONTROLS

Remote Thermostat: Adjustable room thermostat with temperature readout.

- 39 Fan Control, Interlocked: Fan to start with exhaust fan(s) to which this heating and ventilating unit is associated for makeup air.

42 Outdoor-Air Damper Control, 100 Percent Outdoor-Air Units: Outdoor-air damper shall open when supply fan starts, and close when fan stops.

Temperature Control:

Operates gas valve to maintain discharge-air temperature with factory-mounted sensor in blower outlet.

3 Operates gas valve to maintain space temperature with wall-mounting, field-wired sensor with temperature adjustment, and adjustment on remote-control panel.

6 Burner Control, Modulating: 20 to 100 percent modulation of the firing rate. 10 to 100 percent with dual burner units.

ACCESSORIES

Provide manufacturer's standard accessories as indicated on the Drawings.

MATERIALS

Steel:

12 ASTM A36/A36M for carbon structural steel.
ASTM A568/A568M for steel sheet.

Stainless Steel:

15 Manufacturer's standard grade for casing.
Manufacturer's standard type, ASTM A240/A240M for bare steel exposed to airstream or moisture.

Galvanized Steel: ASTM A653/A653M.

PART 3 - EXECUTION

EXAMINATION

21 Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

Examine roughing-in for piping, ducts, and electrical systems to verify actual locations of piping and electrical connections before equipment installation.

24 Verify cleanliness of airflow path to include inner-casing surfaces, filters, coils, turning vanes, fan wheels, and other components.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

30 Roof Curb: Install on roof structure level and secure, according to NRCA's "NRCA Roofing Manual: Membrane Roof Systems." Secure units to upper curb rail, and secure curb base to roof framing or concrete base with anchor bolts. Coordinate sizes and locations of roof curbs with actual equipment.

33 Unit Support: Install unit level on structural steel supports. Coordinate roof penetrations and flashing with roof construction. Secure units to structural support with anchor bolts. Coordinate sizes and locations of curbs with actual equipment provided.

Install gas-fired units according to NFPA 54, "National Fuel Gas Code."

36 Install controls and equipment shipped by manufacturer for field installation with direct-fired heating and ventilating units.

PIPING CONNECTIONS

Drawings indicate general arrangement of piping, fittings, and specialties.

3 Gas Piping: Comply with requirements in Section 231123 "Facility Natural-Gas Piping."
Connect gas piping with shutoff valve and union, and with sufficient clearance for burner
removal and service. Make final connections of gas piping to unit with corrugated, stainless-
6 steel tubing flexible connectors complying with ANSI LC 1/CSA 6.26 equipment connections.

Drain: Comply with requirements in Section 221316 "Sanitary Waste and Vent Piping" for traps and accessories on piping connections to condensate drain pans under condensing heat exchangers.

9 Where installing piping adjacent to heating and ventilating units, allow space for service and maintenance.

DUCT CONNECTIONS

12 Duct Connections: Connect supply ducts to direct-fired heating and ventilating units with flexible duct connectors.

ELECTRICAL CONNECTIONS

15 Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

18 Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.

21 Nameplate shall be laminated acrylic or melamine plastic signs, as specified in Section 260553 "Identification for Electrical Systems."

24 Nameplate shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

CONTROL CONNECTIONS

Install control and electrical power wiring to field-mounted control devices.

27 Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

STARTUP SERVICE

Perform startup service.

30 Complete installation and startup checks according to manufacturer's written instructions and perform the following:

- 33 Inspect for visible damage to burner combustion chamber.
- Inspect casing insulation for integrity, moisture content, and adhesion.
- Verify that clearances have been provided for servicing.
- Verify that controls are connected and operable.
- 36 Verify that filters are installed.
- Purge gas line.

Inspect and adjust vibration isolators.
Verify bearing lubrication.
3 Inspect fan-wheel rotation for movement in correct direction without vibration and binding.
Adjust fan belts to proper alignment and tension.

Start unit according to manufacturer's written instructions.

6 Complete startup sheets and attach copy with Contractor's startup report.
Inspect and record performance of interlocks and protective devices; verify sequences.
Operate unit for run-in period recommended by manufacturer.
9 Perform the following operations for both minimum and maximum firing, and adjust burner
for peak efficiency:

12 Measure gas pressure at manifold.
Measure combustion-air temperature at inlet to combustion chamber.
Measure supply-air temperature and volume when burner is at maximum firing rate
and when burner is off. Calculate useful heat to supply air.

15 Calibrate thermostats.
Adjust and inspect high-temperature limits.
Inspect dampers, if any, for proper stroke and interlock with return-air dampers.
18 Inspect controls for correct sequencing of heating, mixing dampers, refrigeration, and normal
and emergency shutdown.
Measure and record airflow. Plot fan volumes on fan curve.
21 Verify operation of remote panel, including pilot-operation and failure modes. Inspect the
following:

24 High-limit heat.
Alarms.

27 After startup and performance testing, change filters, verify bearing lubrication, and adjust
belt tension.
Verify drain-pan performance.
Verify outdoor-air damper operation.

ADJUSTING

30 Adjust initial temperature set points.

Set field-adjustable switches and circuit-breaker trip ranges as indicated.

CLEANING

33 After completing system installation and testing, adjusting, and balancing makeup air unit and air-
distribution systems and after completing startup service, clean air-handling units internally to
remove foreign material and construction dirt and dust. Clean fan wheels, cabinets, dampers, coils,
36 and filter housings, and install new, clean filters.

FIELD QUALITY CONTROL

39 Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect
components, assemblies, and equipment installations, including connections.

Perform tests and inspections.

Units will be considered defective if they do not pass tests and inspections.

Prepare test and inspection reports.

DEMONSTRATION

- 3 Train Owner's maintenance personnel to adjust, operate, and maintain heating and ventilating units.

END OF SECTION 237423.13