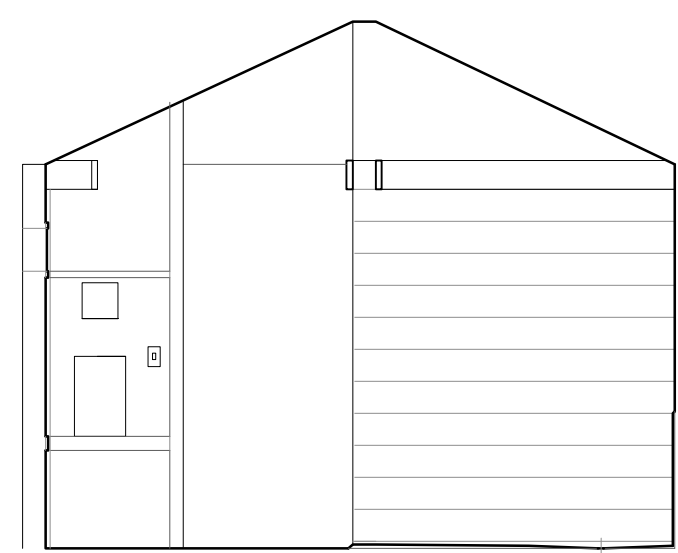
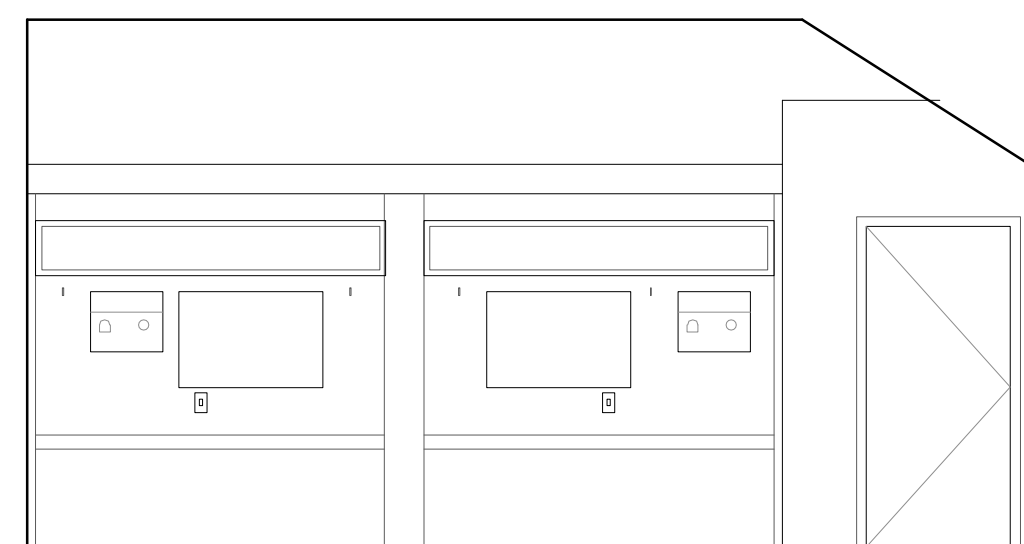


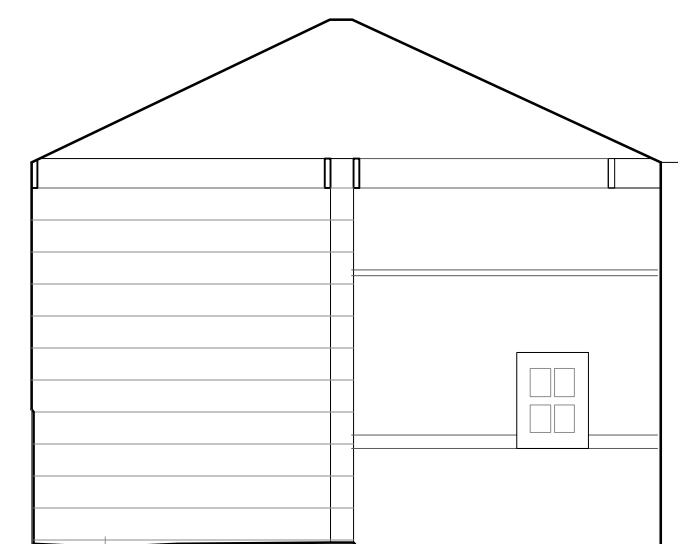
Existing Int. Elevation 9  
Scale: 1/4" = 1'-0"



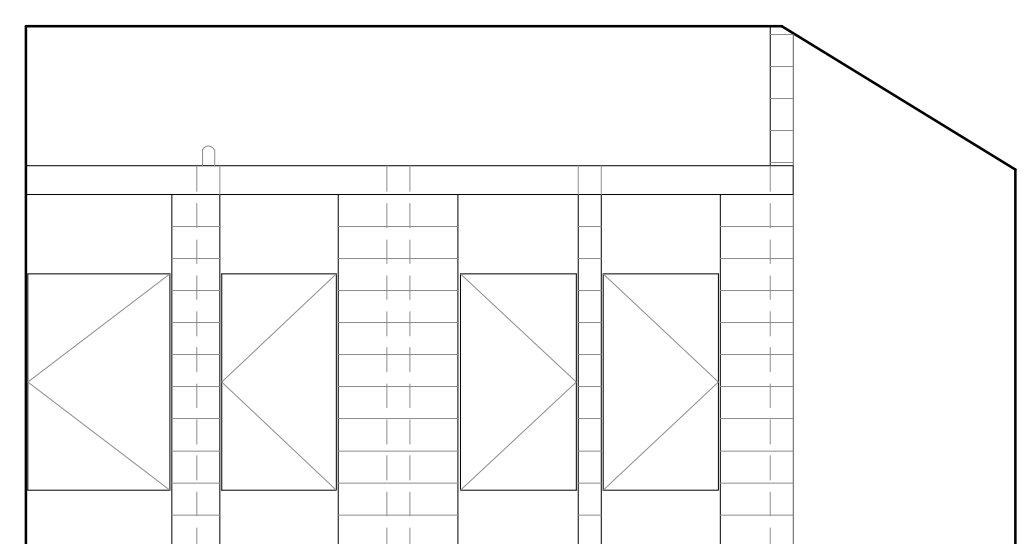
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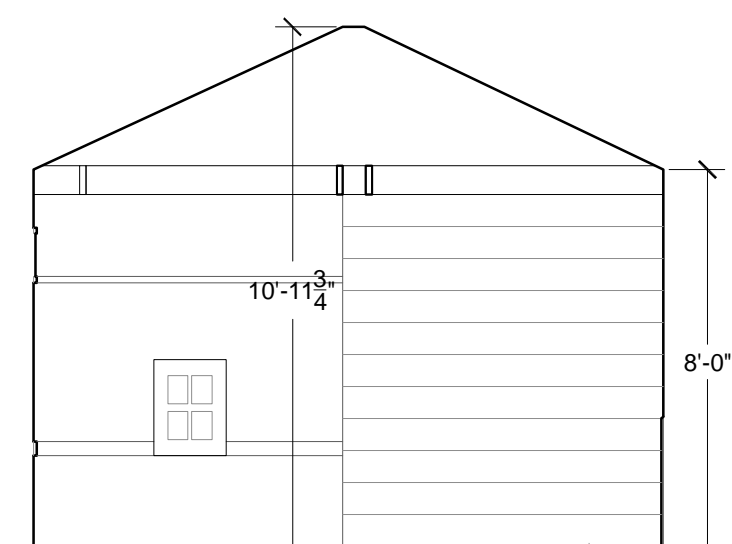
Existing Int. Elevation 7  
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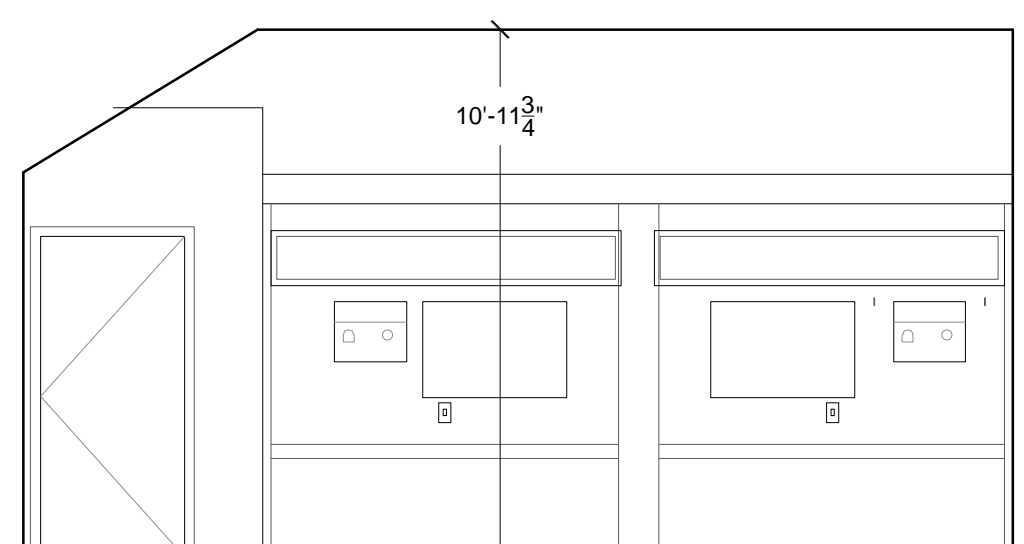
Existing Int. Elevation 8  
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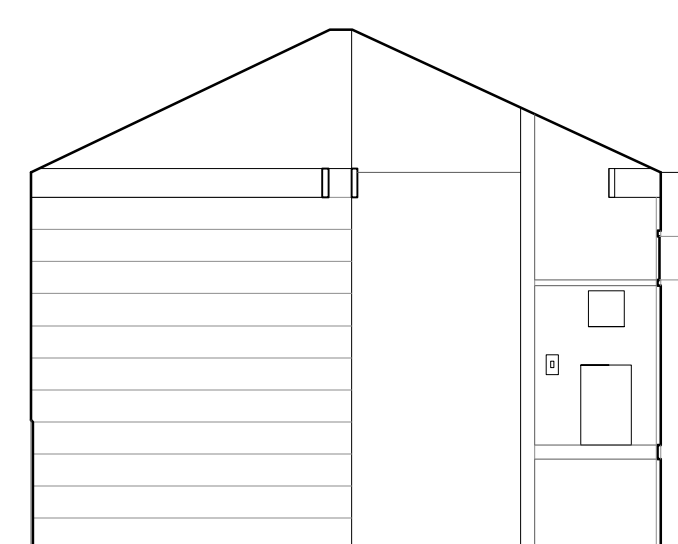
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Scale: 1/4" = 1'-0"



Existing Int. Elevation 6  
Scale: 1/4" = 1'-0"



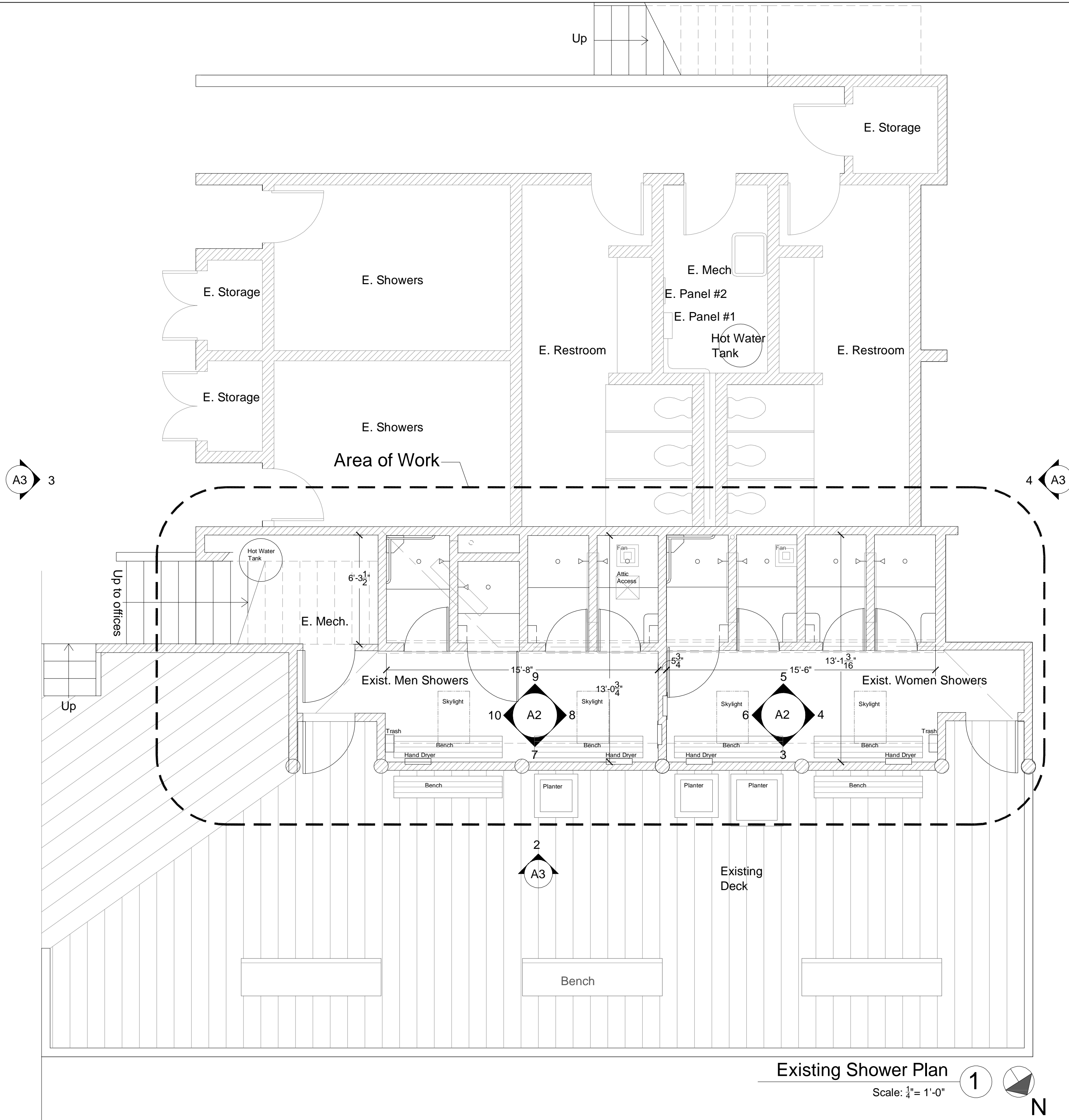
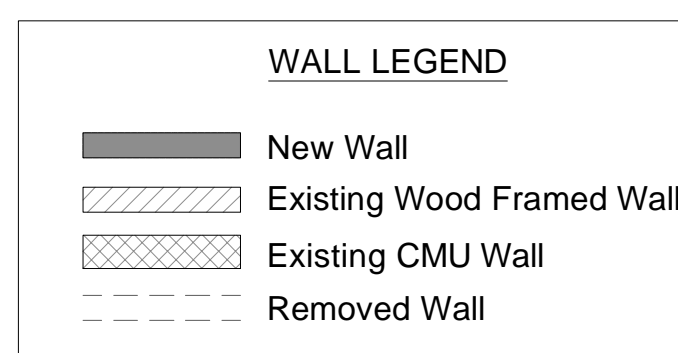
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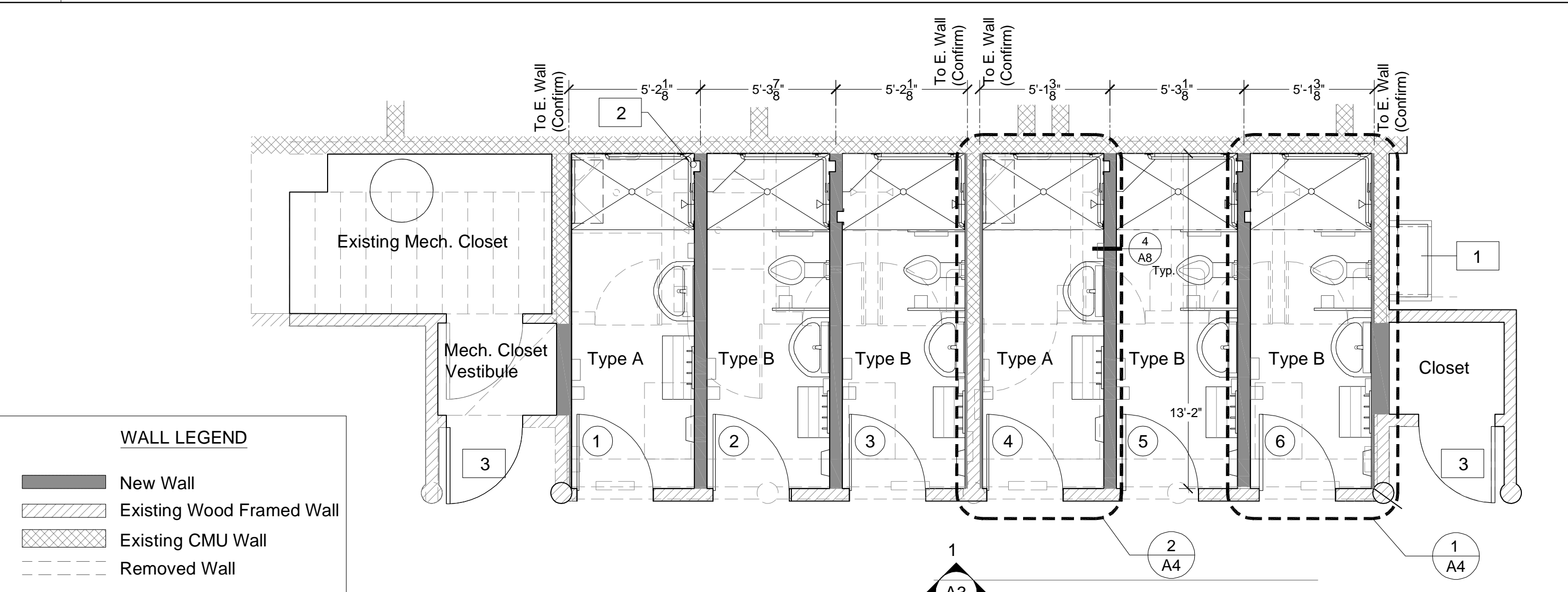
Existing Int. Elevation 4  
Scale: 1/4" = 1'-0"

**Key Notes:**

- 1 Refer to Mechanical drawings & Manufacturers Specifications for Required Clearances for Heat Pump.
- 2 Verify Re-routing of Previous Existing 3" Sewer Pipe to below E. Floor Construction before Wall Demolition.
- 3 Existing HM Doors/ Frames to Remain



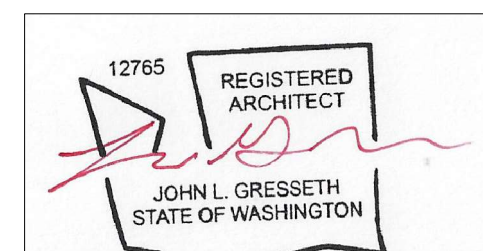
Existing Shower Plan 1  
Scale: 1/4" = 1'-0"



New Shower Plan Layout 2  
Scale: 1/4" = 1'-0"

**Port of Friday Harbor  
Shower Remodel  
Port of Friday Harbor, Main Office**  
204 Front St., Friday Harbor, WA 98250

John gresseth  
**ARCHITECTS L.L.P.**  
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Friday Harbor, WA, 98250  
(360) 378-6384



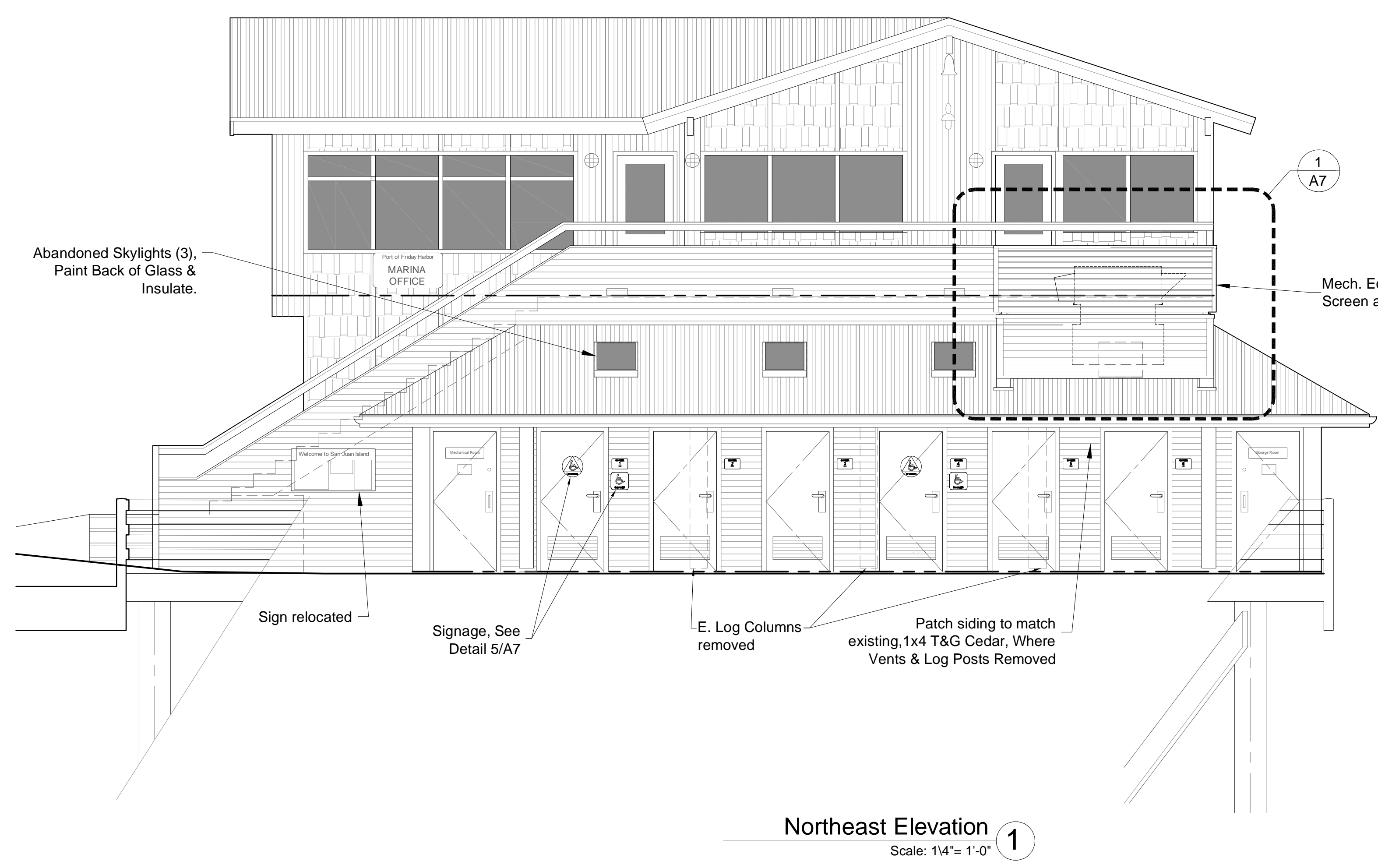
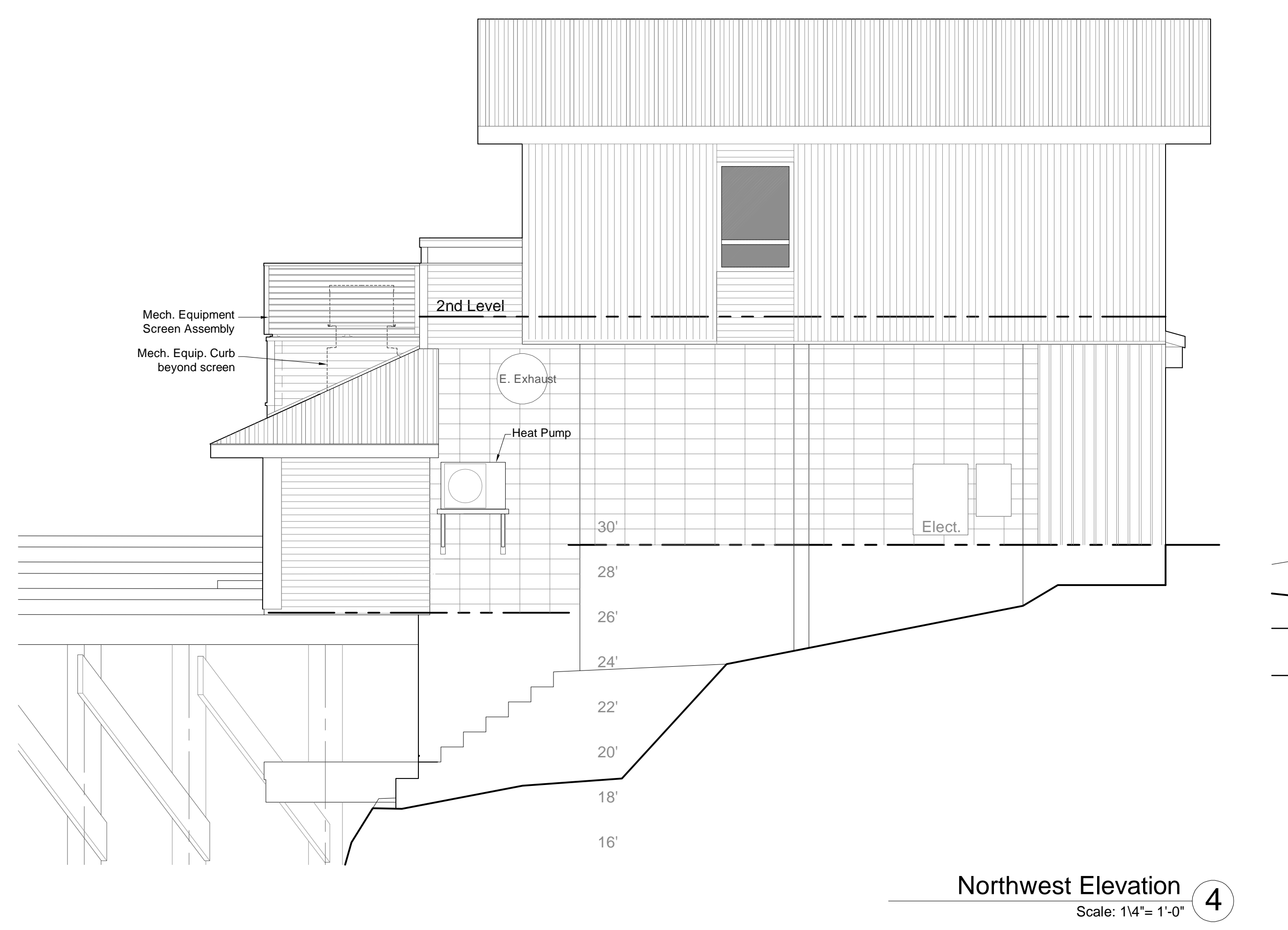
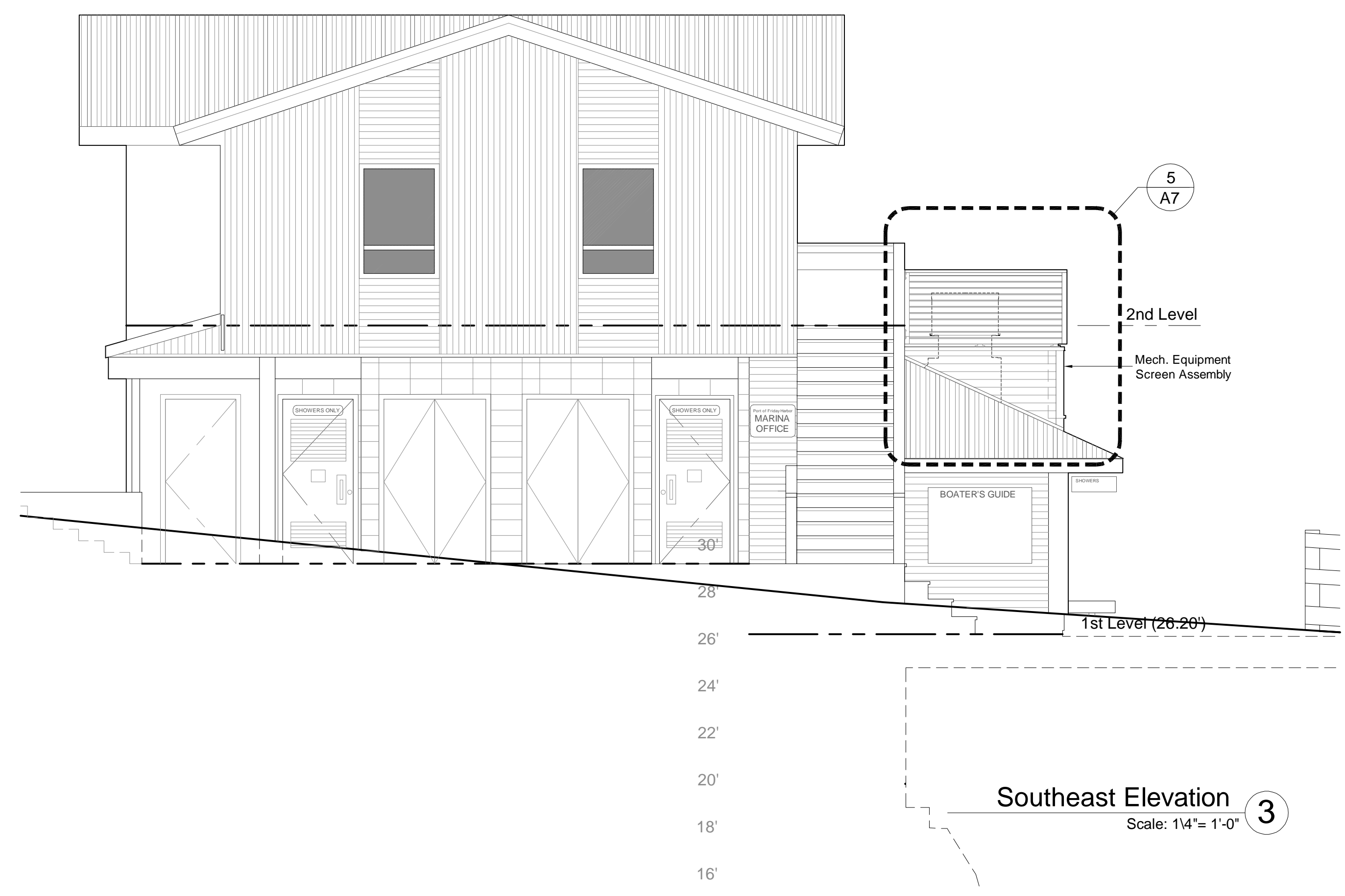
Description	Date
Building Permit Submittal	8-12-22

**A 2**

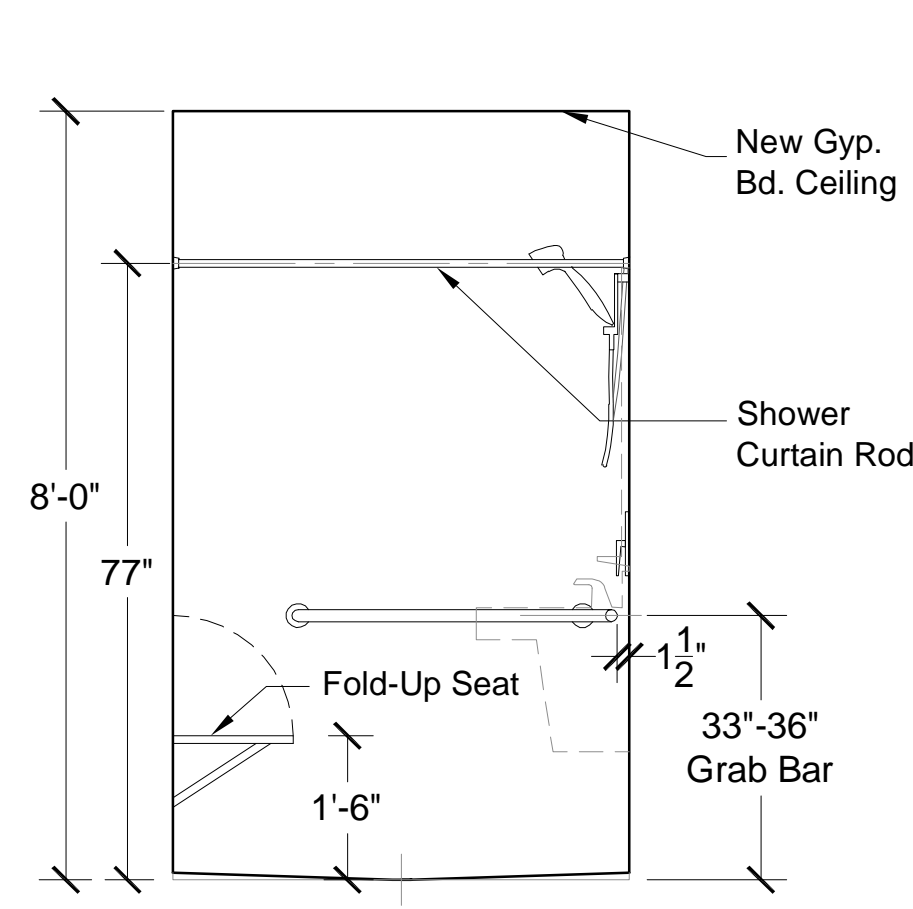
Project number	
Date	8-12-22
Drawn by	JLG

Existing Floor Plan, New Floor Plan & Existing Interior Elevations  
Scale

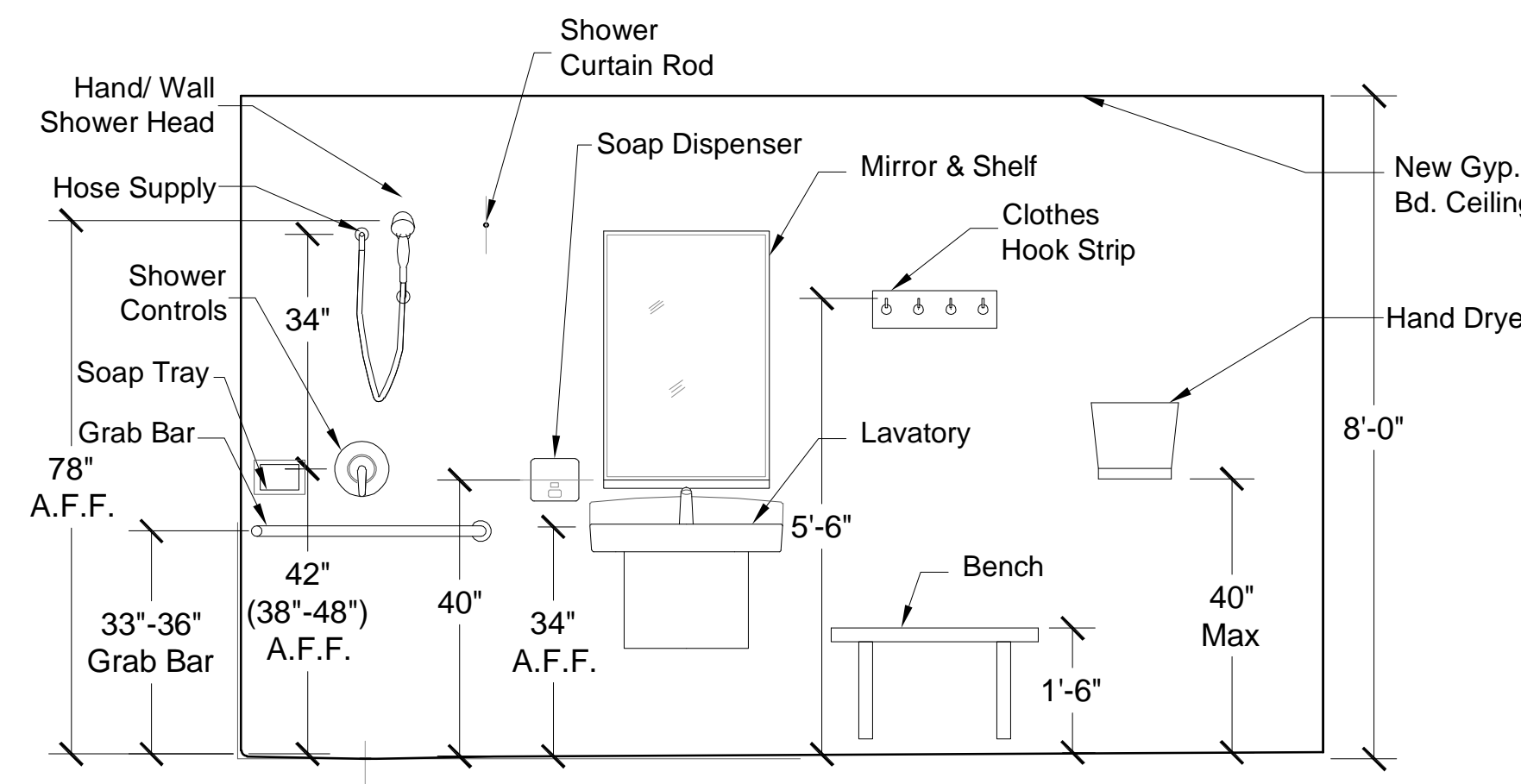
Port of Friday Harbor  
Shower Remodel  
Port of Friday Harbor, Main Office  
204 Front St, Friday Harbor, WA 98250



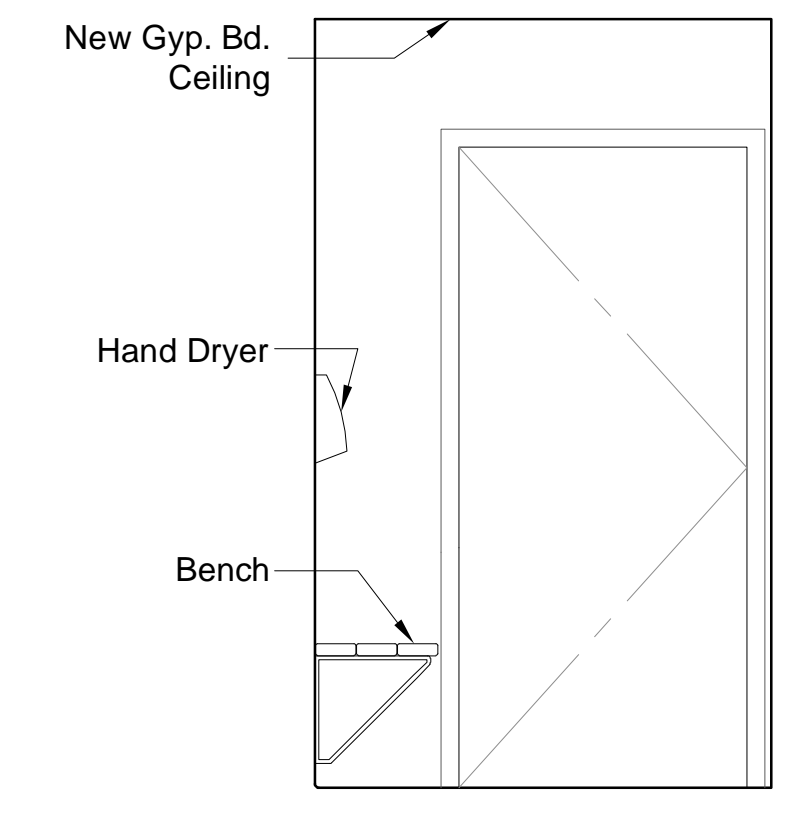
12765 REGISTERED ARCHITECT <i>John L. Gresseth</i> JOHN L. GRESSETH STATE OF WASHINGTON	
Description	Date
Building Permit Submittal	8-12-22
<b>A3</b>	
Project number	
Date	8-12-22
Drawn by	JLG
Exterior Elevations	
Scale	



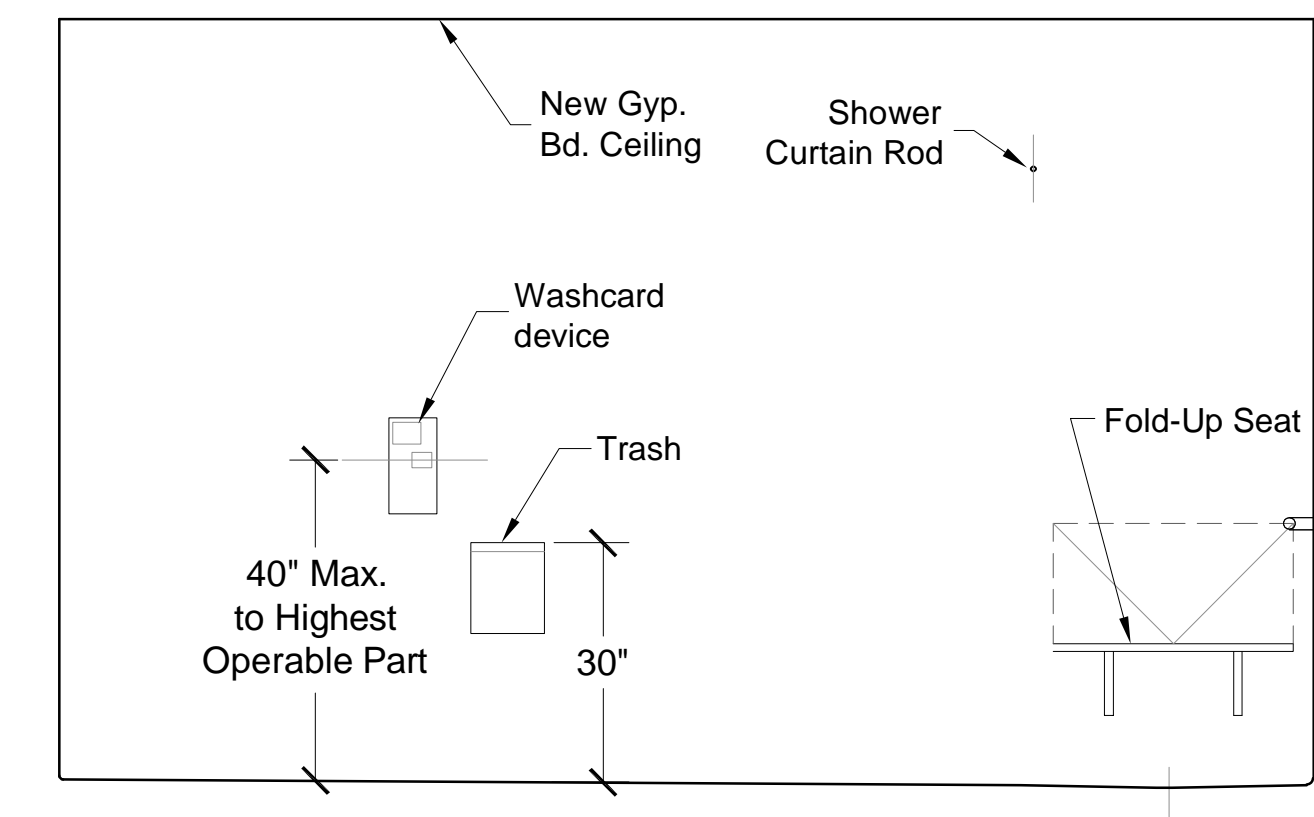
Type A Interior Elevation 7  
Scale: 1/2" = 1'-0"



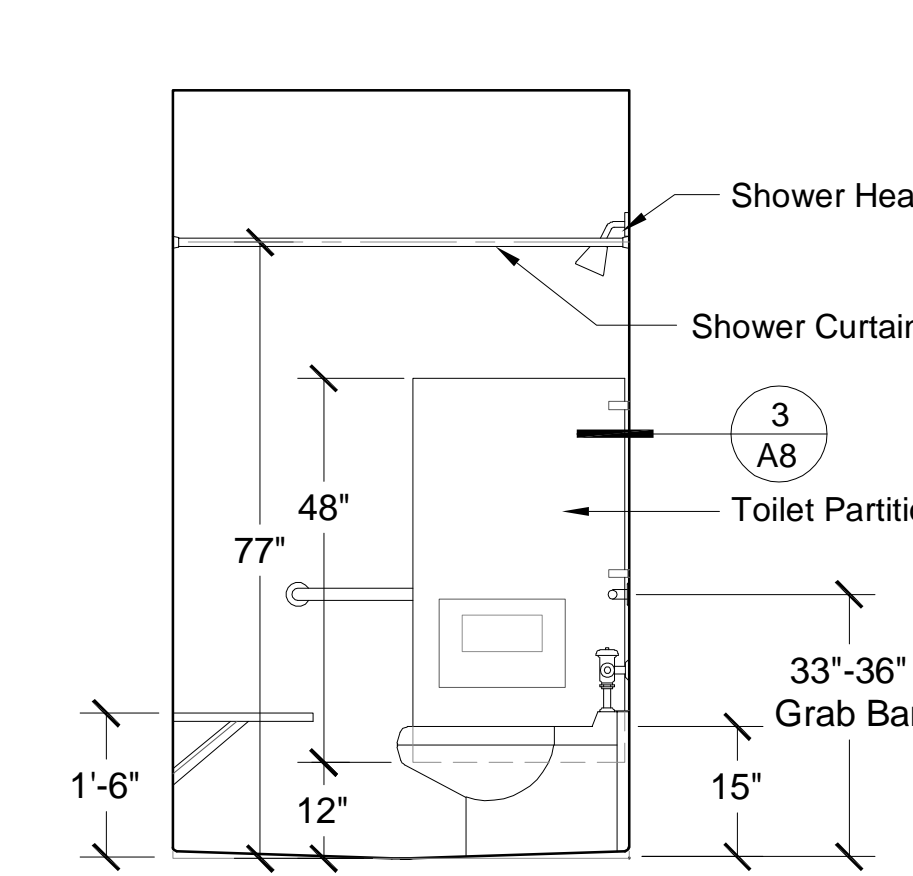
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Scale: 1/2" = 1'-0"



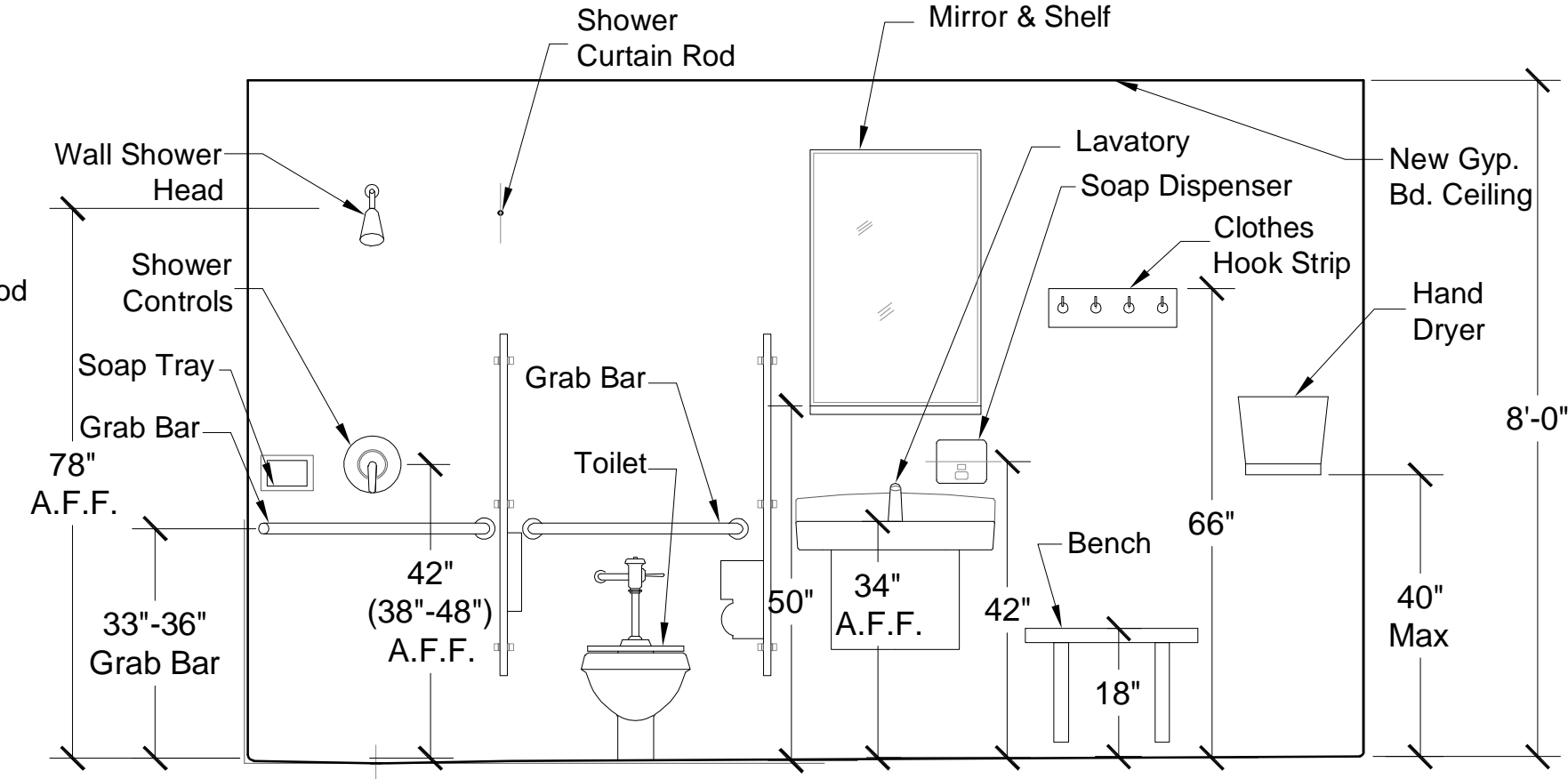
Type A Interior Elevation 9  
Scale: 1/2" = 1'-0"



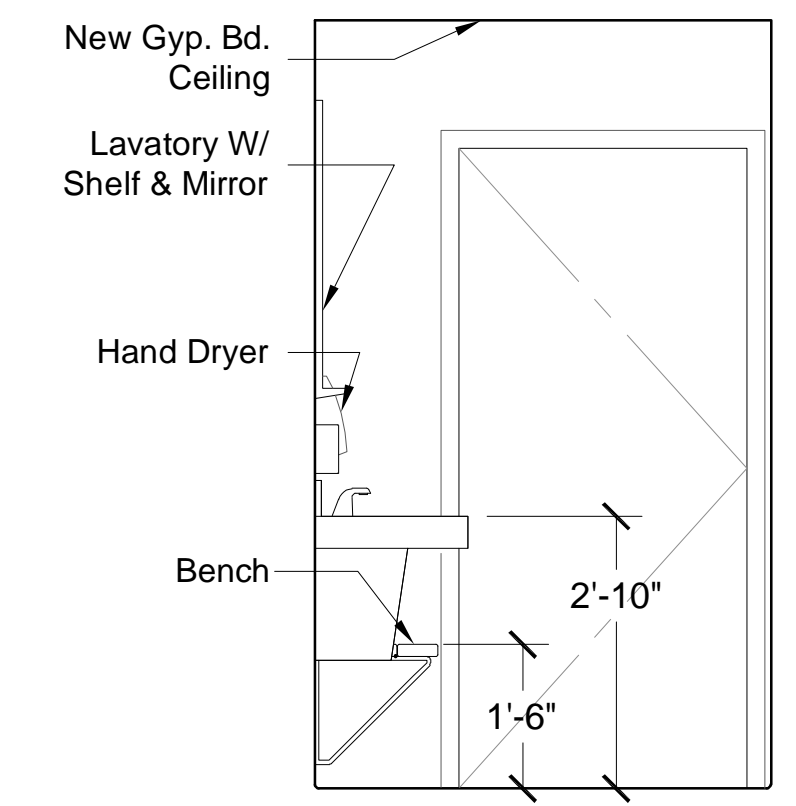
Type A Interior Elevation 10  
Scale: 1/2" = 1'-0"



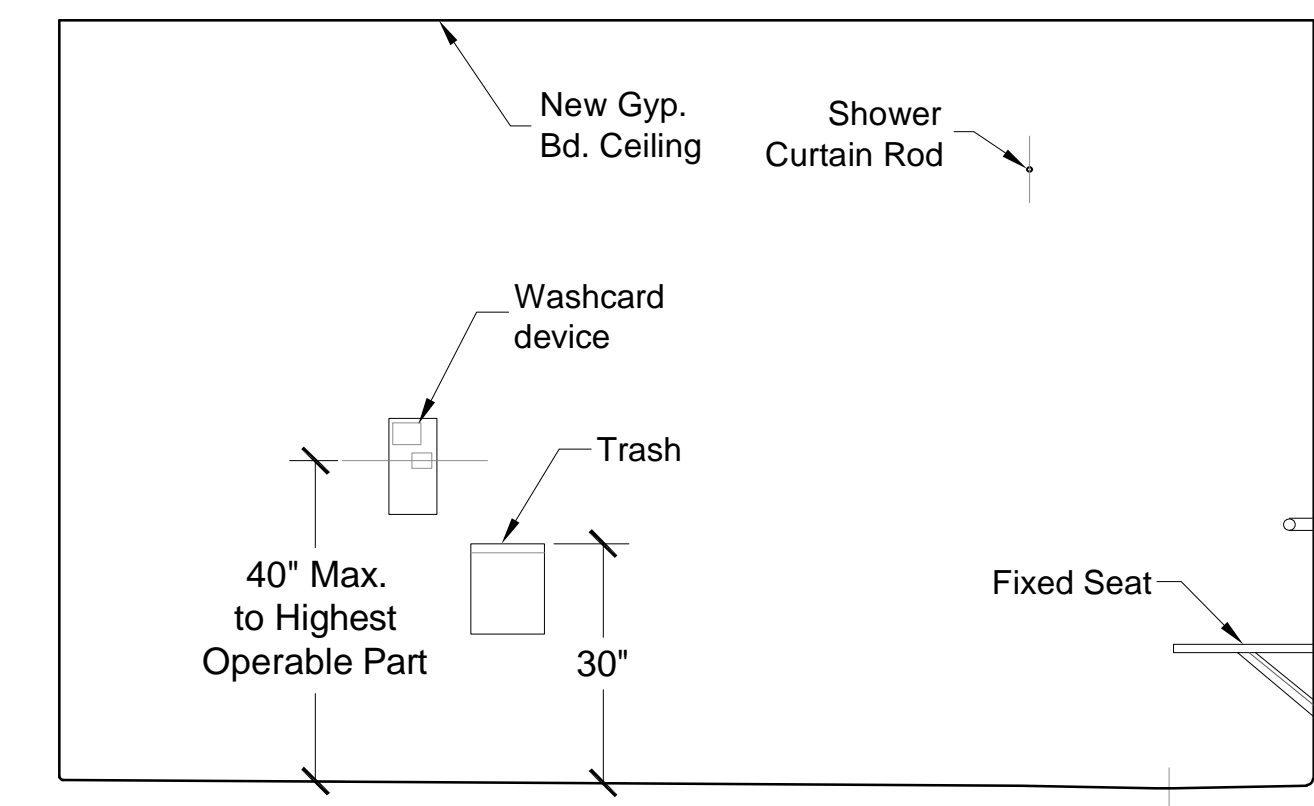
Type B Interior Elevation 3  
Scale: 1/2" = 1'-0"



Type B Interior Elevation 4  
Scale: 1/2" = 1'-0"

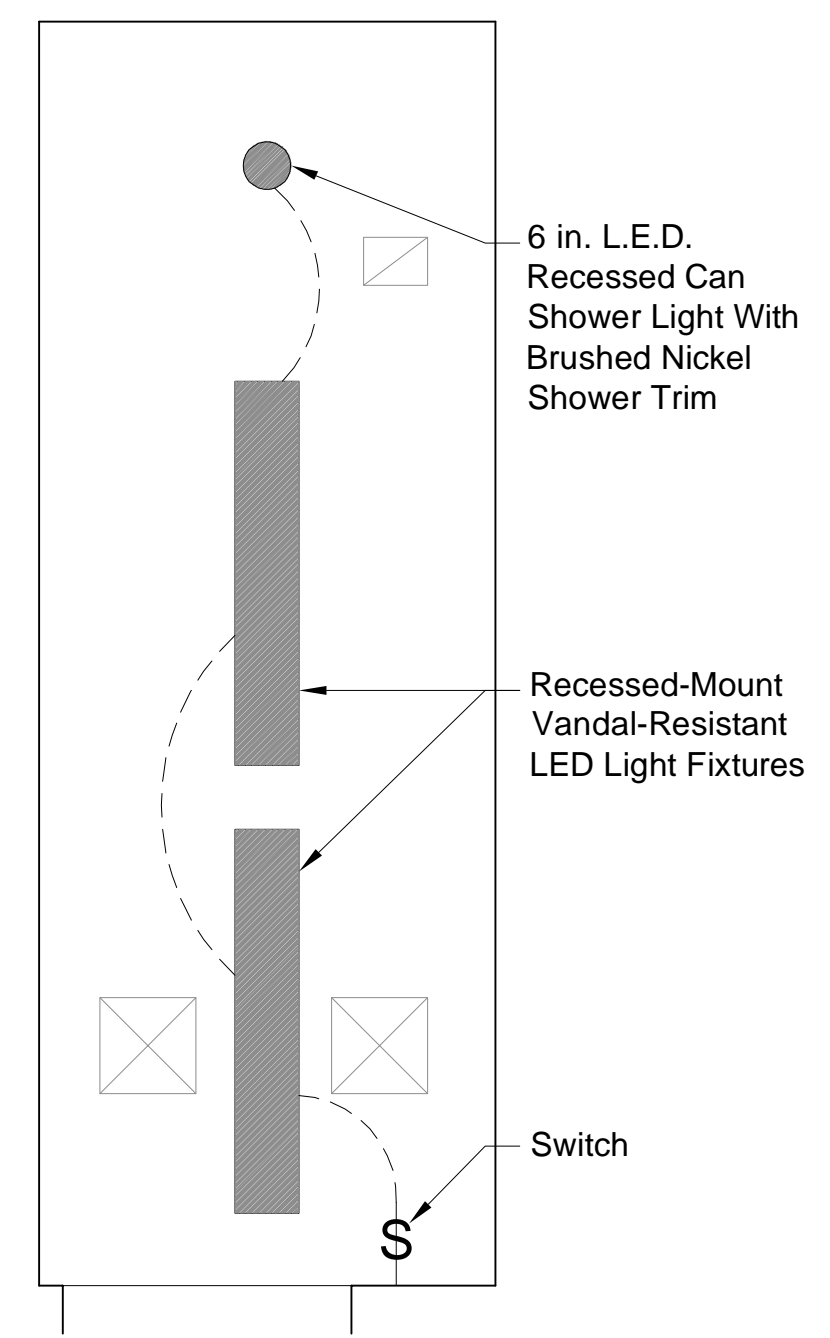


Type B Interior Elevation 5  
Scale: 1/2" = 1'-0"

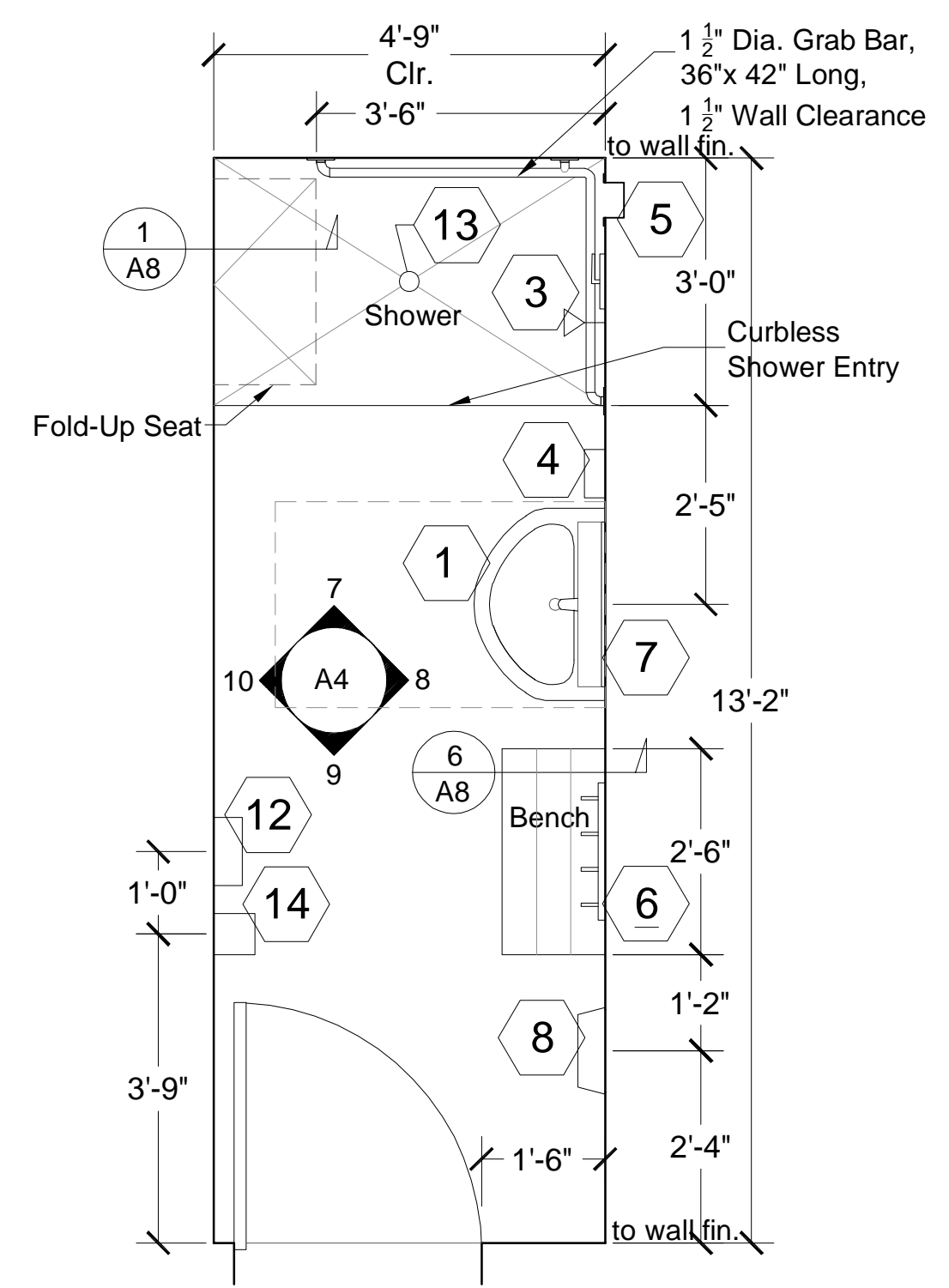


Type B Interior Elevation 6  
Scale: 1/2" = 1'-0"

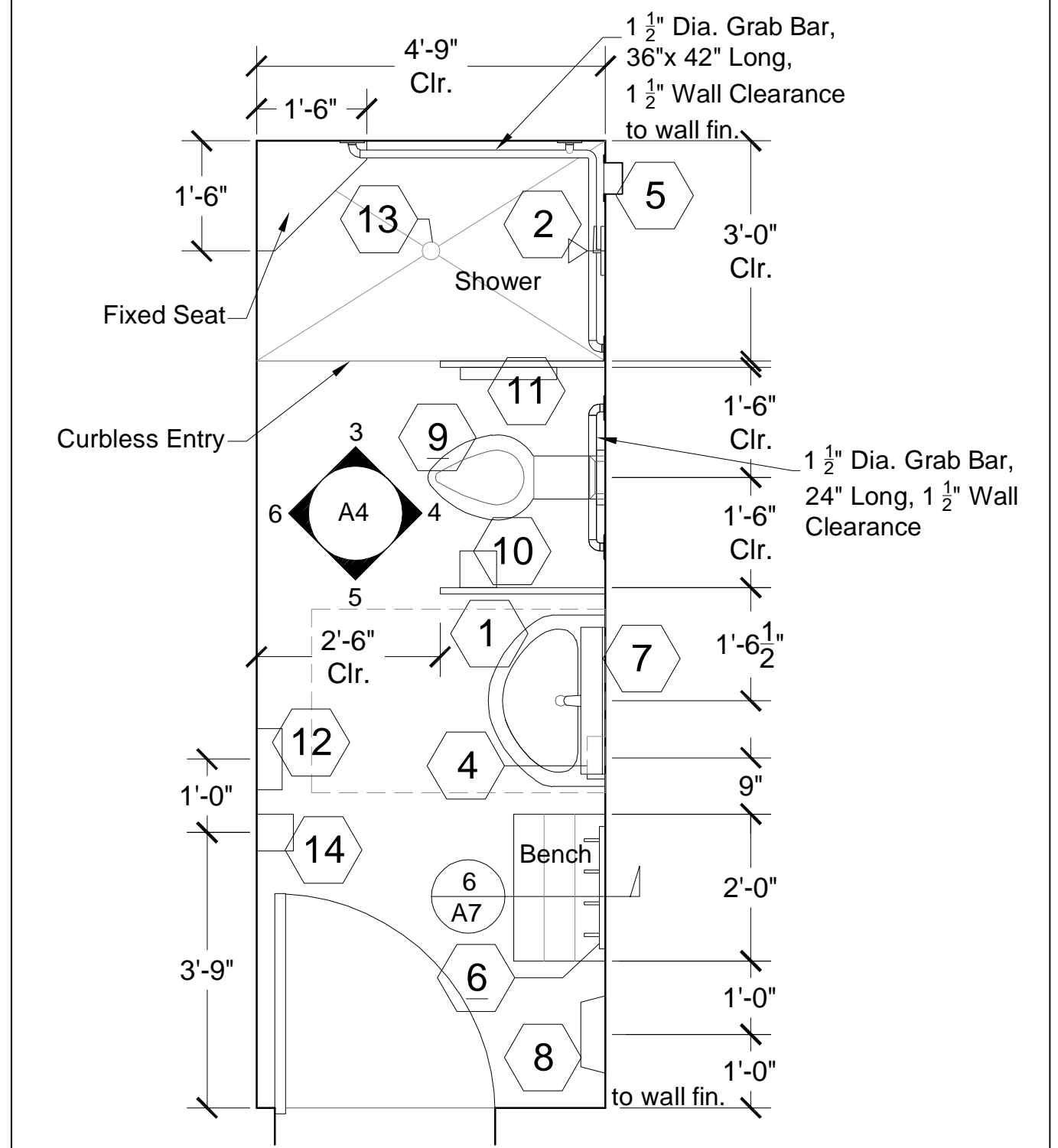
Mark	Description / Manufacturer / Model	Qty.	Note
1	Lavatory- See Mechanical	6	
2	Shower - See Mechanical	4	
3	Shower (ADA)- See Mechanical	2	
4	Surface Mounted Soap Dispenser - Bobrick, B-4112	6	
5	Recessed Heavy-Duty Soap Dish- Bobrick, B-4380	6	
6	Vandal resistant Clothes Hook Strip- Bobrick, B-985	6	
7	Mirror 24"x37 1/4" w/ Stainless Steel Angle Frame and Shelf- Bobrick, B-166	6	
8	Surface Mounted Automatic Hand Dryer - Bobrick, B-7125	6	
9	Toilet- See Mechanical	6	
10	Surface Mounted Multi-Roll Toilet Tissue Dispenser - Bobrick, B-2888	4	
11	Surface Mounted Seat-Cover Dispenser - Bobrick, B-2888	4	
12	Surface Mounted Sanitary Napkin Disposal - Bobrick, B-5270	6	
13	Drain- See Mechanical	6	
14	Shower Card Reader - WashCard Systems, SMC package CCO; SMC, Commercial Grade Router, Battery Backup, Software Credit Card Only. See Mechanical	6	



Reflected Ceiling Plan 11  
Scale: 1/2" = 1'-0"



Type A Floor Plan 2  
Scale: 1/2" = 1'-0"



Type B Floor Plan 1  
Scale: 1/2" = 1'-0"

Port of Friday Harbor  
Shower Remodel  
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204 Front St, Friday Harbor, WA 98250

12765 REGISTERED ARCHITECT  
JOHN L. GRESSETH  
STATE OF WASHINGTON

Description	Date
Building Permit Submittal	8-12-22

**A 4**

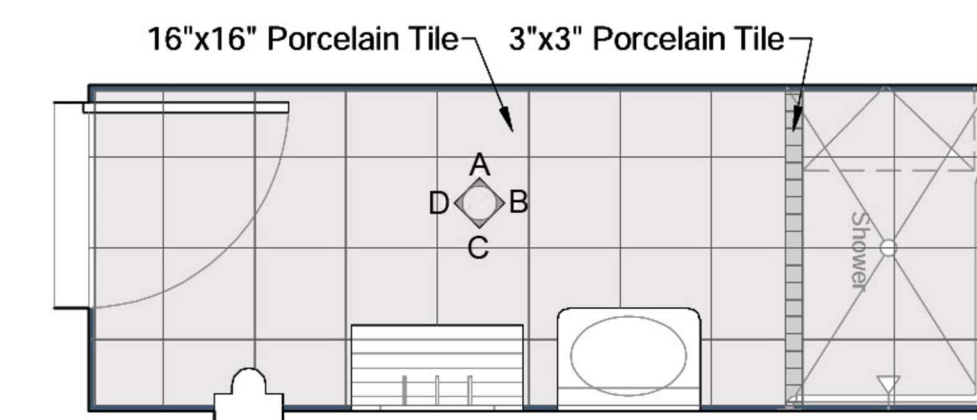
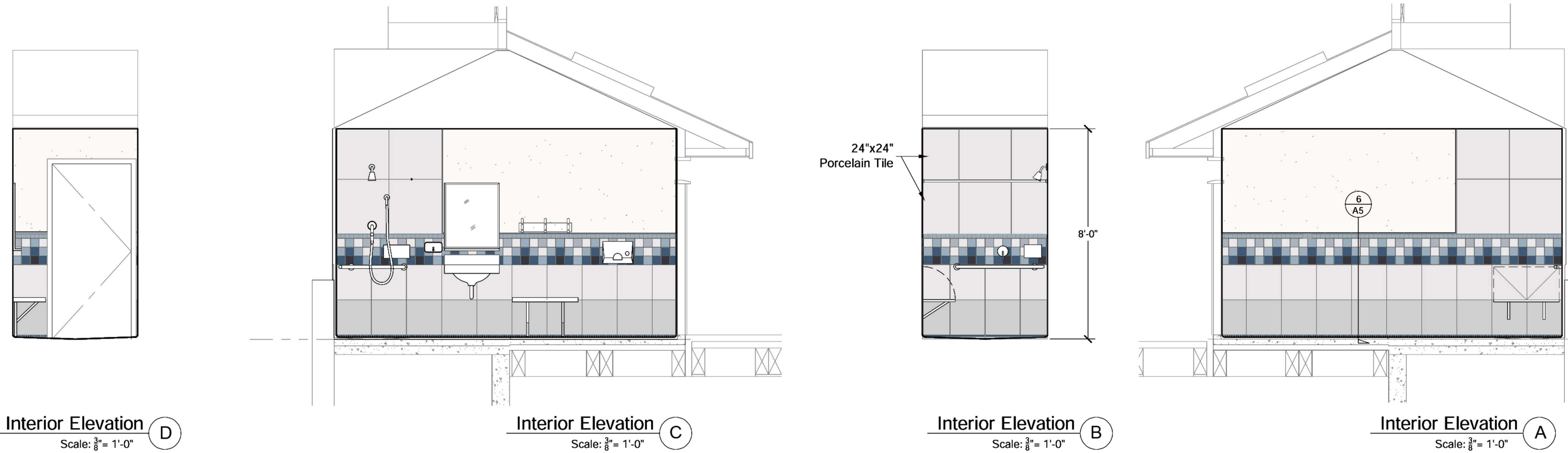
Project number	
Date	8-12-22
Drawn by	JLG

Remodel- Floor Plan, RCP & Interior Elevations  
Scale



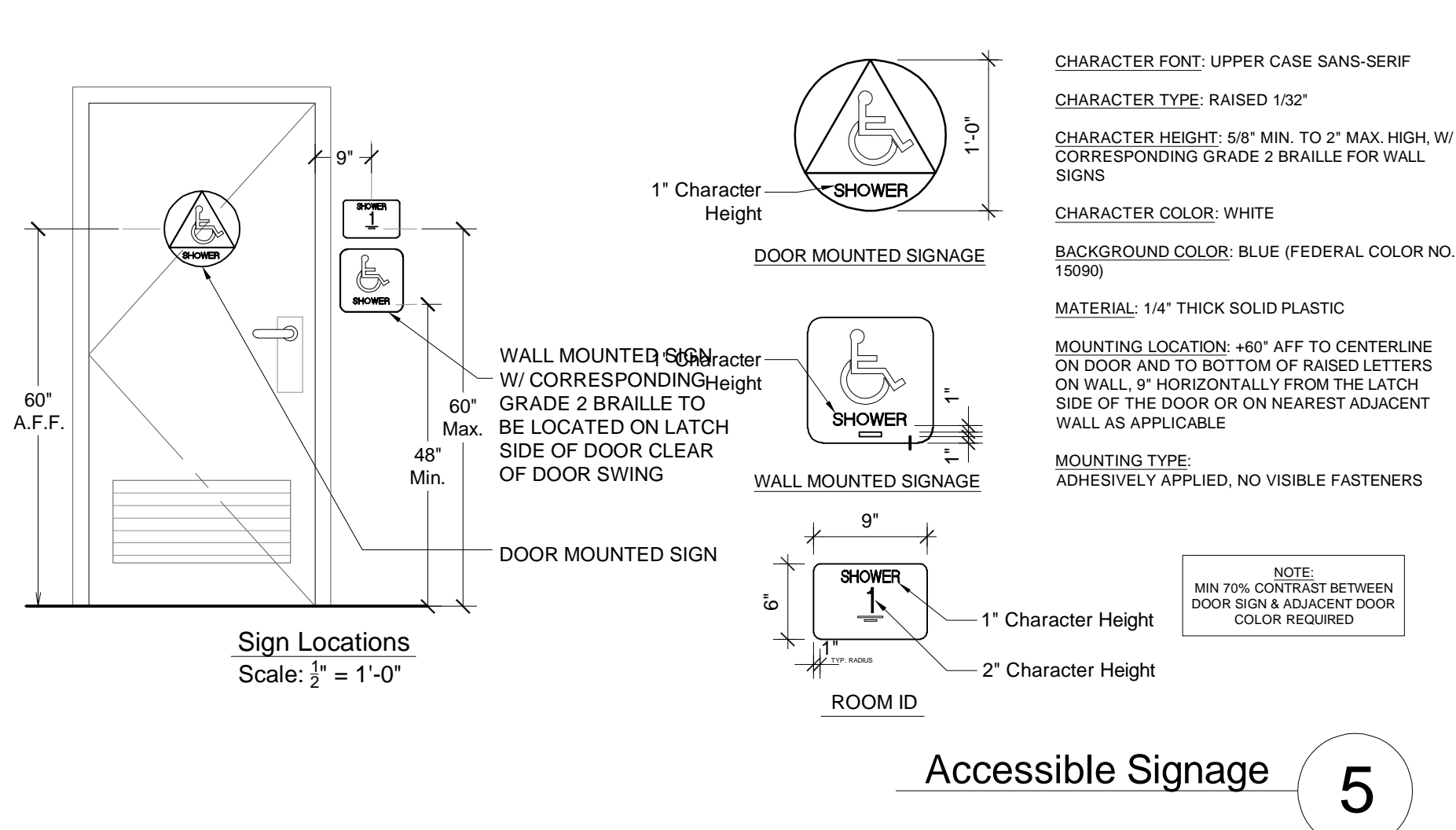




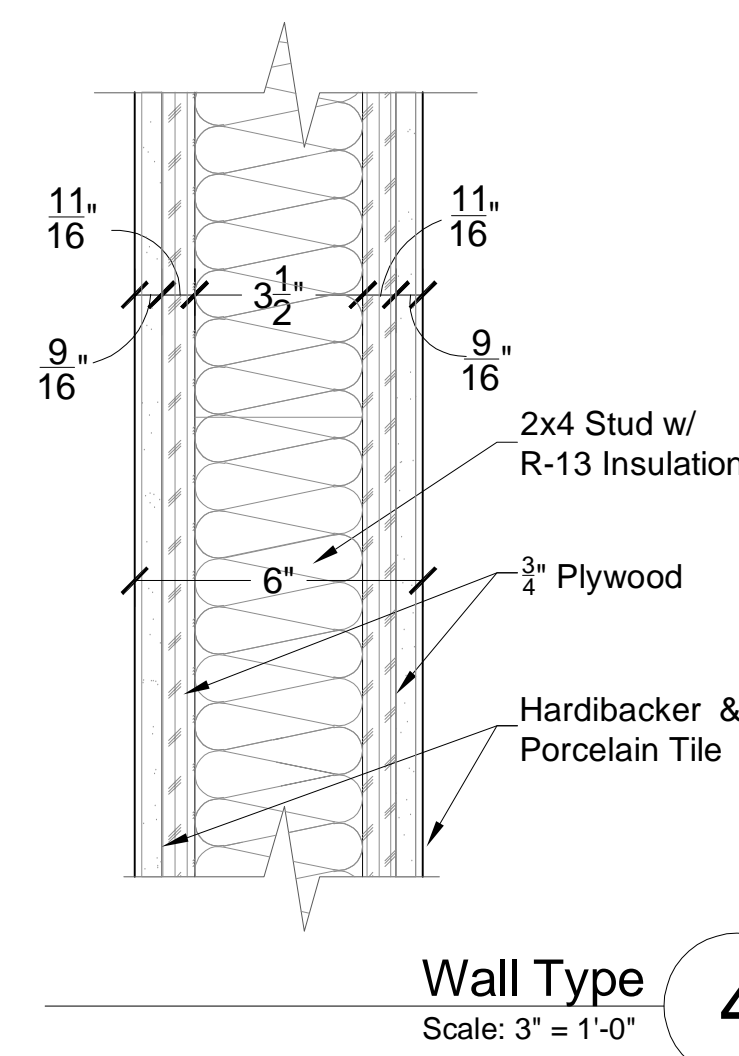


Shower Room Finish Elevations

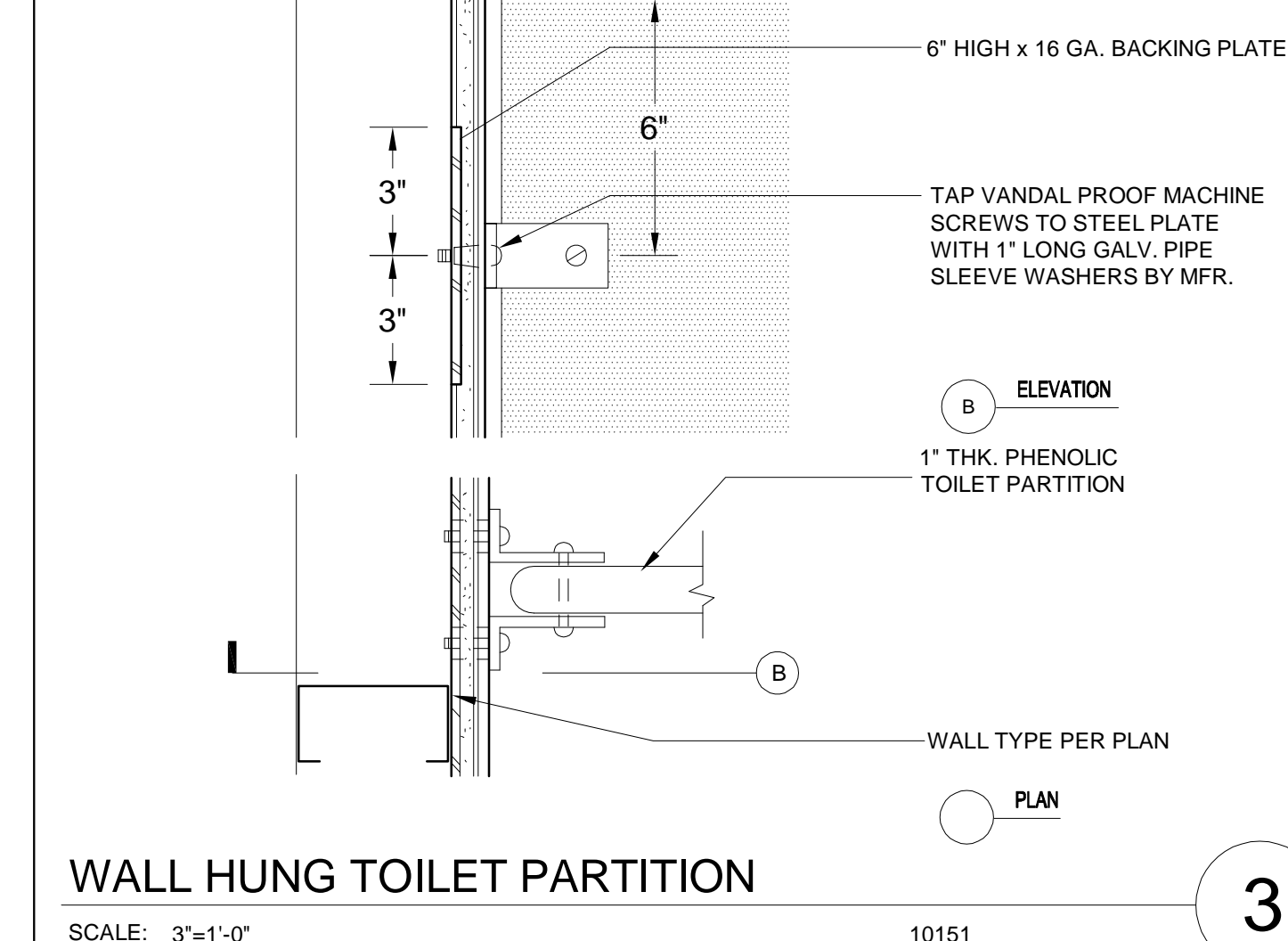
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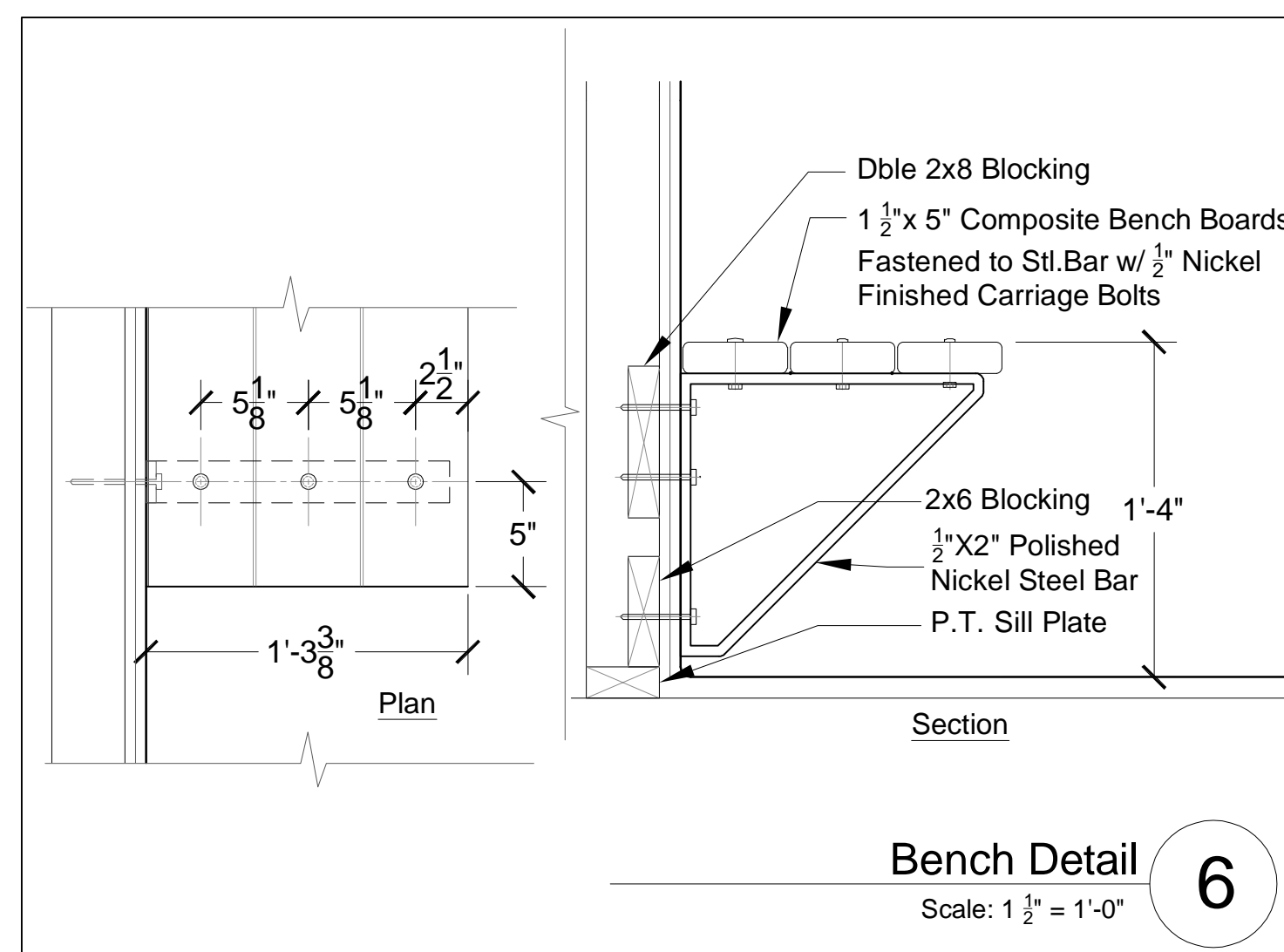
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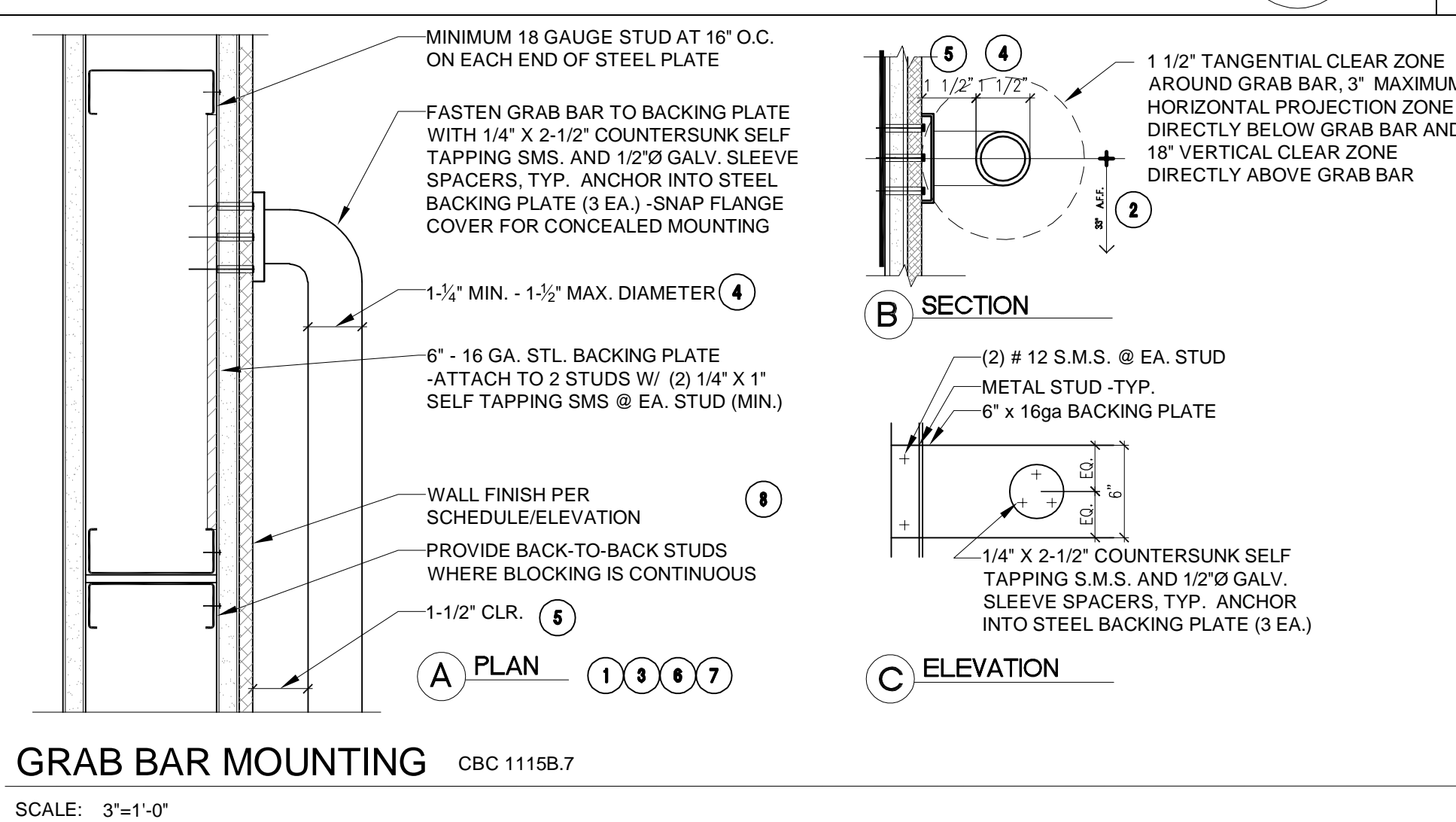
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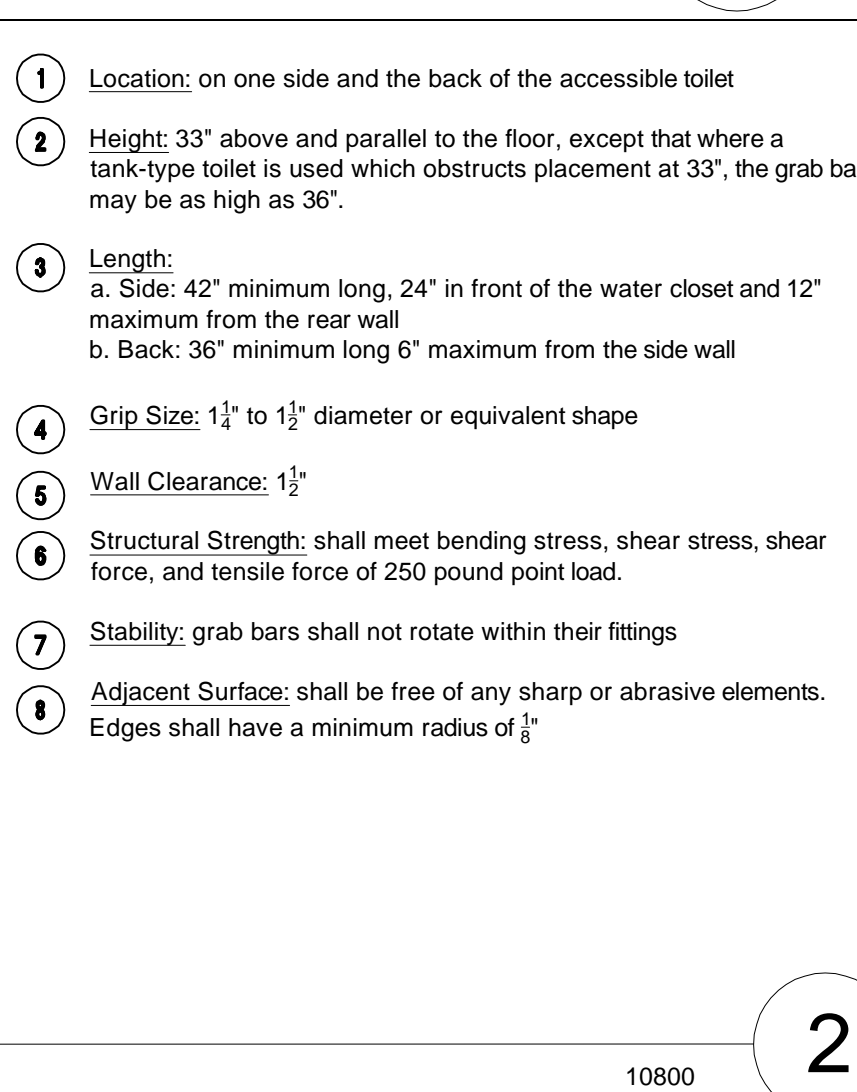
**3**



**6**



**2**



**1**

Port of Friday Harbor  
Shower Remodel  
Port of Friday Harbor, Main Office  
204 Front St., Friday Harbor, WA 98250

John Gresseth  
ARCHITECTS L.L.P.  
590 Guard Street  
Friday Harbor, WA, 98250  
(360) 378-6384

12765 REGISTERED ARCHITECT <i>John Gresseth</i> JOHN L. GRESSETH STATE OF WASHINGTON	
Description	Date
Building Permit Submittal	8-12-22
<b>A 8</b>	
Project number	
Date	8-12-22
Drawn by	JLG
Details & Shower Room Finish Elevations	
Scale	



# PORT OF FRIDAY HARBOR SHOWER REMODEL PLUMBING & MECHANICAL

## SYMBOL LIST

SYMBOL	ABBV.	DESCRIPTION	SYMBOL	ABBV.	DESCRIPTION
		BALL VALVE		T/STAT	THERMOSTAT
		GATE VALVE		S	SENSOR
		CHECK VALVE		AFF	ABOVE FINISHED FLOOR
		GLOBE VALVE		ARCH.	ARCHITECT/ARCHITECTURAL
		GAS COCK		BFF	BELOW FINISHED FLOOR
		SOLENOID / MODULATING VALVE		CDS	CEILING DIFFUSER-SURFACE MOUNTED
		THREE-WAY VALVE		CDL	CEILING DIFFUSER-LAY IN
		RELIEF VALVE		CGS	CEILING GRILLE-SURFACE MOUNTED
		BALANCING VALVE		CGL	CEILING GRILLE-LAY IN
		FLOW CONTROL VALVE (SET FOR 1 GPM)		COP	COEFFICIENT OF PERFORMANCE
		AUTO-FLOW CONTROL VALVE		DEMO	DEMOLISH
	PRV	PRESSURE REDUCING VALVE		DWG	DRAWING
		UNION		(E), EXIST.	EXISTING ITEMS
		THERMOMETER		ELECT.	ELECTRICAL
		PRESSURE GAUGE		EC	ELECTRICAL CONTRACTOR
		VIBRATION ISOLATOR		EER	ENERGY EFFICIENCY RATING
		WATER HAMMER ARRESTOR		EFF	EFFICIENCY/EFFICIENT
		STRAINER		FR	FLOOR REGISTER
	RBPB	BACKFLOW PREVENTION DEVICE		GC	GENERAL CONTRACTOR
		END CAP		GPM	GALLONS PER MINUTE
		HOSE BIBB		HSPF	HEATING SEASONAL PERFORMANCE FACTOR
	VTR	VENT THROUGH ROOF		HWR	HIGH WALL REGISTER
	CO	CLEANOUT		HWG	HIGH WALL GRILLE
	W	WASTE		I.E.	INVERT ELEVATION
	V	VENT		IPLV	INTEGRATED PART LOAD VALUE
	CW	COLD WATER		LWR	LOW WALL REGISTER
	HW	HOT WATER		LWG	LOW WALL GRILLE
	HWC	HOT WATER RECIRCULATION		MC	MECHANICAL CONTRACTOR
	C, COND	CONDENSATE		MECH.	MECHANICAL
	TPL	TRAP PRIMER LINE		(N)	NEW
		DUCT SECTION - SUPPLY		NTS	NOT TO SCALE
		DUCT SECTION - RETURN		OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
		DUCT SECTION - EXHAUST		POC	POINT OF CONNECTION
		RECTANGULAR DUCT (INSIDE DIMENSION)		TYP.	TYPICAL
		ROUND DUCT		U.O.N.	UNLESS OTHERWISE NOTED
	SL	SOUND LINED DUCT (INSIDE DIMENSION)			PLUMBING FIXTURE TAG
		FLEXIBLE DUCT			EQUIPMENT TAG
		SPIRAL DUCT			FLAG NOTE
		TURNING VANE			CONNECTION (NECK) SIZE
	VD	VOLUME DAMPER			TYPE (CEILING DIFF. LAY-IN)
	MD	MOTORIZED DAMPER			FLOW RATE (CUBIC FEET PER MINUTE)
	BDD	BACKDRAFT DAMPER			FIXTURE UNITS or BTUH
		SUPPLY DIFFUSER			PIPE SIZE
		RETURN GRILLE			DETAIL NUMBER
		EXHAUST GRILLE			SHEET ON WHICH DETAIL IS DRAWN
					SECTION INDICATOR
					SHEET ON WHICH SECTION IS DRAWN
					REVISION TAG

## GENERAL NOTES

MECHANICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE, AND DO NOT NECESSARILY REFLECT EVER REQUIRED OFF-SET, FITTING OR ACCESSORY.

COORDINATE INSTALLATION OF MECHANICAL SYSTEMS WITH BUILDING STRUCTURE AND ALL OTHER TRADES.

LOCATE ALL PLUMBING FIXTURES PER ARCHITECTURAL DRAWINGS.

COORDINATE ELECTRICAL VOLTAGES AND LOADS WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING ANY EQUIPMENT.

CONTRACTOR SHALL PROVIDE WASTE, VENT, WATER AND GAS PIPING, INCLUDING TRAPS, FITTINGS AND STOPS TO COMPLETE EACH EQUIPMENT HOOK-UP TO THE POINT OF FINAL CONNECTION. CONNECTION BETWEEN VARIOUS PIECES OF EQUIPMENT SHALL BE MADE BY THE PLUMBING CONTRACTOR AT THE TIME EQUIPMENT IS BEING INSTALLED.

PROVIDE WATER HAMMER ARRESTOR ON FAST ACTION VALVES.

INSTALL ALL PIPING ON ROOM SIDE OF BUILDING INSULATION.

LOCATE ALL PLUMBING FIXTURES PER ARCHITECTURAL DRAWINGS.

MAJOR APPLICABLE CODES:  
 2018 INTERNATIONAL BUILDING CODE WITH WASHINGTON STATE AMENDMENTS  
 2018 INTERNATIONAL MECHANICAL CODE WITH WASHINGTON STATE AMENDMENTS  
 2018 UNIFORM PLUMBING CODE WITH WASHINGTON STATE AMENDMENTS  
 2018 WASHINGTON STATE ENERGY CODE

## PIPE MATERIALS - SANITARY DRAINAGE

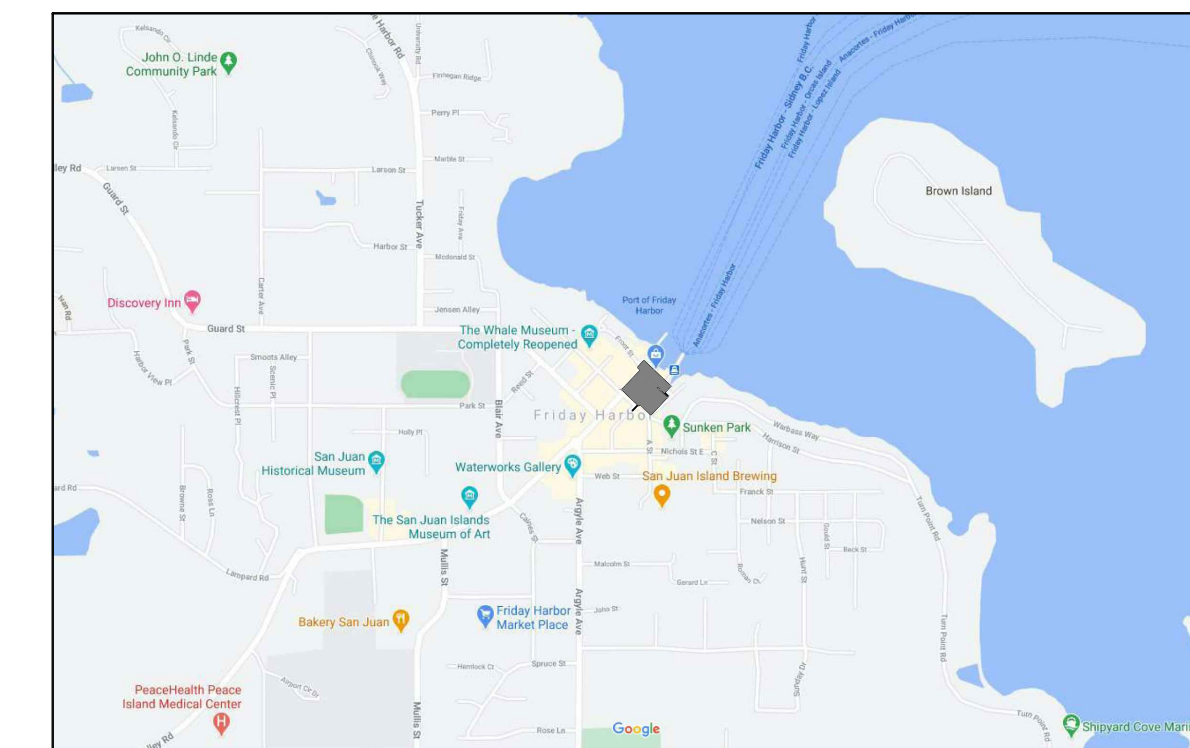
SANITARY DRAINAGE AND VENT PIPING SHALL BE SOLID CORE SCH. 40 ABS OR PVC PLASTIC.

## PIPE MATERIALS - WATER

ALL NEW WATER PIPING SHALL BE PEX TUBING WITH PEX FITTINGS.  
 PIPE SEGMENTS ON DRAWINGS WITHOUT A SIZE CALLED OUT SHALL BE THE SAME SIZE AS THE PRECEDING UPSTREAM PIPE SEGMENT.

## SCOPE OF WORK

TENANT IMPROVEMENT FOR PORT OF FRIDAY HARBOR PUBLIC SHOWER REMODEL, INCLUDING SANITARY DRAINAGE, DOMESTIC WATER, PLUMBING FIXTURE ETC. LIMITED DEMO INCLUDING EXISTING SHOWERS, LAVATORIES AND WATER CLOSETS AS SHOWN ON PLANS. DEMO (E) WATER HEATER (WH-1) AND REPLACE WITH NEW IN ADDITION TO THE INSTALLATION OF WH-2. INSTALL WASHCARD READER INTERFACE FOR CONTROL OVER SOLENOID VALVES.



1 SITE PLAN  
M1.0 NTS

NORTH

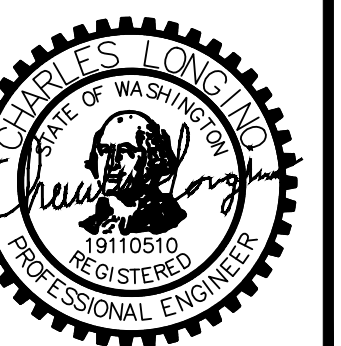
## REVISIONS




john gresseth  
ARCHITECTS L.L.P.  
588 Guard Street  
Friday Harbor, WA 98250  
(360) 376-6364

**PORT OF FRIDAY HARBOR  
SHOWER REMODEL  
204 FRONT ST.  
FRIDAY HARBOR, WA 98250  
COVER SHEET**

DATE: 08/23/21  
SCALE: NTS  
DRAWN: CMP  
CHECKED: AL



**M1.0**

0070738.00

**2018 WASHINGTON STATE ENERGY CODE NOTES**

(C403.2 PROVISIONS APPLICABLE TO ALL MECHANICAL SYSTEMS) CONTRACTOR SHALL PROVIDE ALL MECHANICAL SYSTEMS AND EQUIPMENT, SERVING THE BUILDING HEATING, COOLING OR VENTILATING NEEDS, WHICH COMPLY WITH SECTIONS C403.2.1 AND C403.2.2. WHERE A BUILDING'S MECHANICAL SYSTEM IS ADDRESSED IN SECTIONS C403.3 THROUGH C403.13, SUCH ELEMENTS SHALL COMPLY WITH THOSE SECTIONS.

(C403.3.2 HVAC EQUIPMENT PERFORMANCE REQUIREMENTS) CONTRACTOR SHALL PROVIDE EQUIPMENT WHICH MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C403.2.3(1) THROUGH C403.2.3(12) WHEN TESTED AND RATED IN ACCORDANCE WITH THE APPLICABLE TEST PROCEDURE. PLATE-TYPE LIQUID-TO-LIQUID HEAT EXCHANGERS SHALL MEET THE MINIMUM REQUIREMENTS OF TABLE C403.3.2(10).

(C403.4 HVAC SYSTEM CONTROLS) CONTRACTOR SHALL PROVIDE EACH HEATING AND COOLING SYSTEM WITH THERMOSTATIC CONTROLS AS SPECIFIED IN SECTIONS C403.4.1 THROUGH C403.4.11 AND SHALL BE CAPABLE OF AND CONFIGURED TO IMPLEMENT ALL REQUIRED CONTROL FUNCTIONS IN THIS CODE.

(C403.4.1.2 DEADBAND) CONTRACTOR SHALL PROVIDE A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F (2.8°C), WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM, WHERE ZONE THERMOSTATIC CONTROLS ARE USED TO CONTROL BOTH HEATING AND COOLING.

(C403.4.2 OFF-HOUR CONTROLS) CONTRACTOR SHALL PROVIDE THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM FOR ALL OCCUPANCIES OTHER THAN GROUP R.

(C403.4.2.1 THERMOSTATIC SETBACK CAPABILITIES) THERMOSTATIC SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 65°F (29°C).

(C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES) AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

(C403.4.2.3 AUTOMATIC START CAPABILITIES) AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

(C403.2.2 VENTILATION AND EXHAUST) CONTRACTOR SHALL PROVIDE VENTILATION, EITHER NATURAL OR MECHANICAL, IN ACCORDANCE WITH CHAPTER 4 OF THE INTERNATIONAL MECHANICAL CODE. WHERE MECHANICAL VENTILATION IS PROVIDED, THE SYSTEM SHALL BE CONFIGURED TO PROVIDE NO GREATER THAN 150 PERCENT OF THE MINIMUM OUTDOOR AIR REQUIRED BY CHAPTER 4 OF THE INTERNATIONAL MECHANICAL CODE OR OTHER APPLICABLE CODE OR STANDARD, WHICHEVER IS GREATER.

(C403.5 ECONOMIZERS) AIR ECONOMIZERS SHALL BE PROVIDED ON ALL NEW SYSTEMS INCLUDING THOSE SERVING COMPUTER SERVER ROOMS, ELECTRONIC EQUIPMENT, RADIO EQUIPMENT, AND TELEPHONE SWITCHGEAR. ECONOMIZERS SHALL COMPLY WITH SECTIONS C403.5.1 THROUGH C403.5.5.

EXCEPTION: ECONOMIZERS ARE NOT REQUIRED FOR THE SYSTEMS LISTED BELOW:  
 1. SYSTEMS COMPLYING WITH SECTION C403.6 DEDICATED OUTDOOR AIR SYSTEMS (DOAS) WITH YEAR-ROUND COOLING LOADS FROM LIGHTS AND EQUIPMENT OF LESS THAN 5 WATTS PER SQUARE FOOT.

(C403.10.1.1) CONTRACTOR SHALL PROVIDE DUCTS, SHAFTS AND PLENUMS CONVEYING OUTSIDE AIR FROM THE EXTERIOR OF THE BUILDING TO THE MECHANICAL SYSTEM WHICH MEET ALL AIR LEAKAGE AND BUILDING ENVELOPE INSULATION REQUIREMENTS OF SECTION C402, PLUS BUILDING ENVELOPE VAPOR CONTROL REQUIREMENTS FROM THE INTERNATIONAL BUILDING CODE, EXTENDING CONTINUOUSLY FROM THE BUILDING EXTERIOR TO AN AUTOMATIC SHUTOFF DAMPER OR HEATING OR COOLING EQUIPMENT. FOR THE PURPOSES OF BUILDING ENVELOPE INSULATION REQUIREMENTS, DUCT SURFACES SHALL BE INSULATED WITH THE MINIMUM INSULATION VALUES IN TABLE C403.10.1.1.

C403.10.1.2 CONTRACTOR SHALL PROVIDE ALL OTHER SUPPLY AND RETURN AIR DUCTS AND PLENUMS WITH A MINIMUM OF R-8 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND A MINIMUM OF R-8 INSULATION WHERE LOCATED OUTSIDE THE BUILDING, WHERE LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY MINIMUM INSULATION VALUE AS REQUIRED FOR EXTERIOR WALLS BY SECTION C402.1.3.

SUPPLY DUCTS WHICH CONVEY SUPPLY AIR AT TEMPERATURES LESS THAN 55°F OR GREATER THAN 105°F SHALL BE INSULATED WITH A MINIMUM R-VALUE IN ACCORDANCE WITH TABLE C403.10.1.2. ALL DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION 603.9 OF THE INTERNATIONAL MECHANICAL CODE.

(C403.10.2.1 LOW-PRESSURE DUCT SYSTEMS) CONTRACTOR SHALL PROVIDE ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES WATER GAUGE (W.G.) (500 PA) WITH SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS EMBEDDED-FABRIC SYSTEMS OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PRESSURE CLASSIFICATIONS SPECIFIC TO THE DUCT SYSTEM SHALL BE CLEARLY INDICATED ON THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE.

(C403.10.3 PIPING INSULATION) CONTRACTOR SHALL PROVIDE ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM WITH THERMAL INSULATION IN ACCORDANCE WITH TABLE C403.10.3.

(C403.10.3.1 PROTECTION OF PIPING INSULATION) CONTRACTOR SHALL PROTECT ALL PIPING INSULATION EXPOSED TO WEATHER FROM DAMAGE, INCLUDING THAT DUE TO SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVES TAPE SHALL NOT BE PERMITTED.

(C405.8 ELECTRIC MOTOR EFFICIENCY) ALL ELECTRIC MOTORS, FRACTIONAL OR OTHERWISE, SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THROUGH C405.8(4) WHEN TESTED AND RATED IN ACCORDANCE WITH DOE 10 CFR.

FRACTIONAL HP FAN MOTORS THAT ARE 1/2 HP OR GREATER AND LESS THAN 1 HP WHICH ARE NOT COVERED BY TABLES C405.8(3) AND C405.8(4) SHALL BE ELECTRONICALLY COMMUTATED MOTORS OR SHALL HAVE A MINIMUM MOTOR EFFICIENCY OF 70% WHEN RATED IN ACCORDANCE WITH DOE 10CFR431.

(C403.7.8.1 SHUTOFF DAMPERS FOR BUILDING ISOLATION) OUTDOOR AIR SUPPLY, EXHAUST OPENINGS AND RELIEF OUTLETS AND STAIRWAY AND ELEVATOR HOISTWAY SHAFT VENTS SHALL BE PROVIDED WITH CLASS 1 MOTORIZED DAMPERS. SEE SECTIONS C403.10.1 AND C403.10.2 FOR DUCTWORK INSULATION REQUIREMENTS UPSTREAM AND DOWNSTREAM OF THE SHUTOFF DAMPER.

EXCEPTIONS:  
 1. RELIEF DAMPERS SERVING SYSTEMS LESS THAN 5,000 CFM TOTAL SUPPLY SHALL BE PERMITTED IN BUILDINGS 3 STORIES OR LESS  
 2. GRAVITY (NONMOTORIZED) DAMPERS WHERE THE DESIGN OUTDOOR INTAKE OR EXHAUST DOES NOT EXCEED 400 CFM.  
 3. SYSTEMS SERVING AREAS WHICH REQUIRE CONTINUOUS OPERATION FOR 24/7 OCCUPANCY SCHEDULES.

2018 WSEC TABLE C403.10.1.1 OUTDOOR AIR DUCTWORK INSULATION					
DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE	AIRFLOW	MINIMUM INSTALLED DUCT INSULATION R-VALUE <sup>a, b</sup>	NOTES
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND UPSTREAM OF AUTOMATIC SHUTOFF DAMPER	4C AND 5B	≥ 2800 CFM	R-16	SEE SECTION C403.10.1.1 FOR ADDITIONAL REQUIREMENTS
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND DOWNSTREAM OF AUTOMATIC SHUTOFF DAMPER TO HVAC UNIT OR ROOM	4C	≥ 2800 CFM	R-8	
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND DOWNSTREAM OF AUTOMATIC SHUTOFF DAMPER TO HVAC UNIT OR ROOM	5B	≥ 2800 CFM	R-12	
OUTDOOR AIR	INSIDE CONDITIONED SPACE	4C AND 5B	< 2800 CFM	R-7	SEE EXCEPTION 1 TO SECTION C403.10.1.1 FOR ADDITIONAL DETAILS

a. INSULATION R-VALUES, MEASURED IN h x ft<sup>2</sup>/BTU, ARE FOR THE INSULATION AS INSTALLED AND DO NOT INCLUDE FILM RESISTANCE. THE REQUIRED MINIMUM THICKNESSES DO NOT CONSIDER WATER VAPOR TRANSMISSION AND POSSIBLE SURFACE CONDENSATION. INSULATION RESISTANCE MEASURED ON A HORIZONTAL PLAN IN ACCORDANCE WITH ASTM C518 AT A MEAN TEMPERATURE OF 75°F AT THE INSTALLED THICKNESS.  
 b. SEE INTERNATIONAL MECHANICAL CODE SECTIONS 603.12 AND 604 FOR FURTHER DETAILS ON DUCT INSULATION REQUIREMENTS.

2018 WSEC TABLE C403.10.1.2 SUPPLY, RETURN, EXHAUST, AND RELIEF AIR DUCTWORK INSULATION					
DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE	AIRFLOW	MINIMUM INSTALLED DUCT INSULATION R-VALUE <sup>a, b</sup>	NOTES
SUPPLY AIR OR RETURN AIR	OUTSIDE THE BUILDING (OUTDOORS AND EXPOSED TO WEATHER) <sup>c</sup>	4C	R-8	R-8	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	OUTSIDE THE BUILDING (OUTDOORS AND EXPOSED TO WEATHER) <sup>c</sup>	5B	R-12	R-12	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	UNCONDITIONED SPACE (ENCLOSED BUT NOT IN THE BUILDING CONDITIONED ENVELOPE)	4C AND 5B	R-6	R-6	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	UNCONDITIONED SPACE WHERE THE DUCT CONVEYS AIR THAT IS WITHIN 15°F OF THE AIR TEMPERATURE OF THE SURROUNDING UNCONDITIONED SPACE	4C AND 5B	R-3.3	R-3.3	SEE SECTION C603.12 FOR ADDITIONAL REQUIREMENTS FOR CONDENSATION CONTROL AT DUCTWORK
SUPPLY AIR OR RETURN AIR	WHERE LOCATED IN A BUILDING ENVELOPE ASSEMBLY	4C AND 5B	R-16	R-16	DUCT OR PLENUM IS SEPARATED FROM BUILDING ENVELOPE ASSEMBLY WITH THE MINIMUM INSULATION VALUE
SUPPLY AIR	WITHIN CONDITIONED SPACE WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS LESS THAN 55°F OR GREATER THAN 105°F	4C AND 5B	R-3.3	R-3.3	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR	WITHIN CONDITIONED SPACE THAT THE DUCT DIRECTLY SERVES WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS LESS THAN 55°F OR GREATER THAN 105°F	4C AND 5B	NONE	NONE	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR	WITHIN CONDITIONED SPACE WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS 55°F OR GREATER AND 105°F OR LESS	4C AND 5B	NONE	NONE	
RETURN OR EXHAUST AIR	WITHIN CONDITIONED SPACE, DOWNSTREAM OR AN ENERGY RECOVERY MEDIA, UPSTREAM OF AN AUTOMATIC SHUTOFF DAMPER	4C	R-8	R-8	
RETURN OR EXHAUST AIR	WITHIN CONDITIONED SPACE, DOWNSTREAM OR AN ENERGY RECOVERY MEDIA, UPSTREAM OF AN AUTOMATIC SHUTOFF DAMPER	5B	R-12	R-12	
RELIEF OR EXHAUST AIR	CONDITIONED SPACE AND DOWNSTREAM OF AND AUTOMATIC SHUTOFF DAMPER	4C AND 5B	R-16	R-16	

a. INSULATION R-VALUES, MEASURED IN h x ft<sup>2</sup>/BTU, ARE FOR THE INSULATION AS INSTALLED AND DO NOT INCLUDE FILM RESISTANCE. THE REQUIRED MINIMUM THICKNESSES DO NOT CONSIDER WATER VAPOR TRANSMISSION AND POSSIBLE SURFACE CONDENSATION. INSULATION RESISTANCE MEASURED ON A HORIZONTAL PLAN IN ACCORDANCE WITH ASTM C518 AT A MEAN TEMPERATURE OF 75°F AT THE INSTALLED THICKNESS.  
 b. SEE INTERNATIONAL MECHANICAL CODE SECTIONS 603.12 AND 604 FOR FURTHER DETAILS ON DUCT INSULATION REQUIREMENTS.  
 c. INCLUDES ATTICS ABOVE INSULATED CEILINGS, PARKING GARAGES AND CRAWL SPACES

**PLUMBING FIXTURE SCHEDULE**

TAG	DESCRIPTION	LOCAL CONNECTIONS			
		W	V	HW	CW
FD1	FLOOR DRAIN (SLAB ON GRADE) - ZURN 415B, DURA-COATED CAST IRON BODY, NICKEL BRONZE STRAINER, PROVIDE WITH TRAP PRIMER LINE.	2"	2"	--	--
L1	LAVATORY (ADA) - WALL HUNG, ACORN ELS-C1-SW000-F80, CORTERRA SOLID SURFACE POLYMER RESIN BOWL, 1/2 GPM FLOW, BATTERY OPERATED SENSOR FAUCET SET 10 105°F, GRID DRAIN, STOPS & SUPPLIES, 1-1/2" CP, 17 GA CHROME PLATED P-TRAP, 304 STAINLESS STEEL TRAP/SUPPLY COVER, PROVIDE WITH ASSE 1070 MIXING VALVE ON HW SUPPLY.	1-1/2"	1-1/2"	1/2"	1/2"
SH1	SHOWER (TILED ENCLOSURE, ADA) - ZURN Z7300-SS-MT-HW6 SINGLE HANDLE PRESSURE BALANCING MIXING VALVE, 2.5 GPM SHOWER HEAD ON A 60" METAL HOSE, 24" SLIDE BAR. PROVIDE INLINE SPRING CHECK VALVES ON SUPPLIES. PROVIDE FD-1. GRAB BARS AND FOLD-DOWN SEAT PROVIDED BY OTHERS. COMPLETE INSTALLATION SHALL MEET WASHINGTON STATE ADA GUIDELINES.	--	--	1/2"	1/2"
SH2	SHOWER (TILED ENCLOSURE) - ZURN Z7301-SS-MT-I7 SINGLE HANDLE PRESSURE BALANCING MIXING VALVE, FIXED SPRAY SHOWER HEAD WITH BALL JOINT. PROVIDE INLINE SPRING CHECK VALVES ON SUPPLIES. PROVIDE FD-1.	--	--	1/2"	1/2"
WC1	WATER CLOSET (ADA) - ACORN 2120 1.6 GPF ADA HEIGHT FLOOR MOUNT TOP SPUD FLUSH VALVE 16 GA TYPE 304 STAINLESS STEEL TOILET, ZURN Z800AV MANUAL FLUSH VALVE, HINGED SEAT, OPEN FRONT, LESS COVER.	4"	2"	--	1"

**PLUMBING EQUIPMENT EQUIPMENT SCHEDULE**

NO	ITEM	DESCRIPTION
ET-1	EXPANSION TANK	AMTROL ST-12C-DD, 6.4 GALLON, 0.5 ACCEPTANCE FACTOR, 3/4" CONNECTION
CP-1	HOT WATER CIRCULATION PUMP	GRUNDFOS UP 15-42, 5GPM @ 7FTHD, 1/25 HP, 120V-1PH, W/AQUASTAT & TIMER.

**SOLENOID VALVE**

SOLENOID VALVE - NORMALLY CLOSED, 24V SINGLE FROM WASH CARD READER, 1/2" INLET/OUTLET, ASCO 8210 SERIES OR APPROVED ALTERNATE.

**WASHCARD READER W/ DISPLAY SCREEN SCHEDULE**

EQUIP. TAG	MANUFACTURER/MODEL	LOCATION	CONTROLS	ELECTRICAL		NOTES
				VOLTS	PH.	
WCR 1-6	WASHCARD SYSTEMS / TERMINAL	SHOWER STALL	SHOWER SV	24	1	1, 2, 3, 4, 5

NOTES:  
 1. PROVIDE WITH WASHCARD SYSTEM SMC PACKAGE CCO INCLUDING SMC, ROUTER, BATTERY BACKUP AND CREDIT CARD SOFTWARE  
 2. PROVIDE WITH STANDARD-CP (CUSTOMER ACCOUNT PORTAL)  
 3. PROVIDE WITH NETMOD-12-3 (INSTALL IN OFFICE ABOVE)  
 4. PROVIDE CONTROL WIRING BETWEEN CARD READERS AND ASSOCIATED SOLENOID VALVES  
 5. FIVE MINUTE INTERVAL COUNTDOWN WITH PULSED FEEDBACK.

**DUCTED SPLIT SYSTEM (FAN COIL & HEAT PUMP)**

EQUIP. TAG	AREA SERVED	MFG / MODEL NUMBER	OUTDOOR HEAT PUMP										EQUIP. TAG	MFG / MODEL NUMBER	INDOOR UNIT						REMARKS		
			NOMINAL TON	COOL CAP. MBH TOTAL	HEATING CAP. (MBH) SENS.	HSPF	WEIGHT LBS	NOISE DBA	SEER	ELEC. REQ. MCA	VOLTS	PH.			AIRFLOW CFM	ESP IN W.G.	ELEC. REQ. MCA	VOLTS	PH.	NOISE DBA		WEIGHT LBS	
HP-1	SHOWER ROOMS	mitsubishi / PUZ-A12NKA7-BS	1.0	12	11	18	10.2	100	46	21.1	11.0	208	1	FC-1	mitsubishi / PEAD-A12AA7	494	0.6	1.5	208	1	34	70	ALL

NOTES:  
 1. PROVIDE PAR-40MAAU THERMOSTAT AND FLUSH MOUNT REMOTE TEMPERATURE SENSOR  
 2. INSTALL FAN COIL UNIT IN ATTIC ABOVE.  
 3. PROVIDE WALL MOUNT FOR CONDENSER UNIT  
 4. INDOOR UNIT POWER WIRING FROM OUTDOOR UNIT.  
 5. NO ECONOMIZER PROVIDED PER 2018 WSEC C403.5 EXCEPTION 1  
 6. PROVIDE COLUMBIA CMF PEAD 1218 FILTER BOX WITH MERV 13 FILTERS  
 7. PIPE CONDENSATE TO ADJACENT MOP SINK

**ENERGY RECOVERY VENTILATOR SCHEDULE**

EQUIP. TAG	MANUFACTURER / MODEL	LOCATION	EXHAUST CFM	SUPPLY CFM	E.S.P. INCHES W.G.	SUPPLY HP	TEMPERATURE RECOVERY EFF. (WINTER)	ENTHALPY RECOVERY EFF. (WINTER)	ELECTRICAL			WEIGHT LBS	REMARKS
									VOLTS	PH.	MCA		
ERV-1	RENEW AIRE / 450RT	ROOF	360	360	0.80	0.50	75%	71%	120	1	10.1	250	ALL

NOTES:  
 1. PROVIDE ROOF CURB AND ADAPTER AS NECESSARY FOR INSTALL ON SLOPED ROOF  
 2. FOR ELECTRIC HEAT SEE ELECTRIC DUCT HEATER SCHEDULE.  
 3. PROVIDE TIME CLOCK. ERV TO RUN DURING OCCUPIED HOURS  
 4. PROVIDE BACKDRAFT DAMPERS ON OSA INTAKE AND EXHAUST  
 5. PROVIDE WITH 2" MERV 8 FILTERS.

**WATER HEATER SCHEDULE**

EQUIP. TAG	MFG / MODEL NUMBER	STORAGE VOLUME (GAL.)	WATER CONNECTIONS		ELEC DATA				GPH RECOVERY @ 80 DEGREE RISE	REMARKS
			INLET	OUTLET	VOLTS	FLA	PH.	KW		
WH-1	AO SMITH DRE-120-27	119	1-1/4"	1-1/4"	240	112.5	1	27	138	1,2,3

NOTE:  
 1. PROVIDE P&T RELIEF ROUTE TO DRAIN  
 2. PROIDE ADEQUATE SEISMIC STRAPPING  
 3. PROVIDE THERMAL EXPANSION TANK & R-10FOAM MOUNTING PAD

**AIR TERMINAL UNIT SCHEDULE**

ITEM	MARK	MANUFACTURER	MODEL	MATERIAL	MOUNTING	FINISH	REMARKS	NOTES
CEILING DIFFUSER	CDS	TITUS	TMS-AA	ALUMINUM	SURFACE	ENAMLED	BORDER TYPE 1	1, 2
CEILING GRILLE	CGS	TITUS	50F	ALUMINUM	SURFACE	ENAMLED	BORDER TYPE 1	1, 3

NOTES:  
 1. NECK CONNECTION SIZE AND TERMINAL SIZE AS NOTED ON MECHANICAL FLOOR PLAN  
 2. PROVIDE OPTIONAL BALANCING DAMPER  
 3. PROVIDE OPPOSED-BLADE DAMPER

**REVISIONS**




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 Friday Harbor, WA 98250  
 (360) 376-6364

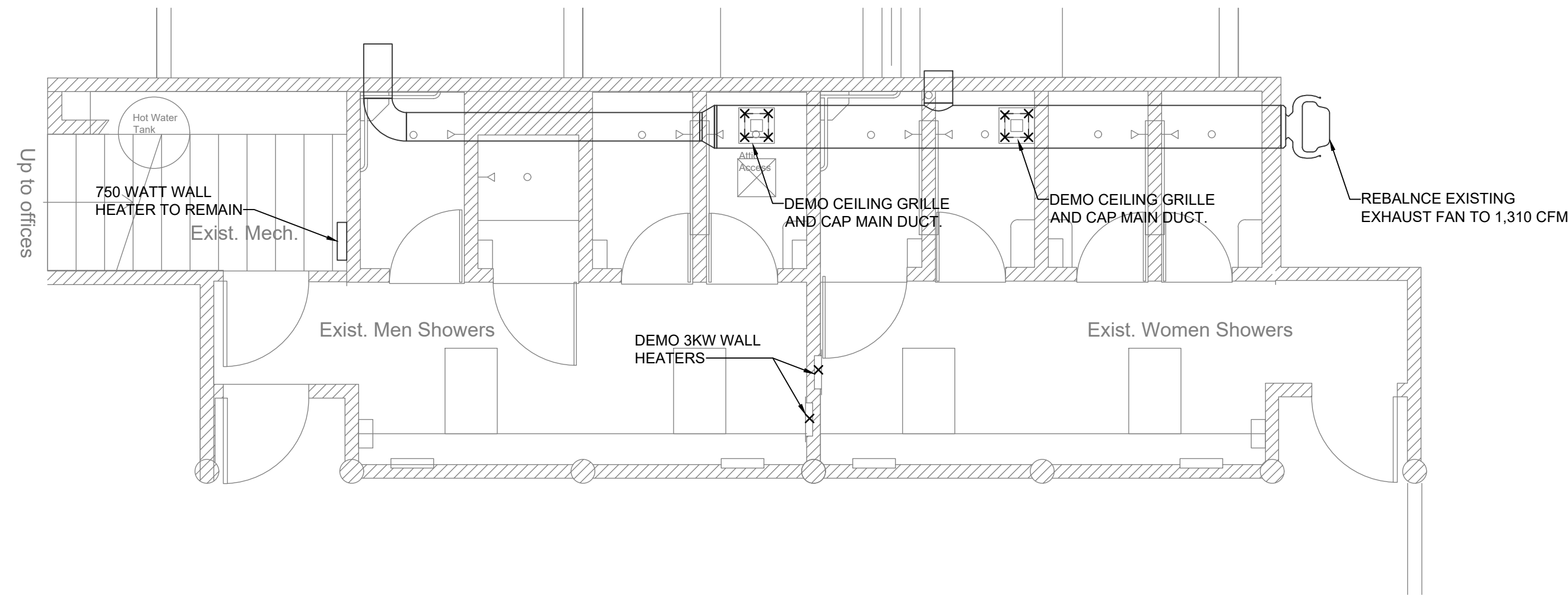
**PORT OF FRIDAY HARBOR**  
**SHOWER REMODEL**  
 204 FRONT ST.  
 FRIDAY HARBOR, WA 98250  
**MECHANICAL SCHEDULES**

DATE: **08/23/21**  
 SCALE: **NTS**  
 DRAWN: **AL**  
 CHECKED: **AL**

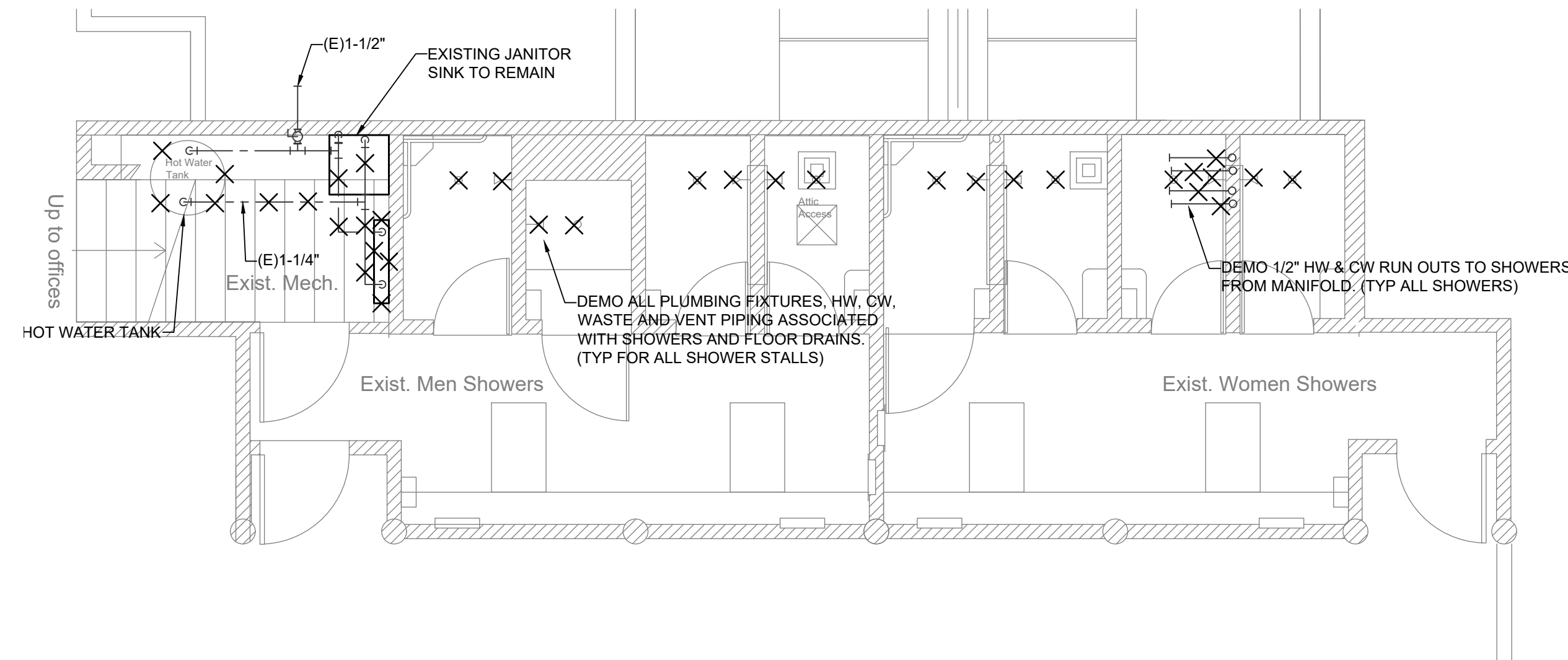


**M1.1**

0070738.00



1 DEMO PLAN - HVAC  
 0 2' 4' 8'  
 SCALE: 1/4" = 1'-0" IF PLOTTED ON 24" X 36" SHEET



2 DEMO PLAN - PLUMBING  
 0 2' 4' 8'  
 SCALE: 1/4" = 1'-0" IF PLOTTED ON 24" X 36" SHEET

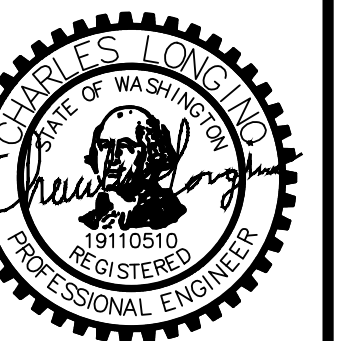
REVISIONS



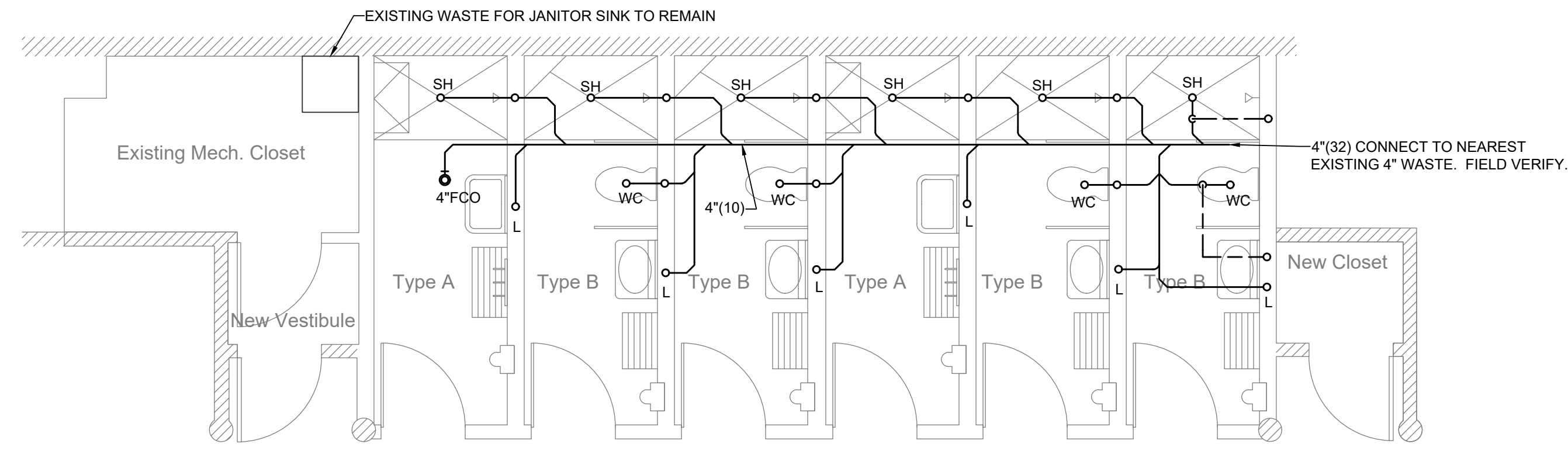

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 588 Guard Street  
 Friday Harbor, WA 98250  
 (360) 378-6384

**PORT OF FRIDAY HARBOR**  
 SHOWER REMODEL  
 204 FRONT ST.  
 FRIDAY HARBOR, WA 98250  
**DEMO PLANS**

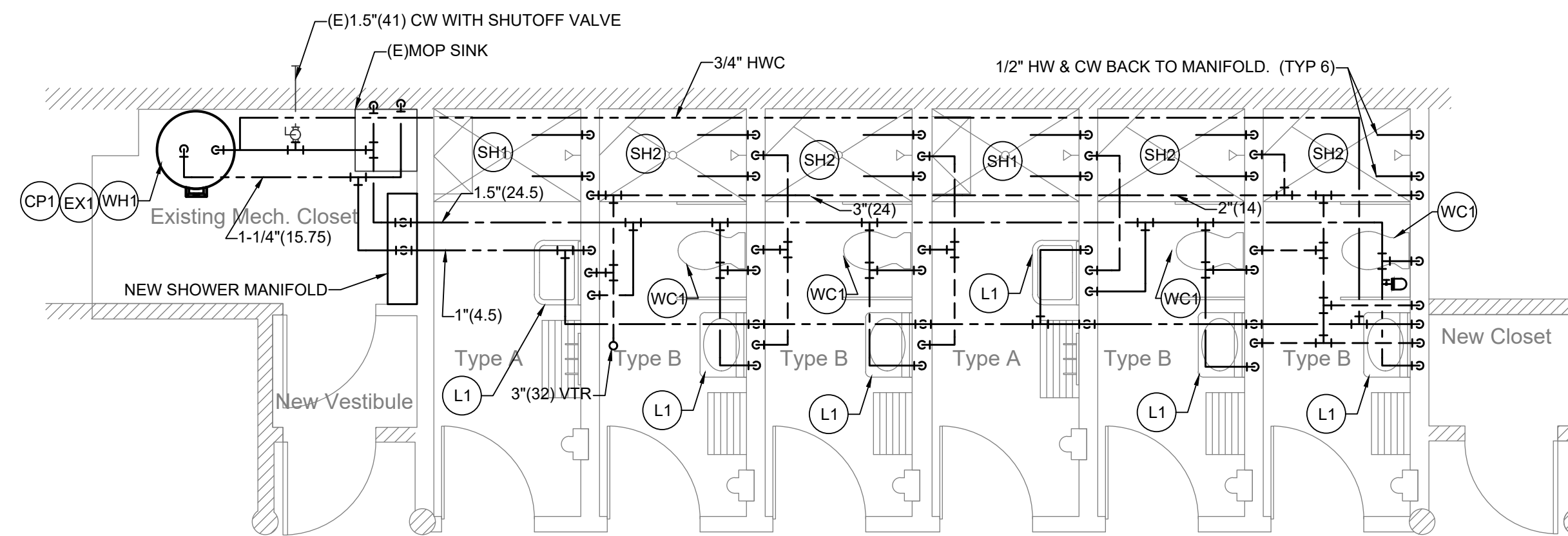
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 CHECKED: AL



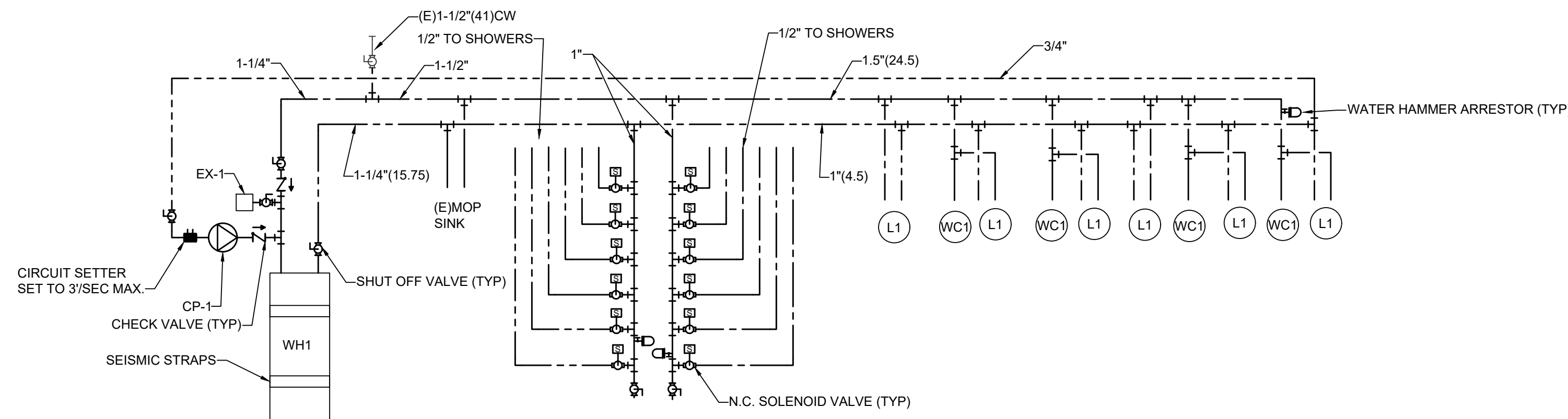
**M2.0**



**1 BELOW SLAB PLAN - PLUMBING**  
 SCALE: 1/4" = 1'-0" IF PLOTTED ON 24" X 36" SHEET



**2 FLOOR PLAN - PLUMBING**  
 SCALE: 1/4" = 1'-0" IF PLOTTED ON 24" X 36" SHEET



**3 HOT & COLD WATER PIPING DIAGRAM**  
 SCALE: NTS

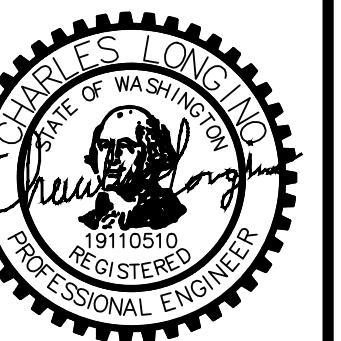
REVISIONS



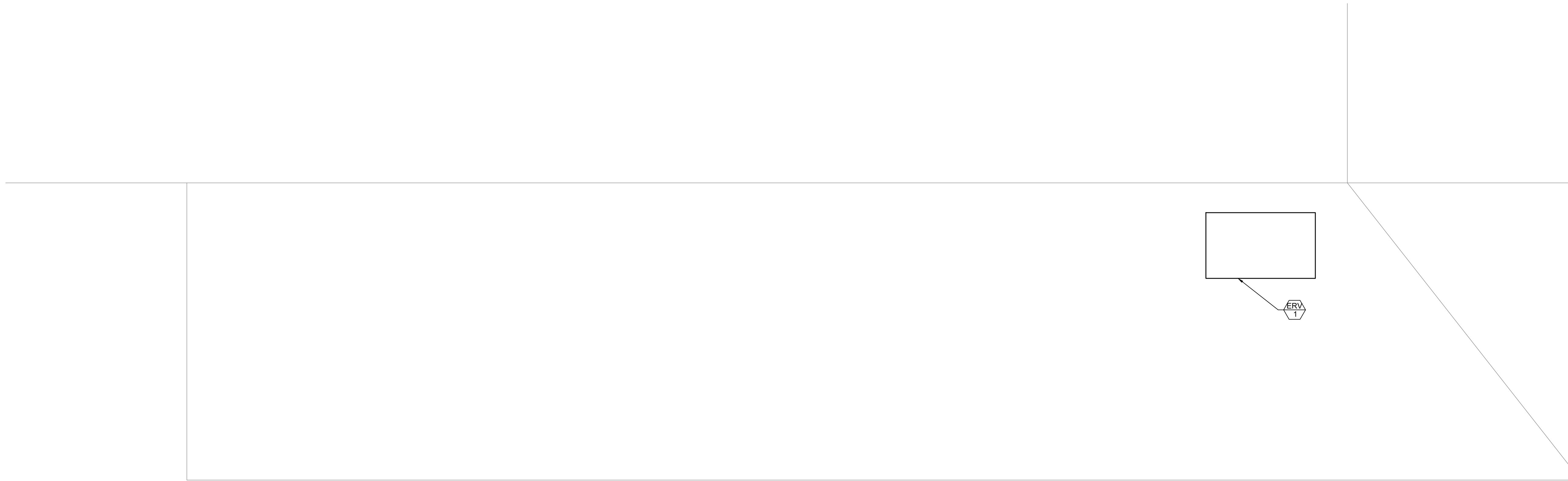

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**PORT OF FRIDAY HARBOR**  
 SHOWER REMODEL  
 204 FRONT ST.  
 FRIDAY HARBOR, WA 98250  
**PLUMBING PLANS**

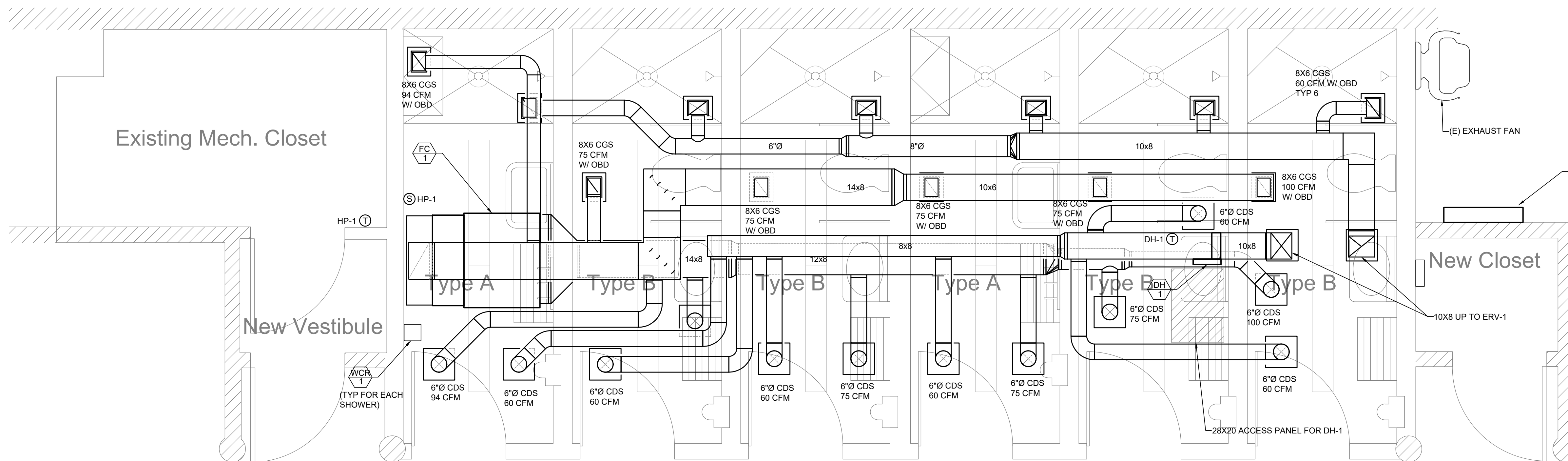
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 CHECKED: AL



**M3.0**



**2 ROOF PLAN - HVAC**  
 0 1' 2' 4'  
 SCALE: 1/2" = 1'-0" IF PLOTTED ON 24" X 36" SHEET



**1 FLOOR PLAN - HVAC**  
 0 1' 2' 4'  
 SCALE: 1/2" = 1'-0" IF PLOTTED ON 24" X 36" SHEET

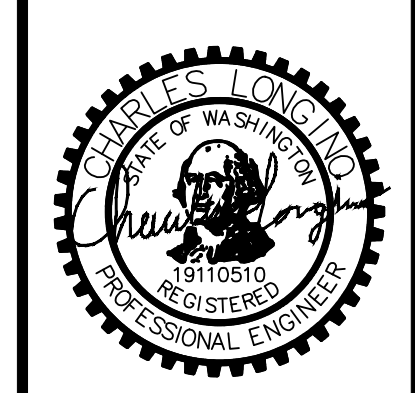
REVISIONS



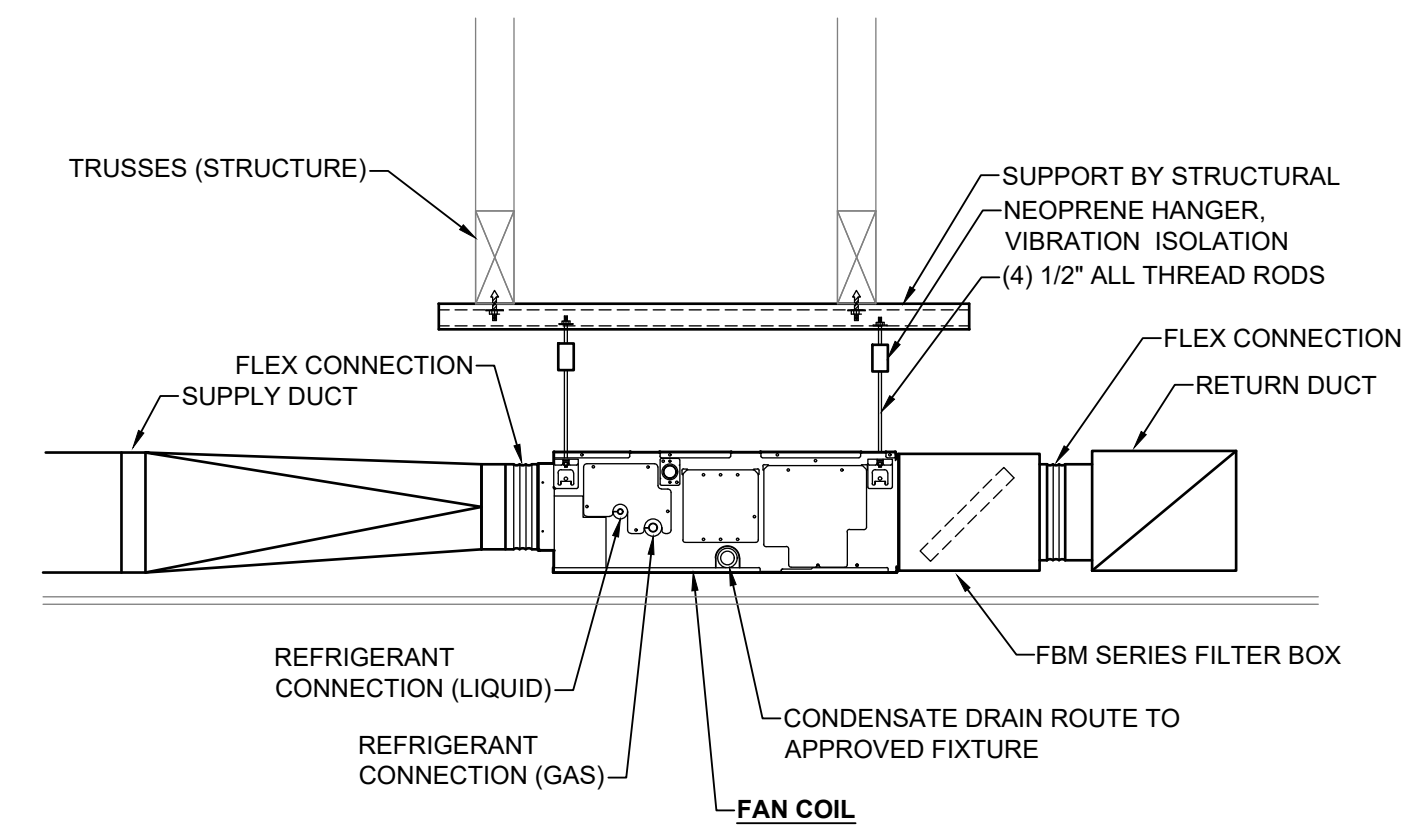

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**PORT OF FRIDAY HARBOR**  
 SHOWER REMODEL  
 204 FRONT ST.  
 FRIDAY HARBOR, WA 98250  
**HVAC PLANS**

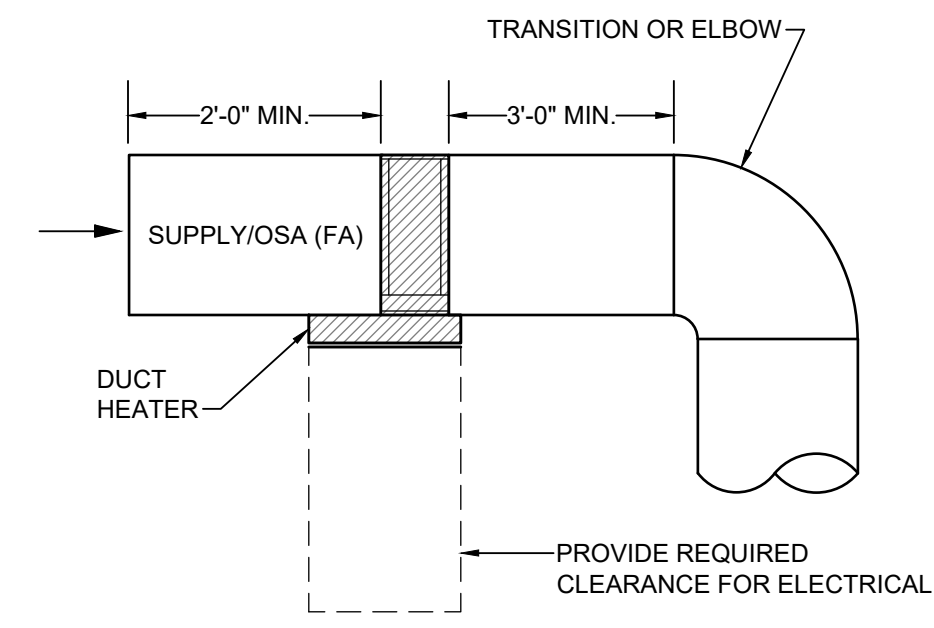
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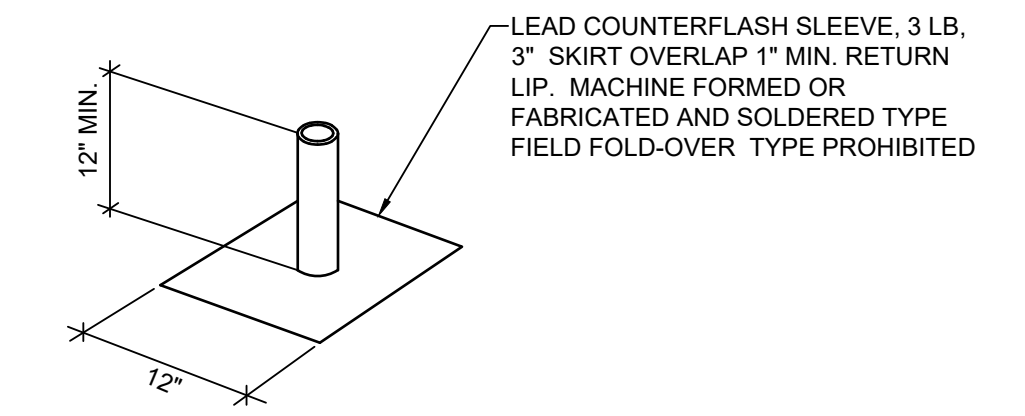
**M4.0**  
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**3 FAN COIL DETAIL**  
M4.0 / NTS



**2 ELECTRIC DUCT HEATER DETAIL**  
M4.0 / NTS



**1 PLUMBING VENT FLASHING**  
M4.0 / SCALE: NTS

REVISIONS	



**PORT OF FRIDAY HARBOR**  
SHOWER REMODEL  
204 FRONT ST.  
FRIDAY HARBOR, WA 98250  
**DETAILS**

DATE: 08/23/21  
SCALE: NTS  
DRAWN: AL  
CHECKED: AL

**M5.0**

Door

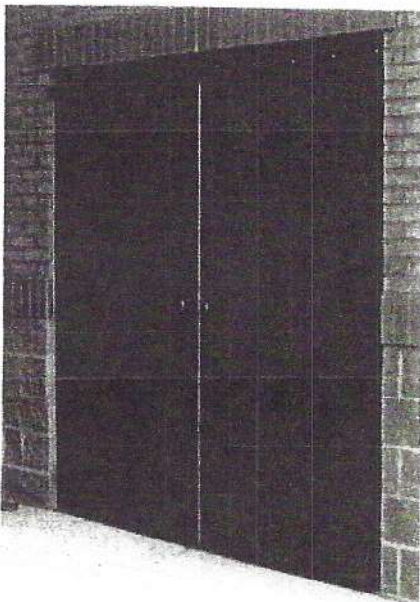
# Legion™ / Ultrador™

Polystyrene Core

DOOR LEVEL AVAILABILITY				
MODEL	TYPE	GAUGE	DEC	MM
LEVEL 1 LIGHT COMMERCIAL				
1	Flush	20	0.032	0.8
2	Seamless	20	0.032	0.8
LEVEL 2 HEAVY-DUTY COMMERCIAL				
1	Flush	18	0.042	1.0
2	Seamless	18	0.042	1.0
LEVEL 3 EXTRA HEAVY-DUTY COMMERCIAL				
1	Flush	16	0.053	1.3
2	Seamless	16	0.053	1.3
LEVEL 4 MAXIM DUTY COMMERCIAL				
1	Flush	14	0.067	1.7
2	Seamless	14	0.067	1.7

## Performance

- Core Material: Polystyrene
- Thermal Characteristics: R Factor 6.35 (ASTM C518)
- Sound Transmission: STC 23 (18 gauge operable)
- Physical Endurance (Cycle Testing)



### Physical Endurance (Cycle Testing)

20 gauge	Level C	250,000 cycles
18 gauge	Level B	500,000 cycles
16 gauge	Level A	1,000,000 cycles
14 gauge	Level A	1,000,000 cycles

Fire Label (Rating): see page 43 for additional information on fire doors

T	20 minute
C	3/4 hour
O	1 hour
B	1-1/2 hour
A	3 hour

### Maximum Size

Single	40 x 100 (1219mm x 3048mm)
Pair	80 x 100 (1219mm x 3048mm)

**Ceco Door**

**ASSA ABLOY**

ASSA ABLOY, the global leader  
in door opening solutions

1/1



*Deird Bolt*



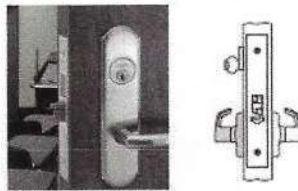
Locks & Hardware » Commercial Locks » Mortise Locks » Corbin Russwin ML2000 Series » L- Lustra Lever » LWN » ML2057-LWN

☰ Related Categories



**Corbin Russwin ML2057-LWN Mortise Storeroom Lock**

Model: ML2057-LWN



About this item

The ML2000 series is a Grade 1 mortise lock designed to meet the rigors of hightraffic commercial, institutional, industrial and government applications. Constructed of heavy-gauge steel, the lockbody features our patented Quick Reversible latchbolt, and a 1" stainless steel deadbolt. A wide variety of trim designs and functions and a 10-year warranty lend to the ML2000's versatility and reliability, making it the ideal choice for use in offices, schools, hospitals, hotels and other high-use applications.

Choose Options:

**Finish:**

Whats This?

626 Satin Chrome

**Cylinder:**

Whats This?

Conventional (Standard)

**Keyway:**

Whats This?

"L4" Keyway (standard)

**Keying:**

Whats This?

*1/2*



In Stock

Retail Price: \$891.00

**Our Price: \$490.05**

Quantity:

add to cart

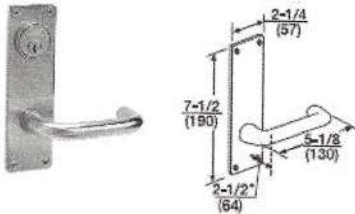
Product Details

Specification

Resources

Reviews

### Corbin Russwin ML2057-LWN Mortise Storeroom Lock



#### LWN

Lever: Wrought

Escutcheon: Wrought

**Storeroom or Closet - ANSI F07**

Latchbolt by grip inside or by key outside. Outside grip always rigid. Auxiliary latch deadlocks latchbolt. Inside grip always free.

**Handing:** Quick reversible. The lockset can be re-handed without disassembling the lock case

**Door Thickness:** 1-3/4" (44mm) standard.

**Backset:** 2-3/4" (70mm).

**Lockcase:** Heavy-gauge chrome plated steel, 5-7/8" (149mm) x 4" (102mm) x 15/16" (24mm)

**Front:** Heavy-gauge steel, 8" (203mm) x 1-1/4" (32mm) x -3/32" (2mm). Accommodates flat doors and doors beveled 1/8" (3mm) in 2" (51mm).  
Furnished 1-1/16" (27mm), optional D138, wide for 1-3/8" (35mm) doors.

**Armored Front:** Wrought brass, bronze or stainless steel attached by machine screws to lockcase front.

**Latchbolt:** 2-piece mechanical with anti-friction insert, 5/8" (16mm) x 1" (25mm) x 3/4" (19mm) throw.

**Auxiliary Latchbolt:** 9/16" (14mm) effective throw and 3/8" (10mm) effective auxiliary latch deadlocking.

**Deadbolt:** One-piece stainless steel, 19/32" (15mm) x 1-1/4" (32mm) x 1" (25mm) throw.

**Hub Knob:** stainless steel, 9/32" (7mm) x 9/32" (7mm). Lever: steel, 5/16" (8mm). (Including ) 3/8" (10mm) stainless steel.

**Spacing C. to c. knob/lever to cylinder:** 3-5/8" (92mm). C. to c. knob/lever to thumbturn: 2-7/16" (62mm).

**Strike:** Wrought brass, bronze or stainless steel, ANSI straight lip standard, 4-7/8" (124mm) x 1-1/4" (32mm) x 1-1/8" (29mm) lip to center. Optional strikes, lip lengths and ANSI wrought strike box available

**Cylinder:** Brass, 6-pin, L4 keyway standard. Optional cylinders available, 7-pin cylinder, Interchangeable core (IC)

**Keys:** Two nickel silver standard.

**Keying Features Available:** Master keying, Construction master keying

**Warranty:** Ten-year limited.

2/2



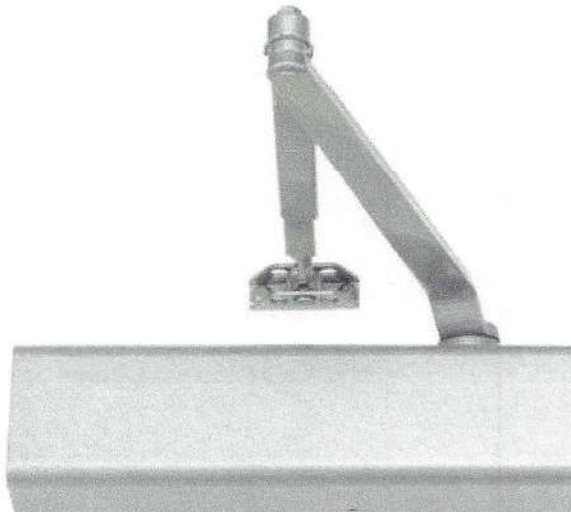
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ASSA ABLOY  
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## Norton 8501 Door Closer

1/3

**\$113.00**

Usually Ships: 2-3 Days 

- Medium Duty – ANSI Grade-1

- Adjustable spring size 1-6
- Regular, top jamb or parallel arm mount

Available Options:



Quantity:

- 1 +

**ADD TO CART**

## Product Overview

### Multi-sized door closer offering a sleek, minimal design suited for moderate-to-high-traffic, architectural openings.

The 8000 Series Door Closers offer the ideal combination of appearance, reliability, and durability in today's market. With features such as staked valves, precise valve adjustment, and a complete range of arm and cover options, this closer can meet virtually any application challenge.

- Exceeds 15 million cycles (witnessed and verified by UL)
- Adjustable spring sizes 1 through 6
- Tri-Style® packaging standard (regular arm, top jamb, and parallel arm mounting)
- Non-handed
- Staked valves
- Cast aluminum body

## CERTIFICATIONS

- ANSI/BHMA A156.4, Grade 1 certified
- UL / cUL listed for use on fire-rated doors
- UL10C listed for positive pressure fire test
- Designed to comply with requirements for the Americans with Disabilities Act (ADA) and ANSI standard A117.1
- This product is manufactured in an ISO 9001, ISO 14001 facility

## Specifications

Brand	Norton ( <a href="https://www.trudoor.com/brand/norton/">https://www.trudoor.com/brand/norton/</a> )
Finishes	689 Aluminum, 690 Statuary Bronze, 691 Light Bronze, 696 Brass. BSP – Black Suede Powder Coat. WSP –

2/3

White Suede Powder Coat

Templating (Hole Pattern)	3/4" x 12"
Usage	Medium Duty
Mounting Options	Parallel Arm (Push Side), Regular (Pull Side), Top Jamb (Push Side)
Body Construction	Cast Aluminum Body
Spring Size	Adjustable Spring Size 1-6
Door Applications	Hollow Metal, Wood or Aluminum
Handing	Non-Handed
ANSI/BHMA Standard	ANSI/BHMA A156.4, Grade 1 certified
Fire Rating	UL Listed – UL10c compliant for positive pressure
Cover	Full Cover
ADA Compliance	Meets ADA requirements – A117.1 Accessibility Code
Warranty	30 Years

Installation Instructions

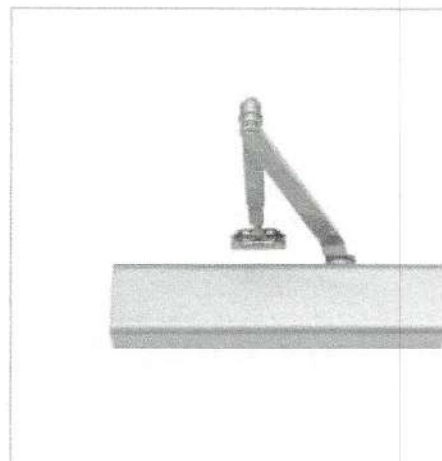
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Specification Sheets

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### Related Products



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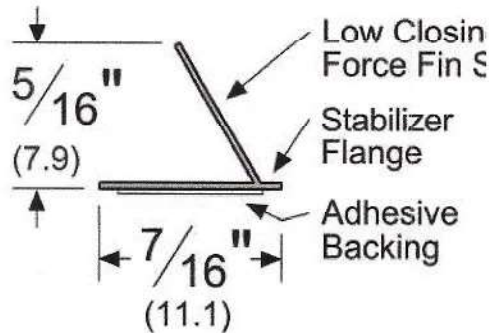
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<https://www.trudoor.com>



1/1

Door Bottom

Home → Shop By Category → Weatherstrip → Door Shoes →

Pemko 216AV Door Shoe - 1-3/4" Width, 1-9/16" Height, Mill Finish Aluminum



# Pemko 216AV Door Shoe - 1-3/4" Width, 1-9/16" Height, Mill Finish Aluminum



SKU: 216AV

Available for Quick Ship

**\$32.13**

Weight: 1.00 LBS

Select Options Below

Pemko Length \*

Choose an Option... ▼

Qty:

Add to Cart

**FACTORY LEAD TIMES  
MAY APPLY IF QUICK  
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**Call us: 1-800-992-3667  
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Each.**

*Actual products may  
differ  
slightly in appearance  
to images shown.*

Details

Manufacturer Spec

Finishes Chart

Pemko 216AV Door Shoe has a 1-3/4" Width, in a 1-9/16" Height, comes in 36", and 48" lengths in Mill Finish Aluminum. Pemko 216AV Door shoes are used to seal the area under a door with minimal affect on the appearance of the face of the door. In addition to sealing the gap under the door, door shoes are often used to provide protection for the bottom of the door. Pemko door shoes consist of an aluminum channel with a flexible insert available in vinyl or PemkoPrene™

**\*\*Quick Shipping for 36 Inch long only\*\***

Pemko 216AV Features

- Channels are punched with elongated slots for easy adjustment
- Door sweeps are provided with stainless steel fasteners

Pemko 216AV Specifications

1/1



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## Pemko 271A Saddle Threshold - 1/4" x 5" Mill Finish Aluminum - 36"

Model: 271A36



### About this item

Saddle thresholds are symmetrical shapes designed to span a given area, usually under a door.

Buy Now:

In Stock

Retail Price: \$34.20

**Our Price: \$26.33**

Quantity:

1

add to cart

Product Details

Resources

Reviews

#### Pemko 271A Saddle Threshold - 1/4" x 5" Mill Finish Aluminum - 36"

LENGTH: 36"

WIDTH: 5" (127 mm)

HEIGHT: 1/4" (6.4 mm)

1/2

**PRODUCT APPROVALS:**

- Tested and approved under UL10C for Fire
- ADAAG-1998 (Amended); ICC/ANSI A117.1 and California Building Code, Title 24 for Barrier-Free Entry
- Category J gaskets for use with listed steel frames and/or classified steel covered composite, hollow metal doors rated up to and including 3 hours; wood and plastic covered composite doors rated up to and including 1-1/2 hours; and wood core doors rated for 20 minutes.






**ANSI NUMBER:** Aluminim: J32100, J32130;

**CROSS REFERENCE:**

Draftseal: DS5000; Hager 413; NGP: 513; Reese: S405; Zero: 545; K N Crowder: CT-65

**Related Products**



 <p>Cal-Royal CR3364148 Saddle Threshold 7/16" H x 4" W x 48" L Product Code: CR33641 48 <del>\$34.55</del> <b>\$25.91</b> <a href="#">View Product</a></p>	 <p>NGP 427E 7" Aluminum Saddle Threshold - Mill Finish - 72" Product Code: NGP427E72 <del>\$127.50</del> <b>\$121.13</b> <a href="#">View Product</a></p>	 <p>NGP 427E 7" Aluminum Saddle Threshold - Mill Finish - 42" Product Code: NGP427E42 <del>\$85.00</del> <b>\$80.75</b> <a href="#">View Product</a></p>	 <p>Cal-Royal CR371596 Saddle Threshold 1/4" H x 5" W x 96" L Product Code: CR3715 96 <del>\$70.46</del> <b>\$52.85</b> <a href="#">View Product</a></p>	 <p>Cal-Royal CR2710596 Saddle Threshold 1/2" H x 5" W x 96" L Product Code: CR27105 96 <del>\$59.43</del> <b>\$44.57</b> <a href="#">View Product</a></p>
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**Dura-Ware® 2120 Series**  
Siphon Jet Toilet - On Floor - Floor Outlet



2120-W-3-CN

Fixture May Show Some Available Options



Please visit [www.acorneng.com](http://www.acorneng.com) for most current specifications.

**Siphon Jet Toilet - On Floor - Floor Outlet**

Fixture is arranged to be installed on finished wall from the front side. It is fabricated from 16 gage, type 304 stainless steel and is seamless welded construction. Exterior has a satin finish with an integral contoured seat. The inside of the toilet bowl also has a satin finish. Wall flange is reinforced for maximum strength.

**Toilet** is Siphon Jet type with elongated bowl manufactured to comply with ASME A112.19.3-2008 and CSA B45.4-2008 standards. Toilet requires a minimum of 25 PSI flow pressure and uses a minimum water consumption of 1.28 GPF. Trap has a minimum 3-1/2" seal, will pass a 2-1/8" ball and is fully enclosed. Toilet has a 1-1/2" NPT flushing inlet connection and a 7-1/2" gasketed waste with 6" mounting centers. Connecting hardware provided by installer.

**Flush Valve** supply is additionally available for exposed or concealed flush valve styles in 1.28 GPF, 1.6 GPF or 3.5 GPF with 1-1/2" NPT connection.

**GUIDE SPECIFICATION**

Provide and install Acorn Dura-Ware Siphon Jet Toilet (specify model number and options). Fixture shall be fabricated from 16 gage, type 304 stainless steel. Construction shall be seamless welded and exposed surfaces shall have a satin finish with an integral contoured toilet seat. Toilet shall be concealed siphon jet type with an elongated bowl and a self-draining flushing rim. Toilet shall be ASME A112.19.3-2008 and CSA B45.4-2008 compliant. Toilet requires a minimum of 25 PSI flow pressure and uses a minimum water consumption of 1.28 GPF. Toilet trap shall have a minimum 3-1/2" seal that shall pass a 2-1/8" diameter ball and be fully enclosed. Toilet waste outlet shall be 7-1/2" Gasketed Waste with 6" mounting centers. Connecting hardware provided by installer.

# Dura-Ware®: 2120 Siphon Jet Toilet - On Floor - Floor Outlet



### WALL THICKNESS AND TYPE (Must Specify)

Thickness: \_\_\_\_\_ Type:  Concrete  Block  Steel

### MODEL NUMBER AND OPTIONS SELECTION:

#### BASE MODEL NUMBER

2120 Siphon Jet Toilet

#### SUPPLY (Must Specify)

-T Top (Exposed)  
 -W Wall (Concealed)

#### FIXTURE MOUNTING AND WASTE (Must Specify)

-3 On-Floor, Floor Outlet

#### FLUSH VALVE GPFs (Must Specify)

-1.28 GPF (HET)  
 -1.6 GPF (Not Available in California)  
 -3.5 GPF (Not Available in California)

#### FLUSH VALVE OPTIONS (Must Specify)

**\*REFER TO ACORN DURA-WARE ACCESSORIES FOR FLUSH VALVE COVER #2802, BOX #2803-1 AND PANEL #2898\***

-FV Flush Valve, Mechanical (N/A for ADA)  
 -FVBO Flush Valve by Other  
 -FVH Flush Valve, Hydraulic (N/A for Top Supply)  
 -FVL Flush Valve, ADA Lever Handle  
 -MVCFV Time-Trol Flush Valve (N/A for Top Supply)

### TOILET SEAT OPTIONS

-HPS High Polish Integral Seat  
 -HS-OFLC Hinged Seat, Open Front Less Cover  
 -HS-OFWC Hinged Seat w/ Cover  
 -PFS Punched for Seat by Others

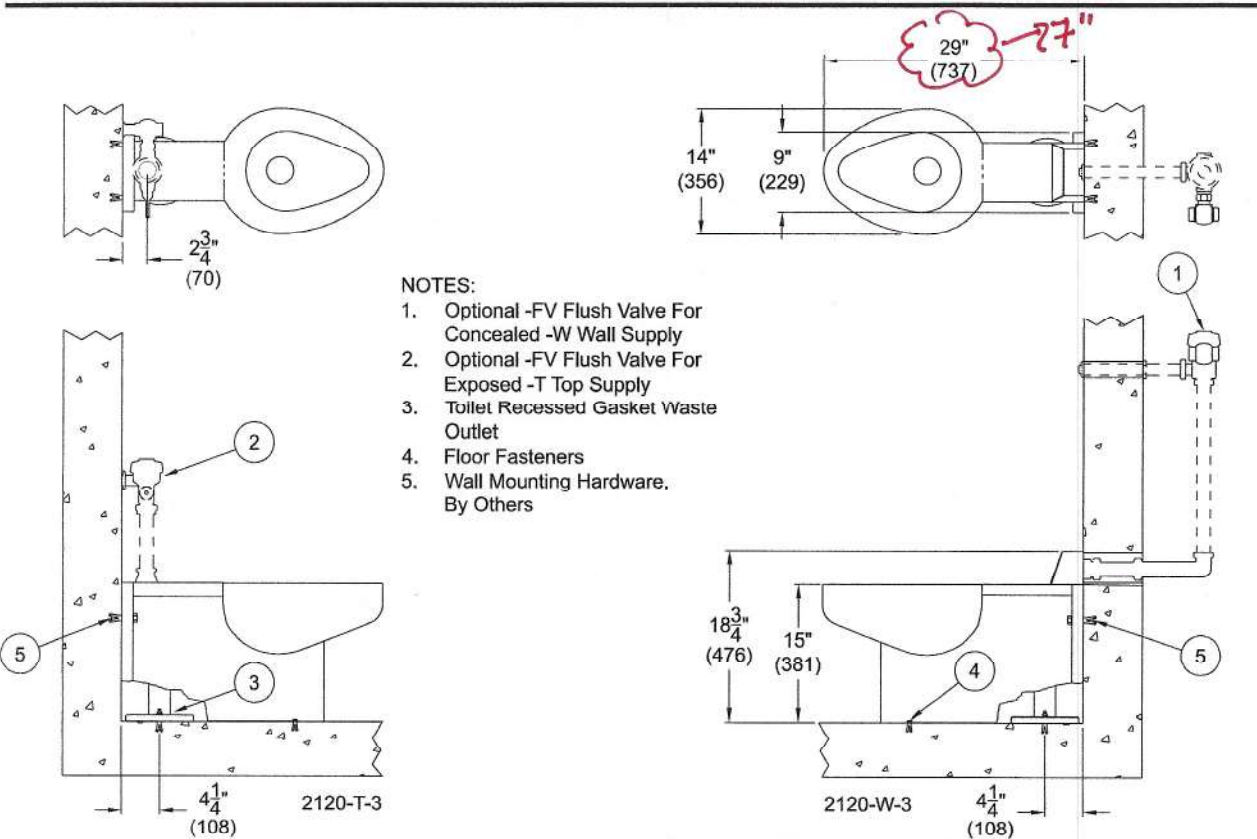
### TOILET OPTIONS

-FT Flood-Trol (N/A with Top Supply)  
 -FTA Flood-Trol Auto-Reset (N/A with Top Supply)  
 -FTE Flood-Trol Electronic  
 -FVT Flush Thru Wall Connector  
 -TSC Toilet Shipping Cover

### PRODUCT OPTIONS

-ADA 18" Integral Seat Height  
 -BCN Blind Cap Nuts (4)  
 -BL Bedpan Lugs  
 -CN Cap Nuts (4)  
 -EG Enviro-Glaze Color Specify: \_\_\_\_\_  
 Toilet Interior & Exterior  
 -EGE Enviro-Glaze Color Specify: \_\_\_\_\_  
 Toilet Exterior Only  
 -FG 14 Gage Housing  
 -TF Transformer, 120VAC to 24VAC (-MVCFV option)  
 -VAC AcornVac System

Please visit [www.acorneng.com](http://www.acorneng.com) for most current specifications.



- NOTES:
- Optional -FV Flush Valve For Concealed -W Wall Supply
  - Optional -FV Flush Valve For Exposed -T Top Supply
  - Toilet Recessed Gasket Waste Outlet
  - Floor Fasteners
  - Wall Mounting Hardware. By Others

**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Important:** Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions. Dimensions are subject to manufacturer's tolerance of plus or minus 1/4" and change without notice. Acorn assumes no responsibility for use of void or superseded data. © Copyright 2009 Acorn Engineering Company

<p><b>Selection Summary</b></p> <p>Model No. &amp; Option _____</p> <p>Quantity _____</p>	<p><b>Approved for Manufacturing</b></p> <p>Company _____ Title _____</p> <p>Signature _____ Date _____</p>
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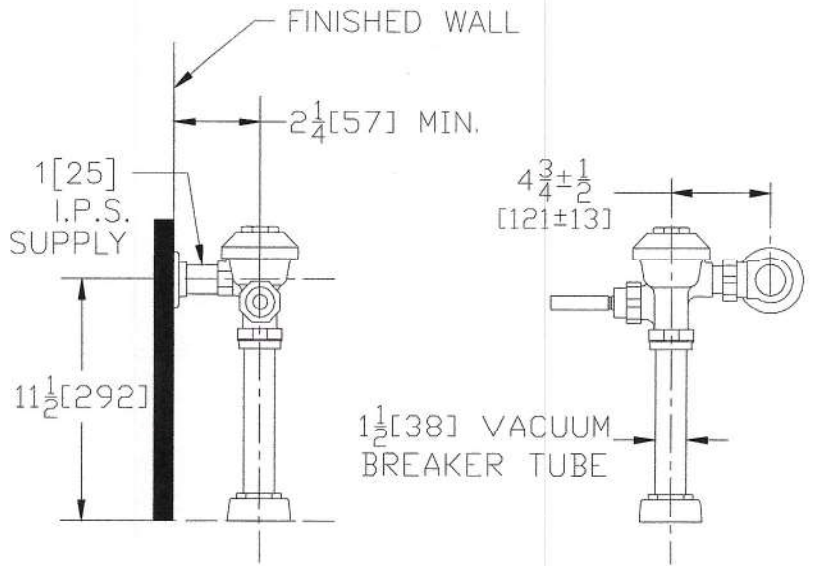
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# AquaVantage® AV Model TAG

## Z6000AV

Exposed Flush Valve for Water Closets



### Flow Options

- ONE\* 1.1 gpf High Efficiency Flush
- HET\* 1.28 gpf High Efficiency Flush
- WS1 1.6 gpf Low Consumption Flush
- Standard 3.5 gpf
- FF 4.5 gpf Full Flush

### Suffix Options (Check/Specify Appropriate Options)

- \_\_\_\_\_ -BG BioCare Handle
- \_\_\_\_\_ -H Handle on Front of Flush Valve
- \_\_\_\_\_ -L 1" [25] Metal Push Button
- \_\_\_\_\_ -L3 3" [76] Metal Push Button
- \_\_\_\_\_ -YJ Split Ring Pipe Support
- \_\_\_\_\_ -YK Solid Ring Pipe Support
- \_\_\_\_\_ -YO Bumper on Angle Stop
- \_\_\_\_\_ Other

**ENGINEERING SPECIFICATION: ZURN Z6000AV AquaVantage® 'AV' Exposed Closet Flush Valve** - Exposed, quiet diaphragm-type, chrome plated flushometer valve with a polished exterior. Complete with Zurn's AquaVantage® TPE, chloramine resistant, dual seal diaphragm with a clog resistant, triple filtered by-pass. The valve is ADA compliant with a non-hold open and no leak handle feature, high back pressure vacuum breaker, one piece hex coupling nut, adjustable tailpiece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection, vandal resistant stop cap, sweat solder kit, and a cast wall flange with set screw. Internal seals are made of chloramine resistant materials.



\* This product should be used with a WaterSense labeled counterpart with a compatible flush volume to ensure that the entire system meets the requirements for water efficiency and performance.

Architectural/Engineering Approval

The information contained in this document is subject to change without notice.

ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION ♦ 5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330

Phone: 1-800-997-3876 ♦ Fax: 919-775-3541 ♦ World Wide Web: [www.zurn.com](http://www.zurn.com)

In Canada: ZURN INDUSTRIES LIMITED ♦ 7900 Goreway Drive Unit 10 ♦ Brampton, Ontario L6T5W6 ♦ Phone: 905-405-8272 Fax: 905-405-1292

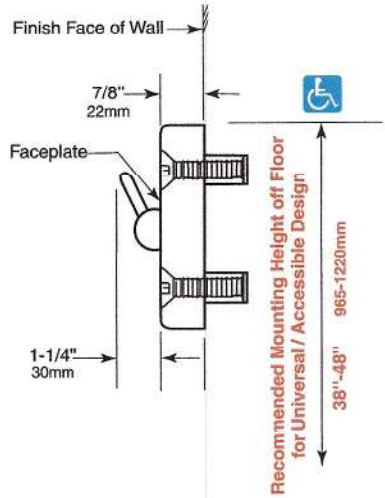
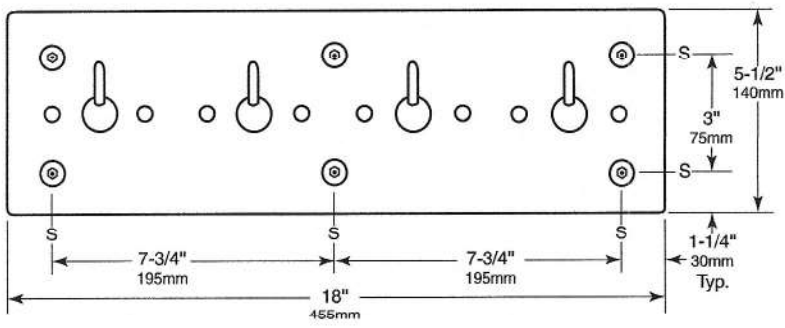
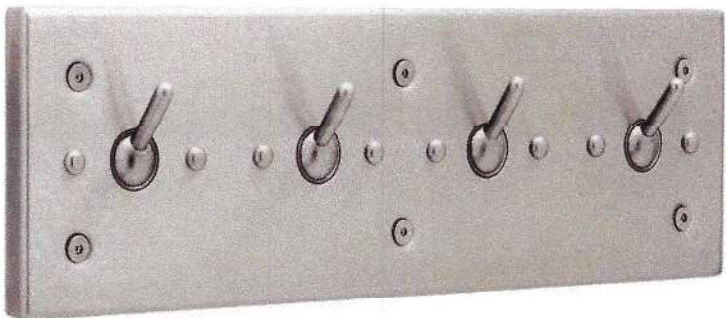
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**Technical Data**

**VANDAL-RESISTANT  
CLOTHES HOOK STRIP  
(SECURED FROM FRONT)**

**B-985**



**MATERIALS:**

18-8, type-304 stainless steel with satin finish. Faceplate is 14-gauge (2mm). Hooks snap down for safety if excessively loaded.

**INSTALLATION:**

Secure unit to wall at all points indicated by an S. Unit has countersunk screw holes and is furnished with six 1/4-20 x 1 1/2" (6 x 38mm), tamper-resistant, flat-head, hex-socket, stainless steel machine screws and a security hex key for installation. Expansion shields are not furnished by manufacturer.

**SPECIFICATION:**

Clothes hook strip shall be type-304 stainless steel with satin finish. Faceplate shall be 14-gauge (2mm) and equipped with four hooks shall snap down for safety if excessively loaded. Unit shall be furnished with tamper-resistant mounting screws.

**Clothes Hook Strip shall be Model B-985 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.**

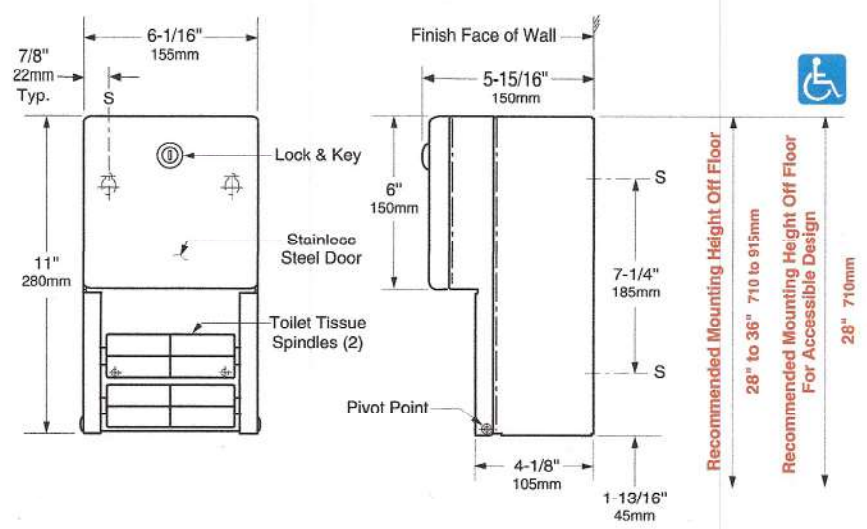
The illustrations and descriptions herein are applicable to production as of the date of this Technical Data Sheet. The manufacturer reserves the right to, and does from time to time, make changes and improvements in designs and dimensions.

1/1



# SURFACE-MOUNTED MULTI-ROLL TOILET TISSUE DISPENSER

## B-2888



**MATERIALS:**

- Cabinet** — 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish.
- Door** — 18-8, type-304, 22-gauge (0.8mm) stainless steel with 18-gauge (1.2mm) stainless steel door frame. Exposed surfaces have satin finish. Front of door is drawn, one-piece, seamless construction. Secured to cabinet with two rivets. Equipped with a tumbler lock keyed like other Bobrick washroom accessories.
- Dispensing Mechanism, Inner Housing and Cam** — 18-8, type-304, 18-gauge (1.2mm) stainless steel.
- Spindles (2)** — Heavy-duty, one-piece, molded ABS. Theft-resistant. Retained in dispensing mechanism when door is locked.

**OPERATION:**

Unit holds two standard-core toilet tissue rolls up to 5-1/4" (133mm) diameter (1800 sheets). Tissue rolls are loaded and locked into dispensing mechanism. Extra roll automatically drops in place when bottom roll is depleted. Depleted rolls can only be removed after unlocking door.

**INSTALLATION:**

- For partitions with particleboard or other solid core, secure with four #10 x 5/8" (4.8 x 16mm) sheet-metal screws (not furnished) at points indicated by an S, or provide through-bolts, nuts, and washers.
- For hollow-core metal partitions, provide solid backing into which sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.
- For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws.
- For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws or provide 3/16" (5mm) toggle bolts or expansion bolts.

**SPECIFICATION:**

Surface-mounted multi-roll toilet tissue dispenser shall be type-304 stainless steel with all-welded construction, including dispensing mechanism, inner housing and cam; exposed surfaces shall have satin finish. Front of toilet tissue dispenser door shall be drawn, one-piece, seamless construction. Door shall be secured to cabinet with two rivets and equipped with a tumbler lock keyed like other Bobrick washroom accessories. Unit shall dispense two standard-core toilet tissue rolls up to 5-1/4" (133mm) diameter (1800 sheets). Extra roll shall automatically drop in place when bottom roll is depleted. Unit shall be equipped with two theft-resistant, heavy-duty, one-piece, molded ABS spindles.

Surface-Mounted Multi-Roll Toilet Tissue Dispenser shall be Model B-2888 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



Shower - 2

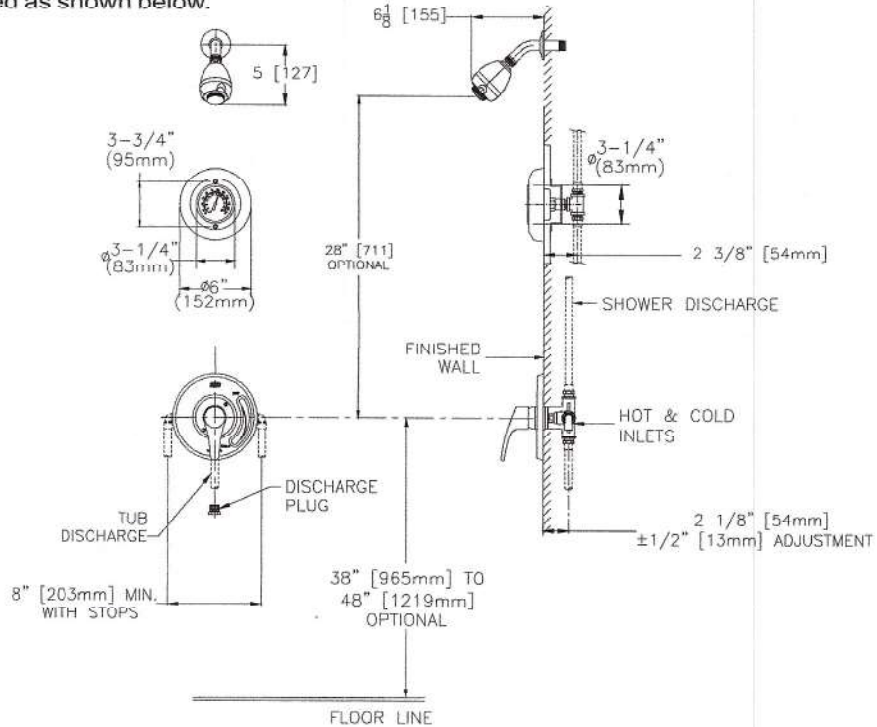
# TEMP-GARD SHOWER UNIT

## Z7301-SS-MT-DT

### TAG

#### ENGINEERING SPECIFICATIONS: ZURN Z7301-SS-MT-DT

Single handle pressure balancing mixing shower unit, ceramic control cartridge with stainless steel balancing piston, built in reverse connection capability (To reverse the hot and cold inlets simply remove cartridge and turn 180°), two service stops / check stops, and adjustable limit stop. Also supplied with 3-1/4" (82.55mm) bi-metallic dial thermometer. When valve is turned on it must rotate from cold through to the hot position. All exposed trim and handle are metal with polished nickel chrome plated surface. The valve is supplied with the (ABS plastic) standard -S1 shower head, arm and flange in chrome plated finish. The valve body is a four port valve with a tub port plug included for shower only applications. The valve inlets, shower and tub outlet are all standard with 1/2" NPT female thread connections. The 1/2" copper sweat options must be specified as shown below.



Note: All dimensions are for reference only. Do not use for pre-plumbing.  
Parts shown as hidden lines are supplied by others.

#### OPTIONS (Check/specify appropriate options) Use with Z7300 prefix

Suffix	Description
___ -CPVC	1/2" Male NPT by CPVC Female Adaptors, shipped loose to be installed in the field.
___ -EXT	Extension Kit, Extends Valve Out by 1".
___ -PEX	1/2" Male NPT by Pex Adaptors, shipped loose to be installed in the field.
___ -SSC	1/2" Female Copper Sweat Connections w/ Service Stops
___ -ST	Sierra Series Decorative Metal Trim
___ -STN	Satin Nickel Finish
___ -VB	In-Line Vacuum Breaker
___ -WF	Wall Mounting Flange For Fiberglass or Panel Wall Installation

#### Additional Options

___ Z7000-SC	Pair of Dual Spring Check Valves
___ Z7000-S5	Large Brass Shower Head with Spray Adjustment
___ Z7000-S6	Small Brass Shower Head with Spray Adjustment

#### STANDARDS

Tested to meet the following standards for valves and plumbing fittings:  
 ASSE Standard No. 1016  
 ASME A112.18.1 / CSA B125.1  
 IAPMO® Listed  
 Meets or Exceeds ANSI A117.1M standard for physically handicapped



ZURN INDUSTRIES, LLC ♦ COMMERCIAL BRASS OPERATION ♦ 2640 SOUTH WORK STREET ♦ FALCONER NY 14733

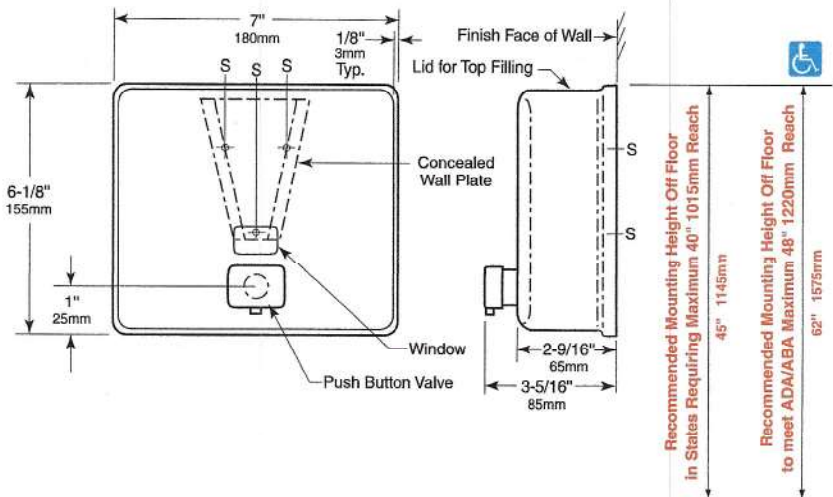
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In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292



# ConturaSeries® SURFACE-MOUNTED SOAP DISPENSER

## B-4112



**MATERIALS:**

**Container** — Body is 18-8, Type-304, 20-gauge (1.0mm) stainless steel with satin-finish. Drawn, one-piece, seamless construction. Front has same degree of arc as other Bobrick ConturaSeries washroom accessories. Radius on corners and edges complement other ConturaSeries accessories. Back plate is 22-gauge (0.8mm) stainless steel with 20-gauge (1.0mm) stainless steel mounting bracket attached. Container body and back plate are epoxy-sealed to prevent warping and leakage. Concealed wall plate is 20-gauge (1.0mm) stainless steel. Equipped with a plastic soap refill-indicator window and a locked, hinged stainless steel lid for top filling. Capacity: 40-fl oz (1.2-L).

**Valve** — Black molded plastic push button. Soap head-holding mushroom valve. Stainless steel spring. U-packing seal and duckbill. Antibacterial-soap-resistant plastic cylinder.

**OPERATION:**

Corrosion-resistant valve dispenses commercially marketed all-purpose hand soaps. To prevent corrosion, use only chloride-free pH-neutral liquid soaps, non-iodine based soaps and do not use alcohol based sanitisers. Valve operates with one hand, without tight grasping, pinching, or twisting of the wrist, and with less than 5 pounds of force (22.2 N) to comply with accessible design guidelines (including ADAAG in U.S.A.). Window indicates when refill is required. The locked, hinged lid opens for top filling with special key provided. Concealed, vandal-resistant mounting.

**INSTALLATION:**

Secure wall plate to the wall with screws furnished at points indicated by an S. Slide mounting bracket of container down onto wall plate and secure unit with furnished locking-screw. For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with screws furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with screws furnished, or provide 1/8" (3mm) toggle bolts or expansion bolts.

**Note:** Surface-mount the dispenser plumb and true with valve 6" (152mm) to right or left of lavatory center. Provide 4" (102mm) minimum clearance from the lid to the underside of any horizontal projection. Push buttons should be located 44" (1120mm) maximum above the finish floor. Where a high reach is over an obstruction (countertop), the high forward reach shall be 48" (1220mm) maximum where the reach depth is 20" (510mm) maximum. Where the reach depth exceeds 20" (510mm) the high forward reach shall be 44" (1120mm) maximum and the reach depth shall be 25" (635mm) maximum.

**SPECIFICATION:**

Surface-mounted soap dispenser shall be Type-304 stainless steel with satin-finish. Corrosion-resistant valve shall dispense commercially marketed all-purpose hand soaps. To prevent corrosion, use only chloride-free pH-neutral liquid soaps. Valve shall be operable with one hand and with less than 5 pounds of force (22.2 N) to comply with accessible design guidelines (including ADAAG in U.S.A.). Front of soap dispenser shall have same degree of arc and match other Bobrick ConturaSeries accessories in the washroom. Radius on corners and edges of soap dispenser shall complement other Bobrick ConturaSeries washroom accessories. Container body and back plate shall be epoxy-sealed to prevent warping and leakage. Soap dispenser shall have concealed, vandal-resistant mounting. Locked, hinged stainless steel lid for top filling shall require special key to open. Capacity shall be 40-fl oz (1.2-L).

**Surface-Mounted Stainless Steel Soap Dispenser shall be Model B-4112 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.**



Shower - ADA

3

# TEMP-GARD III SHOWER UNIT

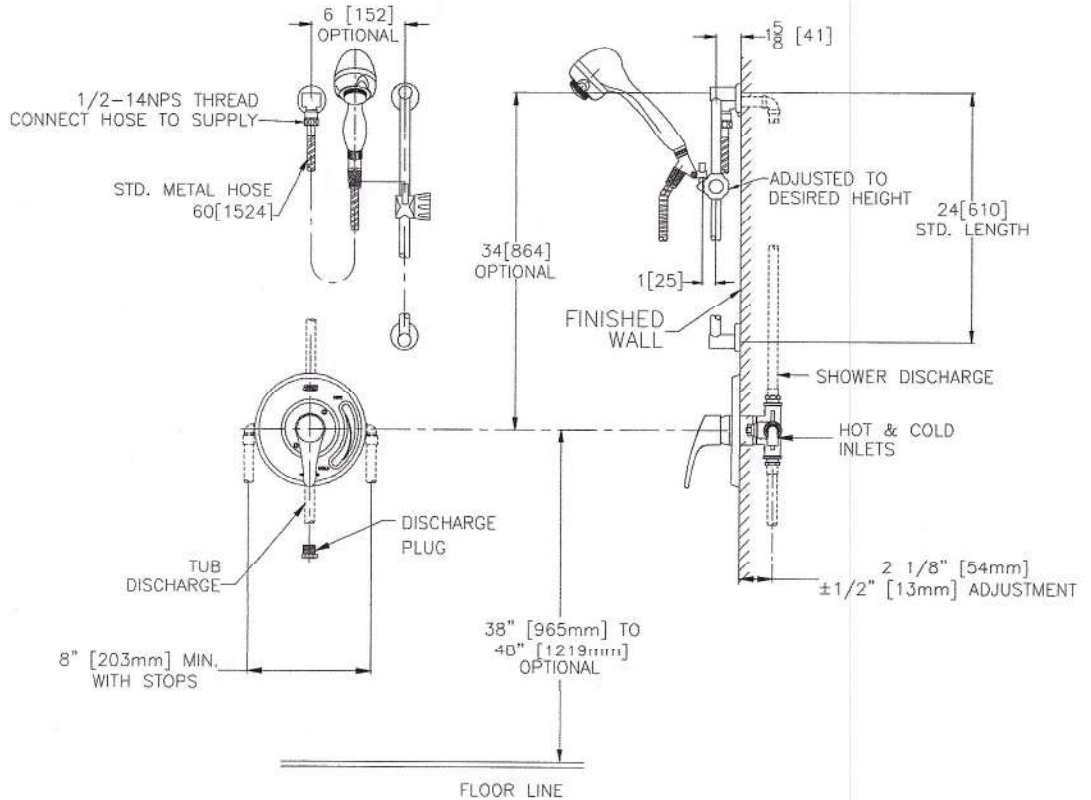
## Z7300-SS-MT-HW6

### TAG



#### ENGINEERING SPECIFICATIONS: ZURN Z7300-SS-MT-HW6

Single handle pressure balancing mixing tub and shower unit, ceramic control cartridge with stainless steel balancing piston, built in reverse connection capability (To reverse the hot and cold inlets simply remove cartridge and turn 180°), two service stops / check stops, and adjustable limit stop. When valve is turned on it must rotate from cold through to the hot position. All exposed trim and handle are metal with polished nickel chrome plated surface. Valve supplied with standard 2.5 GPM hand/wall shower head, hand/wall unit, 60"[1524mm] flexible metal hose, 24"[610mm] mounting bar, vacuum breaker, supply elbow and flange. The valve inlets, shower and tub outlet are all standard with 1/2" NPT female thread connections. The 1/2" copper sweat options must be specified as shown below.



Note: All dimensions are for reference only. Do not use for pre-plumbing.  
Parts shown as hidden lines are supplied by others.

#### OPTIONS (Check/specify appropriate options) Use with Z7300 prefix

Suffix	Description
___ -EXT	Extension Kit, Extends Valve Out by 1".
___ -SSC	1/2" Female Copper Sweat Connections w/ Service Stops
___ -ST	Sierra Series Decorative Metal Trim
___ -WF	Wall Mounting Flange For Fiberglass or Panel Wall Installation
___ -	Handwall Options (see Z7000-HW)

#### STANDARDS

Tested to meet the following standards for valves and plumbing fittings:  
ASSE Standard No. 1016  
ASME A112.18.1 / CSA B125.1  
IAPMO® Listed  
Meets or Exceeds ANSI A117.1M standard for physically handicapped

#### Additional Options

\_\_\_ Z7000-SC Pair of Dual Spring Check Valves



ZURN INDUSTRIES, LLC ♦ COMMERCIAL BRASS OPERATION ♦ 2640 SOUTH WORK STREET ♦ FALCONER NY 14733

Phone: 1-800-997-3876 ♦ Fax: 1-919-775-3541 ♦ www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

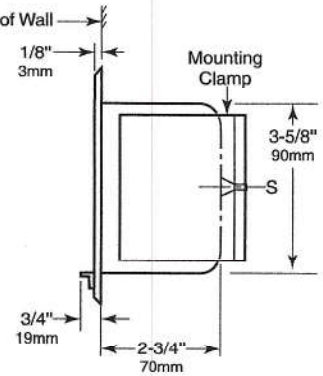
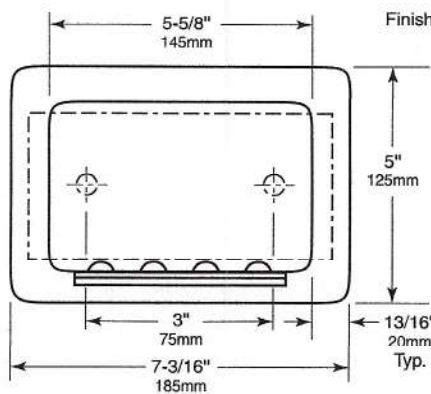




Technical Data

RECESSED HEAVY-DUTY SOAP DISH (FOR STUD WALLS)

B-4380



**Rough Wall Opening**  
6" (150mm) wide  
4" (102mm) high  
4" (100mm) minimum recessed depth

**MATERIALS:**

**Shell & Flange** — 18-8, type-304, 19-gauge (1.0mm) stainless steel with matte polished finish. Drawn and beveled, one-piece, seamless construction with two countersunk mounting holes.

**Retaining Lip** — 18-8, type-304, 22-gauge (0.8mm) stainless steel with matte polished finish.

**INSTALLATION:**

Provide framed rough wall opening 6" wide x 4" high (150 x 100mm). Minimum recessed depth to finish face of wall is 4" (100mm). Insert unit into rough wall opening and center unit in width of opening making sure that the front edges of the mounting clamp are engaged behind the wall material on both sides of the rough wall opening. Secure unit in place by drawing the mounting clamp up to the back surface of the wall material with the mounting screws (2) furnished by Bobrick.

**SPECIFICATION:**

Recessed heavy-duty soap dish shall be type-304 stainless steel with matte polished finish. Shell and flange shall be 19 gauge (1.0mm) with drawn and beveled, one-piece, seamless construction. Unit shall be equipped with a 22-gauge (0.8mm) retaining lip and furnished with machine screws for installation in stud walls.

Recessed Heavy-Duty Soap Dish shall be Model B-4380 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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**Technical Data**

**MIRROR WITH STAINLESS STEEL CHANNEL FRAME AND SHELF**

**B-166 SERIES**

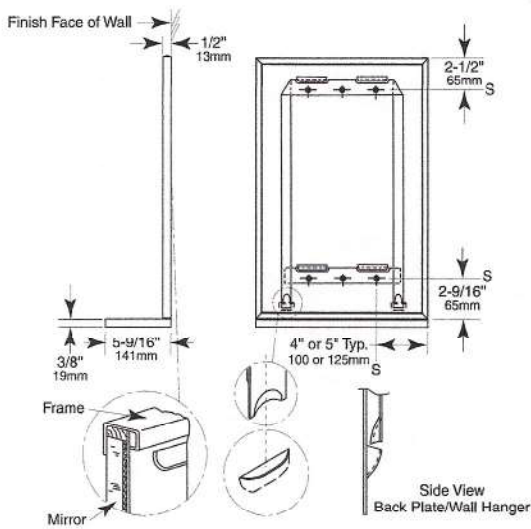


**Designer's Notes:**

1. Special-order sizes available on request.
2. Maximum size mirror available, 60" x 48" (152 x 122cm) or 48" x 60" (122 x 152cm); minimum size, 12" x 12" (30 x 30cm).
3. All Bobrick framed mirror/shelf models are manufactured to overall width and height dimensions of mirror, not including shelf. EXAMPLE: B-166 2436" (61 x 94cm) mirror will be furnished 24" x 37-1/4" (61 x 94cm) outside-of-frame to outside-of-frame including shelf.
4. To specify special sizes use Series Number followed by width x height in inches. EXAMPLE: B-166 2024 20"x 24" (51 x 61cm).
5. Bobrick framed mirror/shelf models are manufactured to a tolerance  $\pm 1/8"$  (3.2mm).
6. For sufficient space to lift mirror onto wall hanger(s), provide 1" (25.4mm) minimum clearance above top of mirror frame.
7. Provide 1" (25mm) minimum clearance at bottom of mirror for unlocking mirror from wall and 1/2" (12.7mm) minimum clearance on each side.

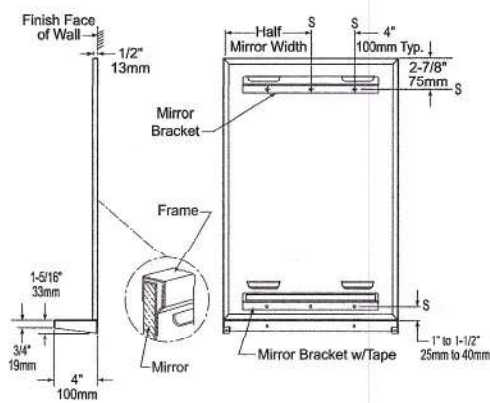
**Snap Locking Design (Rear View)**

Figure: 1



**"2S" Tab Design (Rear View)**

Figure: 2



**All Other Size Mirrors**

**Note:** Mirrors greater than 36" in width will have multiple hanger brackets with a typical 8" off each edge.

STANDARD B-166 SERIES MIRRORS		
MODEL NO.	OVERALL SIZE	
	W	H
B-166 1824	18" (46cm)	25-1/4" (64cm)
B-166 1830	18" (46cm)	31-1/4" (79cm)
B-166 1836	18" (46cm)	37-1/4" (94cm)
B-166 2436	24" (61cm)	37-1/4" (94cm)

1/2

continued...

## MATERIALS:

**Frame** — Type 430 stainless steel, 1/2" x 1/2" x 3/8" (13 x 13 x 9.5mm) channel 1/4" (6mm) return at rear. For Snap Locking Design; 1/2" x 1/2" x 1/2" (13 x 13 x 13mm) channel for "2S" Design Tab, with bright polished finish. One-piece frame with 90 degree mitered corners. Galvanized steel back has integral horizontal hanging brackets near the top for hanging the mirror and near the bottom to prevent the bottom of the mirror from pulling away from the wall. Locking devices secure mirror to concealed wall hanger.

**Shelf** — 18-8, type 304, 18-gauge (1.2mm) stainless steel with satin finish. Return edge on front, hemmed for additional strength and safety. Once mounted properly, mirror shelf meets accessible design by protruding 4" (102mm) from the wall.

**Mirror** — No. 1 quality, 1/4" (6mm) select float glass: selected for silvering, electrolytically copper-plated by the galvanic process, and guaranteed for 15 years against silver spoilage. Back is protected by full-size, shock-absorbing, water-resistant, nonabrasive, polyethylene padding.

**Concealed Wall Hanger** — Heavy gauge steel construction. Incorporates upper and lower support members, which engage backplate louvers to keep mirror against wall for Snap-locking design. Double-sided tape secures mirror to concealed wall hanger for "2S" Design Tab design.

## INSTALLATION:

Mount wall hanger on wall with screws (not furnished) at points indicated by an S. For plaster or dry wall construction, provide backing to comply with local building codes, then secure wall hanger with screws (not furnished). When providing a concealed backing, allow backing to cover minimum range of mounting hole locations shown on drawing. For other wall surfaces, provide fiber plugs or expansion shields for use with screws (not furnished), or provide 1/8" (3mm) toggle bolts or expansion bolts. Hang mirror on wall hanger with all four backplate louvers engaged behind horizontal wall hanger members. To do this, mirror must be centered in front of the wall hanger horizontally, pressed flat against the wall approximately 1" (25mm) above final position and then lowered into final position.

Place shelf below mirror and install with wall screws (not furnished) at points indicated by S.

**Snap Locking Design** — Locking devices automatically secure mirror to concealed wall hanger when it is lowered into final position (see figure 3). Locking devices may be unlocked by inserting two flat blade screwdrivers behind each side of mirror near the bottom or under the bottom of the mirror and pulling mirror bottom forward and then up.

**"2S" Tab Design** — Double-sided tape secures mirror to concealed wall hanger when it is lowered into final position (see figure 4).

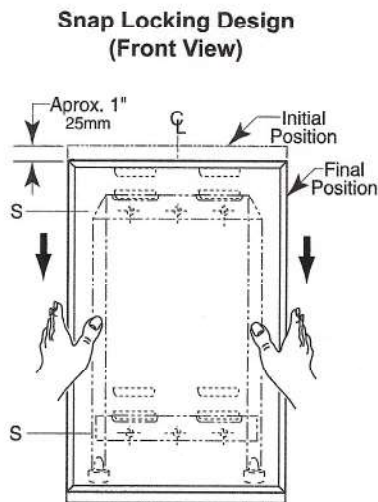


Figure: 3

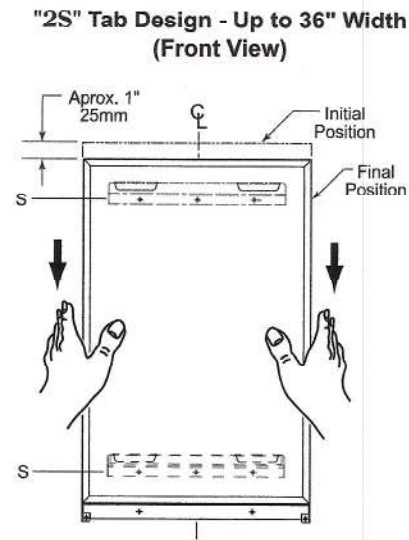


Figure: 4

## SPECIFICATION:

Mirror shall have a one-piece type 430 stainless steel channel frame, with 90° mitered corners; all exposed surfaces shall have bright polished finish. Shelf shall be type 304, 18-gauge (0.8mm) stainless steel with satin finish and shall have return edges on front with front edge hemmed. Select float glass mirror shall be guaranteed for 15 years against silver spoilage. The back shall be protected by full-size, shock-absorbing, water-resistant, nonabrasive, polyethylene padding. Galvanized steel back shall have integral horizontal hanging brackets located at top and bottom for mounting on concealed wall hanger and to prevent the mirror from pulling away from the wall.

Framed Mirror With Shelf shall be Model B-166 \_\_\_\_\_ (insert width and height) of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



# Technical Data

# InstaDry™ SURFACE-MOUNTED AUTOMATIC HAND DRYER

# B-7125

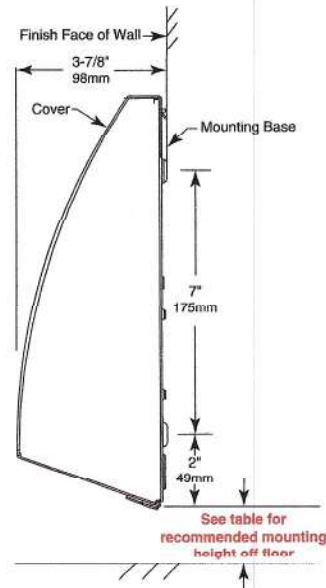
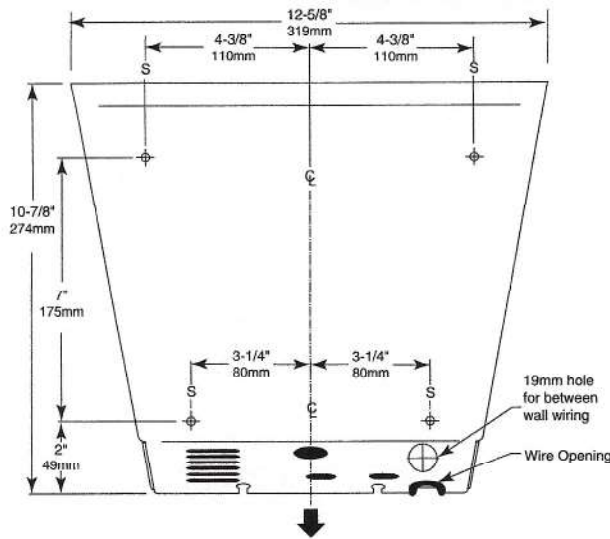
### Universal Voltage:

- 110V-240V, 0.8-1.9 AMP, 50/60 Hz, 202-213 Watts, cULus Listed and CE marked.

### \*RECOMMENDED MOUNTING HEIGHTS

Children's Washrooms, ages 3-4	36"	(915mm)
Children's Washrooms, ages 5-8	40"	(1015mm)
Children's Washrooms, ages 9-12	44"	(1120mm)
Universal Design	40" - 48"	(1015 x 1219mm)

\*Bottom screw hole of mounting base to face floor



### MATERIALS:

**Cover** — 18-8, Type-304 stainless steel 1.2mm thick with #4 satin-finish vertical grain. Air-inlet is vandal-resistant. Cover projects no more than 4" (100mm) from wall and is secured to mounting base with two recessed socket button head cap screws.

**Mounting Base** — 1.5mm SECC punched and formed.

**Motor** — Brushless 24Vdc with built in thermal protection. Ball bearings. Operates at 40,000 RPM.

**Blower** — Backward curved radial bladed impeller in polycarbonate housing.

**Electronic Control** — Infrared sensor automatically turns dryer on when hands are held under air-outlet opening and across path of sensor. Remove hands from path of sensor and dryer stops. Electronic sensor has automatic shutoff approximately 85 seconds after dryer turns on if an inanimate object is placed across air-outlet opening. After inanimate object is removed, electronic sensor automatically resets itself and dryer operates normally.

continued . . .

## OPERATION:

Infrared sensor automatically turns dryer on when hands are held under air-outlet opening and across path of sensor. Remove hands from path of sensor and dryer stops. Electronic sensor has automatic shutoff approximately 85 seconds after dryer turns on if an inanimate object is placed across air-outlet opening. After inanimate object is removed, electronic sensor automatically resets itself and dryer operates normally.

**5-Year Limited Warranty** — In addition to Bobrick's one-year guarantee, Bobrick extends a limited 5-year warranty from the date of purchase on all parts for model B-7125. This warranty is limited to the repair or exchange of defective parts at the option of Bobrick and is only extended to the original owner of the installed unit against defects in factory workmanship or material under normal use and service.

## INSTALLATION:

**Wall preparation** — Locate mounting base on wall using template provided. For brick, stone, and concrete walls drill four 0.315" (8mm) holes to suit provided wall plugs 0.315" x 1-1/4" (8 x 45mm) and screws # 10 x 2" (4.8 x 50mm) long. See template for wall plug and screw installation details. For plaster or dry wall construction, provide concealed backing to comply with local building codes and secure with four #10 (4.8) round-head sheet-metal screws or 3/16" (5mm) toggle bolts (not furnished). Provide electrical service from nearest distribution panel to dryer mounting base in conformance with local electrical codes.

### Dryer Wiring Instructions:

1. For **115-Volt Dryers** — Connect ground wire to ground terminal marked  $\equiv$ , the black or hot wire to terminal marked L1, and neutral or white wire to terminal marked N.
2. For **208-240-Volt Dryers** — Connect ground wire to ground terminal marked  $\equiv$  and the 208- or 240-volt wires to terminal marked L1 and L2.
3. This is a class 1 product and requires grounding.

**Notes:** Electronic sensor in Automatic dryers will pick up movement within 6" (150mm) of the air-outlet opening. Use caution when choosing location for Automatic dryers in confined areas. Consider proximity to doorways and other traffic areas. Bobrick automatic hand dryers should be installed at least 19-3/4" (500mm) above any projection or horizontal surface which may interfere with the operation of the automatic sensor.

### Replacement Parts:

Cover	7125-150
Controller	7125-25
Controller Loom (Wiring)	7125-30

## SAFETY WARNING:

**Installation and wiring must conform to current local regulations and building codes. Unit must be installed by a qualified electrician. Turn off electrical power supply before making electrical connections. If the unit fails or malfunctions, it should be disconnected from the power supply and a qualified electrician should be called. To avoid potential injury, the building owner or maintenance personnel should remove the unit from service if the grille is missing or damaged.**

## SPECIFICATION:

Surface-mounted high-speed hand dryer shall have an energy consumption of only 200 watts. Unit shall have 18-gauge (1.2mm) thick Type-304 stainless steel cover with #4 satin finish vertical grain. The slim profile cover shall project no more than 3 7/8" (98mm) from the finished face of wall to comply with accessible design guidelines (including ADAAG in the U.S.A.) and have a dry time of less than 12 seconds. Dryer shall be universal, to accommodate voltages between 110-240V. Dryer shall be secured to concealed mounting bracket with vandal-resistant screws. Electronic sensor automatically turns dryer on when hands are held under air-outlet opening and across path of sensor. Dryer turns off automatically when hands are removed. Sensor automatically shuts dryer off approximately 85 seconds after dryer turns on if an inanimate object is placed across air-outlet opening. After object is removed, electronic sensor automatically resets itself and dryer operates normally. Unit is cULus listed and is CE marked. Dryer has a limited 5-year warranty on all parts.

**InstaDry Surface-Mounted Automatic Hand Dryer shall be Model B-7125 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.**

2/2

Lavatory



## Wash-Ware® Solid Surface ELSC Series

Solid Surface Ellipse™ Wall Mounted Hand Wash Basin



ELSC1-SW000-F60



ELSC2-SW000-F60



Fixture May Show Some Available Accessories

Please visit [www.acorneng.com](http://www.acorneng.com) for most current specifications.

### Solid Surface Ellipse™ Wall Mounted Hand Wash Basin - ADA Compliant

Acorn's Solid Surface Wall Mounted Hand Wash Basin is designed to assist with public safety in areas where hand washing facilities is required. The cost-effective design saves on space and is ideal for use in public buildings of all types to expand the number of existing Hand Wash Stations. Unit conforms with ADA Guidelines.

**Basin** is constructed of Corterra® solid surface polymer resin and is Greenguard Gold listed. Unit is wall mounted and available in widths to accommodate one to two persons. Deck is pre-drilled at each station with (3) hole 4" Centerset Faucet which is optionally available. Basin drainage is designed to accept an 1-1/2" Drain Assembly. The Trap Cover is fabricated from 16 gauge, type 304 stainless steel, both with exposed surfaces polished to a #4 satin finish.

**Faucet** selections are optionally available and include: Single Temp Battery Powered Sensor Operated Faucet with Stainless Steel "J" Spout and Deck Plate for 4" Centerset punching; Hot and Cold Gooseneck Spout with Wrist Blade Handles; Hot and Cold Sink Spout with Wrist Blade Handles; Single Temp Pushbutton Metering Spout and Deck Plate for 4" Centerset punching. Faucets are intended for 4" Centerset punching provided on Basin Deck. All Faucets meet NSF and Lead-Free Standards and include a 0.5 GPM (1.9 LPM) Flow Control.

**Enviro-Glaze Powder Coated Color** is optionally available to provide a functional alternative to stainless steel finish and is provided for Trap Cover.

**Additional Available Options:** a Daisy (Drain) Strainer with Tailpiece and a P-Trap Assembly made of Plastic or Chrome Plated Brass.

**Units comply with** Uniform Plumbing Code (UPC®), National Plumbing Code of Canada (cUPC®) and ASME A112.19.3.

1/2



# Wash-Ware® ELSC Series: Ellipse™ Wall Mounted Hand Wash Basin

## MODEL NUMBER AND OPTIONS SELECTION

### BASE MODEL NUMBER

**ELSC1** Ellipse™ Hand Wash Basin, 1 User, 28-3/4" Wide

**ELSC2** Ellipse™ Hand Wash Basin, 2 User, 52" Wide

### CORTERRA® COLOR OPTIONS (Must Specify)

Color: \_\_\_\_\_

(Refer to <https://www.acorneng.com/corterra-solid-surface> for available colors)

### Faucets (Optional, Qty (1) provided for each station)

- SW000-F50 H&C Wristblade Faucet, Gooseneck Spout
- SW000-F51 H&C Wristblade Faucet, Spout
- SW000-F60 S/T Sensor Operated Faucet, J Spout, Plate
- SW000-F70 S/T Pushbutton Metering Faucet, Plate

### Options

- BKS Backsplash (Shipped Loose)
- EG Enviro-Glaze® Color Trap Cover  
Specify Color: \_\_\_\_\_

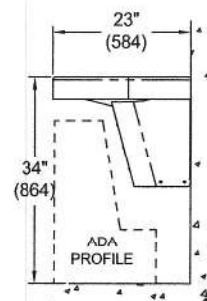
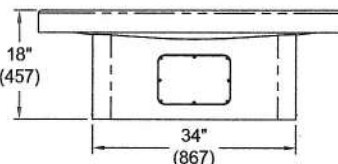
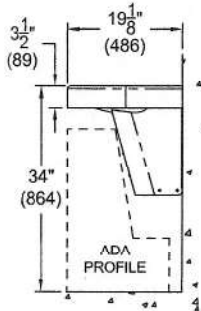
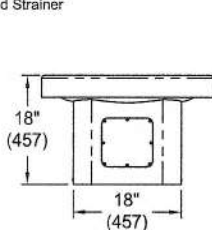
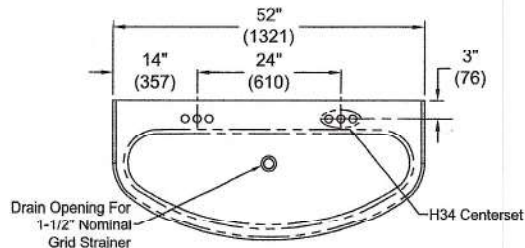
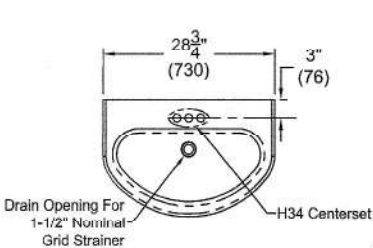
### Soap Dispenser (Qty (1) provided for each station)

- PS1000-PS Pump Soap Dispenser
- PS1000-SSO Sensor Operated Soap Dispenser

### Accessories

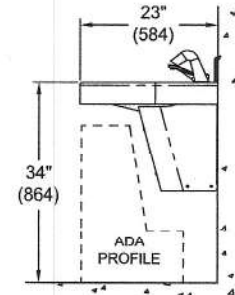
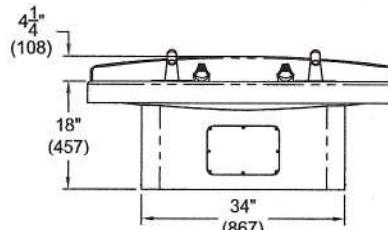
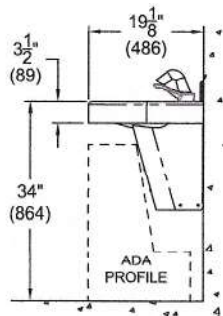
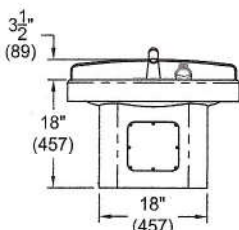
- SW000-PT Daisy Strainer, Tailpiece, 1-1/2" P-Trap, Plastic
- SW000-PTC Daisy Strainer, Tailpiece, 1-1/2" P-Trap, Chrome

Please visit [www.acorneng.com](http://www.acorneng.com) for most current specifications.



ELSC1

ELSC2



ELSC1-SW000-F60-PS1000-PS-BKS

ELSC2-SW000-F60-PS1000-PS-BKS

**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Important:** Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions.

Dimensions are subject to manufacturer's tolerance of plus or minus 1/4" and change without notice. Acorn assumes no responsibility for use of void or superseded data. © Copyright 2007 Acorn Engineering Company

### Selection Summary

Model No. & Option \_\_\_\_\_  
Quantity \_\_\_\_\_

### Approved for Manufacturing

Company \_\_\_\_\_ Title \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

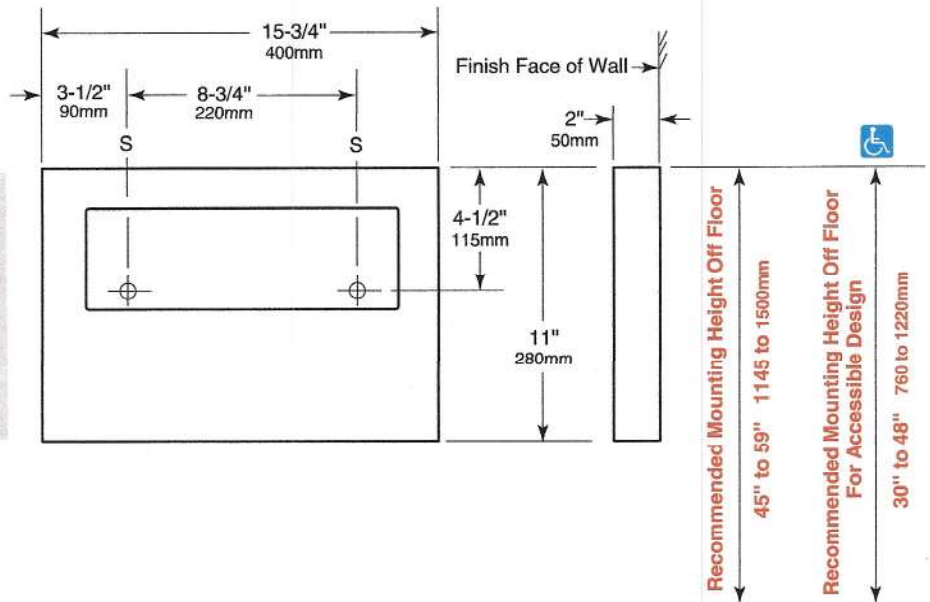
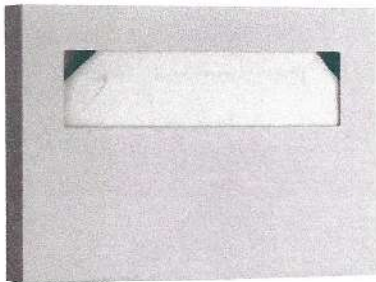
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Technical Data

# ClassicSeries® SURFACE-MOUNTED SEAT-COVER DISPENSER

# B-221



### MATERIALS:

18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. All-welded construction with beveled opening.

### OPERATION:

Dispenses single- or half-fold paper toilet seat covers from beveled opening. Dispenser fills from bottom through concealed opening. Capacity: 250 toilet seat covers or one box.

### INSTALLATION:

Mount unit on wall or toilet partition with two flat-head screws, not furnished by manufacturer, at points indicated by an S. For plaster or dry wall construction, provide concealed backing that complies with local building codes, then secure unit with flat-head screws not furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with screws, not furnished, or provide 1/8" (3mm) toggle bolts or expansion bolts.

**Note:** Provide a 5" (125mm) minimum clearance from bottom of dispenser to top of any horizontal projection to provide room for filling dispenser from bottom.

### SPECIFICATION:

Surface-mounted toilet-seat-cover dispenser shall be type-304, 22-gauge (0.8mm) stainless steel with all-welded construction; exposed surfaces shall have satin finish. Dispenser shall have a concealed opening in bottom for filling. Capacity shall be 250 paper toilet seat covers or one box.

Surface-Mounted Seat-Cover Dispenser shall be Model B-221 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

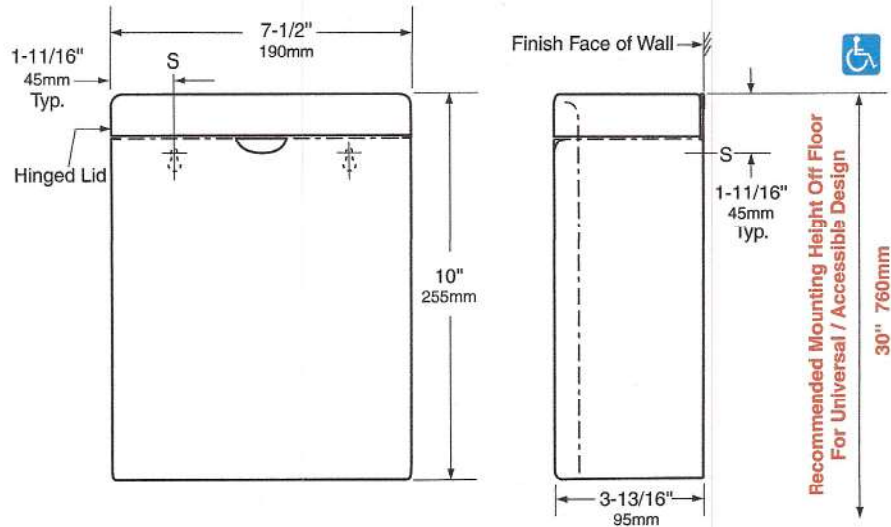
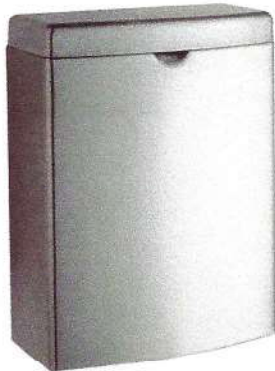
1/1





## ConturaSeries® SURFACE-MOUNTED SANITARY NAPKIN DISPOSAL

# B-270



### MATERIALS:

**Container** — 18-8, type-304, 22-gauge (0.8mm) stainless steel. All-welded construction. Exposed surfaces have satin finish. Integral finger depression for opening cover. Front of container has same degree of arc as front of cover and other Bobrick ConturaSeries washroom accessories. Radius on side edges of container match corners and edges of cover and other ConturaSeries accessories.

**Cover** — 18-8, type-304, 22-gauge (0.8mm) stainless steel with satin finish. Drawn, one-piece, seamless construction. Front of cover has same degree of arc as front of container and other Bobrick Contura Series washroom accessories. Radius on corners and edges of cover match side edges of container and other Contura Series accessories. Secured to container with a full-length stainless steel piano-hinge.

### OPERATION:

Cover flips up for disposal of sanitary napkins and for servicing container.

### INSTALLATION:

For partitions with particle-board or other solid core, secure with two #8 x 3/4" (4.2 x 19mm) sheet-metal screws (not furnished) at all points indicated by an S, or provide through-bolts, nuts, and washers.

For hollow-core metal partitions, provide solid backing into which sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.

For masonry walls, provide fiber plugs or expansion shields for use with sheet-metal screws, or provide 3/16" (5mm) toggle bolts or expansion bolts.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure unit with sheet-metal screws.

### SPECIFICATION:

Surface-mounted sanitary napkin disposal shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Front of sanitary napkin disposal shall have same degree of arc and match other Bobrick ConturaSeries accessories in the washroom. Radius on corners and edges of sanitary napkin disposal shall complement other Bobrick ConturaSeries washroom accessories. Cover shall be drawn, one-piece, seamless construction and secured to container with a full-length stainless steel piano-hinge. Container shall have integral finger depression for opening cover.

Surface-Mounted Sanitary Napkin Disposal shall be Model B-270 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.



# Z415B

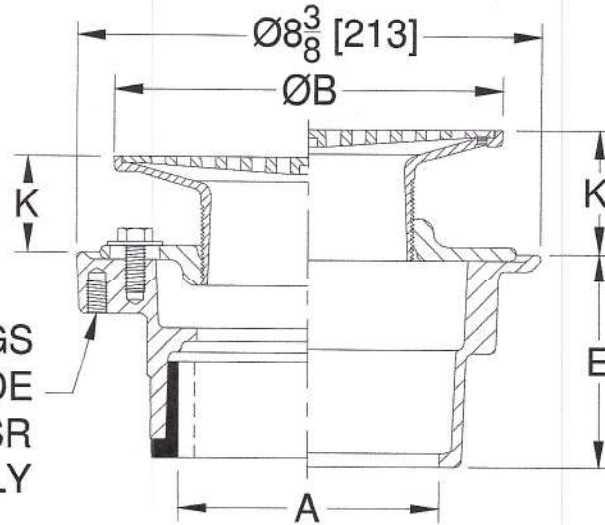
## BODY ASSEMBY W/ "TYPE B" STRAINER

Drain

SPECIFICATION SHEET

TAG \_\_\_\_\_

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



FOUR 3/8-16NC TAPPINGS PROVIDED ON UNDERSIDE FOR -SA, -SQ, AND -SR SUFFIX OPTIONS ONLY

Dimensions in In [mm]						Approx. Wt. Lbs. [kg]	Strainer Open Area Sq. In. [cm <sup>2</sup> ]
A Pipe Size	B Strainer Dia.	K		K'			
		Min.	Max.	Min.	Max.		
2,3 [51,76]	5 [127]	1 [25]	1-1/2 [38]	1-3/32 [28]	2-1/4 [57]	11 [5]	6-1/4 [40]
2,3,4 [51,76,102]	6 [152]	1 [25]	1-25/32 [45]	1-13/32 [36]	2-17/32 [64]	13 [6]	9 [58]
2,3,4 [51,76,102]	7 [178]	1 [25]	2-1/8 [54]	1-23/32 [44]	2-7/8 [73]	14 [6]	12 [77]
3,4 [76,102]	8 [203]	1-5/32 [30]	2-1/8 [54]	1-3/4 [44]	2-7/8 [73]	16 [7]	19 [123]
6 [152]	8 [203]	1-5/32 [30]	2-1/8 [54]	1-3/4 [44]	2-7/8 [73]	18 [8]	19 [123]
6 [152]	10 [254]	1-7/16 [37]	2-1/2 [64]	2 [51]	3-1/4 [83]	22 [10]	23 [148]

**ENGINEERING SPECIFICATION: ZURN ZN415B**

Floor and shower drain, Dura-Coated cast iron body with bottom outlet, combination invertible membrane clamp and adjustable collar with seepage slots and "TYPE B" polished nickel bronze, light-duty heel proof strainer.

**OPTIONS** (Check/specify appropriate options)

**PIPE SIZE**

- 2,3,4 [51,76,102]
- 2 [51]
- 3 [76]
- 4 [102]
- 6 [152]
- 2,3,4 [51,76,102]
- 2,3,4 [51,76,102]

(Specify size/type) **OUTLET**

- \_\_\_\_\_ IC Inside Caulk
- \_\_\_\_\_ IP Threaded
- \_\_\_\_\_ IP Threaded
- \_\_\_\_\_ IP Threaded
- \_\_\_\_\_ IP Threaded
- \_\_\_\_\_ NH No-Hub
- \_\_\_\_\_ NL Neo-Loc

**'E' BODY HT. DIM.**

- 4-3/16 [106]
- 2-7/16 [62]
- 2-3/4 [70]
- 2-13/16 [71]
- 2-7/8 [73]
- 3-13/16 [97]
- 3-7/8 [98]

**PREFIXES**

- ZB D.C.C.I. Body Assembly w/ Polished Bronze Top
- ZN D.C.C.I. Body Assembly w/ Polished Nickel Bronze Top\*

**SUFFIXES**

- AR Acid Resisting Epoxy Coated Cast Iron
- CP Chrome-Plated Bronze Top
- G Galvanized Cast Iron
- HD Heavy-Duty Slotted Grate (ZN 5,6 [127,152] Sizes Only)
- OF Oval Funnel (Z329-7) (7, 8, 10 [178, 203, 254] Strainers Only)
- P Trap Primer Connection (Specify 1/2 [13] or 3/4 [19])
- PC Protective Cover
- SA Stabilizer Assembly (See Z1035)
- SQ Stabilizer Q-Deck (See Z1035-Q)

- SR Stabilizer Ring
- TC Neo-Loc Test Cap Gasket (2,3,4 [51,76,102] NL Outlet Only)
- U 1-3 [25-76] High Extension Adapter
- V Backwater Valve
- VP Vandal-Proof Secured Top
- Y Sediment Bucket
- 4 4 [102] Diameter Funnel (Z328)
- 90 90° Threaded Side Outlet Body Assembly (2,3 [51,76] Only)

\* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | Specification Drainage Operation  
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Rev. W  
Date: 09/27/19  
C.N. No. 142019  
Prod. | Dwg. No. Z415B

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# Standard Duct Heaters

## Open Coil

### QUA Slip-In and QUZ Flanged Heaters

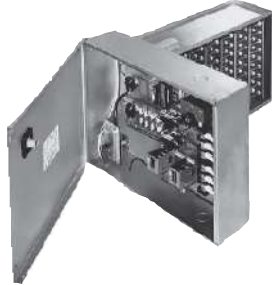


Figure 44.

INDEECO has developed QUA (Figure 44) and QUZ (Figure 46) heater lines to satisfy most typical space heating requirements, simplifying specification, ordering and delivery.

Both standard and quick ship delivery programs are available for the full line of QUA and QUZ heaters.

### KW Ratings

QUA and QUZ heaters are available up to 456 KW. The KW ratings are limited both by frame size and electrical characteristics. Heater availability can be determined by contacting an INDEECO representative, who can provide a computerized heater selection with exact heater dimensions in minutes.

### Frame Sizes

The use of a standard open coil QUA slip-in heater will both reduce cost and permit rapid shipment. QUA frame sizes range from the smallest at 8" wide by 6" high to the largest 48" wide by 40" high or 72" wide by 30" high. The QUA offering has been opened up to allow for any duct size in between these sizes and includes fractional widths and heights dimensions (i.e., 24.625" by 17.25"). INDEECO can manufacture a custom slip-in frame size if your requirements exceed the QUA offering.

**The 80% Rule** — INDEECO recommends the heater should occupy at least 80% of the actual inside area of the duct, as shown in Figure 45. Only small amounts of air will bypass the heater around its perimeter and normal turbulence will rapidly mix this unheated air with heated air downstream.

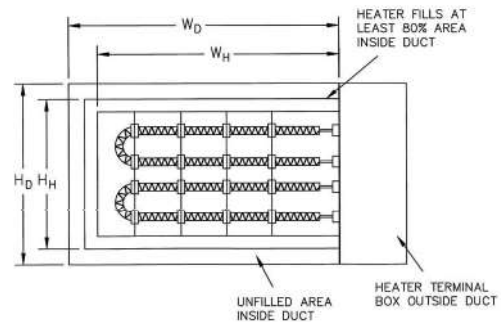


Figure 45.

All QUA heaters may be installed in ducts with up to 1" of interior lining, but the heater must be selected to fit the inside duct dimensions. For example, to fit a duct with 36" x 16" outside dimensions, but with 1" of interior insulation, specify a 35" x 14" heater.

QUZ flanged open coil heater frame sizes range from the smallest at 8" wide by 6" high to the largest at 48" wide by 38" high or 72" wide by 28" high or any duct size in between these sizes (i.e., 35.75" by 27.75"). QUZ cannot be used with interior lined ducts. If you require a frame size not offered by the QUZ then INDEECO can manufacture a custom frame size to meet virtually any application.

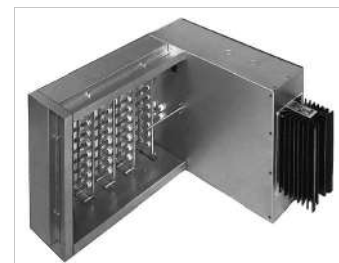


Figure 46.

# Standard Duct Heaters

## Open Coil

Table VII

Commonly used duct widths and heights are shown in the charts below, in-between widths and heights are also available as standard QUA (slip-in) and QUZ (flanged) duct heaters.

### Sizes and Maximum KW Ratings

		Duct Height											
		6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	40"
Duct Width	8"	6	9	12	16	19	22	25	28	35	45	54	61
	10"	8	12	16	20	24	28	33	37	45	57	70	78
	12"	10	15	20	25	30	35	40	45	55	70	85	96
	14"	11	17	23	29	35	41	47	53	65	83	101	113
	16"	13	20	27	34	41	48	55	62	75	96	117	131
	18"	15	23	31	39	46	54	62	70	85	109	132	148
	20"	17	26	34	43	52	61	69	78	96	122	148	165
	22"	19	28	38	48	57	67	77	86	106	135	164	183
	24"	21	31	42	52	63	74	84	95	116	148	179	200
	26"	22	34	45	57	68	80	91	103	126	160	195	218
	28"	24	37	49	62	74	86	99	111	136	173	211	235
	30"	26	39	53	66	79	93	106	119	146	186	226	253
	32"	28	42	57	71	85	99	114	128	156	199	242	270
	34"	30	45	60	75	91	106	121	136	166	212	257	288
	36"	32	48	64	80	96	112	128	144	176	225	273	305
	38"	34	51	68	85	102	119	136	153	187	238	289	323
	40"	35	53	71	89	107	125	143	161	197	251	304	340
	42"	37	56	75	94	113	131	150	169	207	263	320	358
	44"	39	59	79	98	118	138	158	177	217	276	336	375
	48"	43	64	86	108	129	151	172	194	237	302	367	410
54"	48	73	97	121	146	170	194	219	268	341	—	—	
60"	54	81	108	135	162	189	216	244	298	379	—	—	
66"	59	89	119	149	179	209	239	268	328	418	—	—	
72"	65	97	130	163	195	228	261	293	359	456	—	—	

### Type QUA Slip-in Heater

Maximum KW ratings in available frame sizes shown at left.

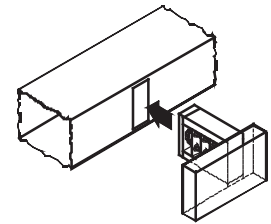


Figure 47.  
Installation of  
Slip-in Heater

		Duct Height											
		6"	8"	10"	12"	14"	16"	18"	22"	28"	30"	34"	38"
Duct Width	8"	11	14	18	22	25	29	33	40	51	55	62	69
	10"	13	18	22	27	32	36	41	50	64	68	78	87
	12"	16	22	27	33	38	44	49	60	77	82	93	104
	14"	19	25	32	38	45	51	57	70	90	96	109	122
	16"	22	29	36	44	51	58	66	80	102	110	125	139
	18"	24	33	41	49	57	66	74	91	115	124	140	157
	20"	27	36	45	55	64	73	82	101	128	137	156	174
	22"	30	40	50	60	70	80	91	111	141	151	171	192
	24"	33	44	55	66	77	88	99	121	154	165	187	209
	26"	35	47	59	71	83	95	107	131	167	179	203	227
	28"	38	51	64	77	90	102	115	141	180	193	218	244
	30"	41	55	68	82	96	110	124	151	193	206	234	262
	32"	44	58	73	88	102	117	132	161	205	220	250	279
	34"	46	62	78	93	109	125	140	171	218	234	265	296
	36"	49	66	82	99	115	132	148	182	231	248	281	314
	38"	52	69	87	104	122	139	157	192	244	262	296	331
	40"	55	73	91	110	128	147	165	202	257	275	312	349
	42"	57	77	96	115	135	154	173	212	270	289	328	366
	44"	60	80	101	121	141	161	182	222	283	303	343	384
	48"	66	88	110	132	154	176	198	242	308	331	375	419
54"	74	99	124	148	173	198	223	273	347	—	—	—	
60"	82	110	137	165	193	220	248	303	386	—	—	—	
66"	91	121	151	182	212	242	273	333	424	—	—	—	
72"	99	132	165	198	231	264	297	364	463	—	—	—	

### Type QUZ Flanged Heater

Maximum KW ratings in available frame sizes shown at left.

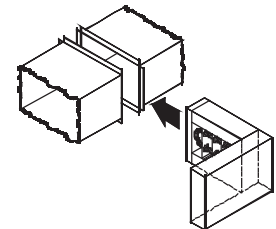


Figure 48,  
Installation of  
Flanged Heater

Note: Maximum KW ratings may vary based on voltage and phase combination.

# Standard Duct Heaters

## Open Coil

### Detail Dimensions

The wide variety of QUA and QUZ (Figures 47 and 48) heaters makes it impractical to list the exact heater dimensions for every possible heater. For dimensional details, contact your local INDEECO representative.

### Voltage and Phase

Heaters are available in the voltage and phase combinations shown below. All are for operation at 50 or 60 Hz.

When three-phase is specified, each heating stage will be furnished with a multiple of three elements to give a balanced three-phase load.

Voltage	120 208 240 277	208 240 380 400 415 480 600
Phase	1	3

### Control Circuit Options & Special Features

QUA and QUZ heaters are available with Control Options G, J and K and a full range of Special Features. These are described briefly in **Table VIII** and in more detail in the standard Control Options section of this catalog, pages 10 and 11.

### Number of Heating Stages

Single and three-phase QUA and QUZ heaters are available with multiple heating stages. To comply with our UL and NEC maximum circuit sizes, no stage is rated at more than 48 amps.

**Table VIII**  
**Control Options**

Control Option	Disconnect Switch	Thermal Cutouts	Airflow Switch	Contactors	Control Transformer	Fuses	PE Switches	SCR	Thermostat
G Basic	■	■	■	■	■	■ <sup>1</sup>			
J Pneumatic	■	■	■	■ <sup>2</sup>	■ <sup>3</sup>	■ <sup>1</sup>	■		
K Proportional	■	■	■	■ <sup>2</sup>	■	■ <sup>1</sup>		■	■ <sup>4</sup>

Notes: 1- Fuses supplied only on heaters over 48 amps.  
 2- Contactors supplied only when other devices cannot carry heater load.  
 3- Transformer only supplied on heaters rated higher than 277 volts.  
 4- Choice of room or duct thermostat, 135 ohms, 2200 ohms, 0=10 VDC or 4=20 mA inputs.  
 See pages 12 and 13 for full description of thermostats.

# Standard Duct Heaters

## Open Coil

### Special Features

While QUA slip-in and QUZ flanged heaters may be specified with one of the standard control circuit options, individual job requirements may demand slight variations from the standards. The most common variations are covered by INDEECO's set of Special Features which may be used to

modify QUA/QUZ heaters both mechanically and electrically. These are listed in **Table IX** with a brief description, availability, and notes on any limitations of their use.

**Table X** provides a summary of thermostats offered with INDEECO QUA/QUZ heaters. See pages 12 and 13 for more detailed descriptions.

**Table IX**

Special Features	Special Feature Code	Description	Page Ref.	Availability & Limitations
<b>Mechanical</b>				
Horizontal Airflow	U8	Allows heater to be used in applications where airflow is either right (U4) or left (U6)	23	Available on all heaters.
Vertical Airflow	U9	Allows heater to be used in applications where airflow is either vertical up (U3) or vertical down (U5)	23	Available on all heaters.
Pressure Plate	V1	40% open perforated plate installed onto the inlet side of the heater frame to help even out irregular airflow patterns.	35	Available on all heaters. Exact airflow direction must be specified U3, U4, U5 or U6.
Protective Screen	V/V2	Wire mesh screen for attachment to the heater frame. Can be furnished for one or both sides.	36	Available on all heaters. Screens are shipped loose for field installation.
Stainless Steel Frame and Terminal Box	H2	Heater frame and terminal box constructed of 304 stainless steel.		Available on all heaters.
Aluminized Steel Frame and Terminal Box	H1	Heater frame and terminal box constructed of aluminized steel.		Available on all heaters.
Insulated Duct Construction for Slip-in Heaters	GG2	Used in ducts lined with more than 1" thick interior insulation. Inside duct dimensions and insulation thickness must be specified. Maximum 6" thick lining.	36	Available with QUA heaters only.
Unheated Sections	G2	Extended terminal pins to provide an unheated section adjacent to the heater terminal box. Maximum extended terminal pin length of 6".	36	Available on all heaters.
Substitute Negative Pressure Switch	Q5/Q6	Allows heater to be used on inlet side of fan.	15	Available on all heaters.



# Standard Duct Heaters

## Open Coil

Table IX (continued)

Special Features	Special Feature Code	Description	Page Ref.	Availability & Limitations
<b>Mechanical (cont.)</b>				
Right/Down Terminal Box Overhang	L4/L5	Heater will be supplied with terminal box overhang on right (if horizontal airflow installation) or downward (if vertical airflow installation).	23	Available on all heaters.
Insulated Terminal Box	B2	Prevents condensation inside terminal box when heater is installed in air conditioning duct running through un-airconditioned area.	35	Available on all heaters.
Dust-Tight Terminal Box	B7	Allows installation in dusty areas and satisfies local codes requiring dust-tight box, if installed in area used as return air plenum.	34	Available on all heaters.
Remote Panelboard	B5	All controls except thermal cutouts, airflow switch and pilot switch will be supplied in a separate NEMA 1 panelboard.	37	Available on all heaters except when transformer and contactors are deleted.
<b>Electrical</b>				
Add "Stage On" Pilot Light(s)	P1	To indicate when each heating stage is producing heat.	17	Available on all heaters except Option K SCR stages.
Add "Low Airflow" and "Heater On" Pilot Lights	P2, P3	Separate pilot lights to indicate that power has been supplied to the heater, that it is ready for operation, and whether airflow has been interrupted.	17	Available on all heaters. When fan relay has been substituted for airflow switch, only "Heater On" will be supplied.
Fan Relay	N(000)	When static pressure in the duct is too low (below .07" WC) to operate the airflow switch or when airflow switch is not desired, (000) denotes holding coil 24, 120, 208, 240, or 277 volts.	15	Available on Option G & K heaters except Option G heaters where deletion of contactors and transformers is specified.
Add INDEECO Electronic Step Controller	S	Allows better temperature control of high capacity heater by using multiple stages controlled by electronic thermostat and step controller.	19-20	Only available on Option G heaters with 2 or more heating stages.
Low Watt Density Coils	D3, D4	To meet specifications which call for low watt density coils.		Available on all heaters.
Add Built-in PE Transducer	E32, S19	To allow for pneumatic control.	13	Available on Option K heaters or Option G heaters with step controller and 5 or more stages.
Transformer Primary Fusing	T1	Add transformer primary fusing.		Available with all heaters with built-in transformer.

# Standard Duct Heaters

## Open Coil

Table IX (continued)

Special Features	Special Feature Code	Description	Page Ref.	Availability & Limitations																					
<b>Electrical (cont.)</b>																									
Delete Transformer		Allows control circuit to be obtained from source outside the heater or, when line voltage is equal to control voltage, directly from power lines within the heater.	16	Only available on Option G heaters, Must be specified if control voltage is not 120 or 24 volts. Customer must specify control volts,																					
Delete Transformer & Contactors		Allows for control of heater directly using load carrying thermostats.	16	Available only on single stage, single-phase, Option G heaters with KW not exceeding the following. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Voltage</td> <td style="text-align: center;">120</td> <td style="text-align: center;">277</td> </tr> <tr> <td style="text-align: center;">Max. KW</td> <td style="text-align: center;">1.8</td> <td style="text-align: center;">4.1</td> </tr> </table>	Voltage	120	277	Max. KW	1.8	4.1															
Voltage	120	277																							
Max. KW	1.8	4.1																							
Transformer Secondary Fusing	T3	External fused and grounded transformer secondary for Class II 24 volt control circuits.		Available on all heaters.																					
Additional User Control Circuit Voltage		Heater control circuit transformer sized for additional user VA. A control terminal block is furnished for field connection.		Available on all heaters. Consult factory for 1 week or 72 hour heater availability.																					
Delete Disconnect		Allows for use of field installed disconnecting means. (Must be within sight of the heater.)	16	Available on all heaters.																					
Fused Disconnect Switch	Q1	Door interlocking disconnect with line fusing for heaters loads up to 48 amps or less.	16	Available on all heaters.																					
Linear Limit Automatic Reset Thermal Cutout	Z/Z1	Automatic reset linear limit thermal cutout wired in series with the disc type automatic reset to provide redundant primary over temperature protection.	14	Available on all heaters. Exact airflow direction must be specified U3, U4, U5 or U6.																					
Add Fuses for Heaters Rated 48 Amps or Less	F1	Allows for addition of one set of fuses to low amperage heaters that do not need internal fusing to meet UL and NEC requirements	16	Available on all heaters whose KW is lower than or equal to the following. (Other heaters include fusing as standard): <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Line Volts</th> <th colspan="2" style="text-align: center;">KW (at 48 amps)</th> </tr> <tr> <td></td> <th style="text-align: center;">1 Phase</th> <th style="text-align: center;">3 Phase</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">120</td> <td style="text-align: center;">5.7</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">208</td> <td style="text-align: center;">9.9</td> <td style="text-align: center;">17.2</td> </tr> <tr> <td style="text-align: center;">240</td> <td style="text-align: center;">11.5</td> <td style="text-align: center;">19.9</td> </tr> <tr> <td style="text-align: center;">277</td> <td style="text-align: center;">13.2</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">480</td> <td style="text-align: center;">23.0</td> <td style="text-align: center;">39.9</td> </tr> </tbody> </table>	Line Volts	KW (at 48 amps)			1 Phase	3 Phase	120	5.7	-	208	9.9	17.2	240	11.5	19.9	277	13.2	-	480	23.0	39.9
Line Volts	KW (at 48 amps)																								
	1 Phase	3 Phase																							
120	5.7	-																							
208	9.9	17.2																							
240	11.5	19.9																							
277	13.2	-																							
480	23.0	39.9																							



# Standard Duct Heaters

## Open Coil

Table X

Summary of Thermostats Available with Option G or K Heaters (No Thermostats are supplied on Option J Heaters)

Type of Thermostat		Used with Control Option	Catalog Number	Comments	
ROOM	Pilot Duty	1 Stage	G	1006998 (Fig.11)	Rated for 30 volts max, Offered with Duct Heater Selection
		1 Stage	G	1023721 (Fig. 12)	Digital Display, Rated for 30 volts max, Special Ordered
		2 Stage	G	1007030 (Fig. 13)	Digital Display, Rated for 30 volts max.
		2 or 3 Stage	G	1023723 (Fig. 14)	Programmable with Digital Display, Rated for 30 volts max.
	† Proportional Electronic		G or K	SCR Controlled or 2-4 Stages 1016941 (Fig.16) Vernier Controlled or over 4 Stages 1007101 (Fig.15)	With Option G, can be used only when step controller is also specified
DUCT	Pilot Duty	1 Stage	G	1023953 (Fig. 18)	Rated for 277 volts max.
		2 Stage	G	1007044 (Fig. 19)	Rated for 277 volts max.
	† Proportional Electronic		G or K	SCR Controlled or 2-4 Stages 1016942, 1016941 (Fig. 21) Vernier Controlled or over 4 Stages 101083, 101068 (Fig. 20)	With Option G, can be used only when step controller is also specified.
† No Thermostat (Special inputs for controller or SCR when customer supplied thermostat is used)		G or K	— — —	2200 ohm Input 135 ohm Input 4-20 mA Input 0-10 VDC Input	

†A thermostat or input must be specified with all Option K heaters and all Option G heaters with step controllers. Step controllers with 4-20 mA or 0-10 VDC will be furnished with proportional control.

# Standard Duct Heaters

## Open Coil

### QUA/QUZ – Sample Specification

A job specification can be prepared by using the following information. Simply darken the applicable circles. Material which is part of the basic specification has already been darkened. Additional copies of this specification guide are available from your local INDEECO representative.

- 1. Duct heaters shall be INDEECO
  - Type QUA Standard Slip-in Heaters
  - Type QUZ Standard Flanged Heaters
- 2. Approvals – Heaters and panelboards (if required) shall meet the requirements of the National Electrical Code and shall be listed by Underwriters Laboratories for zero clearance to combustible surfaces and for use with heat pumps and air conditioning equipment.
- 3. Heating elements shall be open coil, 80% nickel, 20% chromium, Grade A resistance wire. Type C alloys containing iron or other alloys are not acceptable. Coils shall be machine crimped into stainless steel terminals extending at least 1" into the airstream and all terminal hardware shall be stainless steel. Coils shall be supported by ceramic bushings staked into supporting brackets.
- 4. Heater frames and terminal boxes shall be corrosion resistant steel. Unless otherwise indicated, the terminal box shall be NEMA 1 construction and shall be provided with a hinged, latching cover and multiple concentric knockouts for field wiring.
- 5. All heaters shall be furnished with a disc type, automatic reset thermal cutout for primary over-temperature protection. All heaters shall also be furnished with disc type, load carrying manual reset thermal cutouts, factory wired in series with heater stages for secondary protection. Heat limiters or other fusible overtemperature devices are not acceptable.
- 6. Heaters shall be rated for the voltage, phase, and number of heating stages indicated in the schedule. All three-phase heaters shall have equal, balanced, three-phase stages. All internal wiring shall be stranded copper with 105°C insulation and shall be terminated in crimped connectors or box lugs.
- 7. Terminal blocks shall be provided for all field wiring and shall be sized for installation of 75°C copper wire rated in accordance with NEC requirements.
- 8. Heaters shall be furnished, either with the Control Option specified in the schedule and described below, or with the specific components listed in the schedule.
  - Option G – Thermal cutouts, airflow switch, contactors (where required), fuses (if over 48 amps), control circuit transformer (where required) and built-in, snap-acting, door interlocked disconnect switch.
  - Option J – Thermal cutouts, airflow switch, PE switches, contactors (where required), fuses (if over 48 amps), control circuit transformer (where required), and built-in snap-acting door interlocked disconnect switch.
  - Option K – Thermal cutouts, airflow switch, contactors (where required), SCR (with step controller if heater draws over 96 amps three-phase or 192 amps single-phase), fuses (if over 48 amps), control circuit transformer, and built-in snap-acting door interlocked disconnect switch.
- 9. When specified in the schedule, or below, heaters will be supplied with the following Special Features:
  - Airflow switch for negative pressure operation
  - Insulated terminal box
  - Dust-tight terminal box
  - Stainless steel frame and terminal box
  - Aluminized steel frame and terminal box
  - Insulated duct construction for slip-in heaters (>1" ≤6" thick lining)
  - Unheated section (≤6" terminal pin)
  - Pressure plate
  - Protective screen(s); ○ one side ○ both sides
  - Controls mounted in NEMA 1 remote panelboard
  - Deletion of transformer
  - Deletion of transformer and contactor
  - Transformer primary fusing
  - Transformer secondary fusing (Class II)
  - Additional user control circuit voltages (specify user VA)
  - Deletion of disconnect switch
  - Fused disconnect switch (≤ 48 amps)
  - Fusing for heaters rated 48 amps or less
  - "Low Airflow" pilot light
  - "Heater On" pilot light
  - Each "Stage On" pilot light(s)
  - Fan relay (instead of airflow switch)
  - Fan relay (in addition to airflow switch)
  - Step controller
  - Linear limit automatic reset thermal cutout
  - 25 watts per square inch resistance coils
  - 35 watts per square inch resistance coils
  - Built-in PE transducer
- 10. When specified in the schedule, or below, heaters shall be supplied with the following thermostats:
  - Pilot duty single stage room thermostat
  - Pilot duty digital display single stage room thermostat
  - Pilot duty two stage digital display room thermostat
  - Pilot duty two or three stage programmable with digital display room thermostat
  - Proportional electronic room thermostat
  - Pilot duty single stage duct thermostat
  - Pilot duty two stage duct thermostat
  - Proportional electronic duct thermostat with set point adjuster
  - Special inputs (135 ohms, 2200 ohms, 4-20 mA, 0-10 VDC)

**SUBMITTAL DATA: PEAD-A12AA7 & PUZ-A12NKA7**  
12,000 BTU/H HORIZONTAL-DUCTED HEAT-PUMP SYSTEM

Job Name:	Engineer:
Purchaser:	Application:
Submitted To:	For: <input type="checkbox"/> Reference <input type="checkbox"/> Approval <input type="checkbox"/> Construction
Submitted By:	Location:
System Designation:	Schedule No.:



**UNIT OPTION:**

- Standard Model.....PUZ-A12NKA7  
 Seacoast (BS) Model.....PUZ-A12NKA7-BS

**ACCESSORIES:**

**Indoor Unit**

- Filter Box (PAC-KE92TB-E)  
 External Heating Adaptor (PAC-YU25HT)

**Controls**

- Wireless Controller (MHK1)  
 Advanced Wired Controller (PAR-32MAA / PAR-33MAA)  
 Simple Wired Controller (PAO-YT53CRAU)  
 Wireless Remote Controller (PAR-FL32MA) + Wireless Signal Receiver (PAR-FA32MA)  
 Thermostat Interface (PAC-US444CN)  
 M-NET Adapter (PAC-SJ19MA-E)

**Outdoor Unit**

- Front Wind Guard (PFR-12-18)  
 Rear Wind Guard (PRE-12-18)  
 Side Wind Guard (PSD-12-18)

**Note: Mitsubishi Electric (MESCA) supports the use of only MESCA supplied and approved Snow Guard / Wind Deflectors / Windscreens and accessories for proper functioning of the unit(s). Use of non-MESCA supported Snow Guard / Wind Deflectors / Windscreens and accessories will affect warranty coverage.**

**SPECIFICATIONS:**

Rated Conditions (Capacity / Input)*		
Cooling	Btu/h / W	12,000 / 920
Heating at 47° F	Btu/h / W	14,000 / 1,030
Heating at 17° F	Btu/h / W	8,700 / 1,100

\* Rating Conditions per AHR Standard:  
Cooling: Indoor: 80° F (27° C) DB / 67° F (19° C) WB; Outdoor: 95° F (35° C) DB / 75° F (24° C) WB  
Heating at 47° F: Indoor: 70° F (21° C) DB / 60° F (16° C) WB; Outdoor: 47° F (8° C) DB / 43° F (6° C) WB  
Heating at 17° F: Indoor: 70° F (21° C) DB / 60° F (16° C) WB; Outdoor: 17° F (-8° C) DB / 15° F (-9° C) WB

Capacity Range		
Cooling	Btu/h	5,000 - 12,000
Heating at 47° F	Btu/h	5,800 - 18,000

Operating Range		
Cooling	0° F** (-18° C) to 115° F (46° C) DB	
Heating	12° F (-11° C) to 70° F (2° C) DB	

\*\* Windcreens required for cooling operation below 23° F (-5° C)

AHR Efficiency Rating	
EER	13.0
SEER	21.1
HSPF $\frac{W}{V}$ / $\frac{V}{V}$	10.2 / 7.5
COP at 47° F	3.98
COP at 17° F	2.31

Specifications are subject to change without notice.

Electrical Power Requirements	208 / 230V, 1-Phase, 60 Hz
-------------------------------	----------------------------

Minimum Circuit Ampacity (MCA) *	Breaker Size	MOCP (Outdoor)
Indoor 1.45 AMP	Outdoor 11 AMP	15 AMP
		28 AMP

\*All electrical work shall comply with National (CEC) and local codes and regulations.

Indoor Unit		
Blower Motor (ECM)	F.L.A.	1.16
Blower Motor Output	W	85
SHF / Moisture Removal		0.83 / 1.8 pt./h
External Static Pressure	In. WG	0.14-0.20-0.28-0.40-0.60
Drain Lift Mechanism (Included)	H: In.	27-9/16
		Drainpipe Size O.D [In. (mm)] = 1-1/4 (32)

Outdoor Unit		
Compressor		DC INVERTER-driven Scroll
Fan Motor (ECM)	F.L.A.	0.5
Fan Motor Power	W	46

Airflow Rate (Low-Mid-Hi)			
Indoor (Cooling)	DRY	CFM	353-424-494
	WET		313-384-454
Outdoor	DRY		1,590

Sound Pressure Level		
Indoor (Low-Mid-Hi)		28-30-34
Outdoor	Cooling	44
	Heating	46

External Dimensions		
Indoor (H x W x D)	In. (mm)	9-7/8 x 35-7/16 x 28-7/8 (250 x 900 x 732)
Outdoor (H x W x D)		24-13/16 x 31-13/16 + 7/16 x 11-3/16 (630 x 809 + 62 x 300)

Net Weight		
Indoor	Lbs. (kg)	58 (26)
Outdoor		93 (42)

External Finish	
Indoor	Galvanized-steel Sheet
Outdoor	Ivory Munsell No. 3Y 7.8 / 1.1

Refrigerant	R410A ; 4 Lbs., 7oz. (2.0kg)
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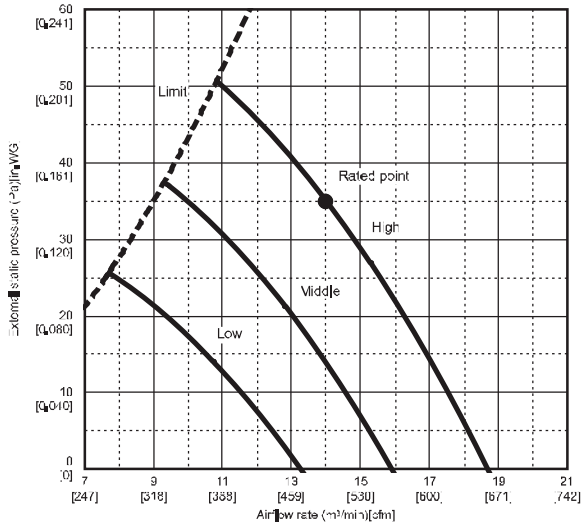
Refrigerant Piping (Flared)		
Liquid (High Pressure)	In. (mm)	1/4 (6.35)
Gas (Low Pressure)		1/2 (12.7)
Maximum Total Refrigerant Pipe Length	Fe. (m)	100 (30)
Maximum Vertical Separation	Fe. (m)	100 (30)

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# FAN PERFORMANCE AND CORRECTED AIR FLOW - PEAD-A12AA7

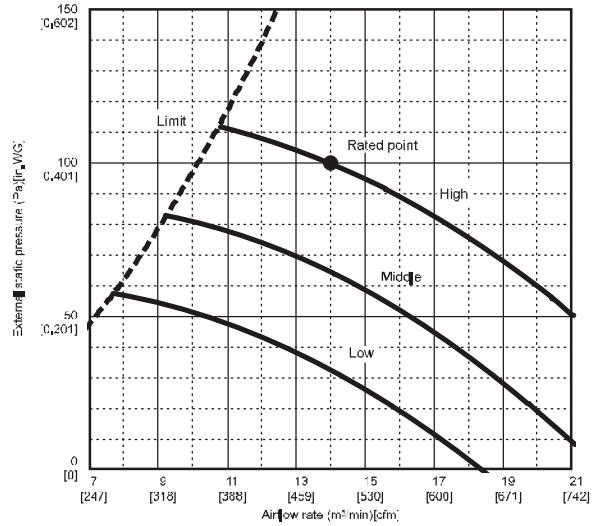
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(External static pressure 35Pa) 208-230V 60Hz



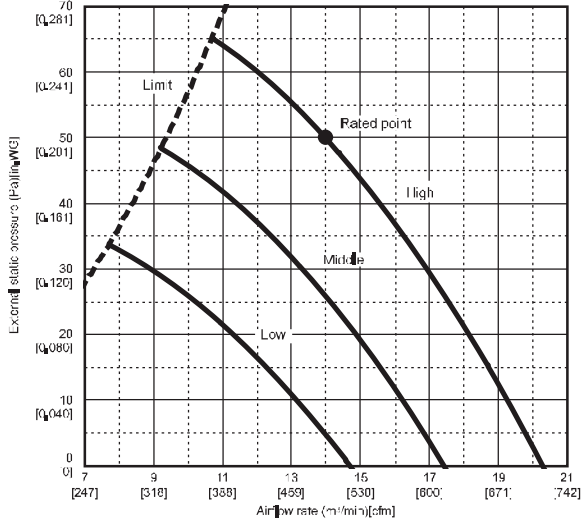
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(External static pressure 100Pa) 208-230V 60Hz



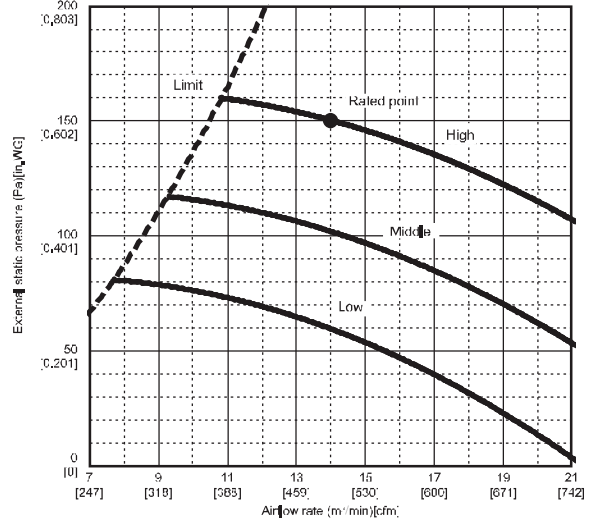
## PEAD-A12AA7

(External static pressure 50Pa) 208-230V 60Hz



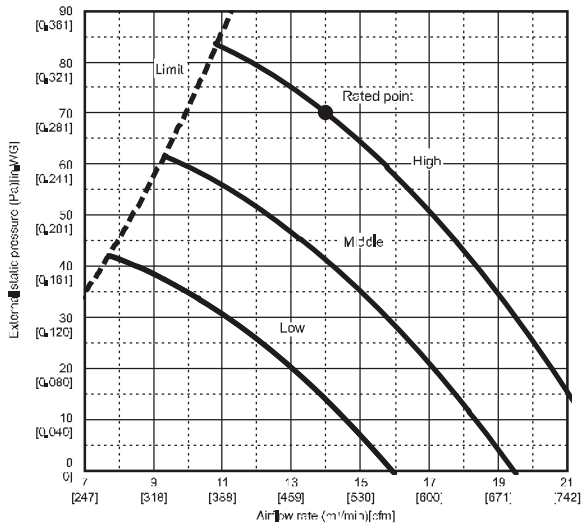
## PEAD-A12AA7

(External static pressure 150Pa) 208-230V 60Hz



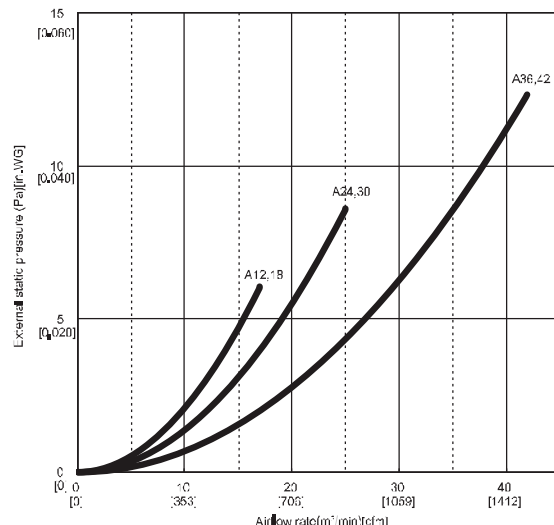
## PEAD-A12AA7

(External static pressure 70Pa) 208-230V 60Hz



## PEAD-A12,18,24,30,36,42AA7

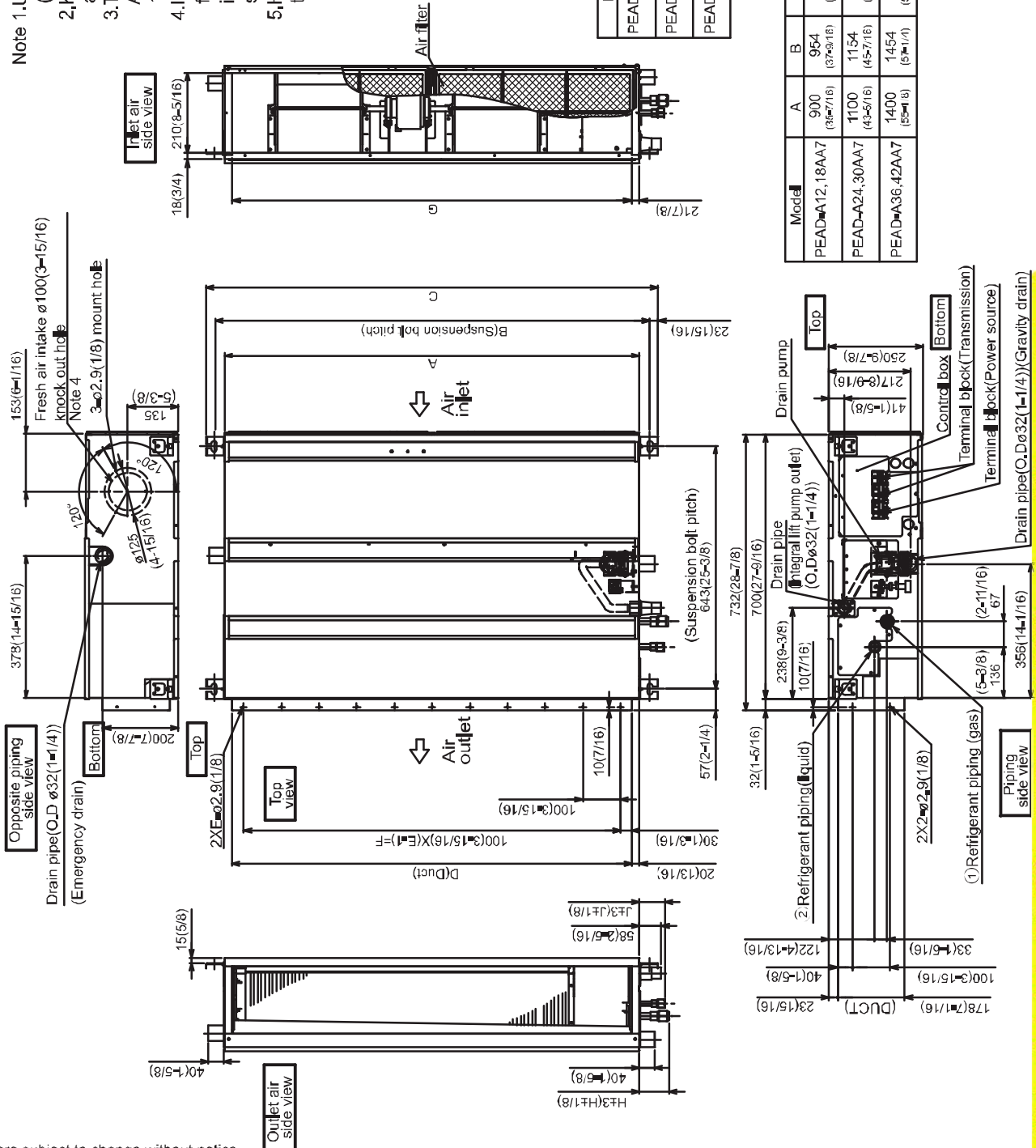
Air filter 208-230V 60Hz



# DIMENSIONS: PEAD-A12AA7

Unit: mm (in.)

- Note 1.** Use an M10 screw for the suspension bolt (field supply).
- 2.** Keep the service space for maintenance at the bottom.
- 3.** This drawing is for PEAD-A24-30-36-42 AA7 models, which have 2 fans. PEAD-A12-18AA7 models have 1 fan.
- 4.** If the inlet duct is used, remove the air filter (supplied with the unit), then install the filter (field supply) at the suction side.
- 5.** Heat air to 0°C (32°F) or higher when taking fresh air with a fresh air intake.



Model	J	① Gas pipe	② Liquid pipe
PEAD-A12,18AA7	62 (2-1/2)	ø12.7 (1/2)	ø6.35 (1/4)
PEAD-A24,30AA7	66 (2-5/8)	ø15.88 (5/8)	ø9.52 (3/8)
PEAD-A36,42AA7			

Model	A	B	C	D	E	F	G	H
PEAD-A12,18AA7	900 (35-7/16)	954 (37-9/16)	1000 (39-3/8)	860 (33-7/8)	9	800 (31-1/2)	858 (33-3/16)	72 (2-7/8)
PEAD-A24,30AA7	1100 (43-5/16)	1154 (45-7/16)	1200 (47-3/4)	1060 (41-3/4)	11	1000 (39-3/8)	1058 (41-11/16)	78 (3-1/8)
PEAD-A36,42AA7	1400 (55-1/8)	1454 (57-1/4)	1500 (59-1/16)	1360 (53-9/16)	14	1300 (51-3/16)	1368 (53-1/2)	

Specifications are subject to change without notice.

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# DIMENSIONS: PEAD-A12AA7

Unit: mm (in.)

**[Maintenance access space]**  
 Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.  
 Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

- (1) When a space of 300mm or more is available below the unit between the unit and the ceiling, (Fig.1)
  - Create access door 1 and 2 (450x450mm each) as shown in Fig.2.  
 (Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)
- (2) When a space of less than 300mm is available below the unit between the unit and the ceiling.  
 (At least 20mm of space should be left below the unit as shown in Fig.3.)
  - Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
  - OR
  - Create access door 4 below the control box and the unit as shown in Fig.5.

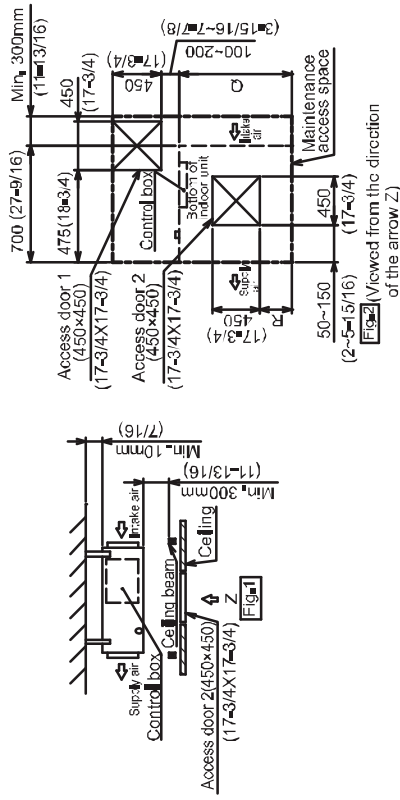
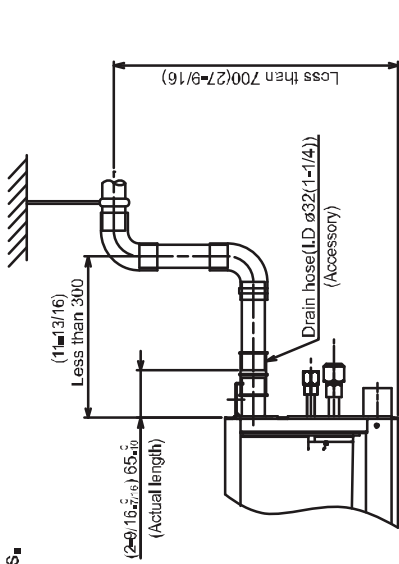


Fig.2 (Viewed from the direction of the arrow Z)

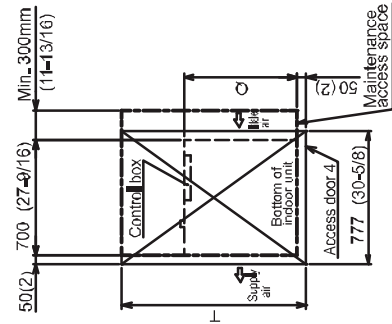


Fig.3 (Viewed from the direction of the arrow Y)

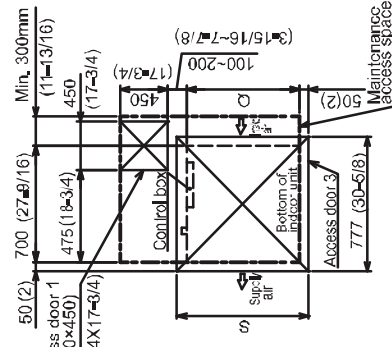


Fig.4 (Viewed from the direction of the arrow Y)

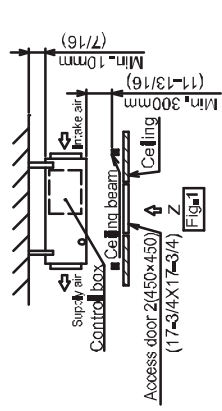


Fig.5 (Viewed from the direction of the arrow Z)

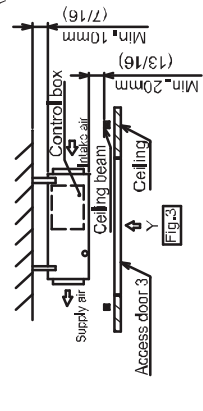
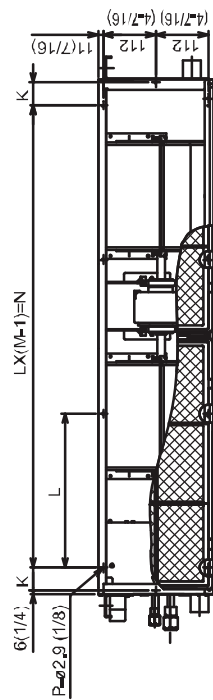


Fig.6 (Viewed from the direction of the arrow Y)



Model	K	L	M	N	P	Q	R	S	T
PEAD-A12-18AA7	54 (2-1/8)	280 (11-1/8)	4 (3/16)	780 (30-3/4)	10 (3/8)	900 (35-3/8)	150-250 (6-1/8 to 10-1/8)	1000 (39-3/8)	1500 (59-1/16)
PEAD-A24-30AA7	49 (1-15/16)	330 (13)	4 (3/16)	990 (39)	10 (3/8)	1100 (43-1/4)	250-350 (10-1/8 to 14-1/8)	1200 (47-1/4)	1700 (66-15/16)
PEAD-A36-48AA7	54 (2-1/8)	320 (12-5/8)	5 (5/16)	1280 (50-7/8)	12 (1/2)	1400 (55-1/8)	400-500 (15-3/8 to 19-1/8)	1500 (59-1/16)	2000 (78-3/4)

Unit:mm(in.)

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**SUBMITTAL DATA: PKA-A12HA7 & PUY-A12NKA7**  
12,000 BTU/H WALL-MOUNTED AIR-CONDITIONING SYSTEM

Job Name:	Engineer:
Purchaser:	Application: <input type="checkbox"/> Std. Cooling <input type="checkbox"/> Ultra Low Ambient Cooling
Submitted To:	For: <input type="checkbox"/> Reference <input type="checkbox"/> Approval <input type="checkbox"/> Construction
Submitted By:	Location:
System Designation:	Schedule No.:



Indoor Unit: PKA-A12HA7



Outdoor Unit: PUY-A12NKA7 (BS)

**UNIT OPTION:**

- Standard Model.....PUY-A12NKA7  
 Seacoast (BS) Model.....PUY-A12NKA7-BS

**ACCESSORIES:**

**Controls**

- Wireless Controller (MHK1)  
 Advanced Wired Controller (PAR-32MAA / PAR-33MAA)  
 Simple Wired Controller (PAC-1Y53CRAU)  
 Wireless Remote Controller (PAR-FL32MA)  
 Thermostat Interface (PAC-US444CN)  
 M-NET Adapter (PAC-SJ19MA-E)

**Outdoor Unit**

- Front Wind Guard (PFR-12-18)  
 Rear Wind Guard (PRE-12-18)  
 Side Wind Guard (PSD-12-18)

**Note: Mitsubishi Electric (MESCA) supports the use of only MESCA supplied and approved Snow Guard / Wind Deflectors / Windscreens and accessories for proper functioning of the unit(s). Use of non-MESCA supported Snow Guard / Wind Deflectors / Windscreens and accessories will affect warranty coverage.**

**SPECIFICATIONS:**

Rated Conditions (Capacity / Input)*		
Cooling	Btu/h / W	12,000 / 1,000

\* Rating Conditions per AHRJ Standard:  
Cooling | Indoor: 80°F (27°C) DB / 67°F (19°C) WB  
Cooling | Outdoor: 95°F (35°C) DB / 75°F (24°C) WB

Capacity Range		
Cooling	Btu/h	5,800 - 12,000

Operating Range	
Cooling	40F** (4.0°C) to 115°F (46°C) DB

\*\* Windscreens required for cooling operation below 23 F (-6 C)

AHRJ Efficiency Rating	
EER	12.0
SEER	20.8

Electrical Power Requirements	208 / 230V, 1-Phase, 60 Hz
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Minimum Circuit Ampacity (MCA) *	Breaker Size	MOCP (Outdoor)
Indoor 1 AMP	Outdoor 11 AMP	15 AMP
		28 AMP

\* All electrical work shall comply with National (CEC) and local codes and regulations.

Indoor Unit		
Fan Motor (ECM)	FLA	0.33
Fan Motor Output	W	30
SHF / Moisture Removal		0.81 / 2.0 pt/h
Field Drainpipe Size O.D.	In.(mm)	5/8 (16)

Outdoor Unit		
Compressor		DC INVERTER-driven Twin Rotary
Fan Motor (ECM)	FLA	0.5
Fan Motor Power	W	46

Airflow Rate (Low-Mid-Hi)			
Indoor (Cooling)	DRY	CFM	320-370-425
	WET		290-335-380
Outdoor	DRY		1,590

Sound Pressure Level			
Indoor (Low-Mid-Hi)		dB(A)	36-40-43
	Cooling		44
Outdoor	Cooling		

External Dimensions		
Indoor (H x W x D)	In.(mm)	11-5/8 x 35-3/8 x 9-13/16 (295 x 898 x 249)
		24-13/16 x 31-13/16 + 7/16 x 11-3/16 (630 x 809 + 62 x 300)
Outdoor (H x W x D)		

Net Weight		
Indoor	Lbs./kg)	29 (13)
		92 (41)
Outdoor		

External Finish	
Indoor	White Munsell No. 1.0Y 9.2/0.2
Outdoor	Ivory Munsell No. 3Y 7.8 / 1.1

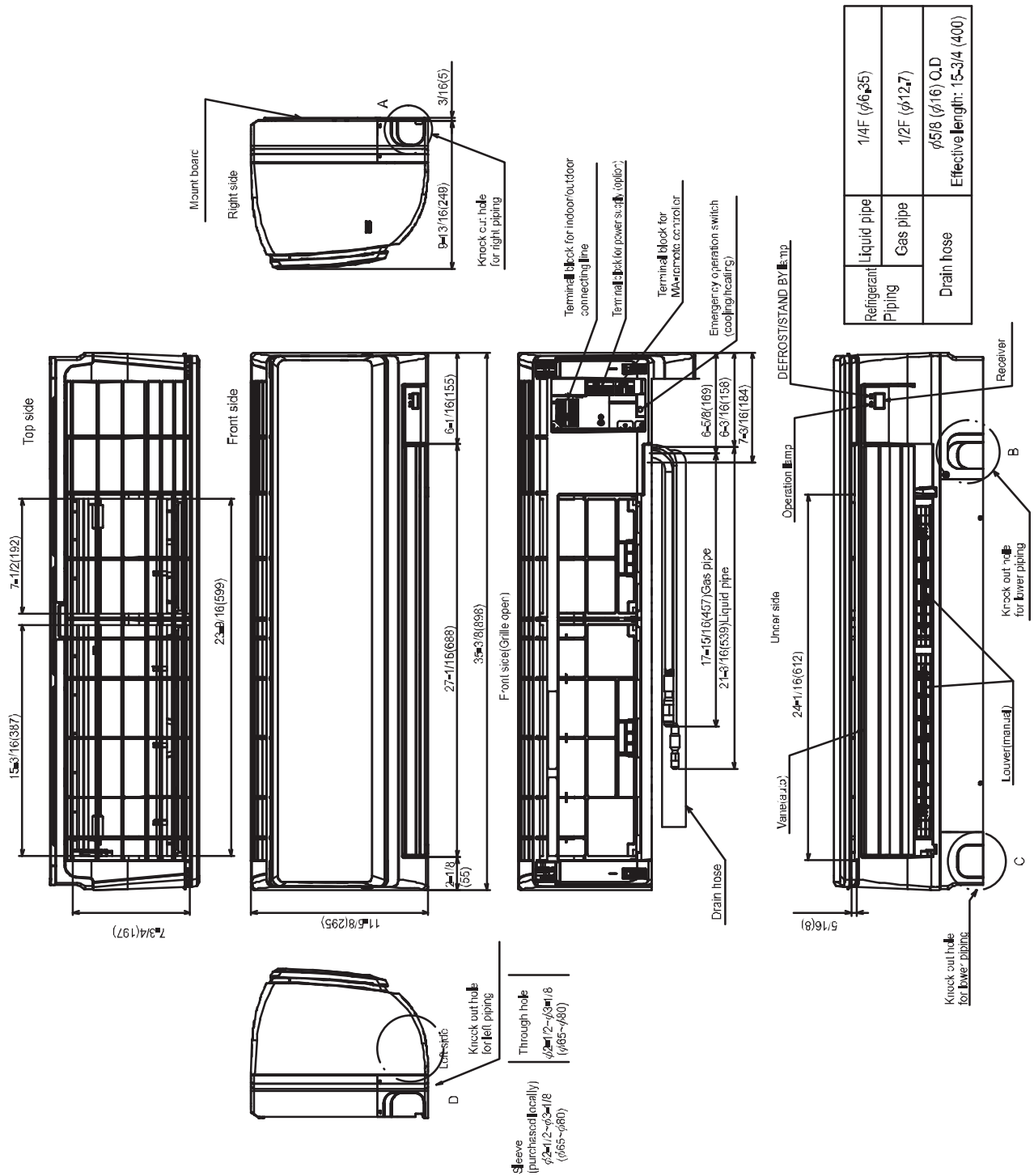
Refrigerant	R410A ; 4Lbs., 7oz. (2.0kg)
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Refrigerant Piping (Flared)		
Liquid (High Pressure)	In.(mm)	1/4 (6.35)
Gas (Low Pressure)	In.(mm)	1/2 (12.7)
Maximum Total Refrigerant Pipe Length	Fe. (m)	165 (50)
Maximum Vertical Separation	Fe. (m)	100 (30)



# DIMENSIONS: PKA-A12HA7

Unit: in. (mm)



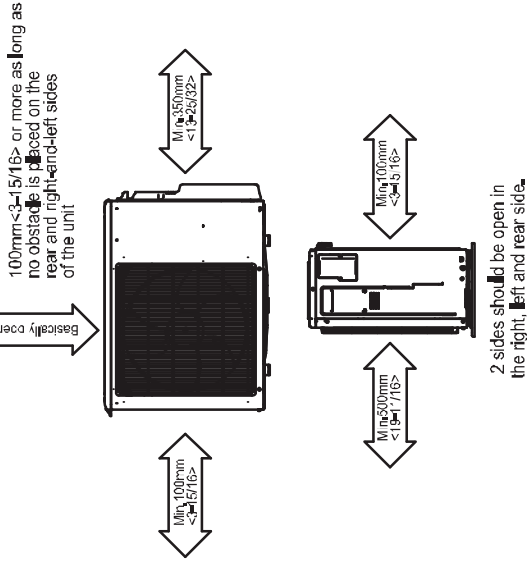
Specifications are subject to change without notice.

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# DIMENSIONS: PUY-A12NKA7

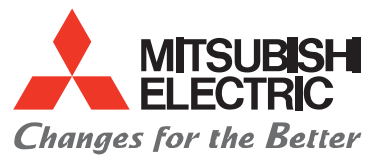
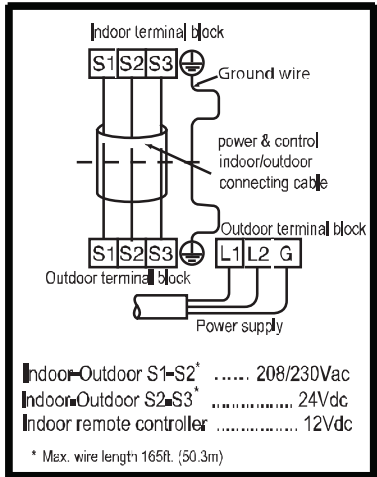
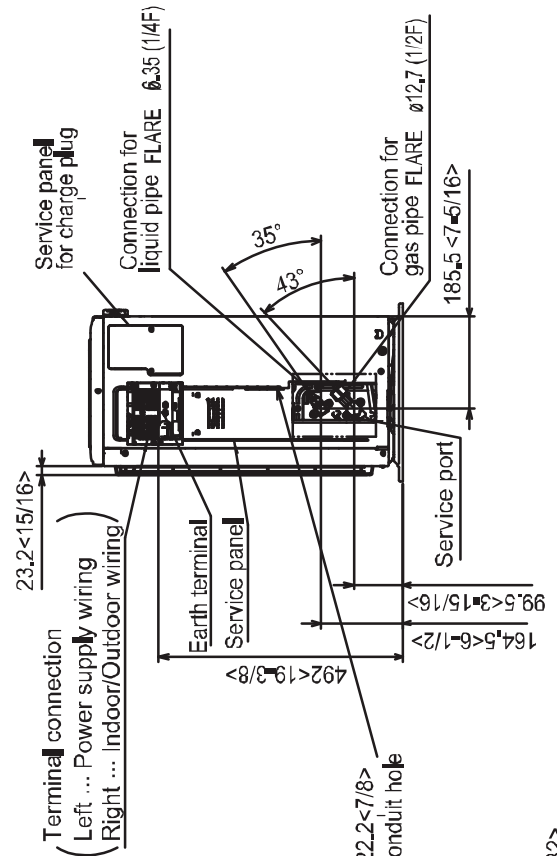
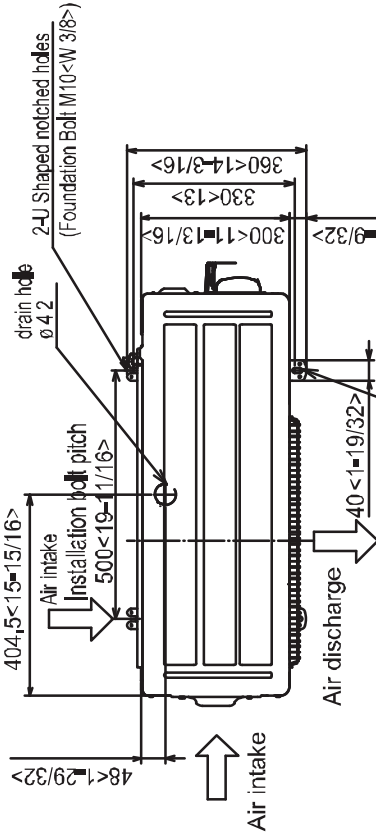
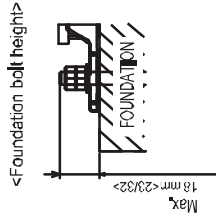
Unit: mm (in.)

Free space around the outdoor unit  
(basic example)



## FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10<math>\times W 3/8 ></math>) bolts. (Bolts, washers and nut must be purchased locally).



for a greener tomorrow



# EV 450RT

## Energy Recovery Ventilator EC Motor Option



### ROOFTOP UNIT



Energy Recovery Core is AHRI Certified®



### SPECIFICATIONS

**Ventilation Type:**

Static plate, heat and humidity transfer

**Typical Airflow Range:** 200-510 CFM

**AHRI 1060 Certified Core:** One L85-G5

**Standard Features:**

Non-fused disconnect  
24 VAC transformer/relay package

**Filters:**

Total qty. 2, MERV 8: 14" x 20" x 2"

**Unit Weight:**

187-246 lbs., varies by option(s)

**Max. Shipping Dimensions & Weight (on pallet):**

96" L x 47" W x 25" H  
350 lbs.

**Motor(s):**

Qty. 1, 0.5 HP, Direct drive EC blower/  
motor package

**Options:**

Fused disconnect  
Integrated programmable controls -  
enhanced, premium  
Qty. 2, Factory mounted filter alarms -  
both airstreams  
Double wall construction  
Exterior paint = white, custom colors

**Accessories:**

Filters = MERV 13, 2" (shipped loose)  
Automatic balancing damper - 4", 5", 6"  
Potentiometer speed control - remote installed  
RA/FA Horizontal plenum box  
- RTC/RTH configuration  
RA/FA Vertical and horizontal plenum box  
- RTR/RTF configuration  
Rooftop adapter transition paint = white,  
custom colors  
Roof curb = standard 14"  
Curb wind clip  
Engineered combo curb for Trane RTU  
Engineered combo curb for Carrier RTU  
Digital time clock - wall mount (TC7D-W),  
in exterior enclosure (TC7D-E)  
Carbon dioxide sensor/control -  
wall mount (CO2-W), duct mount (CO2-D)  
IAQ sensor - wall mount (IAQ-W),  
duct mount (IAQ-D)  
Motion occupancy sensor/control -  
ceiling mount (MC=C), wall mount (MC=W)  
Smoke Detector - duct mount (SD-D)  
Electric duct heater - EK series (1-175 kW);  
designed for indoor ductwork installation only

**Note:** Indirect Gas-Fired Duct Furnace is not available on the EV450RT.

### EC MOTOR OPTION OPERATING RANGE

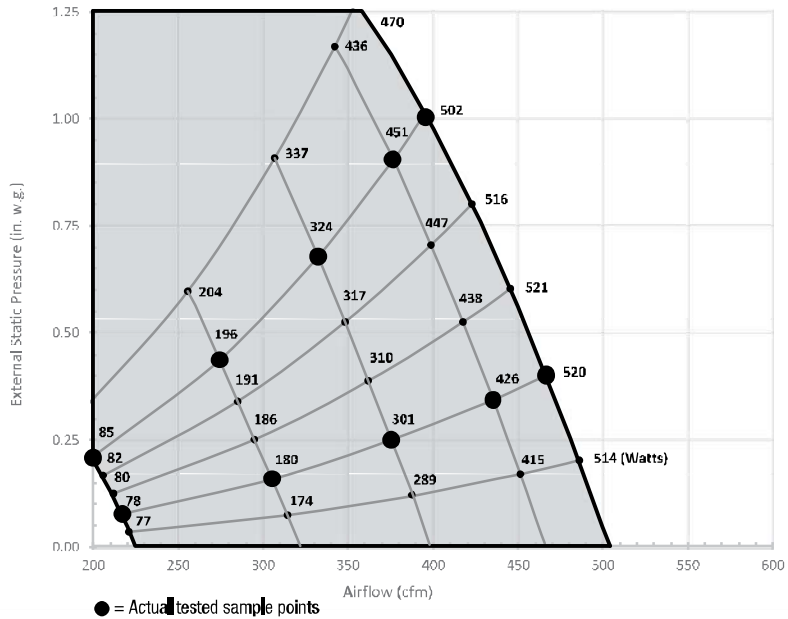
EV450RT EC MOTOR		
Sample Points Depicted in Larger Dots		
Airflow (CFM)	External Static Pressure (Inches Water Column)	Unit Power Consumption (Watts)
217	0.07	78
305	0.16	180
375	0.25	301
435	0.34	426
467	0.40	520
200	0.20	85
274	0.43	196
332	0.67	324
376	0.90	451
395	1.00	502

**Note:** Watts is for the entire unit.

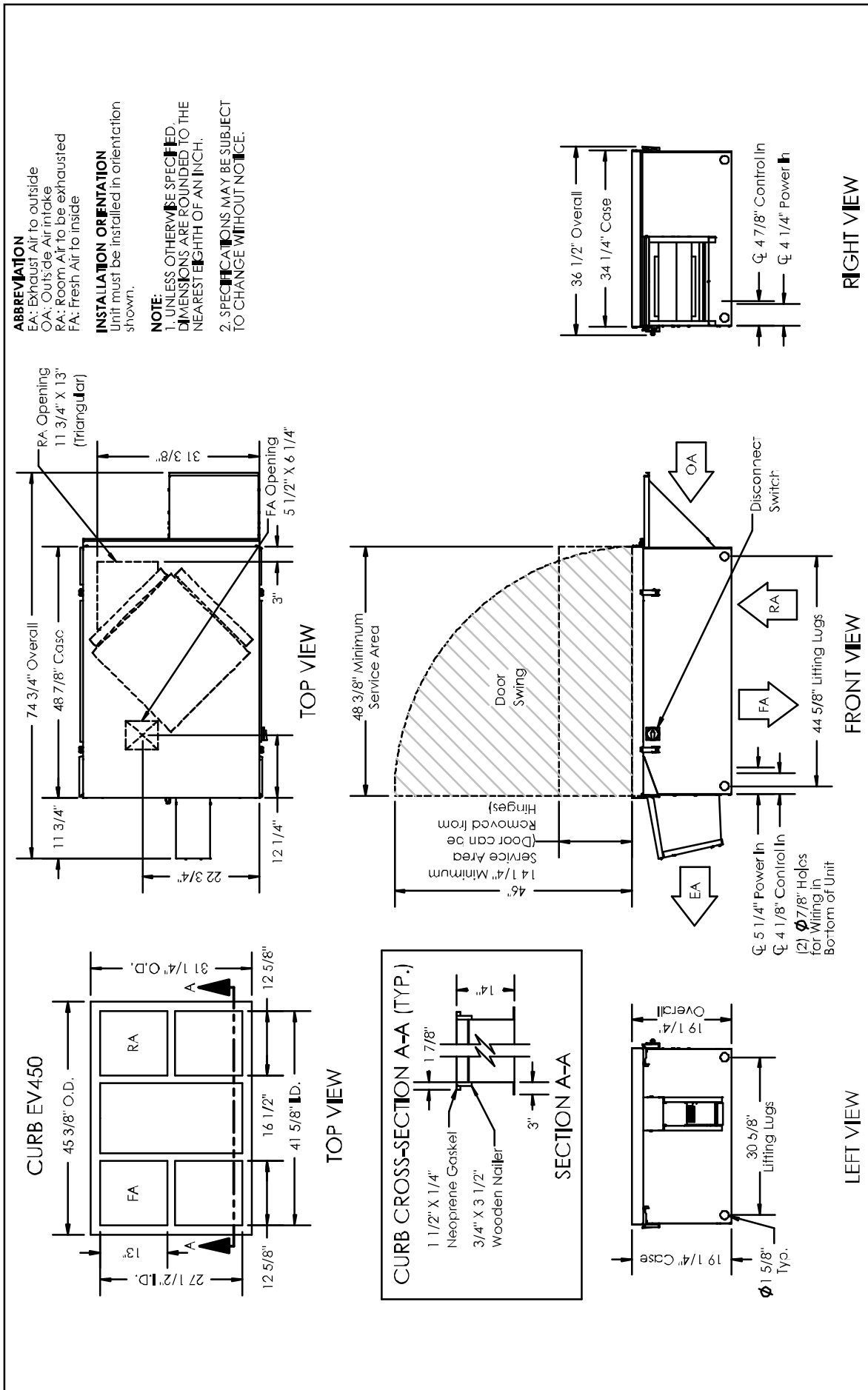
**Note:** Airflow performance includes effect of clean, standard filter supplied with unit.

### ELECTRICAL DATA

HP	Volts	HZ	Phase	FLA	Min. CL Amps	Max. Overcurrent Protection Device
0.5	120	60	Single	8.1	10.1	15
0.5	208-230	60	Single	4.8	6.0	15



**EV450RT** Energy Recovery Ventilator EC Motor Option



**AIRFLOW CONFIGURATION**  
 Available as shown in dimension drawing.



**UNIT MOUNTING & APPLICATION**  
 Must be mounted as shown. Airstreams can not be switched. Rooftop adapter accessories can be used to provide RTR and RTF (45RTRF) or RTH and RTC (45RTH) airflow.

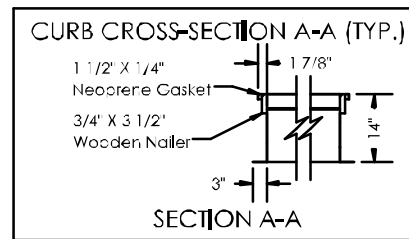
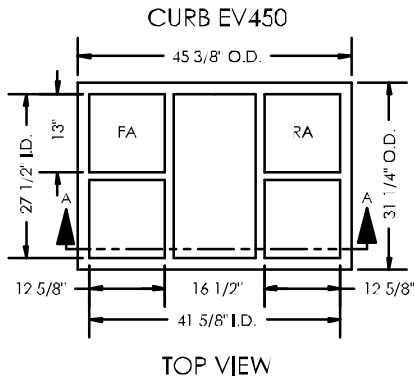
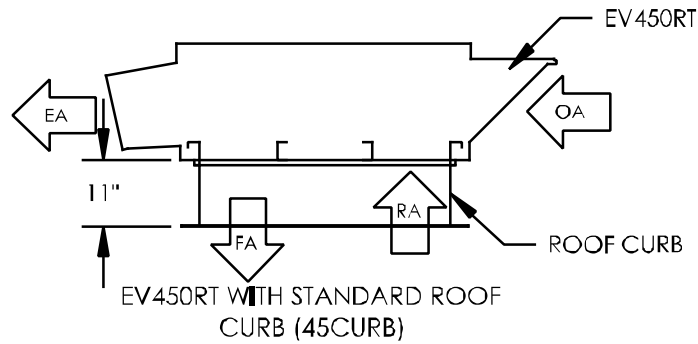
# EV 450RT

Energy Recovery Ventilator  
Standard or EC Motor Option

## DUCTING ACCESSORIES

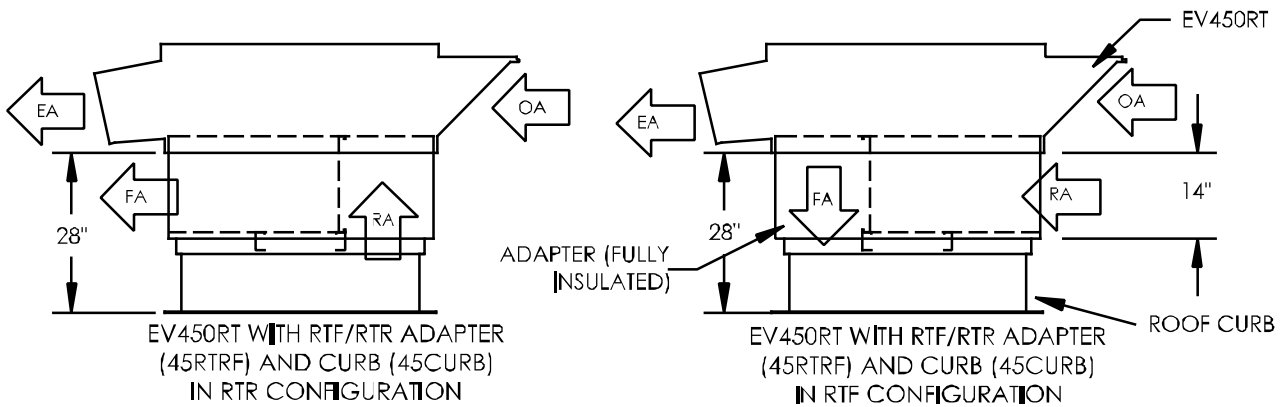
### Rooftop Curb (45Curb)

Standard roof curb shown (available option).



### Rooftop Adapter for RTR and RTF Orientations

For horizontal connection of either the Fresh Air duct or the Return Air duct, stack the optional RTF/RTR Adapter on the standard roof curb. Duct openings to be field cut into adapter. Opening location and size is flexible.





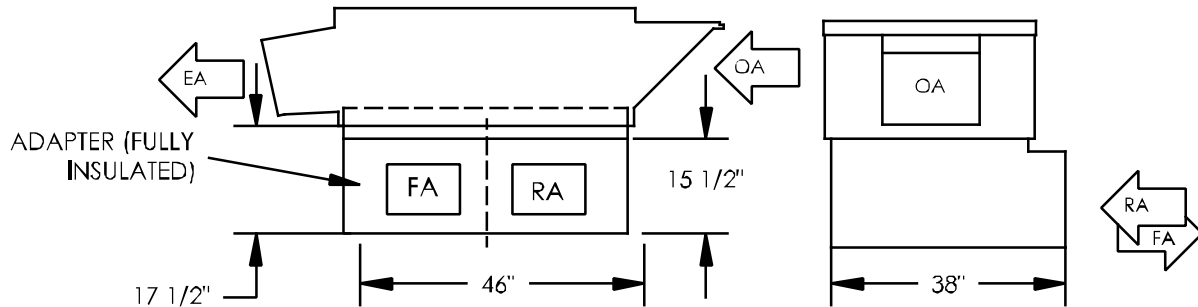
# 450RT

Energy Recovery Ventilator  
Standard or EC Motor Option

## DUCTING ACCESSORIES

### Rooftop Adapter for RTC and RTH Orientations

The RTH/RTC Adapter allows horizontal connection of both the Fresh Air and the Return Air ducts. It is also possible to connect the adapter directly to the return plenum of most rooftop units (openings must be cut into RTU), Duct openings to be field cut into adapter. Opening location and size is flexible.



EV450RT WITH ADAPTER (45RTCH)

### ABBREVIATIONS

- EA:** Exhaust Air to outdoors
- OA:** Outdoor Air intake
- RA:** Room Air to be exhausted
- FA:** Fresh Air to inside

# Harris Group Inc. - Port of Friday Harbor 6 Showers Displays

Quote created on July 30, 2021 - Reference: 20210730-213003278

For Harris Group Inc. - Carl Potswald [Show details](#)

## Comments

Good afternoon Carl,

Here is the Updated quote for the Port of Friday Harbor's 6 showers using our box with a display. This box is hardwired and I have included the wire on this quote as well.

Please let me know if you have anything you would like to change to the quote. I'll be in the office if you have any questions.

If you would like to move forward with the products on this quote please review the link below. By accepting this quote you are agreeing to these terms. We require 50% down to build your system and the remaining 50% to ship your new system.

<https://washcard.com/terms-conditions/>

Thanks again,  
Craig

Craig Kjorlien - WashCard Systems



## Products & Services

### SMC-PKG

1 x \$3,925.00

WashCard System SMC Package CCO

- SMC
- Commercial Grade Router
- Battery BackUp
- Software Credit Card Only

### TERMINAL-BUTTON-1

6 x \$1,995.00

Self Serve Bay - 1 Button (Stop)

---

**NETMOD-12-3** 1 x \$875.00

Internal Network Module 3 Channel (Integrated - 12 Port) [Back Office]

---

**Wire-TP-500ft** 1 x \$318.00

---

**SOFTWARE-LOYALTY** 1 x \$3,500.00

Software, WashCard Customer Loyalty / Setup / Training [Back Office]

---

**CMC-500** 500 x \$2.32

Custom WashCards

Optional - Custom Loyalty Cards 1000 cards run \$1.57 each or \$1570.00 for 1000

---

**STANDARD-CP** 1 x \$2,995.00

Standard Customer Account Portal

---

**Hardware Support \$50.00 Monthly Per Location** 1 x \$0.00

Technical support access, ongoing training, system monitoring, alerts, firmware updates, software updates, and compatibility enhancements.

---

**Lifetime Site Management Controller upgrade and repair warranty** 1 x \$0.00

As a customer in good standing, your SMC will be covered for failures and upgrades at no cost.

---

**Monthly Secure Transaction Data Management Starting At \$69.00** 1 x \$0.00

Monthly Secure Transaction Data Management

Tier Start Rate

\$0.00 Base Rate \$69.00

\$2,500.00 2.75%

\$5,000.00 2.55%

\$10,000.00 2.35%

\$20,000.00 2.30%

\$30,000.00 2.25%

\$50,000.00 2.20%

\$75,000.00 2.15%

\$100,000.00 2.10%

\$250,000.00 2.05%

Over \$500,000.00 1.95%

Your monthly transaction management bill will vary according to the table above.

---

One-time subtotal ----- \$24,743.00

**Total** ----- **\$24,743.00**

**This quote expires on October 18, 2021.**



## Purchase Terms

This quote is based on information provided by the customer. If additional equipment is required additional charges may apply.

**This quote does not include tax, installation, or shipping cost.**

### Merchant Processing For Card System

WashCard Systems has partnered with Brian Nelsen with First Financial Merchant Services to ensure our customers receive unmatched service and support as well as saving them money every month on their credit card fees. Please reach out to Brian at 712-299-1742 or [bnelson@cardsupport1.com](mailto:bnelson@cardsupport1.com)

Or

Select the processor of your choice. (Contact me to assist with the proper forms).

\_\_\_\_\_ Not paid to WashCard \_\_\_\_\_

**Gateway Costs: (USA ePay) - You will be billed directly from USA ePay for the use of this service. You can use whatever merchant processor you would like.**

Setup Fee (one time) \$84.00

Annual PCI-DSS security survey fee \$79.95

Gateway Monthly Fee \$10/month

Add \$5.00 for recurring billing/Washpass Unlimited Club.

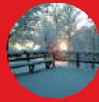
**Signature**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed name

## Questions? Contact me



**Craig Kjorlien**

craig@washcard.com

+1 (651) 204-9184

[Download quote](#)

[Print quote](#)



**WashCard Systems**

2005 Gateway Circle

Centerville, MN 55038

US

## Curb Clips

### Supplemental Installation Manual for Accessories

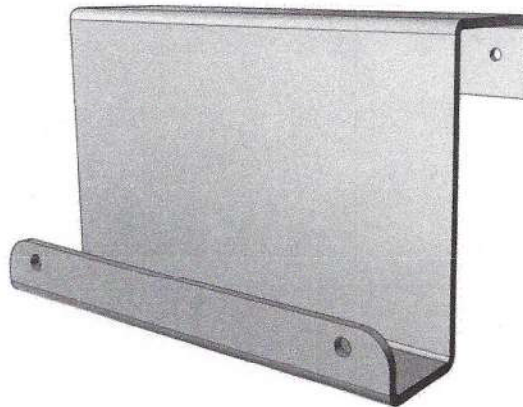
EV450 Rooftop

HE Rooftop

LE Rooftop

RD Rooftop

CA Rooftop



Curb Clip (Typical)

2.3 EV450RT

Use Curb Clip Kit PN 45EVCC

Kit includes:

(8) Curb Clips PN 140174

(24) #10-16 x 3/4" self-drilling screws

(16) 1/4 -14 x 2 1/2" self-drilling screws

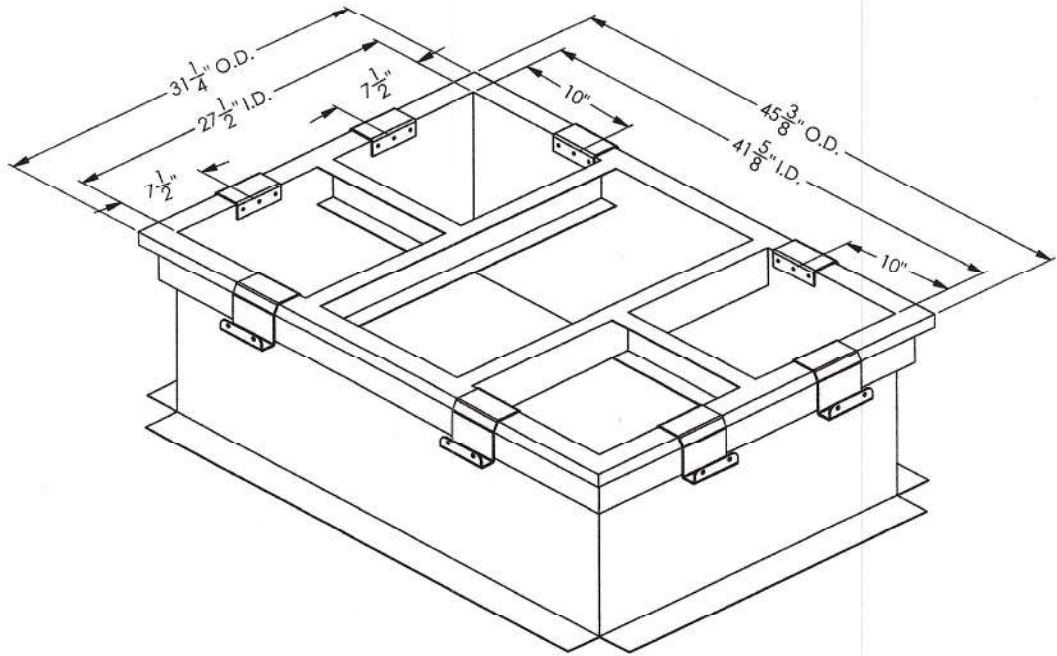


FIGURE 2.3.0 EV450 CURB CLIP PLACEMENT

**NOTE:** It may be necessary to temporarily remove the two short crossbars (duct supports) in order to install the Curb Clips.

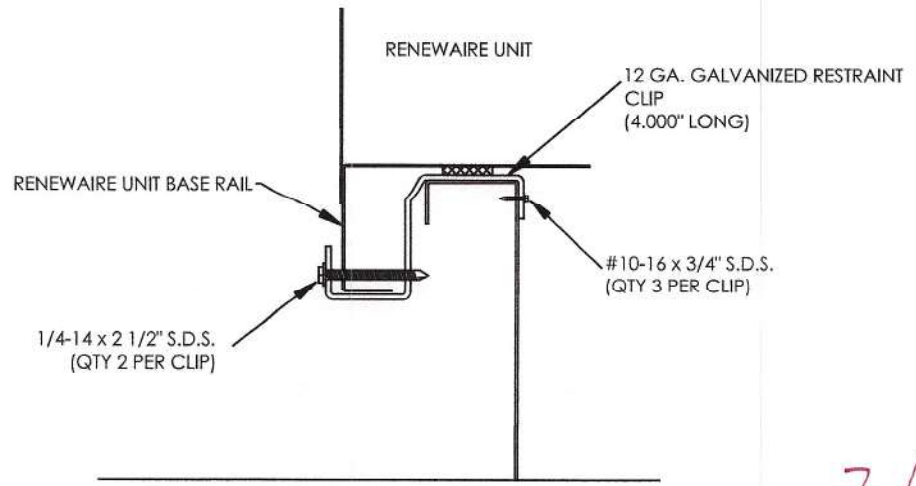


FIGURE 2.3.1 EV450 CURB CLIP INSTALLATION

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## 2.0 INSTALLATION

### 2.1 GENERAL INSTALLATION

Curb clips should be installed:

- AFTER installation of the roof curb and
- BEFORE installation of the DOAS.

#### 1ST STEP: INSTALL CURBS.

See page 7 for RenewAire minimum attachment schedule.

Complete installation of roofing and flashing per standard practice.

#### 2ND STEP: INSTALL CURB CLIPS.

Position the clips as shown in the drawings for specific ERV models. See following pages.

Fasten each clip to the curb with (3) #10-16 x ¾" self drilling screws (SDS) through the provided holes in the clips.

Install the gasket tape (provided with the curb). Put gasket tape on top perimeter of the curb. Run it over the top of the clips.

#### 3RD STEP: INSTALL ERV UNIT.

Make sure necessary ducts are installed in the curb before installing unit

Place the RenewAire ERV on the curb – the ERV base rails should drop into the Curb Clips.

Drive (2) ¼-14 x 2 ½" (or 3 ½" for LE units) SDS through the clearance holes in each wind clip, through the ERV base rails, and into the back of the Curb Clip. Drive the screws snug.

**IMPORTANT: EACH SCREW MUST DRIVE FIRMLY THROUGH THE BACK OF THE CURB CLIP (SEE DETAILS ON FOLLOWING PAGES).**

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2.2 MINIMUM CURB ATTACHMENT TO ROOF

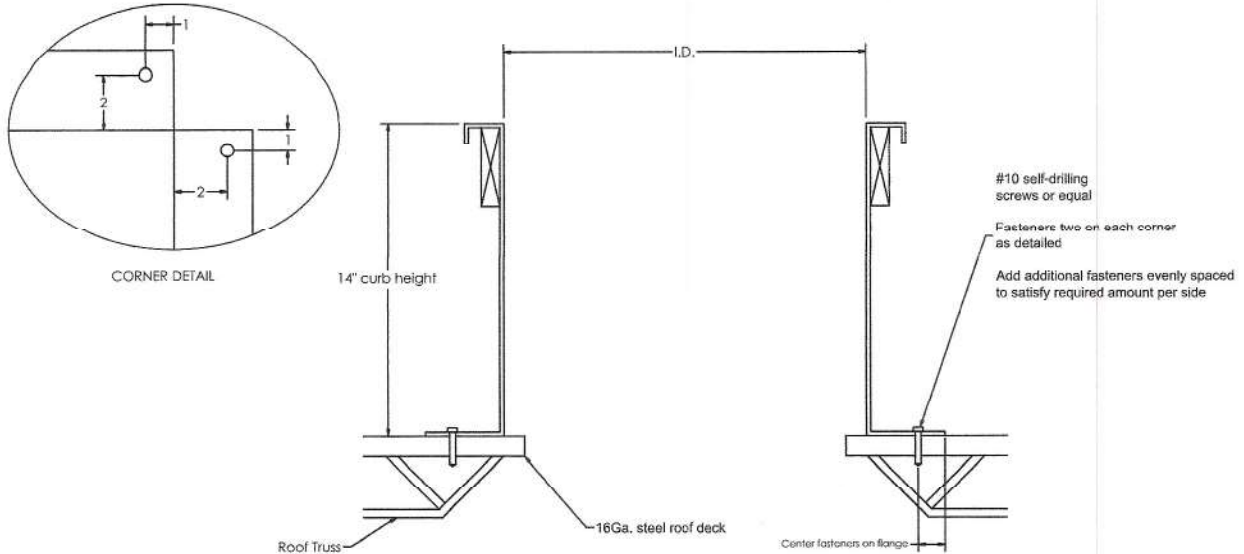


FIGURE 2.2.0 CURB ATTACHMENT TO ROOF

FASTENER REQUIREMENTS: 16GA STEEL ROOF DECKING						
MODEL	EACH LONG SIDE		EACH SHORT SIDE		TOTAL # OF SCREWS	SCREW SPECIFICATION
	I.D.	# SCREWS	I.D.	# SCREWS		
EV450RT	41-5/8"	4	27-1/2"	3	14	#10 Minimum. Select length sufficient to fully engage threads in roof decking.
HE1XRT	44"	6	14-1/2"	4	20	
HE1.5XRT	38-1/2"	6	24-7/16"	4	20	
HE2XRT	44"	6	34-3/8"	5	22	
HE3XRT	53-1/8"	6	50-3/8"	6	24	
HE4XRT	72-5/8"	8	50-3/8"	6	28	
HE6X/8XRT	99-1/4"	14	72-1/4"	12	52	
RD2XRT	84-1/2"	12	33-1/4"	8	40	
RD4XRT	86-3/4"	19	82-1/2"	12	62	
LE6XRT	111-1/2"	20	60-1/2"	10	60	
LE8XRT	151-1/2"	25	60-1/2"	10	70	
LE10XRT	191-1/2"	32	60-1/2"	10	84	
CA2XRT	33-7/8"	4	28-7/8"	4	16	
CA3XRT	53-3/4"	6	28-7/8"	4	20	
CA4XRT	73-3/8"	8	28-7/8"	4	24	

FIGURE 2.2.1 FASTENER REQUIREMENTS

2.2.1 For Other Fastener/Roof Deck Combinations:

This curb-to-roof attachment method has been evaluated for installation on a 16 ga. steel deck, to withstand wind forces in zones with 90 mph basic wind speeds, on roofs up to 60' in height, with the ERV installation in any location on that roof.

The Fastener Requirements Chart above applies to a 16GA steel roof deck, with #10 TEK screws or better. With this fastener/roof substrate combination, the fastener pullout rating is 708 lbs, and the fastener shear rating is 1540 lbs.

For other roofing substrates, determine the pull-out and shear ratings for that substrate. If pull-out and shear ratings are less than those shown above, increase the number of fasteners used to provide the same total pull-out and shear strength for each side of the curb.

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# RUSKIN®

3900 Dr. Greaves Rd. • Kansas City, MO 64030 • (816) 761-7476 • FAX (816) 765-8955

## EV211 HORIZONTAL LOUVER SCREEN EXTRUDED ALUMINUM

### APPLICATION

The Architecturally pleasing EV211 is a thinline sight proof louver screen that can be used to hide unsightly roof obstructions such as roof top units, AC units, etc. The EV211 is available with either a mitered or boxed corner design and can also be supplied with a hinged door option.

### STANDARD CONSTRUCTION

#### BLADES

Inverted 2" (51) deep 6063T6 extruded aluminum with .060" (1.5) nominal wall thickness. Blades are positioned at 45° angle and are spaced at approximately 3 3/16" (81) centers.

#### SUPPORT

As required per wind load. Consult Ruskin.

#### FINISH

Mill.

#### APPROXIMATE SHIPPING WEIGHT

2 lbs per sq ft (9.8 kg per m<sup>2</sup>)

#### MAXIMUM FACTORY ASSEMBLY SIZE

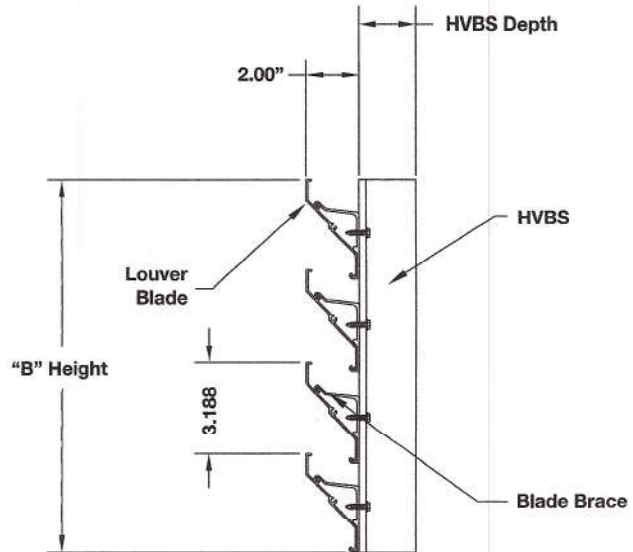
Shall be 75 sq. ft. (7m<sup>2</sup>) per section, not to exceed 120" w x 90" h (3048 x 2286) or 90" w x 190" h (2286 x 4826).

Louver screens larger than the maximum factory assembly size will require field assembly of smaller sections.

#### SUPPORTS

Louver screens may be provided with rear mounted blade supports that increase overall screen depth depending on screen size, assembly configuration or windload.

Consult Ruskin for additional information.



### FEATURES

The EV211 design features:

- 42% free area on a 4ft x 4ft section.
- Architecturally styled, hidden supports for attractive appearance.
- Inverted thinline blade.
- All aluminum construction for low maintenance and high resistance to corrosion.
- Sight proof blocks out obstructions from view.

### VARIATIONS

Variations to the basic design of this screen are available at additional cost. They include:

- Mitered or box corners.
- Hinged access sections
- Selection of finishes: Prime coat, 50% PVDF (modified fluoropolymer), Epoxy, Pearledize, 70% PVDF, Clear and Color Anodized finishes. (Some variation in anodize color consistency is possible).

Consult Ruskin for other special requirements.



### NOTES:

1. Dimensions in inches, parenthesis ( ) indicate millimeters.
2. Units furnished 1/4" (6) smaller than given opening dimensions.

TAG	QTY.	SIZE		FRAME	VARIATIONS
		A*-WIDE	B*-HIGH		
PROJECT ARCH/ENGR. REPRESENTATIVE			LOCATION CONTRACTOR DATE		

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# SUGGESTED SPECIFICATION

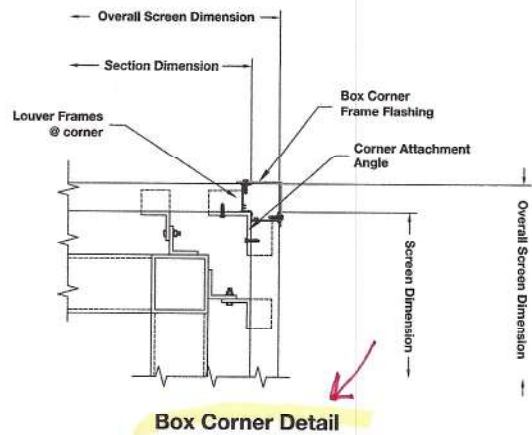
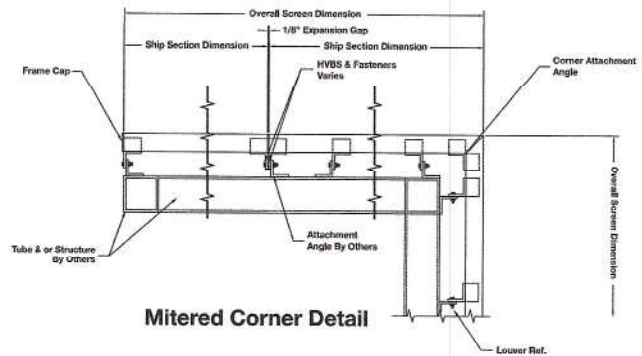
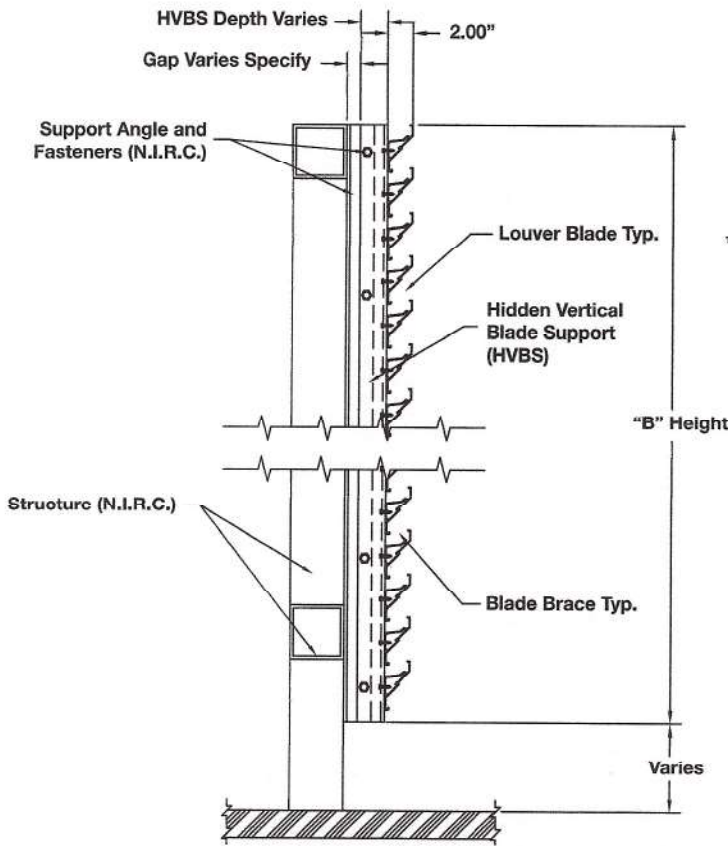
Furnish and install louver screens as described in schedules. Louver screen components shall be factory assembled by the manufacturer. Sizes too large for shipping shall be built up by the contractor from factory assembled sections to provide overall sizes required. Design shall incorporate blade supports required to withstand a wind load of 20 lbs. per sq. ft. (96KPa) (equivalent of a 90 mph wind [145 KPH] – specifier may substitute any loading required) when attached to structural supports supplied by others.

Louver screens shall be architectural style with continuous appearing stationary blades – intermediate supports shall not interrupt blade appearance when viewed from outside of screen.

Louver screens shall be Ruskin Model EV211 extruded 6063T6 aluminum alloy construction as follows:

- Blades: 2" (51) deep x .060" (1.5) wall thickness at 45° angle and spaced approximately 3 3/16" (81) center to center.
- Fasteners: Anchorage shall be concealed and not visible on the exterior face of the screen.
- Finish: Select finish specification from Ruskin Finishes Brochure.

# TYPICAL INSTALLATION DETAILS



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 Kansas City, MO 64030  
 (816) 761-7476  
 FAX (816) 765-8955  
 www.ruskin.com

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