

**MECHANICAL NOTES - DESIGN PARAMETERS**

- MECHANICAL CODE: 2021 WASHINGTON MECHANICAL CODE
- OUTSIDE AIR REQUIREMENTS:  
OCCUPANCY CLASSIFICATION - MERCANTILE  
BUILDING AREA FOR OCCUPANCY - 35218 SQFT  
OCCUPANT LOAD -  
OUTSIDE AIR PER PERSON -  
TOTAL OUTSIDE AIR REQUIRED - 3090 CFM
- BUILDING ENVELOPE COMPLIES WITH ASHRAE 90.1 2010

**GENERAL MECHANICAL NOTES**

- ALL DUCTWORK IS EXPOSED IN THE CONDITIONED SPACE AND DOES NOT REQUIRE ANY INSULATION. THE DUCTWORK PACKAGE AND AIR DEVICES WILL BE FURNISHED BY AUTOZONE FOR INSTALLATION BY THE CONTRACTOR.
- THE FIRESTATS, SMOKE DETECTORS, FRESH AIR INTAKES AND/OR ECONOMIZERS WILL BE PROVIDED, AS REQUIRED BY LOCAL CODE, BY AUTOZONE FOR INSTALLATION BY THE CONTRACTOR.
- THE PACKAGE ROOF MOUNTED HEATING / COOLING UNITS, ROOF CURBS, AND VENSTAR THERMOSTATS WILL BE FURNISHED BY AUTOZONE FOR INSTALLATION BY THE CONTRACTOR. SEE SCHEDULE ON SHEET M-1 FOR THE AIR FLOW FOR EACH UNIT SCHEDULED. PRIOR TO ACTIVATING ANY RTU PLACE ALL OPERATING MANUALS AND LITERATURE IN THE PHONE/ALARM CLOSET FOR USE BY THE OWNER.
- THE THERMOSTATS SHALL BE SET FOR 70° F IN THE COOLING MODE AND 68° F IN THE HEATING MODE.
- THE FLEXIBLE GAS CONNECTION TO EACH UNIT TO BE NO MORE THAN 2'-0" LONG.
- CONTRACTOR SHALL STENCIL RTU NUMBER ON ALL ROOFTOP UNITS. STENCILING SHALL BE ON ROOF HATCH SIDE ONLY.
- REFER TO SHEET A1 FOR BUILDING DIMENSIONS AND S2 FOR HVAC LOCATIONS.
- ALL ABOVE GROUND WATER SUPPLY PIPING SHALL BE INSULATED.
- ATTACH LIGHTING CONTROL PANEL PHOTOCELL TO THE NORTH FACING SIDE OF ONE OF THE ROOF TOP HVAC UNITS. DO NOT ATTACH PHOTOCELL TO A REMOVABLE PANEL. CONNECT PHOTOCELL THROUGH ONE OF THE HVAC UNIT HUBS - DO NOT DRILL A HOLE IN THE BOTTOM OF THE UNIT - TO A JUNCTION BOX MOUNTED ON THE UNDERSIDE OF THE ROOF DECK AND THEN ON TO THE LIGHTING CONTROL PANEL. SEE SHEETS M-1.1 AND E-6 FOR ADDITIONAL INFORMATION.

**MECHANICAL NOTES**

- THE EQUIPMENT AND MATERIALS FOR THIS PROJECT HAVE BEEN SPECIFICALLY SELECTED FOR THIS APPLICATION. MANY ITEMS FOUND IN THE HVAC PACKAGE ARE UNIQUE TO AUTOZONE. THE HVAC PACKAGE WILL BE FURNISHED TO THE CONTRACTOR FOR INSTALLATION, START-UP, AND SYSTEM VERIFICATION.
- THE INSTALLING CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE SYSTEM THAT CONFORMS TO THE PLANS AND SPECIFICATIONS.
- ALL DAMAGE AND / OR WARRANTY CLAIMS ARE SUBJECT TO INSPECTION AND REVIEW BY BOTH AUTOZONE AND THE EQUIPMENT MANUFACTURER. SEE NOTES ON SHEET M-1 FOR FURTHER INFORMATION REGARDING DAMAGE AND WARRANTY CLAIMS. FILING OF A CLAIM DOES NOT RELIEVE THE HVAC CONTRACTOR OF HIS RESPONSIBILITIES DESCRIBED ABOVE AND IN THE SPECIFICATIONS TO PROVIDE A COMPLETE AND FINISHED SYSTEM.
- FIRESTATS, SMOKE DETECTORS, DUCT SENSORS AND REMOTE THERMOSTATS TO BE INSTALLED ACCORDING TO THE MANUFACTURERS' SPECIFICATIONS AND INSTRUCTIONS.
- ROOFTOP UNITS MAY CONTAIN ONE OR MORE OF THE FOLLOWING ITEMS DEPENDENT ON PROJECT GEOGRAPHIC LOCATION AND CODE REQUIREMENTS: ECONOMIZER, HAIL GUARDS, CORROSION PROTECTION, HOVN AND STROBE UNITS, ETC.
- CUT NO HOLES IN BOTTOM PAN OF ROOFTOP UNIT. CONTRACTOR TO USE FACTORY INSTALLED HUB LOCATIONS TO RUN POWER AND/OR CONTROL WIRING.

**PIPE SUPPORT**

- SUPPORT ALL PIPING ON TREATED 2"x4" WOOD BLOCKING SET DIRECTLY ON ROOFING, AND CLAMP PIPE TO EACH SUPPORT. BLOCKING SHALL BE SPACED A MAXIMUM OF 6'-0" ON CENTER FOR GAS PIPE AND 3'-0" FOR PVC PIPE. PROVIDE ADDITIONAL SUPPORTS AT EACH BEND AND 1" CONNECTION.
- MOUNT TWO (2) THERMOSTATS ON THE WALL - SEE SHEET E5.
- CONTRACTOR TO FURNISH & INSTALL METAL EXHAUST DUCT AND METAL WALL CAP FOR EACH BATHROOM EXHAUST FAN. RUN DUCT WORK IN CEILING JOIST SPACE. SEE ELECTRICAL SHEETS FOR FAN LOCATION AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- COORDINATE WITH THE LOCAL UTILITY COMPANY FOR GAS METER LOCATION AND GAS PIPE SIZES. REFER TO THE SCHEDULE ON SHEET M-1 FOR MAXIMUM ESTIMATED LOAD.

**HVAC PACKAGE NOTES**

- INSTALL DUCTS PER REMODEL PLAN. ALL DUCTS, ELBOWS AND RELATED ACCESSORIES SHALL BE FURNISHED BY CONTRACTOR.
- PROVIDE AND INSTALL DUCT TYPE SMOKE DETECTORS ON THE RETURN AIR DUCT PLENUM FOR ALL NEW HVAC UNITS. THEY SHALL BE INTERLOCKED WITH THE UNIT FOR SHUTDOWN AND TIED INTO THE BUILDING FIRE SAFETY CONTROL PANEL. PROVIDE WITH REMOTE STATUS PANEL WITH RESET LED PUSH BUTTON.
- INSTALL ENERGY MANAGEMENT SYSTEM AND EQUIPMENT PER ELECTRICAL DRAWINGS. FIELD INSTALL SENSORS IN RTUS.
- HVAC UNIT CONDENSATE DRAINS SHALL BE PROPERLY TRAPPED, SUPPORTED AND SLOPED TO THE NEAREST CODE APPROVED PLUMBING RECEPTORS.
- MECHANICAL CONTRACTOR TO COORDINATE AND OBTAIN APPROVAL FROM STRUCTURAL ENGINEER FOR PIPE AND EQUIPMENT SUPPORTS, SEISMIC RESTRAINTS, CONNECTION AND ANCHORAGE/MOUNTING TO THE STRUCTURE.
- AFTER COMPLETION OF WORK, TESTS ON THE HVAC SYSTEMS, INCLUDING AN AIR BALANCE PERFORMANCE TEST SHALL BE PERFORMED IN ACCORDANCE WITH AN APPROVED METHOD PER WASHINGTON STATE MECHANICAL CODE.

**HEATING & COOLING PLAN NOTES**

- INDICATES ROOF OPENING
- CONDENSATE DRAIN
- THERMOSTAT
- WEATHERPROOF GFI OUTLET
- ELECTRICAL DISCONNECT
- DOMESTIC WATER
- GAS INLET

**HVAC LEGEND**

**KEY NOTES**

- PROVIDE ROOFTOP EQUIPMENT ON NEW ROOF CURB ON EXISTING ROOF. COORDINATE CURB INSTALLATION WITH STRUCTURAL ENGINEER AND EXISTING CONDITIONS. NOTIFY ARCHITECT AND ENGINEER OF ANY ISSUES WITH INSTALLATION OF EQUIPMENT IN PROPOSED LOCATION PRIOR TO INSTALLATION.
- PROVIDE NEW ROOFTOP UNIT ON EXISTING ROOF CURB UTILIZING CURB ADAPTER.

## REMODEL SCOPE OF WORK

- INSTALL DUCTS PER REMODEL PLAN. ALL DUCTS, ELBOWS AND RELATED ACCESSORIES SHALL BE FURNISHED BY CONTRACTOR.
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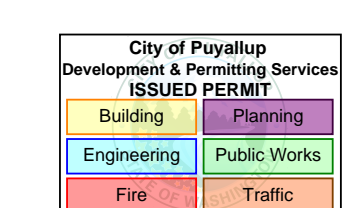
Separate Electrical Permit is required with the Washington State Department of Labor & Industries.  
<https://lni.wa.gov/licensing-permits/electrical/electrical-permits-fees-and-inspections>  
 or call for Licensing Information:  
 1-800-647-0982

The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by the permittee on site for inspection.

Approval of submitted plans is not an approval of omissions or oversights by this office or non compliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.

City of Puyallup  
 Building REVIEWED FOR COMPLIANCE  
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 03/02/2026  
 8:09:39 AM



- GENERAL CONTRACTOR WILL BE REQUIRED TO FILL OUT AND COMPLETE HVAC START-UP FORMS FOR EACH UNIT ON THE PROJECT, ALONG WITH COMPLETING THE VENSTAR COMMISSIONING PROCESS.
- BLANK FORMS FOR BOTH DRAIN AND YORK AS WELL AS THE COMMISSIONING PROCESS REQUIREMENTS WILL BE ATTACHED AND A PART OF THE NTP PACKAGE AND IT WILL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ENOUGH COPIES TO GIVE TO THE INSTALLING CONTRACTOR TO COMPLETE.
- COMPLETED FORMS MUST BE SUBMITTED TO AUTOZONE PROJECT COORDINATOR VIA THE CONSTRUCTION PROJECT MANAGER. FAILURE TO DO SO WILL RESULT IN CONSTRUCTION PROGRESS PAYMENTS BEING SUSPENDED UNTIL COMPLETED FORMS HAVE BEEN RECEIVED.

REVISIONS	1	2	3	4	5	6
CITY COMMENTS						

AutoZone Store No. 10668  
 4423 SOUTH MERIDAN  
 PUYALLUP WA 98373  
**MECHANICAL ROOF PLAN**

**HENDERSON ENGINEERS**  
 8345 LENEXA DRIVE, SUITE 300  
 LENEXA, KS 66214  
 TEL 913.742.5000 FAX 913.742.5001  
 WWW.HENDERSONENGINEERS.COM

2550003925  
 WA CORPORATE NUMBER: 1754  
 06/30/26

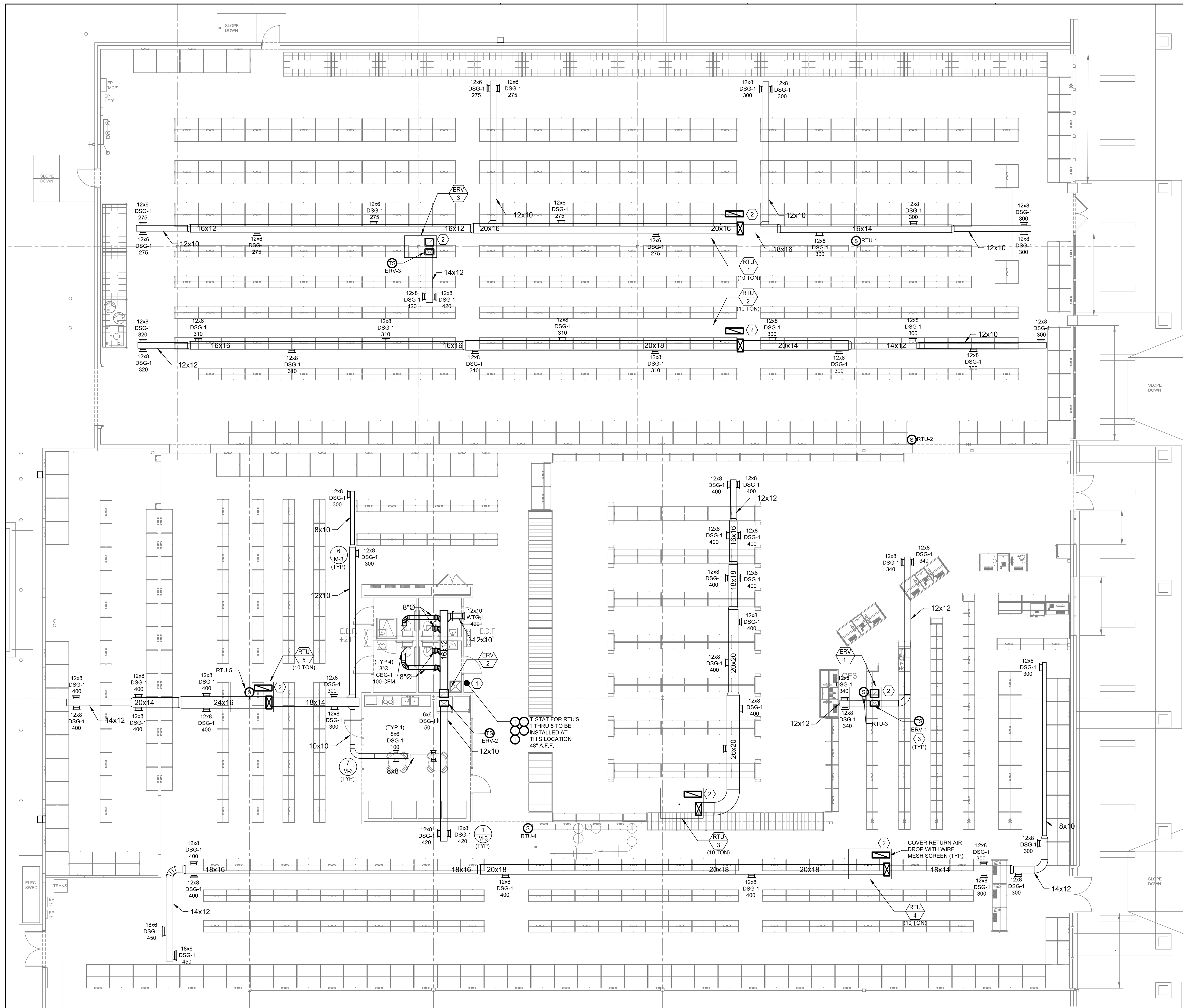


PRCTI20251723

11/21/2025

65W2-REMODEL

M-1



**KEY NOTES**

1. NEW T-STAT FOR RTU'S 1 THRU 5 INSTALLED AT INDICATED LOCATION MOUNTED AT 48" AFF.
2. COVER OPEN RETURN AIR DUCT WITH WIRE MESH SCREEN.
3. PROVIDE FACTORY-SUPPLIED DISCHARGE AIR TEMPERATURE SENSOR FOR ERV CONTROL.

**REMODEL SCOPE OF WORK**

1. INSTALL DUCTS PER REMODEL PLAN. ALL DUCTS, ELBOWS AND RELATED ACCESSORIES SHALL BE FURNISHED BY CONTRACTOR.
2. PROVIDE AND INSTALL DUCT TYPE SMOKE DETECTORS ON THE RETURN AIR DUCT PLENUM FOR ALL NEW HVAC UNITS. THEY SHALL BE INTERLOCKED WITH THE UNIT FOR SHUTDOWN AND TIED INTO THE BUILDING FIRE LIFE SAFETY CONTROL PANEL. PROVIDE WITH REMOTE STATUS PANEL WITH RESET LED PUSH BUTTON.
3. INSTALL ENERGY MANAGEMENT SYSTEM AND EQUIPMENT PER ELECTRICAL DRAWINGS. FIELD INSTALL SENSORS IN RTUS.
4. HVAC UNIT CONDENSATE DRAINS SHALL BE PROPERLY TRAPPED, SUPPORTED AND SLOPED TO THE NEAREST CODE APPROVED PLUMBING RECEPTORS.
5. MECHANICAL CONTRACTOR TO COORDINATE AND OBTAIN APPROVAL FROM STRUCTURAL ENGINEER FOR PIPE AND EQUIPMENT SUPPORTS, SEISMIC RESTRAINTS, CONNECTION AND ANCHORAGE/MOUNTING TO THE STRUCTURE.
6. AFTER COMPLETION OF WORK, TESTS ON THE HVAC SYSTEMS, INCLUDING AN AIR BALANCE PERFORMANCE TEST SHALL BE PERFORMED IN ACCORDANCE WITH AN APPROVED METHOD PER WASHINGTON STATE MECHANICAL CODE.

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 4423 SOUTH MERIDAN  
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**MECHANICAL HVAC PLAN**

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City of Puyallup  
 Development & Permitting Services  
**ISSUED PERMIT**

Building	Planning
Engineering	Public Works
Fire	Traffic

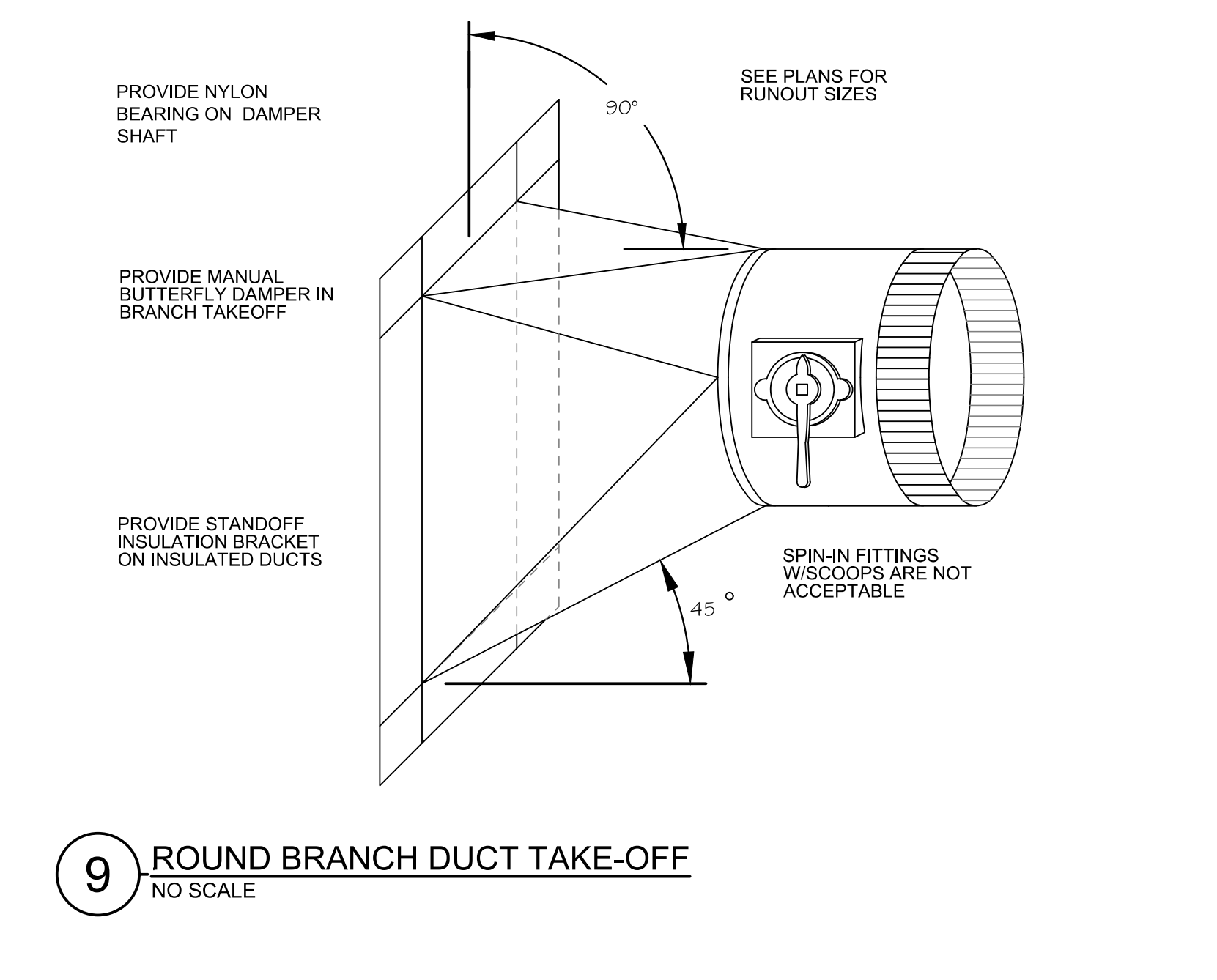
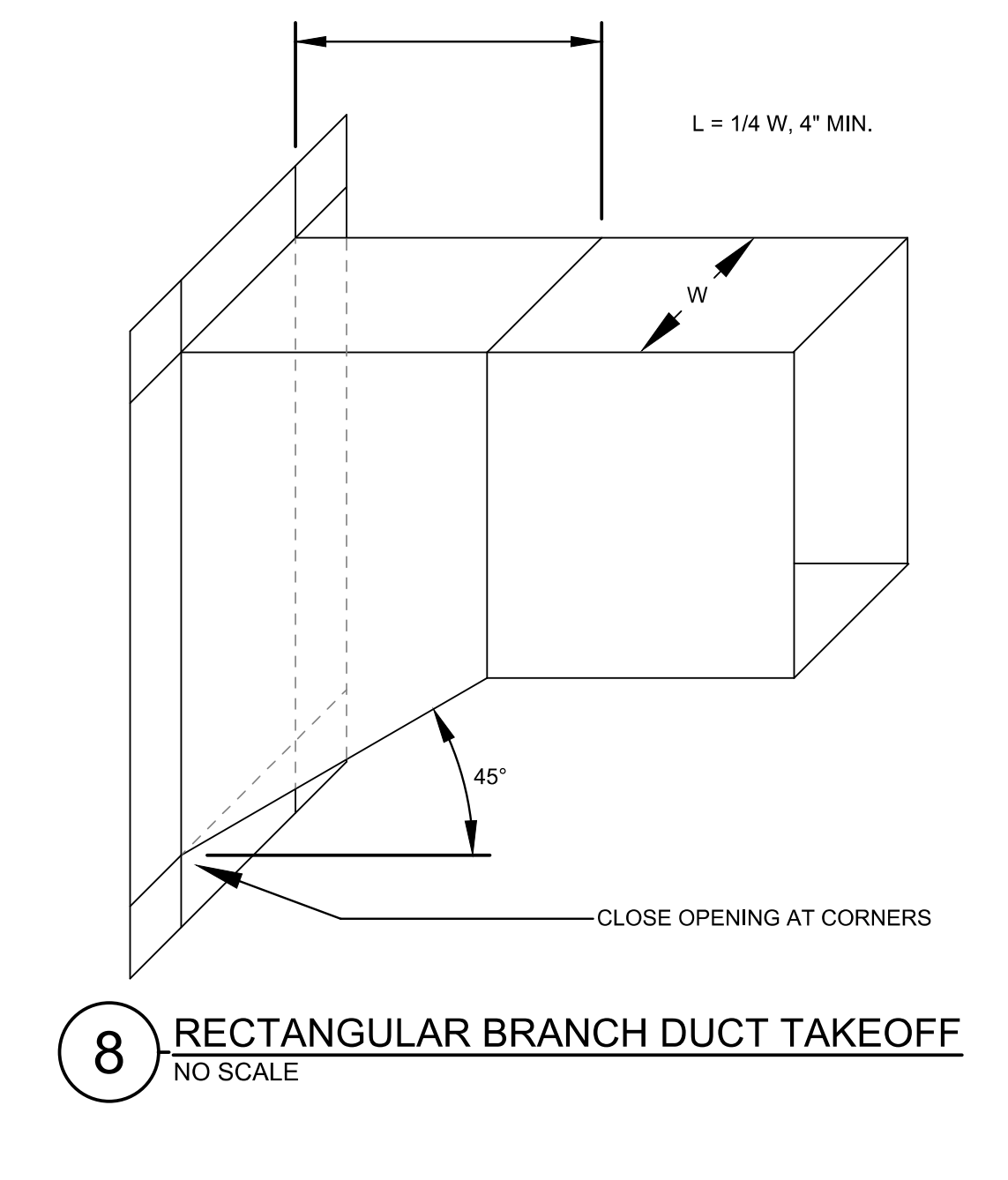
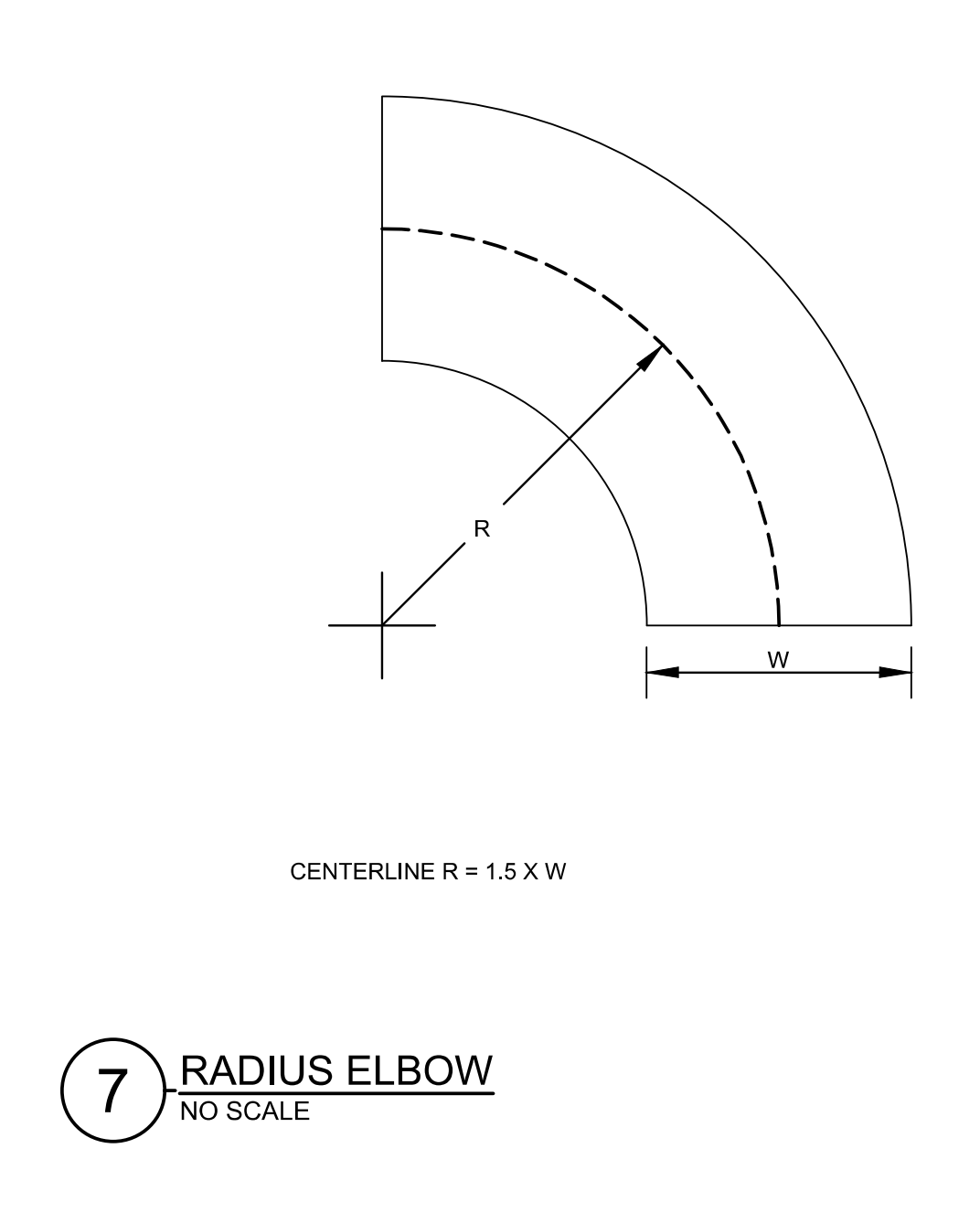
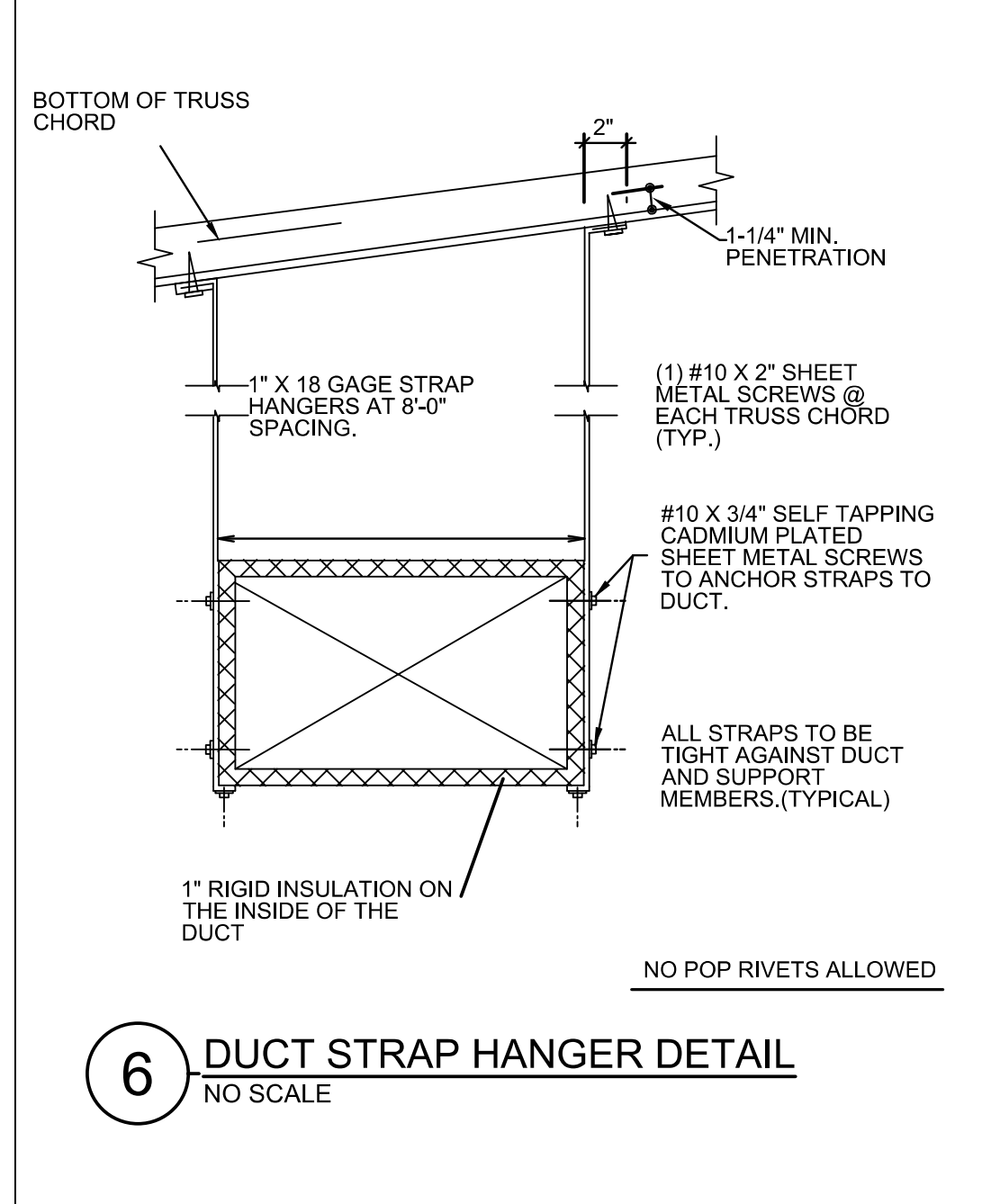
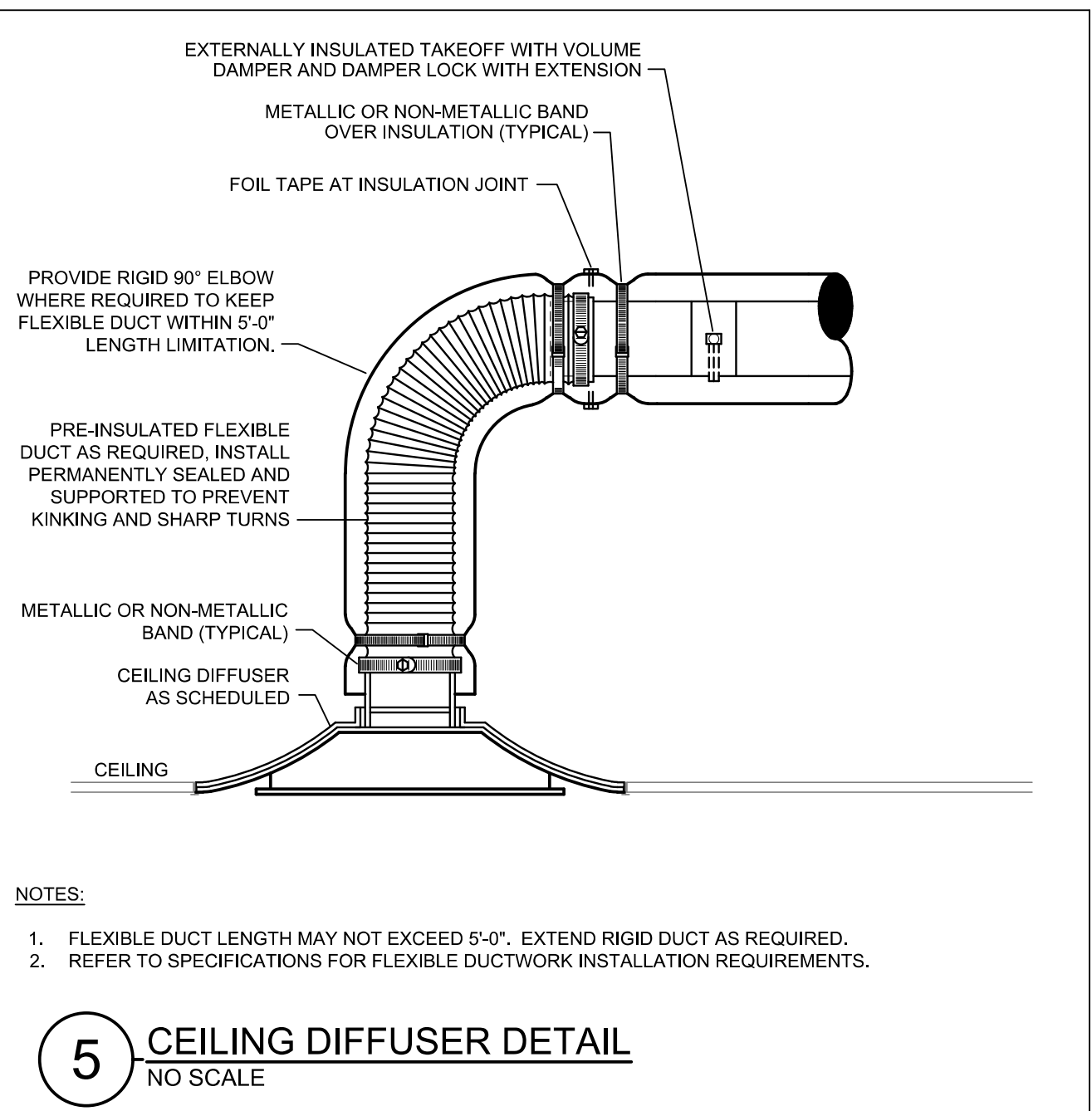
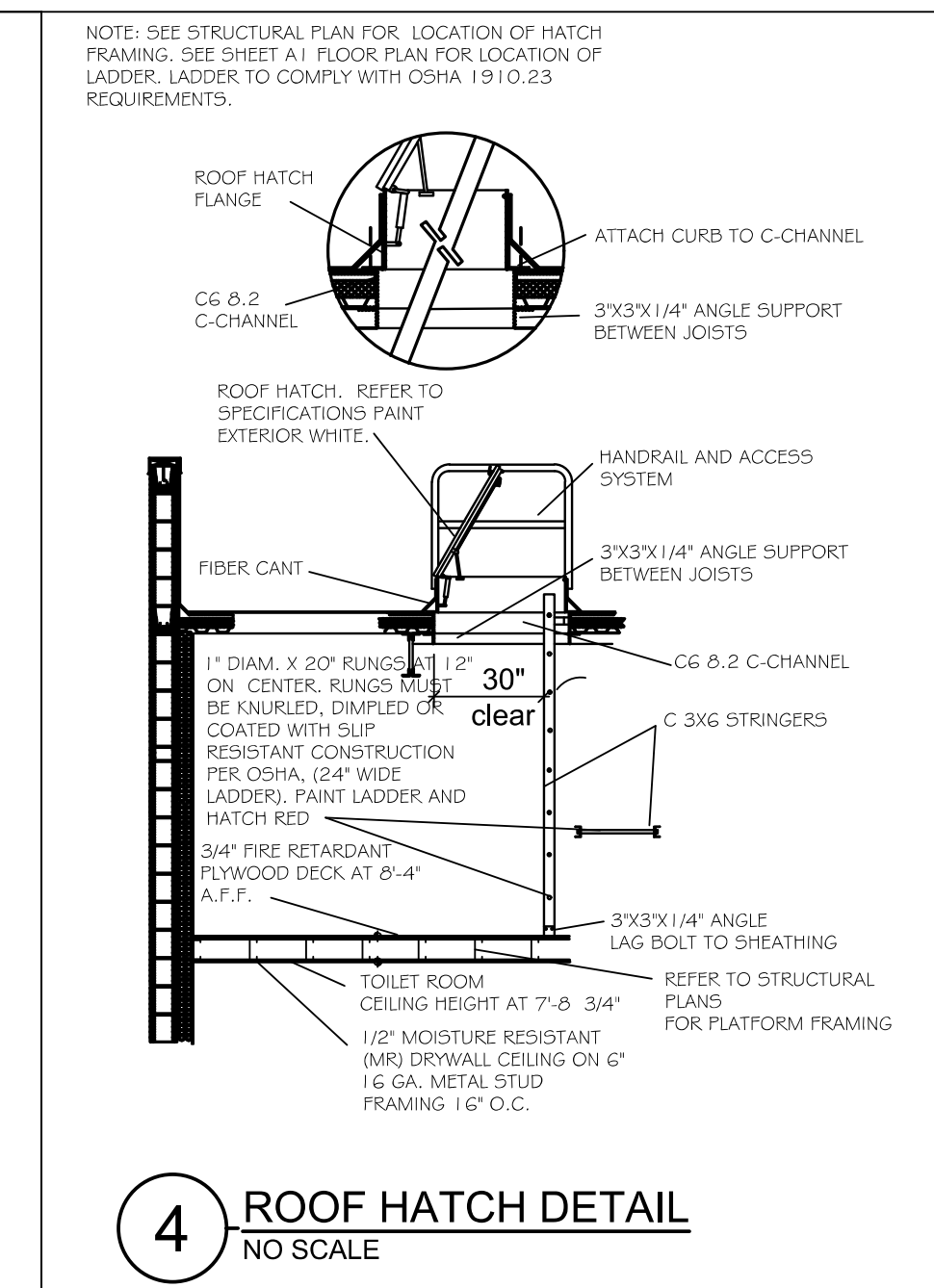
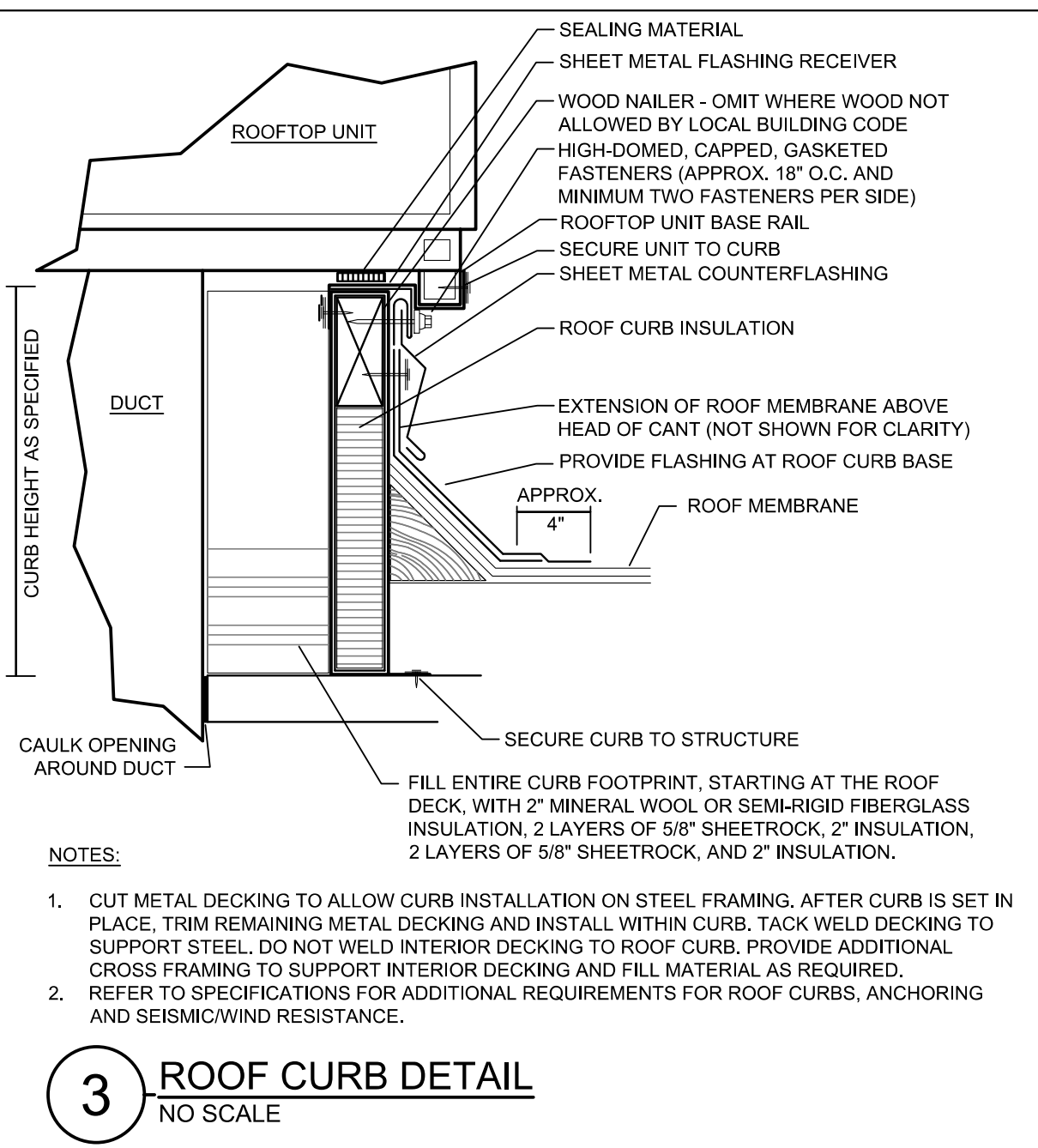
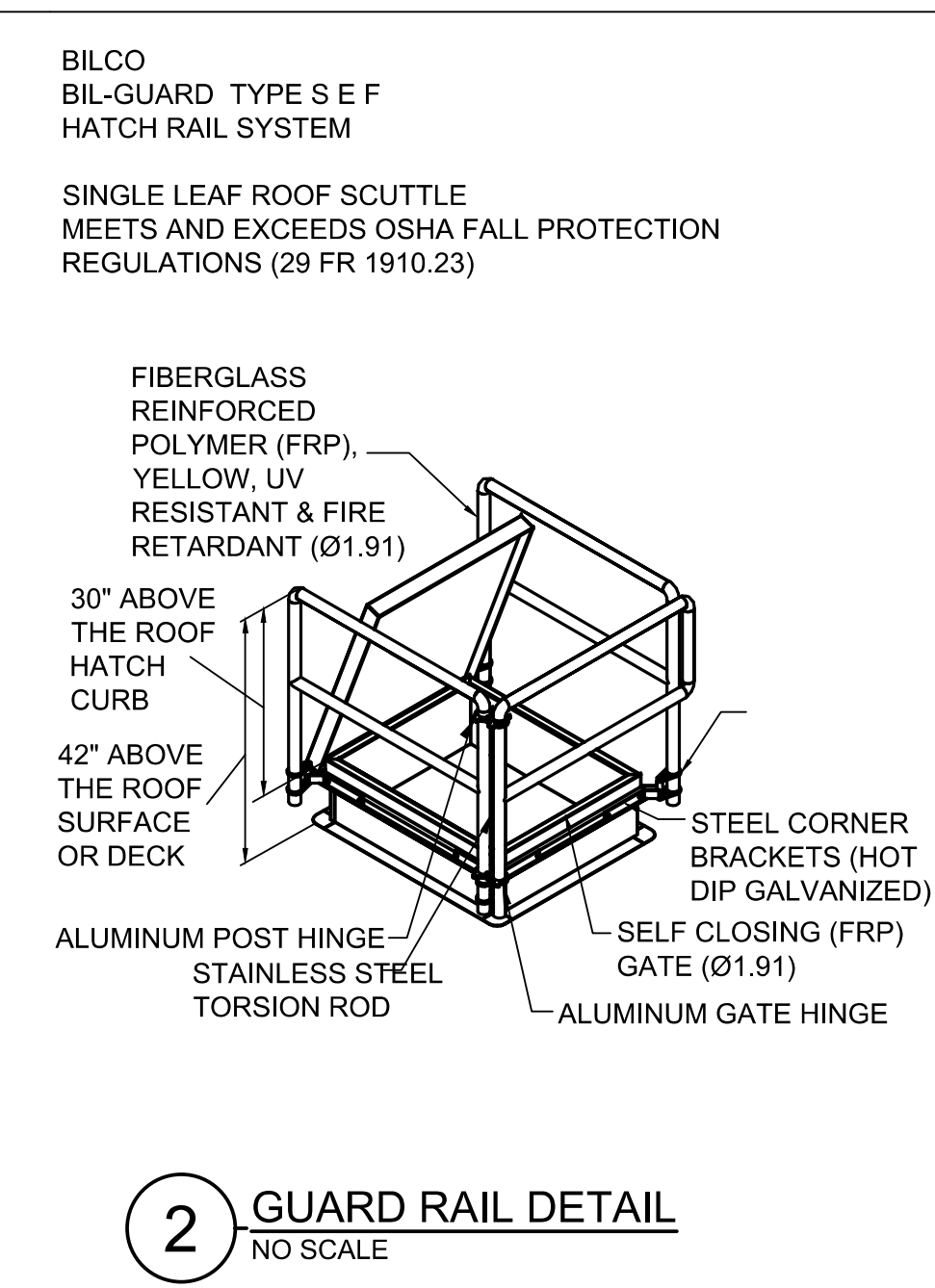
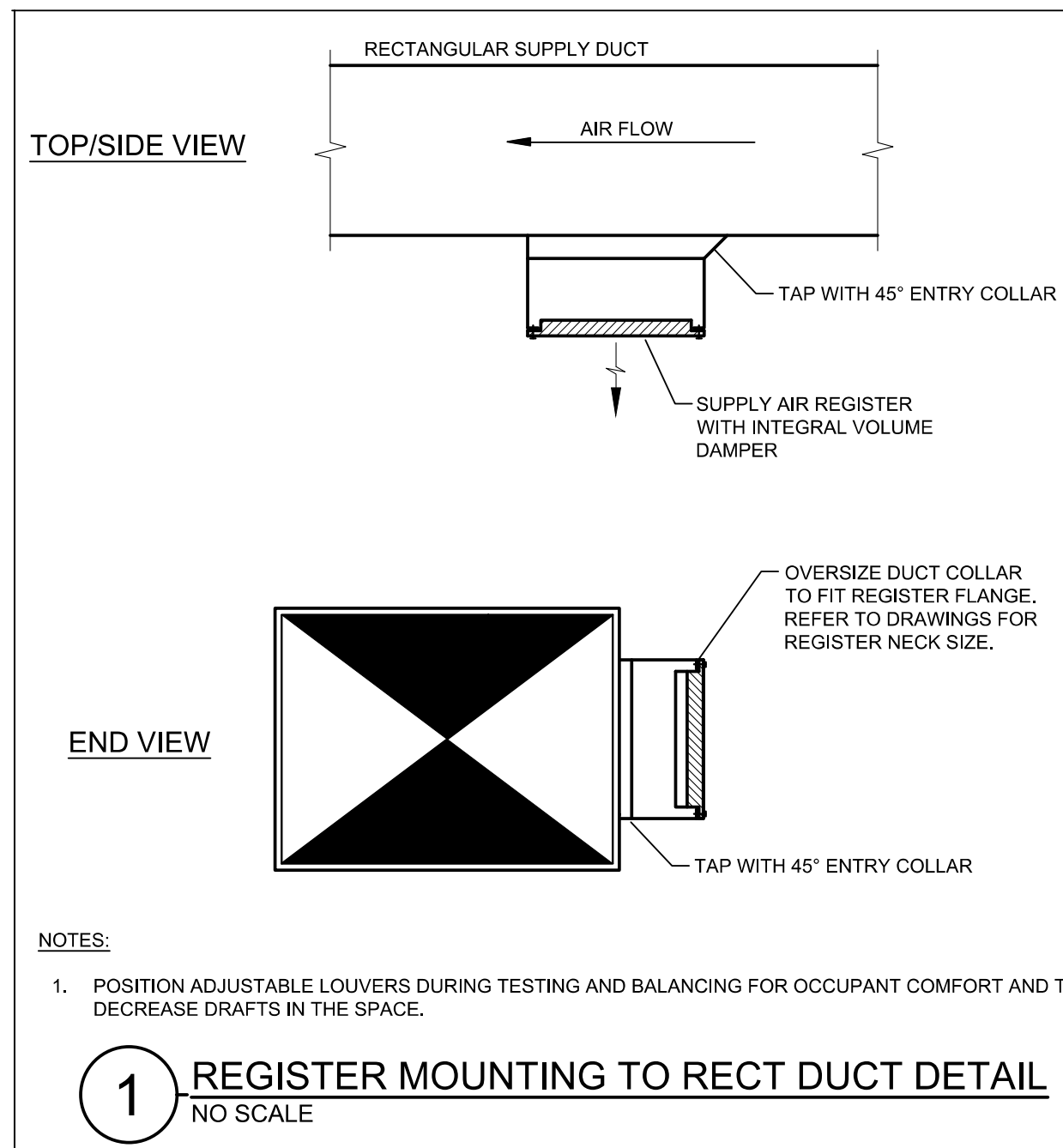
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65W2-REMODEL

M-2

**1 MECHANICAL FLOOR PLAN**  
 SCALE: 1/8"=1'-0"



1. All air diffusers and return air grilles are new, to be supplied and installed by the general contractor.

**LEGEND FOR NEW GRILLES**

24"x24" or 24"x48" RETURN AIR C.L.G. GRILLES TITUS MODEL # 50F, T-BAR LAY-IN, R/A= SEE PLAN	INDICATES ROOF OPENING	NOMINAL 24" X 24" CEILING DIFFUSER W/ 12" AND 10" COLLAR, TITUS MODEL # TMSA SQ. CLG. DIFF. FULL ADJ. PATTERN S/A = SEE PLAN	
		6" x 6" CLG. DIFF. SURFACE MOUNT, TOILET ROOMS, TITUS TMS, S/A = 75 CFM	ELECTRICAL DISCONNECT PROVIDED BY G.C.

NTS hvac-legend

**6 HVAC LEGEND**

MARK	MANUFACTURER MODEL NO. NEW/EXISTING	SUPPLY AIR MIN. O.S.A. E.S.P.	COOLING DATA			HEAT PUMP OUTPUT		ELECTRICAL REQ. UNIT M.C.A.	BREAKER
			ENT. AIR D.B. / W.B.	TOTAL COOLING SENSIBLE COOLING	EER	ENT. AIR D.B.	INPUT OUTPUT BTUH		
RTU-1,2,3 4,5	YORK WXE12 NEW	4,000 CFM 0.8 IN.	76 63	128,000 BTUH 108,600 BTUH	-	80	112,000 BTUH	460/30/60Hz 25	30A

NTS rtu-sched

**ROOF TOP UNIT SCHEDULE**

REVISIONS	1	2	3	4	5	6
CITY COMMENTS						

AutoZone Store No. 10668  
4423 SOUTH MERIDAN  
PUYALLUP WA 98373  
MECHANICAL DETAILS

**HENDERSON ENGINEERS**  
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02/04/2026

City of Puyallup  
Development & Permitting Services  
**ISSUED PERMIT**

Building	Planning
Engineering	Public Works
Fire	Traffic

PRCTI20251723

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65W2-REMODEL

M-3

### ROOFTOP UNIT CONTROL MATRIX

CONTROL FEATURE	UNITS	RTU-1 THRU RTU-5 SETPOINT OR Y/N	NOTES
<b>SETPOINTS</b>			
COOLING - OCCUPIED SETPOINT	*F	78	
COOLING - UNOCCUPIED SETPOINT	*F	83	
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	*F	5	
HEATING - OCCUPIED SETPOINT	*F	68	
HEATING - UNOCCUPIED SETPOINT	*F	60	
<b>PROGRAMMED CONTROL FEATURES</b>			
HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - PROGRAMMABLE THERMOSTAT		Y	B
MORNING WARMUP SEQUENCE		Y	
MORNING COOL-DOWN SEQUENCE		Y	
<b>EQUIPMENT ACCESSORIES AND CONTROL MODULES</b>			
INTEGRATED ECONOMIZER - DRY BULB TEMPERATURE ENABLE	*F	75	E
ECONOMIZER FAULT DETECTION AND DIAGNOSTICS (FDD) SYSTEM		Y	F, G
RELIEF - BAROMETRIC DAMPER		Y	
COOLING COIL (DX - STAGED)		Y	M
HEAT PUMP AUXILIARY HEATING COIL		Y	M, N
<b>SUPPLY FAN CONTROL METHODS</b>			
ON CONTINUOUSLY		Y	
CYCLE WITH LOADS DURING UNOCCUPIED HOURS		Y	
OPTIMUM START SEQUENCE		Y	T
VARIABLE VOLUME - MODULATE FAN SPEED IN RESPONSE TO ZONE TEMPERATURE		Y	M, R
<b>SAFETIES, INTERLOCKS, AND ALARMS</b>			
RETURN AIR SMOKE DETECTOR - SAFETY SHUTDOWN		Y	F

DIV. 23 CONTRACTOR SHALL PROVIDE CONTROL PANEL(S), WIRING, THERMOSTAT(S), TEMPERATURE SENSOR(S), HUMIDISTAT(S), AND/OR CO2 SENSOR(S) WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED TO FACILITATE THE SCHEDULED CONTROL MODULES AND SEQUENCES OF OPERATION. EACH UNIT SHALL CONTROL BASED ON ITS OWN INTERNAL SAFETIES, TIME DELAYS, AND SEQUENCES UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FINAL BUILDING AND EQUIPMENT SCHEDULES DURING STARTUP. REFERENCE DIVISION SPECIFICATIONS FOR INDIVIDUAL DEVICE REQUIREMENTS.

**NOTES:**  
 B. DIVISION 23 CONTRACTOR SHALL PROVIDE DEVICE.  
 E. IF SETPOINT VALUE IS LISTED, IT INDICATES ECONOMIZER HIGH-LIMIT SHUTOFF. UNIT SHALL BE IN ECONOMIZER IF CONDITIONS ARE LESS THAN SETPOINT. THE FOLLOWING SENSORS SHALL DETERMINE ECONOMIZER ON POINT.  
   OUTSIDE AIR TEMPERATURE; DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE.  
   RETURN AIR TEMPERATURE; DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE.  
   OUTSIDE AIR HUMIDITY; DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE.  
   RETURN AIR HUMIDITY; DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE.  
 F. DEVICE SHALL BE FACTORY MOUNTED AND PRE-WIRED FOR OPERATION SUBJECT TO THE ONBOARD CONTROLLER.  
 G. PROVIDE UNIT WITH AN FDD SYSTEM CONSISTING OF PERMANENTLY INSTALLED OUTSIDE AIR, SUPPLY AIR, AND RETURN AIR TEMPERATURE SENSORS. THE UNIT CONTROLLER SHALL AT A MINIMUM BE CAPABLE OF PROVIDING SYSTEM STATUS OF ECONOMIZER, COMPRESSOR, HEATING, MIXED AIR LOW LIMIT ALARM, AND SENSOR VALUES. EACH OPERATING MODE SHALL BE CAPABLE OF INDEPENDENTLY OPERATING FOR TESTING. THE SYSTEM SHALL REPORT FAULTS TO AN APPLICATION ACCESSIBLE BY SERVICE PERSONNEL. THE FOLLOWING FAULTS SHALL BE DETECTED: AIR TEMPERATURE SENSOR FAILURE, ECONOMIZER ENABLE/DISABLED WHEN ECONOMIZER SHOULD BE OFF/ON, RESPECTIVELY, DAMPER NOT MODULATING, AND EXCESS OUTSIDE AIR.  
 M. UNITARY CONTROLLER SHALL MODULATE AND/OR CYCLE SUPPLY FAN SPEED SETTING AND COIL CAPACITY STAGES SUBJECT TO THE INTERNAL SAFETIES AND SEQUENCES TO MAINTAIN SCHEDULED SETPOINTS.  
 N. CONTROLS FOR AUXILIARY HEATING COIL SHALL PREVENT HEATER OPERATION WHEN THE HEATING LOAD CAN BE MET BY THE HEAT PUMP ALONE. AUXILIARY HEATER OPERATION SHALL BE ALLOWED DURING DEFROST CYCLES.  
 R. PROVIDE MODULATING FAN CONTROL WITH MINIMUM SPEED LESS THAN 50% OF FULL SPEED. AT MINIMUM SPEED THE FAN SHALL DRAW NO MORE THAN 30% OF FULL SPEED POWER.  
 T. DURING OPTIMUM START SEQUENCE, THE UNIT SHALL SUPPLY THE LESSER OF THE MINIMUM RATE OF OUTDOOR AIR OR SUPPLY 3 COMPLETE AIR CHANGES DURING THE 1-HOUR PERIOD BEFORE NORMAL OCCUPIED MODE.

### OUTSIDE AIR REQUIREMENTS, IMC-2021 (IP)

SYSTEM DESIGNATION	SYSTEM TAB NAME OR LIST 'SINGLE'	SINGLE-ZONE SYSTEMS ONLY		MULTI-ZONE SYSTEMS ONLY SYSTEM VENTILATION EFFICIENCY [E_v]	FLOOR AREA SERVED BY SYSTEM [A_s] (SF)	SYSTEM AVERAGED AREA-BASED OUTDOOR AIR RATE (CFM/SF)	SYSTEM POPULATION (PEOPLE)	SYSTEM AVERAGED PEOPLE-BASED OUTDOOR AIR RATE (CFMP)	REQUIRED OA INTAKE FLOW [Vot] (CFM)	REQUIRED DCV OA INTAKE FLOW [Vot] (CFM)	DESIGN OA INTAKE FLOW [Vot] (CFM)	NOTES
		SINGLE ZONE SYSTEM ASSOCIATED VENTILATION ZONE	SINGLE ZONE WORST CASE ZONE AIR DISTRIBUTION EFFECTIVENESS [E_d]									
ERV-1	100%OA (ERV-1)	-	-		4,658	0.150	69.87	9.38	1,354	N/A	1,360	
ERV-2	100%OA (ERV-2)	-	-		11,894	0.073	1.97	6.25	886	N/A	890	
ERV-3	100%OA (ERV-3)	-	-		11,185	0.075	0.001	0.00	839	N/A	840	
<b>TOTALS</b>									<b>3,079</b>	<b>0</b>	<b>3,090</b>	

**GENERAL NOTES:**  
 1. VENTILATION CALCULATIONS BASED ON IMC-2021.  
 2. SYSTEM POPULATIONS BASED ON MAX SEATING AND/OR CODE MAXIMUM VALUES.  
 3. 100% OA SYSTEMS (Vot = Σ<sub>all zones</sub> Vot<sub>z</sub>): WHEN ONE AIR HANDLER SUPPLIES ONLY OUTDOOR AIR TO ONE OR MORE ZONES. EACH ZONE IS INDIVIDUALLY CALCULATED WITH ITS WORST CASE ZONE AIR DISTRIBUTION EFFECTIVENESS (HEATING/COOLING).

### GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	SERVICE	MODEL	CONSTRUCTION TYPE	FACE TYPE	MOUNTING LOCATION	BORDER TYPE	FACE SIZE (IN)	MAX NC	NOTES
DSG-1	TITUS	SUPPLY	300RL	STEEL	LOUVERED	RECTANGULAR DUCT	SURFACE MOUNT	24"X24"	30	A-E & G-K
CRG-1	TITUS	RETURN	PAR	STEEL	PERFORATED	CEILING	LAY-IN		30	A, B, F, J, K
WTG-1	TITUS	RETURN	350RL	STEEL	LOUVERED	WALL	SURFACE MOUNT		30	A-E & G-K
CEG-1	TITUS	EXHAUST	350RL	STEEL	LOUVERED	CEILING	LAY-IN		30	A-E & G-K

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURER.

**NOTES:**  
 A. NECK SIZE SHOWN ON DRAWINGS. PROVIDE BRANCH DUCT TO MATCH NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.  
 B. BAKED ENAMEL FINISH, WHITE TO MATCH CEILING COLOR. CONFIRM FINISH WITH ARCH. CLIENT PRIOR TO PROCUREMENT.  
 C. FRONT BLADES PARALLEL TO LONG DIMENSION.  
 E. DOUBLE DEFLECTION BARS SHALL BE ADJUSTABLE.  
 F. FRAME TYPE TO MATCH CEILING/WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING/WALL PLAN.  
 G. PROVIDE OPPOSED BLADE DAMPER ADJUSTABLE FROM FACE OF DEVICE.  
 J. PROVIDE BORDER TYPE TO MATCH CEILING CONSTRUCTION.  
 K. PROVIDE DIFFUSERS, AND GRILLES WITH NO EXPOSED MOUNTING SCREWS.

### ENERGY RECOVERY VENTILATOR CONTROL MATRIX

CONTROL FEATURE	UNITS	ERV-1 THRU ERV-3 SETPOINT OR Y/N	NOTES
<b>ENERGY RECOVERY</b>			
ENERGY RECOVERY WHEEL (TOTAL ENTHALPY) - CONSTANT SPEED		Y/N	
ENERGY RECOVERY TIMED DEFROST SEQUENCE		Y/N	
ENERGY RECOVERY ECONOMIZER MODE		Y/N	L
<b>PROGRAMMED CONTROL FEATURES</b>			
HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - SCHEDULED AT DOAS INTERNAL UNIT CONTROLLER		Y/N	B
<b>EQUIPMENT COMPONENTS, ACCESSORIES AND CONTROL FEATURES</b>			
OUTSIDE AIR DAMPER - MOTOR OPERATED		Y/N	H
RELIEF/EXHAUST AIR DAMPER - BAROMETRIC		Y/N	
<b>SUPPLY FAN CONTROL METHODS</b>			
ON DURING OCCUPIED MODE		Y	
CONSTANT SPEED SUPPLY FAN OPERATION		Y/N	
<b>EXHAUST FAN CONTROL METHODS</b>			
CONSTANT SPEED EXHAUST FAN OPERATION		Y/N	
<b>SAFETIES, INTERLOCKS, AND ALARMS</b>			
LOW LIMIT FREEZE STAT - FREEZE PROTECTION SAFETY SHUTDOWN		Y	E
DIFFERENTIAL PRESSURE SWITCH - FILTER CHANGE ALARM		Y	E
OUTSIDE AIR DAMPER END SWITCH - SAFETY SHUTDOWN		Y	J
EXHAUST AIR DAMPER END SWITCH - SAFETY SHUTDOWN		Y	K

DIV. 23 CONTRACTOR SHALL PROVIDE CONTROL PANEL(S), WIRING, THERMOSTAT(S), TEMPERATURE SENSOR(S), HUMIDISTAT(S), AND/OR CO2 SENSOR(S) WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED TO FACILITATE THE SCHEDULED CONTROL MODULES AND SEQUENCES OF OPERATION. EACH UNIT SHALL CONTROL BASED ON ITS OWN INTERNAL SAFETIES, TIME DELAYS, AND SEQUENCES UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FINAL BUILDING AND EQUIPMENT SCHEDULES DURING STARTUP. REFERENCE DIVISION SPECIFICATIONS FOR INDIVIDUAL DEVICE REQUIREMENTS.

**NOTES:**  
 B. DIVISION 23 CONTRACTOR SHALL PROVIDE DEVICE.  
 E. DEVICE SHALL BE FACTORY MOUNTED AND PRE-WIRED FOR OPERATION SUBJECT TO THE ONBOARD CONTROLLER.  
 H. DAMPER SHALL BE CLOSED DURING UNOCCUPIED MODE.  
 J. PROVIDE END SWITCH ON THE OUTSIDE AIR DAMPER AND INTERLOCK THE SWITCH WITH THE SUPPLY FAN TO KEEP IT FROM STARTING IF END SWITCH DOES NOT PROVE DAMPER OPEN.  
 K. PROVIDE END SWITCH ON THE EXHAUST AIR DAMPER AND INTERLOCK THE SWITCH WITH THE EXHAUST FAN TO KEEP IT FROM STARTING IF END SWITCH DOES NOT PROVE DAMPER OPEN.  
 L. WHEN SPACE IS IN COOLING MODE AND OUTSIDE AIR CONDITIONS ARE SUCH THAT FREE COOLING IS AVAILABLE, UNIT CONTROLS SHALL MODULATE ERV WHEEL MOTOR SPEED OR MODULATE ENERGY RECOVERY BYPASS DAMPERS TO MAINTAIN SCHEDULED COOLING SUPPLY AIR TEMPERATURE SETPOINT.

### PROJECT DESIGN CONDITIONS

CLIMATE CONDITIONS	WEATHER STATION		REFERENCE	BUILDING OPERATING HOURS:	
WEATHER STATION:	MCHORD AFB, WA, USA	2025 ASHRAE / 2021 WMC		MONDAY - FRIDAY	TBD BY OWNER
CLIMATE ZONE:	4C			SATURDAY	TBD BY OWNER
ASHRAE HEATING:	99.6%	21.3 °F DB		SUNDAY	TBD BY OWNER
DESIGN HEATING CONDITIONS:		21.3 °F DB		HOLIDAY	TBD BY OWNER
HUMIDIFICATION:	99.6%	13.9 °F DP	11.3 gr/lb		
ASHRAE COOLING:	0.4%	87.4 °F DB	65.9 °F WB		
DESIGN COOLING CONDITIONS:		87.4 °F DB	65.9 °F WB		
DEHUMIDIFICATION:	0.4%	63.3 °F DP	88.1 gr/lb		

SPACE / UNIT DESCRIPTION	SET POINTS										SPACE OPERATING HOURS OCCUPIED / UNOCCUPIED			NOTES
	COOLING / DE-HUMIDIFICATION					HUMIDIFICATION					DAYS OF THE WEEK			
	OCC *F	UNOCC *F	MAX RH %	MIN RH %	CONTROL METHOD	OCC *F	UNOCC *F	MIN RH %	MAX RH %	M-F	SAT	SUN		
SALES	78	83	50%	NA	68	60	NA	NA	NA	NA	TBD	TBD	TBD	A-D
BACK OF HOUSE	78	83	50%	NA	68	60	NA	NA	NA	NA	TBD	TBD	TBD	A-D

**NOTES:**  
 A. ZONE LEVEL VENTILATION RESET / DEMAND CONTROL VENTILATION (DCV) CONTROL METHOD: CARBON DIOXIDE SENSOR (CO2).  
 B. ZONE LEVEL SET POINT CONDITIONS SHALL BE AS SCHEDULED UNLESS OTHERWISE SCHEDULED OR NOTED ON THE DRAWINGS FOR ROOM SPECIFIC SPACE CONDITIONS.  
 C. ZONE LEVEL OCCUPANCY/HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.  
 D. ZONE LEVEL CONTROLS SHALL BE CAPABLE OF OPERATING WITH INDEPENDENT OCCUPANCY SCHEDULES.

### ENERGY RECOVERY VENTILATION UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	SUPPLY FAN				EXHAUST FAN				SUMMER EXHAUST				SUMMER SUPPLY				WINTER EXHAUST				WINTER SUPPLY				ELECTRICAL	WEIGHT (LBS)	NOTES								
			FAN TYPE	OA (CFM)	ESP (IN)	BHP (HP)	NOM (V/N)	VFD (Y/N)	FAN TYPE	EXH (CFM)	ESP (IN)	BHP (HP)	NOM (V/N)	VFD (Y/N)	EAT (°F DB)	LAT (°F WB)	OAT (°F DB)	LAT (°F WB)	EAT (°F DB)	LAT (°F WB)	OAT (°F DB)	LAT (°F WB)	WPH	MCA	MOCP	DISC TYPE				STARTER TYPE							
ERV-1	GREENHECK	ERV-20-15L	FC	1,360	0.5	0.76	1/2	N	FC	1,260	0.5	0.57	0.5	N	75	61.6	85.2	65.3	87.4	65.9	77.7	62.5	72	55.8	30	26.6	21.3	17.4	60.3	48.2	208/1	16.5	20	NF	COMBINATION	722	ALL
ERV-2	GREENHECK	ERV-20-15L	FC	890	0.5	0.30	1/3	N	FC	880	0.5	0.26	1/3	N	75	61.6	85.4	65.4	87.4	65.9	76.9	62.3	72	55.8	29.4	25.6	21.3	17.4	63.5	50.4	208/1	7.5	15	NF	COMBINATION	661	ALL
ERV-3	GREENHECK	ERV-10-20H-VG	FC	840	0.5	0.43	3/4	N	FC	830	0.5	0.61	3/4	N	75	61.8	84.4	65	87.4	65.9	77.8	62.6	72	55.8	33.3	29.2	21.3	17.4	59.8	47.9	208/1	29.9	40	NF	COMBINATION	270	ALL

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

**NOTES:**  
 A. PROVIDE 2" MERV 13, PLEATED THROWAWAY AIR FILTERS IN EACH AIRSTREAM.  
 B. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT.  
 C. PROVIDE INSULATED ROOF CURBS WITH MINIMUM HEIGHT REQUIRED TO MAINTAIN BOTTOM OF EQUIPMENT A MINIMUM OF 8 INCHES ABOVE FINISHED ROOF SURFACE. PROVIDE SLOPED CURB IF NEEDED TO MATCH ROOF SLOPE. COORDINATE WITH ROOF INSULATION THICKNESS AND ROOF TAPER AT INSTALLED LOCATION. COORDINATE CURB TYPE WITH DRAWINGS.  
 D. SCHEDULED WEIGHT IS THE MAXIMUM ALLOWABLE OPERATING WEIGHT OF THE EQUIPMENT.

REVISIONS  
 1 CITY COMMENTS  
 2  
 3

4  
 5  
 6

AutoZone Store No. 10668  
 4423 SOUTH MERIDAN  
 PUYALLUP WA 98373

MECHANICAL SCHEDULES AND NOTES



8345 LENEXA DRIVE, SUITE 300  
 LENEXA, KS 66214  
 TEL 913.742.5000 FAX 913.742.5001  
 WWW.HENDERSONENGINEERS.COM

2550003925  
 WA CORPORATE NUMBER: 1754  
 06/30/25



02/04/2026



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65W2-REMODEL

M-5



