

REMOTE CONDENSING UNIT (RCU) SCHEDULE ELECTRICAL SUCTION LIQUID SUCTION LIQUID NOMINAL COOLING COMPRESSOR QTY FAN CONDENSER QTY NET WEIGHT EER MCA MOP V/PH SERVES | MODEL NO. | REFRIG. | (°F) | (°F) | SIZE | SIZE | CAPACITY | CAPACITY & TYPE & DRIVE TYPE (LBS) 1 SCROLL 1 DIRECT

8. VERIFY LINE SIZES WITH MANUFACTURER.

RCU-C-1 MECH YARD EXISTING UV 4TTR4030 R-410A 45.0 110 3/8" 3/4" 2.5 TONS 30000 Btu/h 12.2 17.0 25 208/2ø RCU-C-2 MECH YARD EXISTING UV 4TTR4030 R-410A 45.0 110 3/8" 3/4" 2.5 TONS 30000 Btu/h 1 SCROLL 1 DIRECT 12.2 17.0 25 208/2ø 3 PROVIDE DEFROST CONTROLS PROVIDE 4" CONCRETE PAD. DESIGN BASIS: TRANE 6. PROVIDE BRAZED TUBING REFRIGERANT LINE SETS AND COUPLINGS. PROVIDE MOTOR STARTER PROVIDE LOW AMBIENT OPERATION BELOW 60°F. FIELD CHARGE REFRIGERANT FOR SUPPLY LINE, CONDENSER AND COILS.

DUCT COLLAR.

FAN COIL UNIT (FCU) SCHEDULE																		
					HEATING DATA			HW COIL SUPPLY FAN		/ FAN	ELECTRICAL							
				MIN.	NO.			CAP.		WPD	ESP		MOTOR					
EQUIP NO.	LOCATION	MODEL NO.	SA CFM	OA	ROW	EAT (°F)	LAT (°F)	(MBH)	GPM	(FT HD)	(IN. WG.)	RPM	SIZE (HP)	V/PH	FLA	MCA	MOP	NOTES
FCU-C-E13	GYM OFFICE E13	FCBB040	150	20	2	60.1	116.6	9.2	0.5	1.2	0.00	740	0.01	120V/1ø	2.2	2.8	15	1-7
NOTES:																		
1. DESIGN BASIS: TRANE 4. HOT WATER COIL CONDITIONS: EWT=160°F					, LWT=12	20°F 6.	VERIFY	PIPE AND	ELECTRIC	AL LEF	Γ/RIGHT HAN	ID CONNE	CTIONS	PRIOF	R TO OF	RDERING.		
2. CEILING CABINET UNIT 5. PROVIDE NEMA 1 DISCONNECT SWITCH.						7.	PROVID	E RETURI	N AIR BOTT	TOM INL	ET, FRONT (GRILLE OU	TLET A	ND BAC	CK FRE	SH AIR		

SARGENT BUILDING/EQUIPMENT VENTILATION CALCULATIONS													
		ZONE I	MINIMUM VENTILATION RATES										
EQUIPMENT NUMBER	ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	Az - AREA (SF)	Pz - ZONE OCCU. #/1000 FT	ZONE OCCU.	Rp (CFM/ Person)	RpP	Ra (CFM/SF)	RaA	Vbz (CFM)	EZ	Voz (CFM)
EXG UVs	6	LIBRARY/MEDIA CENTER	Media center	1821	25	46	10	460	0.12	219	679	0.9	760
EXG UVs	6A	WORK ROOM	Office Space	98	5	1	5	5	0.06	6	11	0.9	20
FCU-C-E13	E13	GYM OFFICE	Office Space	146	5	1	5	4	0.06	9	12	0.8	20
NOTES:		_	·			·							

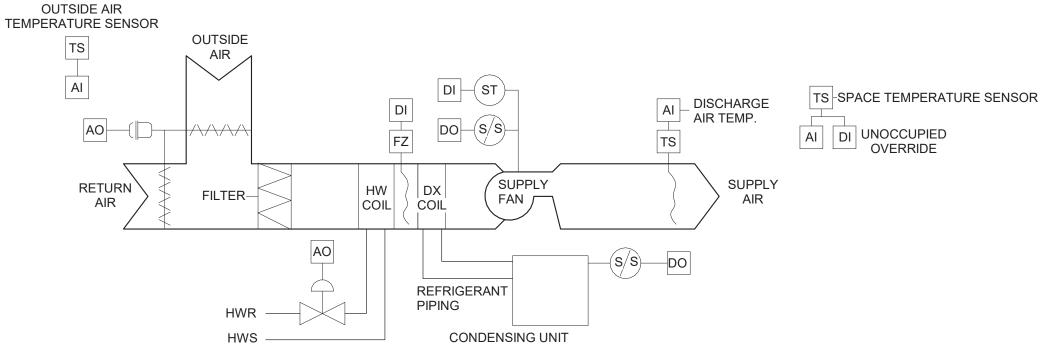
PROVIDE INTERNAL THERMAL PROTECTION.

Rp = PEOPLE OUTDOOR AIR RATE, Ra = AREA OUTDOOR AIR RATE, Vbz = BREATHING ZONE OUTDOOR AIRFLOW

z = AIR DISTRIBUTION CONFIGURATION, Voz = ZONE OUTDOOR AIRFLOW

AND NEMA 3R DISCONNECT.

PROVIDE 1" MERV13 FILTER.



UNIT VENTILATOR - HOT WATER (VALVE CONTROL) AND DX COOLING - SEQUENCE OF OPERATIONS:

OCCUPIED MODE:

- SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE POSITION REQUIRED TO MAINTAIN THE MINIMUM OUTSIDE AIR QUANTITY INDICATED. OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM POSITION EXCEPT IN CASE OF ALARM.
- WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE HEATING SETPOINT, THE 2-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE HEATING SETPOINT SUBJECT TO DISCHARGE HIGH LIMIT OF 110 DEG. F (ADJUSTABLE AND DISCHARGE LOW LIMIT OF 70 DEG. F (ADJUSTABLE). WHEN THE SPACE TEMPERATURE RISES 3 DEG. F (ADJUSTABLE) ABOVE THE SPACE HEATING SETPOINT, AND THE OUTSIDE AIR TEMPERATURE IS LOWER THAN THE SPACE TEMPERATURE. THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL
- OPEN TO MAINTAIN THE OCCUPIED SETPOINT. THIS SHALL BE DONE SUBJECT TO DISCHARGE LOW LIMIT OF 55 DEG. F (ADJUSTABLE), AND WITH THE HEATING VALVE FULLY CLOSED. WHEN THE SPACE TEMPERATURE IS 3 DEG. F (ADJUSTABLE) ABOVE THE COOLING SETPOINT, AND THE OUTSIDE AIR CANNOT COOL THE SPACE. THE RESPECTIVE CONDENSING UNIT SHALL BÈ CYCLED TO MAINTAIN SPACE TEMPERATURE WITH THE HEATING VALVE FULLY CLOSED. USE 5 DEG. F (ADJUSTABLE) DEADBAND BETWEEN HEATING AND COOLING SETPOINTS.

UNOCCUPIED MODE:

- SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL BE OFF.
- THE OUTSIDE AIR DAMPER AND ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED. WHERE SPACE HAS FINNED TUBE RADIATION, RADIATION SHALL PROVIDE FIRST STAGE UNOCCUPIED HEATING.
- ON DROP IN SPACE TEMPERATURE BELOW THE UNOCCUPIED SETPOINT, CYCLE THE FAN ON AND COIL CONTROL VALVE FULL OPEN AS REQUIRED TO MAINTAIN REDUCED SPACE TEMPERATURE. USE 5 DEG. F (ADJUSTABLE) DEADBAND AS REQUIRED TO MINIMIZE SHORT CYCLING. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO OCCUPIED MODE FOR 1 HOUR (ADJUSTABLE). AT EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

WARM-UP MODE:

- THE UNIT SHALL START PER AN OPTIMUM START PROGRAM. THE OUTSIDE AIR DAMPER AND ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED, AND THE ASSOCIATED EXHAUST FAN SHALL BE OFF. THE SUPPLY FAN SHALL RUN AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN OCCUPIED SETPOINT.
- PURGE VENTILATION MODE: PROVIDE GLOBAL INITIATION OF PURGE VENTILATION MODE AT THE OPERATOR'S WORKSTATION SUCH THAT ONE INITIATION STARTS OR STOPS PURGE VENTILATION MODE FOR ALL EQUIPMENT SO PROGRAMMED. PROVIDE FOR GLOBAL ADJUSTMENT OF THE BELOW DESCRIBED SCHEDULING
 - AND PERCENTAGE VENTILATION CHANGES, AND ALSO FOR LOCAL ADJUSTMENT AWAY FROM GLOBAL SETPOINTS. IF GLOBAL SETPOINTS ARE SUBSEQUENTLY RE-ADJUSTED, PROVIDE WARNING WITH A LIST OF UNITS WITH LOCAL OVERRIDES, BUT DO NOT RE-ADJUST LOCAL OVER-RIDE SETPOINTS GLOBALLY.
 - PROVIDE A PURGE VENTILATION MODE WITH INCREASED VENTILATION AS POSSIBLE WITHIN THE LIMITS OF THE EQUIPMENT. OPERATE WITH ALL THREE MODES DESCRIBED ABOVE WITH THE FOLLOWING MODIFICATIONS TO THE OCCUPIED PERIOD.

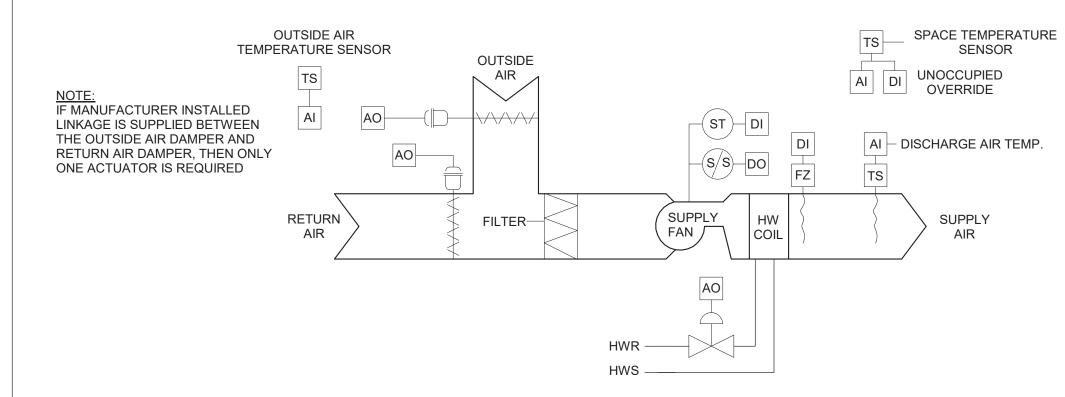
PLANT HEATING CAPACITY. IF SPACE TEMPERATURE DROPS MORE THAN 2 DEG. F (ADJ) BELOW SPACE HEATING SETPOINT WITH THE HEATING VALVE 100% OPEN, MODULATE VENTILATION RATE BACK TO MINIMUM SPECIFIED VENTILATION RATE DESCRIBED ABOVE WITH HEATING VALVE AT

START OCCUPIED VENTILATION MODE 1 HOUR (ADJ) EARLIER AND END IT 4 HOURS (ADJ) LATER. INCREASE VENTILATION AS POSSIBLE BY 100% (ADJ) WHERE 0% INCREASE IS THE MINIMUM VENTILATION DESCRIBED ABOVE AND 100% IS 100% OUTSIDE AIR WITH NO RETURN AIR. MAINTAIN OCCUPIED SPACE TEMPERATURE AND INCREASED VENTILATION AS POSSIBLE WITHIN HEATING CAPACITY CONSTRAINTS OF LOCAL AND

SAFETIES:

- A SEPARATE LOW LIMIT FREEZE STAT WITH AUTOMATIC RESET SHALL BE INSTALLED WITH SENSING ELEMENT SERPENTINED ACROSS THE FACE OF THE COIL; WHENEVER COIL FREEZE-UP CONDITIONS ARISE (36 DEG. F ADJUSTABLE) THE SUPPLY FAN SHALL STOP, THE OUTSIDE AIR DAMPER
- SHALL CLOSE 100%, AND CONTROL VALVE SHALL OPEN 100%. AN ALARM SHALL ALSO BE ACTIVATED. UPON FAILURE OF THE FAN, AS SENSED BY THE CURRENT SENSING STATUS SWITCH, ACTIVATE AN ALARM.

UV - Hot Water - Valve Control and DX



FAN COIL UNIT - HOT WATER - VALVE CONTROL - SEQUENCE OF OPERATIONS:

OCCUPIED MODE:

- SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE POSITION REQUIRED TO MAINTAIN THE MINIMUM OUTSIDE AIR QUANTITY AS INDICATED.
- OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM POSITION EXCEPT IN CASE OF ALARM. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE HEATING SETPOINT, THE 2-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE
- HEATING SETPOINT SUBJECT TO DISCHARGE HIGH LIMIT OF 110 DEG. F (ADJUSTABLE) AND DISCHARGE LOW LIMIT OF 70 DEG. F (ADJUSTABLE). WHEN THE SPACE TEMPERATURE RISES 3 DEG. F (ADJUSTABLE) ABOVE THE SPACE HEATING SETPOINT, AND THE OUTSIDE AIR TEMPERATURE IS LOWER THAN THE SPACE TEMPERATURE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL OPEN TO MAINTAIN THE OCCUPIED SETPOINT. THIS SHALL BE DONE SUBJECT TO DISCHARGE LOW LIMIT OF 55 DEG. F (ADJUSTABLE),

UNOCCUPIED MODE:

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AND WITH THE HEATING VALVE FULLY CLOSED.

- THE OUTSIDE AIR DAMPER AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED WHERE SPACE HAS FINNED TUBE RADIATION, RADIATION SHALL PROVIDE FIRST STAGE UNOCCUPIED HEATING.
- ON DROP IN SPACE TEMPERATURE BELOW THE UNOCCUPIED SETPOINT. CYCLE THE FAN AND COIL CONTROL VALVE FULL OPEN AS REQUIRED TO MAINTAIN REDUCED SPACE TEMPERATURE. USE 5 DEG. F (ADJUSTABLE) DEADBAND TO MINIMIZE SHORT CYCLING. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO OCCUPIED MODE

FOR 1 HOUR (ADJUSTABLE). AT EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE. WARM-UP MODE:

- THE UNIT SHALL START PER AN OPTIMUM START PROGRAM. THE OUTSIDE AIR DAMPER AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED AND THE ASSOCIATED EXHAUST FAN SHALL THE SUPPLY FAN SHALL RUN AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN OCCUPIED SETPOINT.
- 4. PURGE VENTILATION MODE:
- PROVIDE GLOBAL INITIATION OF PURGE VENTILATION MODE AT THE OPERATOR'S WORKSTATION SUCH THAT ONE INITIATION STARTS OR STOPS PURGE VENTILATION MODE FOR ALL EQUIPMENT SO PROGRAMMED. PROVIDE FOR GLOBAL ADJUSTMENT OF THE BELOW DESCRIBED SCHEDULING AND PERCENTAGE VENTILATION CHANGES, AND ALSO FOR LOCAL ADJUSTMENT AWAY FROM GLOBAL SETPOINTS. IF GLOBAL SETPOINTS ARE SUBSEQUENTLY RE-ADJUSTED, PROVIDE WARNING WITH A LIST OF UNITS WITH LOCAL OVERRIDES, BUT DO NOT RE-ADJUST
- PROVIDE A PURGE VENTILATION MODE WITH INCREASED VENTILATION AS POSSIBLE WITHIN THE LIMITS OF THE EQUIPMENT. OPERATE WITH ALL THREE MODES DESCRIBED ABOVE WITH THE FOLLOWING MODIFICATIONS TO THE OCCUPIED PERIOD. START OCCUPIED VENTILATION MODE 1 HOUR (ADJ) EARLIER AND END IT 4 HOURS (ADJ) LATER.
- INCREASE VENTILATION AS POSSIBLE BY 100% (ADJ) WHERE 0% INCREASE IS THE MINIMUM VENTILATION DESCRIBED ABOVE AND 100% IS 100% OUTSIDE AIR WITH NO RETURN AIR.
- MAINTAIN OCCUPIED SPACE TEMPERATURE AND INCREASED VENTILATION AS POSSIBLE WITHIN HEATING CAPACITY CONSTRAINTS OF LOCAL AND PLANT HEATING CAPACITY. IF SPACE TEMPERATURE DROPS MORE THAN 2 DEG. F (ADJ) BELOW SPACE HEATING SETPOINT WITH THE HEATING VALVE 100% OPEN, MODULATE VENTILATION RATE BACK TO MINIMUM SPECIFIED VENTILATION RATE DESCRIBED ABOVE WITH HEATING VALVE AT 100% OPEN.

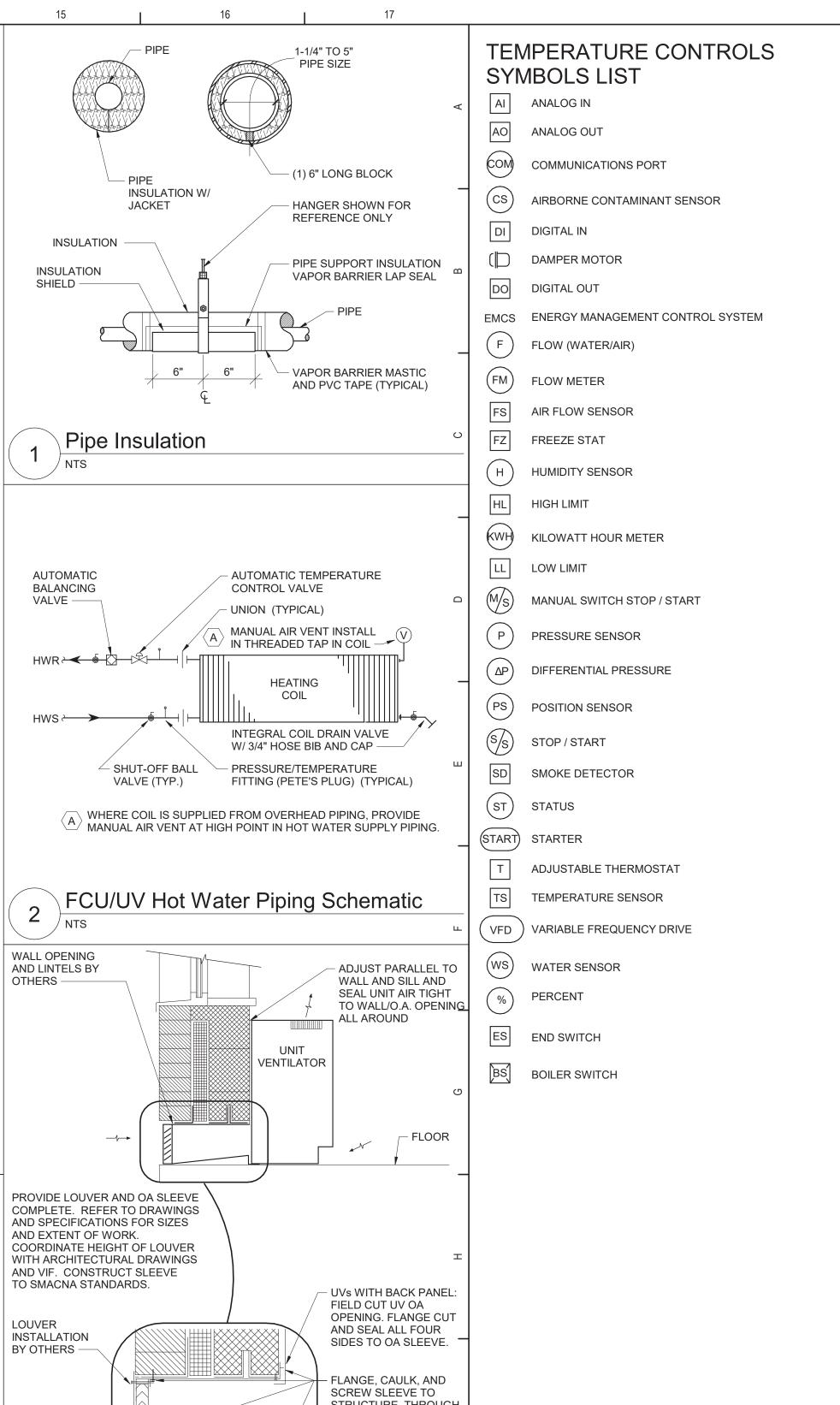
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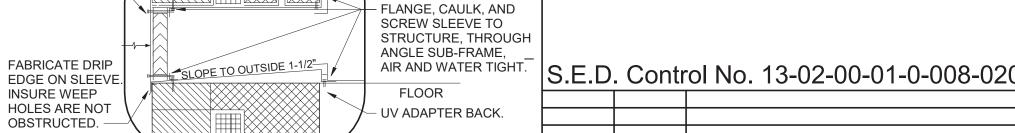
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FCU - Hot Water - Valve Control - With

LOCAL OVER-RIDE SETPOINTS GLOBALLY

Outside Air





Rev. No.: Date: Description

COORDINATE INSTALLATION OF SLEEVE, LOUVER, AND UV WITH WALL Low Back Intake, Adapter Back Not Required)

Floor Mounted UV OA Intake Detail

FABRICATE DRIP

INSURE WEEP

HOLES ARE NOT

OBSTRUCTED.





Beacon City School District Beacon, New York

Reconstruction to: Sargent Elementary School

Details, Schedules and Controls

JPF1/pgm 10/28/2022 Project No.: 279180-22004

Drawn By:

Drawing Number: