VRF HEAT RECOVERY OUTDOOR CONDENSING UNIT SCHEDULE

Tag Reference	Model Number	Modules	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Cooling Efficiency IEER/EER [SEER]	Heating COP @ 47°F [HSPF]	Nom System Connected Capacity (% of NOM)	Design Cooling Outdoor Temp DB (°F)	Design Heating Outdoor Temp WB (°F)	Refrigerant Pipe Dim. (See Note 4)	Corrected Cooling Total Capacity (BTU/h)	Corrected Heating Capacity (BTU/h)	Preliminary Added Field Charge (lbs) (See Note 5)	Electrical 208/230 Voltage / Phase	Electrical 208/230 MCA	Electrical 208/230 RFS	Electrical 208/230 MOCP	Notes / Options
CU-1	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	95.2%	87.0	10.8	7/8 / 1 1/8	161,812.2	116,233.7	41.4	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-2	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	89.3%	87.0	10.8	7/8 / 1 1/8	168,904.3	117,081.5	37.2	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-3	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	97.6%	87.0	10.8	7/8 / 1 1/8	165,288.8	117,637.5	32.5	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-4	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	92.9%	87.0	10.8	7/8 / 1 1/8	162,384.3	115,947.9	46.6	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-5	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	88.1%	87.0	10.8	7/8 / 1 1/8	157,289.8	113,679.3	54.5	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-6	TURYE1443AN40AN	P144	144,000.0	160,000.0	26.9 / 12.3	3.67	91.7%	87.0	10.8	7/8 / 1 1/8	141,585.8	98,636.2	33.5	208/230V / 3-phase 3-wire	49/45	60/60	80/70	SEE NOTES
CU-7	TURYE1203AN40AN	P120	120,000.0	135,000.0	27.55 / 13.2	3.87	76.7%	87.0	10.8	3/4 / 1 1/8	123,425.0	83,382.0	26.0	208/230V / 3-phase 3-wire	41/38	60/60	60/60	SEE NOTES
CU-8	TURYE1443AN40AN	P144	144,000.0	160,000.0	26.9 / 12.3	3.67	97.2%	87.0	10.8	7/8 / 1 1/8	142,210.2	99,763.9	26.8	208/230V / 3-phase 3-wire	49/45	60/60	80/70	SEE NOTES
CU-9	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	100.6%	87.0	10.8	7/8 / 1 1/8	157,679.7	115,937.2	52.3	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-10	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	94.0%	87.0	10.8	7/8 / 1 1/8	163,431.9	116,457.7	38.9	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-11	TURYE1443AN40AN	P144	144,000.0	160,000.0	26.9 / 12.3	3.67	70.8%	87.0	10.8	7/8 / 1 1/8	148,717.8	100,475.3	24.9	208/230V / 3-phase 3-wire	49/45	60/60	80/70	SEE NOTES
CU-12	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	89.3%	87.0	10.8	7/8 / 1 1/8	170,280.6	117,464.2	33.9	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES

OUTDOOR CONDENSING UNIT SCHEDULE NOTES:

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3. EFFICIENCY VALUES FOR EER, IEER, COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED & NON-DUCTED INDOOR UNITS.
4. FOR SYSTEMS WITH MULTIPLE MODULES, REFRIGERANT PIPE DIMENSIONS INDICATE TOTAL SYSTEM COMBINED PIPING DOWNSTREAM OF MODULE TWINNING.
5. ADDED FIELD CHARGE LISTED IS IN ADDITION TO FACTORY CHARGE, THIS MUST BE UPDATED BASED UPON FINAL AS-BUILT PIPING LAYOUT.
6. COOLING EFFICIENCY FOR CONDENSING UNITS MUST BE 10% GREATER THAN LIMITS SET IN 2020 ECC NYS C406.2-10.5 EER, 11.8 IEER.
7. FACTORY REPRESENTATIVES SHALL STARTUP AND COMMISSION CITY MULTI EQUIPMENT UPON COMPLETION OF EQUIPMENT INSTALLATION.
8. FACTORY REPRESENTATIVES SHALL PROVIDE ON-SITE ASSISTANCE FOR THE BMS INTEGRATION OF THE CITY MULTI EQUIPMENT.
9. ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE 7

VRF HEAT RECOVERY BRANCH CIRCUIT CONTROLLER SCHEDULE

Tag Reference	System Tag	Model Number	Type (double / Main / Sub)	Number of Ports	Connected Capacity to BC	Voltage / Phase	Power Cooling 208V/230V (kW)	Power Heating 208V/230V (kW)	MCA 208/230	Notes / Options
BC-1	CU-1	TCMBM0108JA11N4	Main	8	160,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-2	CU-2	TCMBM0108JA11N4	Main	8	150,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-3	CU-3	TCMBM0108JA11N4	Main	8	164,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-4	CU-4	TCMBM0108JA11N4	Main	8	156,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-5	CU-5	TCMBM0108JA11N4	Main	8	148,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-6	CU-6	TCMBM0108JA11N4	Main	8	132,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-7	CU-7	TCMBM0108JA11N4	Main	8	92,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-8	CU-8	TCMBM0108JA11N4	Main	8	140,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-9	CU-9	TCMBM1016JA11N4	Main	16	169,000.0	208/230V/1-phase	0.258/0.333	0.137/0.176	1.57/1.82	1, 2, 3, 4
BC-10	CU-10	TCMBM0108JA11N4	Main	8	158,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-11	CU-11	TCMBM0108JA11N4	Main	8	102,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4
BC-12	CU-12	TCMBM0108JA11N4	Main	8	150,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4

BC CONTROLLER SCHEDULE NOTES:

1. INCLUDE DIAMONDBACK BALL VALVES BV-SERIES, 700PSIG WORKING PRESSURE, FULL PORT, 410A RATED.
2. A SUB BC CONTROLLER IS NOT REQUIRED FOR THIS PROJECT. FOR SUB BC CONTROLLER INFO, SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. PROVIDE REFRIGERATION BALL VALVE-BRAZE/SCHRADER/INSULATED - 3/8" SIZE
4. PROVIDE REFRIGERATION BALL VALVE-BRAZE/SCHRADER/INSULATED - 5/8" SIZE
5. ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE 7

STEAM HEATING COIL

UNIT SERVED	RTU–2	RTU–3	HC–2A/2B	HC–3A/3B
LOCATION	RTU–2	RTU–3	FAN RMS	FAN RMS
BTU/HR	125,000	137,500	62,500	68,750
STEAM FLOW RATE (LB/H)	318	318	233	223
AIRFLOW (CFM)	8,085	8,328	6000	5750
ENTERING AIR TEMP (F)	45.4	45.4	45.4	45.4
LEAVING AIR TEMP (F)	80.5	80.5	80.5	80.5
ENTERING STEAM PRESSURE (PSIG)	2	2	2	2
STEAM PRESSURE DROP (PSIG)	1	1	1	1
AIRSIDE PRESSURE DROP (IN WC)	0.25	0.25	0.25	0.25
NOMINAL TUBE DIAMETER (IN)	1	1	1	1
TUBE THICKNESS (IN)	0.035	0.035	0.035	0.035

REMARKS:

1. PROVIDE STEAM DISTRIBUTING TYPE COIL.
2. THIS COIL SHALL BE A STANDARD PRODUCT OF THE RTU MANUFACTURER AND SHALL BE INTEGRAL TO THE RTU HEATING SECTION. REFER TO THE ROOFTOP UNIT SCHEDULE FOR RTU DETAILS.
3. ALTERNATE 5 UNITS LABELED HC–2A/2B AND HC–3A/3B TO BE SHIPPED LOOSE AND FIELD INSTALLED IN SUPPLY DUCTWORK.

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ROOFTOP AIR HANDLING UNITS

ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE 7

UNIT TAG	AREA SERVED	REFRIGERANT	TOTAL SUPPLY AIRFLOW (CFM)	MINIMUM OUTSIDE AIRFLOW (CFM)		MAXIMUM OUTSIDE AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN W.C.)	COOLING						HEATING (SEE STEAM HEATING COIL SCHEDULE)		FILTER	ELECTRICAL			SUPPLY FAN MOTOR INFO		UNIT WEIGHT (LBS)	UNIT DIMENSIONS (LxWxH, IN)	BASIS OF DESIGN	REMARKS
				COOLING	HEATING			NOMINAL CAPACITY (TONS)	MIN. TOTAL CAPACITY (MBH)	MIN. SENSIBLE CAPACITY (MBH)	MINIMUM EER	MINIMUM IEER	CONDENSER EAT (°F DB)			MERV	MCA	MOP	VOLT/PH/HZ	HP	BHP				
RTU–2	AUDITORIUM (218)	R410A	12000	6200	6200	12000	1.0	27.50	364.82	261.04	11.0	13.6	95	–	–	14	161.97	175	208/3/60	10	8.30	5000	180x90x72	TRANE TCD330BE	SEE NOTES
RTU–3	GYMNASIUM (220)	R410A	11500	2500	2500	11500	1.0	30.00	350.91	247.60	10.6	13.3	95	–	–	14	170.53	200	208/3/60	10	7.67	5000	180x90x72	TRANE TCD360BE	SEE NOTES

PACKAGED ROOFTOP UNIT SCHEDULE NOTES:

1. PROVIDE SINGLE ZONE VARIABLE AIR VOLUME (SZVAV) CONTROL AND VARIABLE SPEED COMPRESSORS (TRANE eFLEX OR EQUAL).
2. PROVIDE LOW LEAKAGE REFERENCE OR COMPARATIVE ENTHALPY ECONOMIZER WITH FAULT DETECTION DIAGNOSIS AND BAROMETRIC RELIEF DAMPER.
3. PROVIDE CO2 BASED DEMAND CONTROLLED VENTILATION WITH FIELD INSTALLED, WALL MOUNTED CO2 SENSORS. SEE SPEC 237313, 2.20 FOR MORE INFO.
4. PROVIDE ROOF CURB, 24" HIGH U.O.N. REFER TO DETAIL 6/M502.
5. PROVIDE DISCONNECT SWITCH AND POWERED CONVENIENCE OUTLET.
6. PROVIDE WITH MANUFACTURER'S STANDARD STEAM HEATING COIL SECTION. REFER TO THE STEAM COIL SCHEDULE ON THIS DRAWING.
7. PROVIDE DUCT SMOKE DETECTORS FOR BOTH THE SUPPLY AND RETURN AIR, SEE GENERAL NOTE #5 ON M–004.
8. PROVIDE MOTORIZED DAMPERS AT OUTSIDE AND EXHAUST AIR OPENINGS. SEE HVAC NOTE #16 ON M–001.
9. PROVIDE FREEZESTAT FOR FROST PROTECTION. FOR OTHER REQUIRED SENSORS AND CONTROLS, SEE DRAWING M–004, SPEC 230993 AND 237313.
10. PROVIDE UNIT MOUNTED DISCONNECT SWITCH WITH VFD, SEE DRAWING M–004.
11. PROVIDE ENERGY RECOVERY VENTILATOR(ENERGY WHEEL) FOR RTU–2, AUDITORIUM.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02–17–22	ADDENDUM 7
6	01–28–21	ADDENDUM 5
3	12–17–21	ISSUED FOR BID
2	11–19–21	SED ADDENDUM 1
1	08–30–21	BIDDING DOCUMENTS

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Drawn by WM
Checked by ERF
Project No. 41048
Scale AS NOTED
Date 08–30–21

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Structural Engineer: – – –

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY
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Drawing Title
MECHANICAL SCHEDULES

Drawing No.
M-002

VRF HEAT RECOVERY INDOOR UNIT SCHEDULE

Tag Reference	Related System	Room Name	Model	Type	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Cooling Design Entering Temp DB/WB (°F)	Heating Design Entering Temp DB/WB (°F)	Cooling Total Capacity (BTU/h)	Cooling Sensible Capacity (BTU/h)	Heating Capacity (BTU/h)	Estimated Cooling Coil LAT (°F)	Estimated Heating Coil LAT (°F)	Refrig Pipe Dim Liquid/Suction (inch)	Voltage / Phase	Power 208V Cooling/Heating (KW)	Electrical MCA/MFS	Notes / Options
UV-101	CU-1	CR 101	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-102	CU-1	CR 102	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-103	CU-1	CR 103	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-104	CU-1	CR 104	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-1A	CU-1	AP 105D	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,592.2	65.4	83.9	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-1B	CU-1	Kitchenette 105	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,592.2	65.4	83.9	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 9
UV-106	CU-1	CR 106	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-201	CU-2	CR 201	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-202	CU-2	CR 202	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-203	CU-2	CR 203	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-204	CU-2	CR 204	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-205	CU-2	CR 205	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-301	CU-3	CR 301	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-302	CU-3	CR 302	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-303	CU-3	CR 303	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	25,435.1	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-304	CU-3	CR 304	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-3A	CU-3	CR 305	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,722.9	60.6	89.8	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-306	CU-3	CR 306	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-4A	CU-4	Main Office 105A	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,939.3	60.6	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-4B	CU-4	Principal 105C	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	6,031.4	4,892.2	4,421.5	78.0	85.7	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-4C	CU-4	Conference 105B	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,939.3	60.6	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-206	CU-4	CR 206	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-207	CU-4	CR 207	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,437.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-208	CU-4	CR 208	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,437.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-307	CU-4	CR 307	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	26,396.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-4D	CU-4	CR 309	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,939.3	60.6	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-186	CU-5	Music 186	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-5C	CU-5	Music 185	TPVFYP018AM141A	Multi-Position Air Handler	18,000.0	40,000.0	78.0/67.9	72.0	18,094.3	11,937.6	13,598.0	58.8	93.6	1/4 / 1/2	208/230V/1-phase	0.13 / 0.13	3.0/15	1, 2, 3, 4, 5, 6
UV-190	CU-5	Home Ec 190	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-195A	CU-5	Home Ec 195A	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-5A	CU-5	Office 220A	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,807.4	65.4	84.7	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-5B	CU-5	Office 220B	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,807.4	65.4	84.7	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-105B	CU-5	Conference 105B	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-180A-1	CU-6	Room 180A	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	27,023.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-180A-2	CU-6	Room 180A	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	27,023.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-175	CU-6	Room 175	60000 Btu/h LEV Kit	LEV KIT	60,000.0	66,000.0	78.0/67.9	72.0	60,314.4	Dependent on 3rd Party Coil	44,589.0	78.0	72.0	3/8 / 3/4	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-221	CU-7	Locker Rm 221	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	32,571.1	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-222	CU-7	Locker Rm 222	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	32,571.1	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-7A	CU-7	Office 222C	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
AC-7B	CU-7	Office 222B	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
AC-7C	CU-7	Office 221B	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
AC-7D	CU-7	Office 221C	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
UV-207-1	CU-8	Library 207	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	25,745.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-207-2	CU-8	Library 207	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	25,745.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-311	CU-8	Science 311	60000 Btu/h LEV Kit	LEV KIT	60,000.0	66,000.0	78.0/67.9	72.0	60,314.4	Dependent on 3rd Party Coil	42,480.1	78.0	72.0	3/8 / 3/4	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-8A	CU-8	Office 209A	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,792.7	60.6	90.0	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9A	CU-9	Office 107B	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9B	CU-9	Office 107F	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9C	CU-9	Office 107D	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9E	CU-9	Office 107E	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9I	CU-9	Office 108E	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 9
AC-9F	CU-9	Office 108B	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-9G	CU-9	Office 108C	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-9H	CU-9	Office 108D	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-107	CU-9	CR 107	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	27,990.5	Dependent on 3rd Party Coil	20,659.7	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-109	CU-9	CR 109	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	27,990.5	Dependent on 3rd Party Coil	20,659.7	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-111	CU-9	CR 111	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	27,990.5	Dependent on 3rd Party Coil	20,659.7	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-9J	CU-9	Office 110A	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-110	CU-9	CR 110-Art	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-209	CU-10	CR 209	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-210	CU-10	CR 210	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-10A	CU-10	CR 211	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,855.4	60.6	90.2	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-213	CU-10	CR 213	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-215	CU-10	CR 215	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-212	CU-10	CR 212	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-11A	CU-11	Resource 317	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	6,031.4	4,892.2	5,936.4	62.7	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-313	CU-11	CR 313 - Science	60000 Btu/h LEV Kit	LEV KIT	60,000.0	66,000.0	78.0/67.9	72.0	60,314.4	Dependent on 3rd Party Coil	58,477.7	78.0	72.0	3/8 / 3/4	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-310	CU-11	CR 310	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	30,124.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-11B	CU-11	Prep 311B	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	6,031.4	4,892.2	5,936.4	62.7	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-314	CU-12	CR 314	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-321	CU-12	CR 321	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-319	CU-12	CR 319	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-312	CU-12	CR 312	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-216	CU-12	CR 216	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6

INDOOR UNIT SCHEDULE NOTES:

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3. SEE OUTDOOR UNIT SCHEDULE FOR OUTDOOR AMBIENT CONDITIONS, CONNECTED CAPACITY, AND OTHER FACTORS ASSOCIATED WITH CORRECTED CAPACITIES
4. SEE SCHEMATIC PIPING/CONTROL DIAGRAM FOR INDICATION OF REQUIRED INDOOR UNIT REMOTE CONTROLLERS, SYSTEM CONTROLLERS, AND INTEGRATION DEVICES.
5. FULL DEMAND CORRECTED CAPACITY INCLUDES DE-RATE ASSOCIATED WITH INDOOR VS. OUTDOOR CONNECTED CAPACITY INDICATED ON OUTDOOR UNIT SCHEDULE FOR ASSOCIATED SYSTEM. PARTIAL CORRECTED CAPACITY ASSUMES SUFFICIENT DIVERSITY EXISTS SUCH THAT THE CONNECTED CAPACITY DE-RATE DOES NOT APPLY, IT IS THE DESIGNER'S RESPONSIBILITY TO ENSURE "DIAMOND SYSTEM BUILDER" IS SET IN THE APPROPRIATE OUTPUT CAPACITY SETTING (FULL DEMAND/PARTIAL DEMAND) PRIOR TO GENERATING THIS SCHEDULE.
6. IT IS RECOMMENDED TO ALWAYS BASE HEATING CORRECTED CAPACITY ON FULL DEMAND.
7. NOT USED
8. PROVIDE FILTER BOX WITH MERV 13 FILTERS.
9. PROVIDE SMALL BOOSTER INLINE FAN, 20 CFM, TO OVERCOME STATIC PRESSURE

GENERAL NOTE

1. LEV KITS AT EACH UNIT VENTILATOR REQUIRE 208V POWER FOR CONTROL BOX.
2. CONTRACTOR TO PROVIDE SINGLE PHASE 120/208v STEP UP TRANSFORMER ALONG WITH LEV KIT AND INSTALL INSIDE THE UNIT VENTILATOR.
3. CONTRACTOR TO CONFIRM WITH MANUFACTURER REPRESENTATIVE FOR ITEMS THAT ARE FACTORY AND FIELD INSTALLED.
4. AT ALL UNIT VENTILATORS, CONTRACTOR IS RESPONSIBLE TO REMOVE FACTORY INSTALLED STANDARD DX CONTROL VALVE FOR FIELD INSTALLATION OF LEV DX VALVE, REFER TO MANUFACTURER REPRESENTATIVE FOR PROPER INSTALLATION.
5. SEE CONTROL DIAGRAMS ON M004 FOR ADDITIONAL INFORMATION.
6. DUE TO THE LEAD TIME GLOBAL CHIP SHORTAGE CRISIS, CONTROLLERS ARE TO BE SHIPPED SEPARATELY FOR FIELD INSTALLATION, TYP. ALL NEW UNITS.
7. ACCEPTABLE MANUFACTURER'S: DAIKIN OR TRANE.

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	08-30-21	BIDDING DOCUMENTS
2	11-19-21	SED ADDENDUM 1
3	12-17-21	ISSUED FOR BID
5	01-26-22	ADDENDUM 5
7	02-17-22	ADDENDUM 7

Drawn by WM
Checked by ERF
Project No. 41048
Scale AS NOTED
Date 08-30-21

GREENMAN PEDERSEN, INC
400 POST AVENUE, SUITE 305
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY
SED# 50-02-01-06-0-009-018
COUNTY OF ROCKLAND
16 Grant Street
Haverstraw, NY 10927

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL SCHEDULES -2

Drawing No.
M-003

1. DUCT SMOKE DETECTORS SHALL BE PROVIDED IN MAIN SUPPLY AND RETURN DUCT FOR SYSTEMS OVER 1,000 CFM AND ALSO UPSTREAM OF EACH STORY RETURN DUCT/ RISER CONNECTION WHERE RETURN AIR RISERS SERVE TWO OR MORE STORIES FOR SYSTEMS OVER 15,000 CFM.
2. INTEGRATE AIR FLOW MEASURING APPARATUS INTO THE BMS/DDC NETWORK. PROVIDE ONE OUTSIDE AIR FLOW MEASURING STATION FOR EACH OUTSIDE AIR INTAKE PORT. PROVIDE FACTORY INSTALLED AIRFLOW STATION.
3. PROVIDE NEW THERMOSTATS WITH LOCK BOXES IN ROOMS BEING SERVED BY AHU. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED CONTROL WIRING.
4. SAFETY SHUTDOWN DEVICES SHALL BE HARDWIRED TO THE FAN STARTER CIRCUIT IN ADDITION TO THE DDC SYSTEM. COORDINATE WITH MANUFACTURER FOR SHUTDOWN UNDER ALL MODES OF OPERATION.
5. MECHANICAL CONTRACTOR SHALL HIRE A FIRE ALARM SUBCONTRACTOR. FIRE ALARM CONTRACTOR TO FURNISH FIRE ALARM SYSTEM COMPLIANT SMOKE DETECTORS TO THE MECHANICAL CONTRACTOR WHO SHALL IN TURN FURNISH THEM TO THE CENTRAL AIR HANDLING UNIT MANUFACTURER FOR FACTORY INSTALLATION OR TO THE SHEET METAL CONTRACTOR FOR FIELD DUCTWORK INSTALLATION FOR THE FLOOR RETURN/RISER RETURN CONNECTIONS AS APPLICABLE. CONTRACTOR SHALL PROVIDE ALL SIGNAL AND CONTROL POWER WIRING TO UNIT.
6. ACCEPTABLE MANUFACTURER: DAIKIN OR TRANE 7

GENERAL NOTES

VFD	VARIABLE FREQUENCY DRIVE	DCV	DEMAND CONTROL VENTILATION
TLL-1	TEMPERATURE LOW LIMIT	CO2	CARBON DIOXIDE
TCC	TEMPERATURE CONTROLS CONTRACTOR	DI	DIGITAL INPUT
TS-1	OUTSIDE AIR TEMP	DO	DIGITAL OUTPUT
TS-2	MIXED AIR TEMP	AI	ANALOG INPUT
TS-3	HEATING COIL DISCHARGE	AO	ANALOG OUTPUT
TS-4	DISCHARGE AIR TEMP	LON	LONWORKS NETWORK CONNECTION
TS-5	RETURN AIR TEMP	PSL	PRESSURE SWITCH LOW
FE	FLOW ELEMENT	PSH	PRESSURE SWITCH HIGH
FM	FLOW METER	DPS/I	DIFF. PRESSURE SWITCH/INDICATOR
BI	BINARY INPUT	AD	DPR ACTUATORS
BO	BINARY OUTPUT	BMS	BUILDING MANAGEMENT SYSTEM
DA	DISCHARGE AIR	RTU	ROOFTOP UNIT
OA	OUTSIDE AIR	VRF	VARIABLE REFRIGERANT FLOW
SA	SUPPLY AIR	STM SUP	STEAM SUPPLY
RA	RETURN AIR	COND	CONDENSATE RETURN
IDU	INDOOR UNIT	WCI	WIRELESS COMMUNICATION INTERFACE
ODU	OUTDOOR UNIT	MA ACT	MIXED AIR ACTIVE
FLTG	FLOATING	SF STS	SUPPLY FAN STATUS
TEMP	TEMPERATURE	SPD	SPEED
STPT	SETPOINT	CMD	COMMAND
VAL	VALVE	---	FIELD INSTALLED WIRING
EC	ELECTRICAL CONTRACTOR		

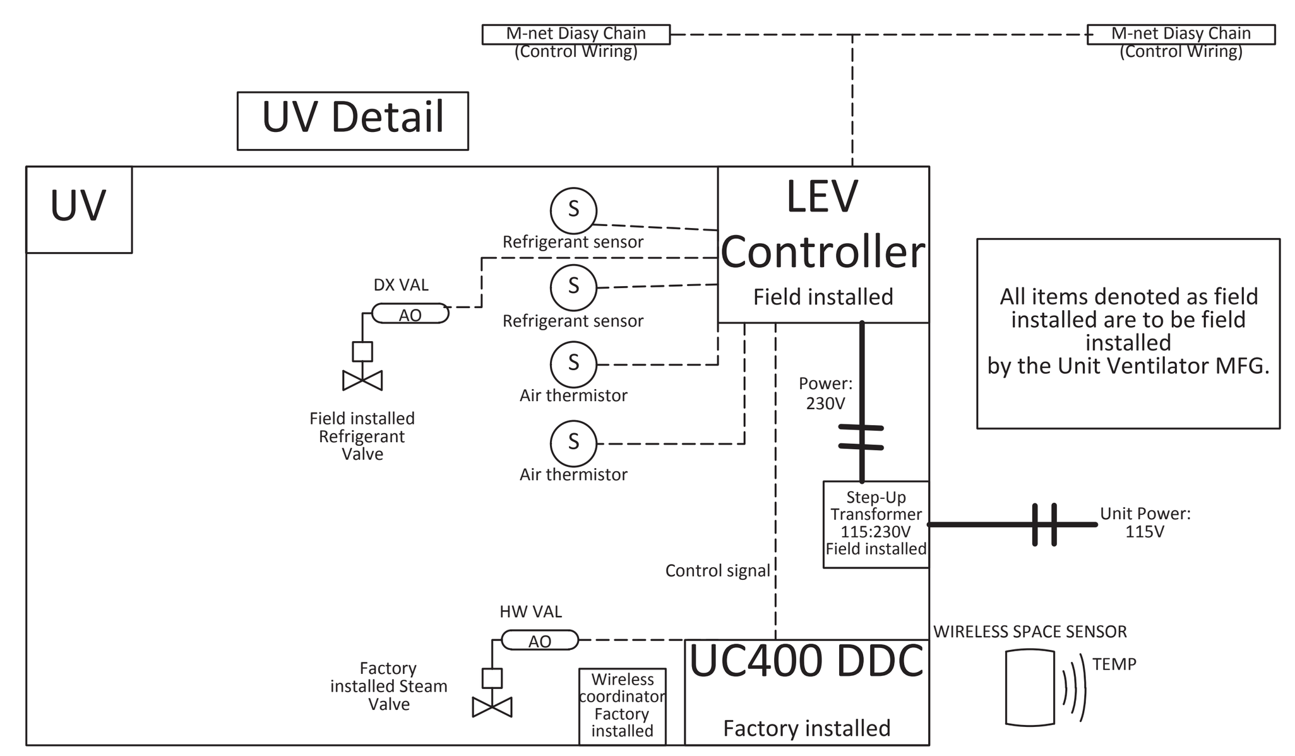
LEGEND

POINTS LIST NOTES:
LEGEND:
X = PROVIDE QUANTITY AS REQUIRED TO INCLUDE ALL INSTANCES OF THE INDICATED FEATURE. INCLUDE MULTIPLE POINTS WITHIN EACH MECHANICAL SYSTEM AS NECESSARY. COORDINATE WITH EQUIPMENT VENDOR.
B = INFORMATION PROVIDED TO EACH SYSTEM VIA NETWORK BROADCAST.
NVO = NETWORK VARIABLE OUTPUT, NVI = NETWORK VARIABLE INPUT

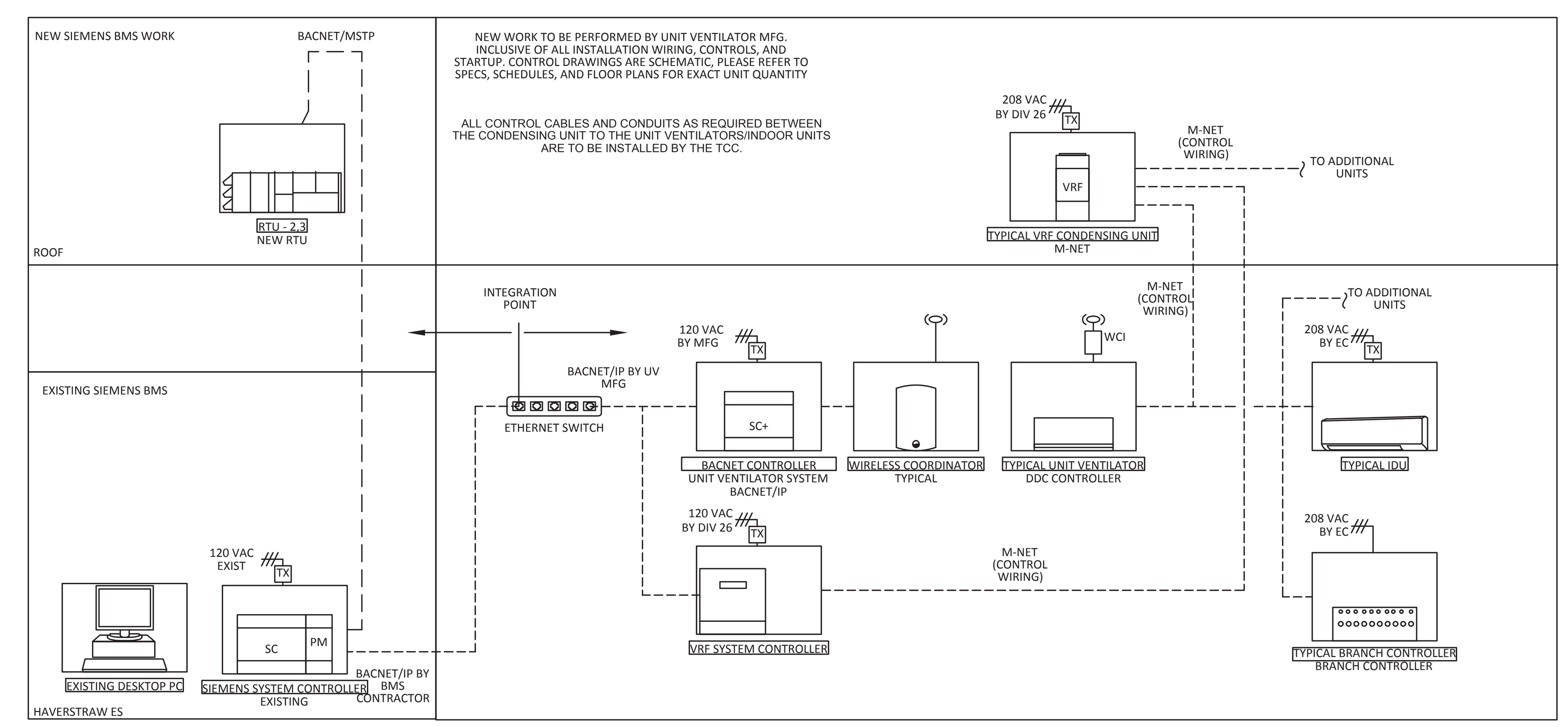
KEY NOTES:

① THE POINT LISTED HEREIN ARE THE MINIMUM POINTS REQUIRED FOR THE CONTROL AND MONITORING OF THIS EQUIPMENT. THIS POINT LIST IS TYPICAL FOR EACH MECHANICAL/ELECTRICAL SYSTEM OF THIS TYPE. IF THE SEQUENCE OF OPERATION REQUIRES ADDITIONAL OR DIFFERING INFORMATION, IT MUST BE PROVIDED BY THE RESPECTIVE PROVIDER OF THE CONTROLS FOR THIS TYPE OF EQUIPMENT AS COORDINATED BY THE GENERAL AND MECHANICAL CONTRACTORS.
② THE TCC SHALL PROVIDE ALL DIGITAL ALARM LOGIC. ALL DIGITAL ALARMS SHALL BE COMPATIBLE WITH THE EXISTING SIEMENS BMS SYSTEM.
③ THE TCC SHALL PROVIDE ALL TRENDING AND ANALOG ALARMING VIA THE SOFTWARE USED AT THE EXISTING SIEMENS BMS SYSTEM.
④ PROVIDE ACCUMULATED AIR FLOW FOR VALIDATION OF PURGE-MODE AND FOR PERMANENT VALIDATION OF OCCUPANT VENTILATION.
⑤ PROVIDE MANUAL RESET DEVICE. NOTE THAT THIS DEVICE BOTH ALARMS IN THE BMS AND IS HARDWIRED TO THE VFDS FOR SHUTDOWN OF THE FANS IN ALL OPERATING CONDITIONS OF THE VFD.
⑥ PROVIDE THE ALARM WHEN AT THE CALCULATED DIFFERENTIAL BETWEEN OUTSIDE AIR AND SPACE AIR CO2 VALUE IS 1000 ppm.
⑦ PROVIDE LON COMMUNICATION CONNECTION TO THIS DEVICE MAPPING ALL REQUIRED POINTS INTO THE LNS DATABASE.

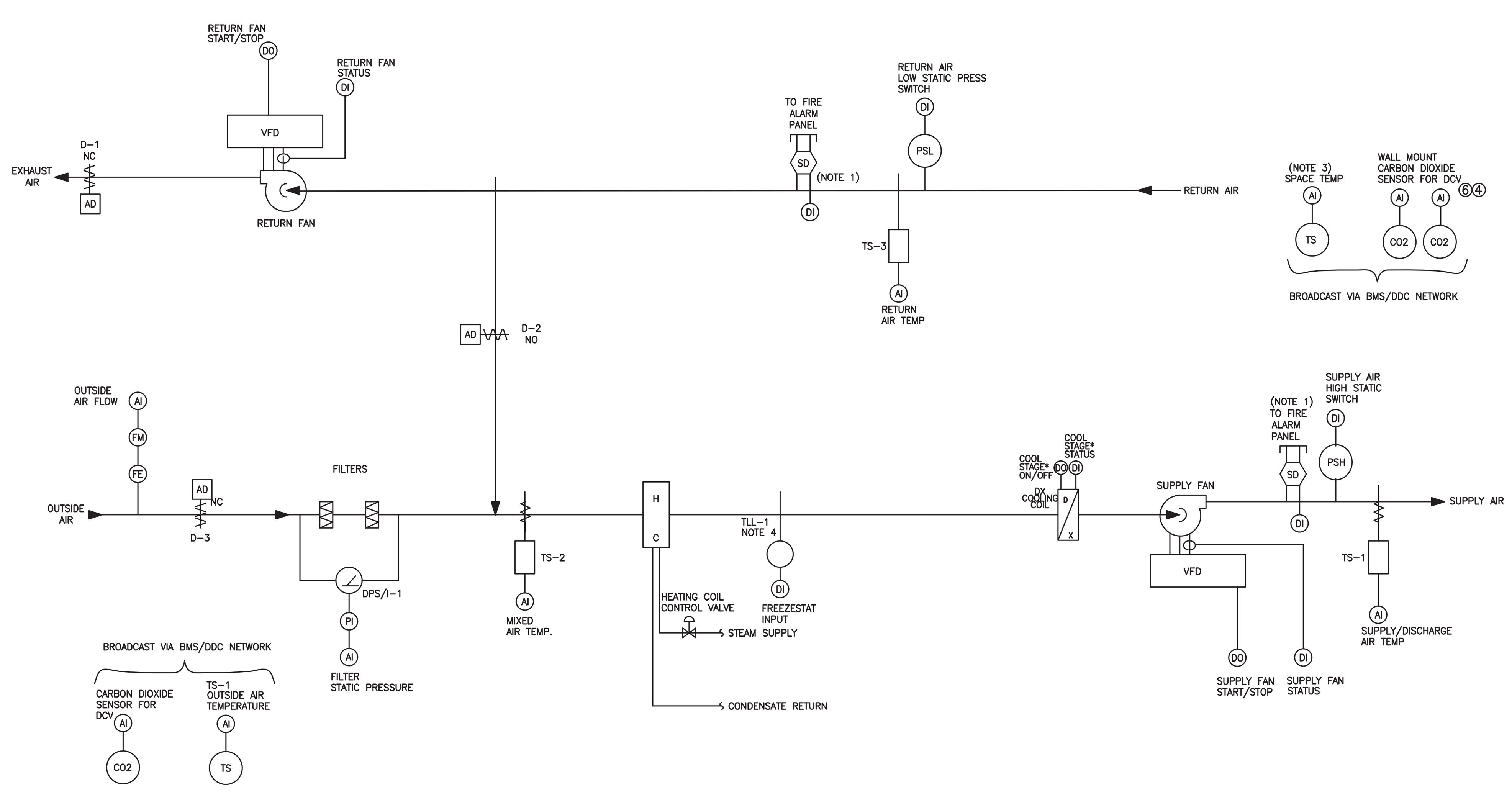
		Input/Output (Note 1)									Software/Firmware Features (Note 2,3)								Notes
"SZVAV AIR HANDLING UNIT"		Sensed				Calculated			Alarms and Advisories (with Instructions)					Misc. Features					
Reference No.	Point Name	Analog Input	Analog Output	Digital Input	Digital Output	String Value	Rate of Variable	Totalized Variable	Digital Alarm	Change-Of-State Alarm	High Limit Alarm	Low Limit Alarm	Runtime Limit (Hrs)	Broadcast Point	"Direct Lon Communication"	Trended Value	Misc. Other	Network Variable Type	Notes ①③
1	Outside Air Temp	X												X		X		nvo	
2	Outside Air CO2	X												X		X		nvo	
3	Supply Airflow	X									20% over SP	20% under SP				X		nvo	
4	Exhaust/Return Airflow	X									20% over SP	20% under SP						nvo	
5	Supply Air Enthalpy Wheel Discharge Temp	X														X		nvo	
6	Supply Air Temp Heating Setpoint (Leaving The Wheel)		X															nvi/nvo	
7	Heating Coil Discharge Air Temp	X														X		nvo	
8	Cooling Coil Discharge Air Temp	X														X		nvo	
9	Supply Air Temp	X														X		nvo	
10	Exhaust/Return Air Temp	X														X		nvo	
11	Room Temp	X									Note 8					X		nvo	
12	Room CO2	X																nvo	
13	Differential CO2 (Calculated)					X					1000 ppm							nvo	⑥
14	SF High Static Pressure			X						X	[TBD]							nvo	⑤
15	EF/RF Low Suction Pressure			X						X		[TBD]						nvo	⑤
16	Supply Fan Status			X									1,000					nvo	
17	Supply Fan VFD														X			nvo	⑦
18	Supply Fan VFD Fault			X						X								nvo	
19	Supply Fan VFD Speed		X															nvo	
20	Supply Fan Failure				X				X									nvo	②
21	Exhaust Fan Status			X									1,000					nvo	
22	Exhaust Fan VFD														X			nvo	⑦
23	Exhaust Fan VFD Fault			X						X								nvo	
24	Exhaust Fan VFD Speed		X															nvo	
25	Exhaust Fan Failure				X				X									nvo	②
26	Outside Air Flow	X					cfm	CCF			SP-20%	SP+20%				X		nvo	④
27	Common Fire Alarm			X						X				X				nvo	
28	Freezestat Alarm			X						X		39°F						nvo	
29	HVAC Mode					X								X				nvo	
30	Occupancy Mode (Bypass Mode)			X														nvo	
31	Occupancy Mode					X												nvo	
32	DX Cooling Command				X													nvo	
33	DX Compressor Status			X									1,000					nvo	



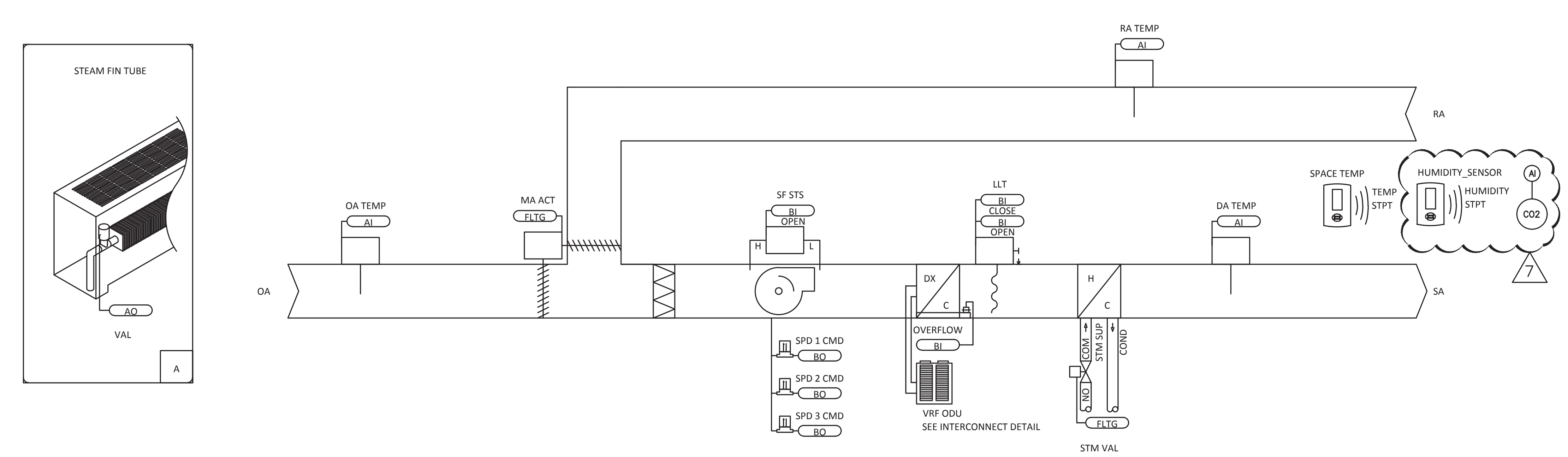
4 LEV KIT WIRING DIAGRAM
SCALE: N.T.S.



3 VRF BMS WIRING DIAGRAM
SCALE: N.T.S.



1 RTU CONTROL DIAGRAM
SCALE: N.T.S.



2 UV CONTROL DIAGRAM
SCALE: N.T.S.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
2	11-19-21	SED ADDENDUM 1
1	08-30-21	BIDDING DOCUMENTS

Drawn by WM
Checked by ERF
Project No. 41048
Scale AS NOTED
Date 08-30-21

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC 400 RELLA BOULEVARD MONTEBELLO, NY 10901
Structural Engineer:

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY
SED# 50-02-01-06-0-009-018
16 Grant Street Haverstraw, NY 10927
COUNTY OF ROCKLAND

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140 Park Avenue New City, NY 10956 Tel 845-708-9200 www.shilale.com

Drawing Title
CONTROLS

Drawing No.
M-004

UNIT VENTILATOR SCHEDULE

SEE SCHEDULE NOTES 14, 15, 16 FOR ALL UNITS 7

UNIT TAG	LOCATION	TOTAL SUPPLY AIRFLOW (CFM)	MINIMUM OUTSIDE AIRFLOW (CFM)		MAXIMUM OUTSIDE AIRFLOW (CFM)	COOLING						HEATING				FILTER	ELECTRICAL			UNIT WEIGHT (LBS)	UNIT DIMENSIONS (LxDxH, IN) (V.I.F.)	BASIS OF DESIGN	REMARKS
			COOLING	HEATING		EADB (°F)	EAWB (°F)	LADB (°F)	LADB (°F)	MIN. SENSIBLE CAPACITY (BTU/H)	MIN. TOTAL CAPACITY (BTU/H)	EADB (°F)	LADB (°F)	STEAM PRESSURE (PSIG)	REQUIRED TOTAL CAPACITY (BTU/H)	MERV	MCA	MAX FUSE SIZE	VOLT/PH/HZ				
UV-101	101	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-102	102	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-103	103	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-104	104	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-105B	105	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10,11
UV-106	106	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-107	107	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-109	109	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-110	110	750	475	475	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-111	111	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-175	175	1500	850	850	1500	80.0	67.0	55.4	52.2	30,890	51,010	12.0	116.3	2.0	129,700	13	9.0	15	115/1/60	470	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10
UV-180A-1	180A	1000	525	525	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	124.2	2.0	106,950	13	4.5	15	120/1/60	375	82.25x35.6x16.6	TRANE HUVC1001	SEE NOTES 1-10,12
UV-180A-2	180A	1000	525	525	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	124.2	2.0	106,950	13	4.5	15	120/1/60	375	82.25x35.6x16.6	TRANE HUVC1001	SEE NOTES 1-10,12
UV-186	186	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10,11
UV-190	190	750	365	365	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-195A	195A	750	435	435	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-201	201	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-202	202	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-203	203	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-204	204	750	300	300	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-205	205	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-206	206	750	250	250	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-207	207	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-208	208	750	250	250	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-207A-1	207A	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10,11
UV-207A-2	207A	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10,11
UV-209	209	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-210	210	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-213	213	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-214	214	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-215	215	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-216	216	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-221	221	1000	100	100	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10
UV-222	222	1000	100	100	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10
UV-301	301	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-302	302	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-303	303	1000	475	475	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10
UV-304	304	750	350	350	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-306	306	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10
UV-307	307	1000	400	400	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10
UV-310	310	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10
UV-311	311	1500	625	625	1500	80.0	67.0	55.4	52.2	30,890	51,010	12.0	116.3	2.0	129,700	13	9.0	15	115/1/60	470	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10
UV-312	312	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-313	313	1500	575	575	1500	80.0	67.0	55.4	52.2	30,890	51,010	12.0	116.3	2.0	129,700	13	9.0	15	115/1/60	470	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10
UV-314	314	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-319	319	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10
UV-321	321	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10

UNIT VENTILATOR SCHEDULE NOTES:

1. PROVIDE VARIABLE VOLUME SPEED CONTROL ECM MOTORS. MOTOR CONTROL TO BE FIELD INSTALLED.
2. PROVIDE LOW LEAKAGE OUTSIDE AIR DAMPER, CLASS 1 MOTORIZED DAMPERS, LOW LEAKAGE TYPE FOR OUTSIDE AIR AND EXHAUST OPENINGS. AIR LEAKAGE SHALL NOT BE GREATER THAN 4CFM/FT^2 AND BE IN ACCORDANCE WITH AMCA 500D.
3. PROVIDE FIXED DRY-BULB ECONOMIZER WITH FAULT DETECTION DIAGNOSIS.
4. PROVIDE DISCONNECT SWITCH.
5. CONTRACTOR TO VERIFY STEAM HEAT COIL PIPING CONNECTIONS AND NEW DX COIL PIPING CONNECTIONS PRIOR TO ORDERING. STEAM HEAT COILS SHALL MATCH EXISTING LOCATIONS. TYPICAL LOCATIONS ARE AS FOLLOWS: ELECTRICAL - LH SIDE, STEAM - RH SIDE, DX - RH SIDE.
6. AT COMPLETION OF UV INSTALLATION, CONTRACTOR SHALL INSTALL MERV-13 FILTERS FURNISHED BY THE UNIT MANUFACTURER.
7. PROVIDE MODULATING TWO-WAY STEAM CONTROL VALVE.
8. CABINET COLOR TO BE OF DELUXE BEIGE FINISH U.O.N. BY ARCHITECT AND/OR FACILITIES.
9. PROVIDE HEAVY GAUGE FRONT PANEL AND CUT-TO-FIT FILLER PANELS ON BOTH SIDES OF THE UNIT VENTILATOR TO MATCH THE INSTALLED WIDTH OF THE EXISTING UNITS AND ENCLOSE EXISTING PIPING.
10. PROVIDE FIELD INSTALLED DDC CONTROLS TO SATISFY SEQUENCE OF OPERATIONS, COORDINATE/INTEGRATE WITH EXISTING SIEMENS BMS. SEE DRAWING M004 FOR MORE INFO. PROVIDE LEV KIT AS PER INDOOR UNIT SCHEDULE, SEE DRAWING M003.
11. PROVIDE WITH NO ENCLOSURE/END COVERS FOR INSTALLATION BEHIND EXISTING CABINETRY ENCLOSURE.
12. PROVIDE ALL REQUIRED SUPPORTS FOR CEILING MOUNT HORIZONTAL UNIT.
13. AT ALL UNIT VENTILATORS, CONTRACTOR IS RESPONSIBLE TO REMOVE FACTORY INSTALLED STANDARD DX CONTROL VALVE FOR FIELD INSTALLATION OF LEV DX VALVE, REFER TO MANUFACTURER REPRESENTATIVE FOR PROPER INSTALLATION.
14. DUE TO THE LEAD TIME GLOBAL CHIP SHORTAGE CRISIS. CONTROLLERS ARE TO BE SHIPPED SEPARATELY FOR FIELD INSTALLATION, TYP. ALL NEW UNITS.
15. PROVIDE HUMIDITY SENSOR TO MEASURE HUMIDITY LEVELS & CO2 DEVICE TO CONTROL OUTSIDE AIR FOR EACH UV, SEE CONTROLS DRAWING M-004.
16. ACCEPTABLE MANUFACTURER'S: DAIKIN OR TRANE.

7

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
5	01-26-22	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
2	11-19-21	SED ADDENDUM 1
1	08-30-21	BIDDING DOCUMENTS

Drawn by WM
Checked by ERF
Project No. 41048
Scale AS NOTED
Date 08-30-21

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC 400 RELLA BOULEVARD MONTEBELLO, NY 10901
Structural Engineer: -- -- --

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY
SED# 50-02-01-06-0-009-018
16 Grant Street Haverstraw, NY 10927 COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200 www.shilale.com

Drawing Title: UV SCHEDULE
Drawing No. M-006

NOTES:

1. FURNISH AND INSTALL NEW VERTICAL UNIT VENTILATOR. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M–006 AND DETAILS ON DRAWING M–501. CONNECT OUTSIDE AIR DUCT TO EXISTING OUTSIDE AIR OPENING/LOUVER.
2. FURNISH AND INSTALL NEW VERTICAL UNIT VENTILATOR. UTILIZE EXISTING ORIGINAL BUILT–IN CABINETRY ENCLOSURE. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M–006 AND DETAILS ON DRAWING M–501. CONNECT OUTSIDE AIR DUCT TO EXISTING OUTSIDE AIR OPENING/LOUVER.
3. FURNISH AND INSTALL NEW HORIZONTAL UNIT VENTILATOR WITH NEW CEILING SUPPORTS. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M–006 AND DETAILS ON DRAWING M–501.
4. FURNISH AND INSTALL NEW EVAPORATOR/AC INDOOR UNIT. REFER TO VRF HEAT RECOVERY INDOOR UNIT SCHEDULE ON DRAWING M–003 AND DETAILS ON DRAWING M–501.
5. FURNISH AND INSTALL NEW OUTSIDE AIR INTAKE LOUVER AT WINDOW INSULATED PANEL. GC TO PROVIDE OPENING TO ACCOMMODATE NEW LOUVER. COORDINATE OPENINGS WITH THE ARCHITECT AND GC. FURNISH AND INSTALL OUTSIDE AIR DUCT CONNECTION TO LOUVER WITH VOLUME DAMPER, SEE PLANS FOR DUCT SIZE.
6. EXISTING OUTSIDE AIR WALL LOUVER TO REMAIN. SIZE VARIES PER EACH ROOM. CONNECT OA INTAKE DUCT TO EXISTING LOUVER. SEE DETAILS ON DRAWING M–501.
7. FURNISH AND INSTALL NEW PROGRAMMABLE ELECTRONIC THERMOSTAT WITH LOCKING GUARD. INTEGRATE WITH THE SIEMENS BMS.
8. FURNISH AND INSTALL NEW RELIEF AIR LOUVER 24X12 WITH MOTORIZED DAMPER(24x12), PROVIDE NEW OPENING AT INSULATED PANEL. COORDINATE OPENINGS WITH GC, SEE ARCHITECTURAL DETAILS. SEE DETAIL 9/M–501.
9. PROVIDE SUPPLY DIFFUSER WITH VOLUME DAMPER AND ASSOCIATED INSULATED DUCTWORK AS INDICATED. FLEX DUCT SHALL BE LIMITED TO 3'–0" MAX. BASIS OF DESIGN, FOR CEILING: TITUS TMS OR EQUAL, FOR SIDE: TITUS 300/350 OR EQUAL.
10. PROVIDE 24x24 RETURN GRILLE IN EXISTING LAY–IN ACOUSTIC CEILING OR NEW SOFFIT. BASIS OF DESIGN: TITUS 45F OR EQUAL.
11. THE EXISTING DOOR UNDERCUT IS SUFFICIENT FOR AIR TRANSFER TO THE ADJACENT SPACE.
12. PROVIDE NEW DOOR UNDERCUT IN SPACE FOR SUFFICIENT AIR TRANSFER OF RELIEF AIR, SEE ARCHITECT DRAWINGS.
13. FURNISH AND INSTALL NEW WALL MOUNT CARBON DIOXIDE SENSOR FOR NEW RTU. REFER TO DRAWING M–004 FOR CONTROL DIAGRAM. MOUNT THE SENSOR ON INSIDE WALL OR PANEL APPROXIMATELY 54" ABOVE THE FLOOR (OR OTHERWISE DIRECTED) TO ALLOW EXPOSURE TO THE AVERAGE ZONE TEMPERATURE. FOR ACCURATE TEMPERATURE SENSING DO NOT MOUNT DEVICE ON OUTSIDE WALL, ADJACENT TO PIPES, IN DIRECT SUNLIGHT, NEAR RADIANT HEAT SOURCES, AIR DUCTS, ETC. THAT COULD IMPACT SENSING ACCURACY. REFER TO MANUFACTURER'S IOM INSTRUCTIONS FOR MORE INFO.
14. PROVIDE NEW NON–FLANGED LOUVER AT EXISTING OPENING. INFILL EXISTING OPENING TO ACCOMMODATE NEW LOUVER. SEE ARCHITECT'S PLANS FOR PATCHING AND REPAIR DETAILS AT BUILDING FACADE.
15. FURNISH AND INSTALL DUCT SMOKE DETECTOR ON STRAIGHT DUCT, COORDINATE INSTALLATION WITH ELECTRICAL. FURNISH AND INSTALL FIRE SMOKE DAMPER AT ROOF PENETRATION. (TYP. 4).
16. CONTRACTOR RESPONSIBLE TO FIELD VERIFY AND MEASURE ROUTING OF NEW DUCTWORK AT STAGE AREA FOR THE NEW RTUs. AVOID ANY CONFLICTS/INTERFERENCE WITH EXISTING CONDITIONS, SUCH AS THE CABLES AND PULLEYS FOR THE STAGE CURTAINS. DUCTWORK SHALL BE ROUTED HIGH AT WALL. SUPPLY DUCTWORK IS TO BE INSULATED. RETURN DUCTWORK TO BE PAINTED BLACK, VERIFY FINISH REQUIREMENTS WITH ARCHITECT.
17. ALTERNATE 5: INSTALL NEW STEAM HEATING COIL, SEE STEAM HEATING COIL SCHEDULE ON M–002. SEE DRAWING M–303 FOR PIPING LOCATION AND DETAIL 3/M501. (7)

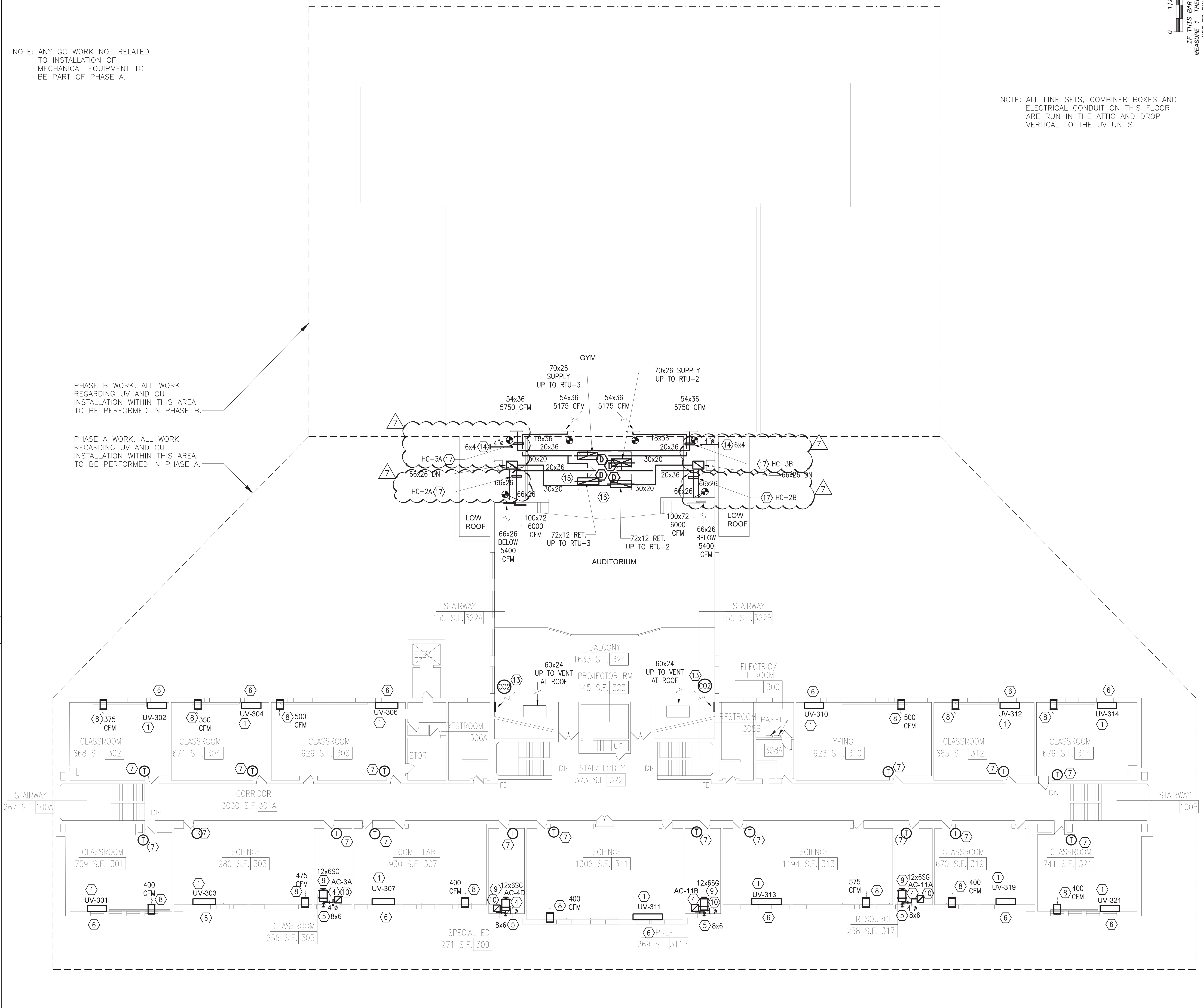
GENERAL NOTE:

FOR PIPING LAYOUT FOR EACH NEW EQUIPMENT, REFER TO DRAWINGS M–301, M–302 AND M–303.

NOTES

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A.

NOTE: ALL LINE SETS, COMBINER BOXES AND ELECTRICAL CONDUIT ON THIS FLOOR ARE RUN IN THE ATTIC AND DROP VERTICAL TO THE UV UNITS.



1 THIRD FLOOR PLAN
SCALE: 1/16" = 1'-0"

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02–17–22	ADDENDUM 7
6	01–28–21	ADDENDUM 5
3	12–17–21	ISSUED FOR BID
2	11–19–21	SED ADDENDUM 1
1	08–30–21	BIDDING DOCUMENTS

Drawn by WM
Checked by ERF
Project No. 41048
Scale AS NOTED
Date 08–30–21

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC 400 BELLA BOULEVARD MONTEBELLO, NY 10901

Structural Engineer:

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY
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Drawing Title: 3RD FLOOR PLAN - MECHANICAL

Drawing No. M-103

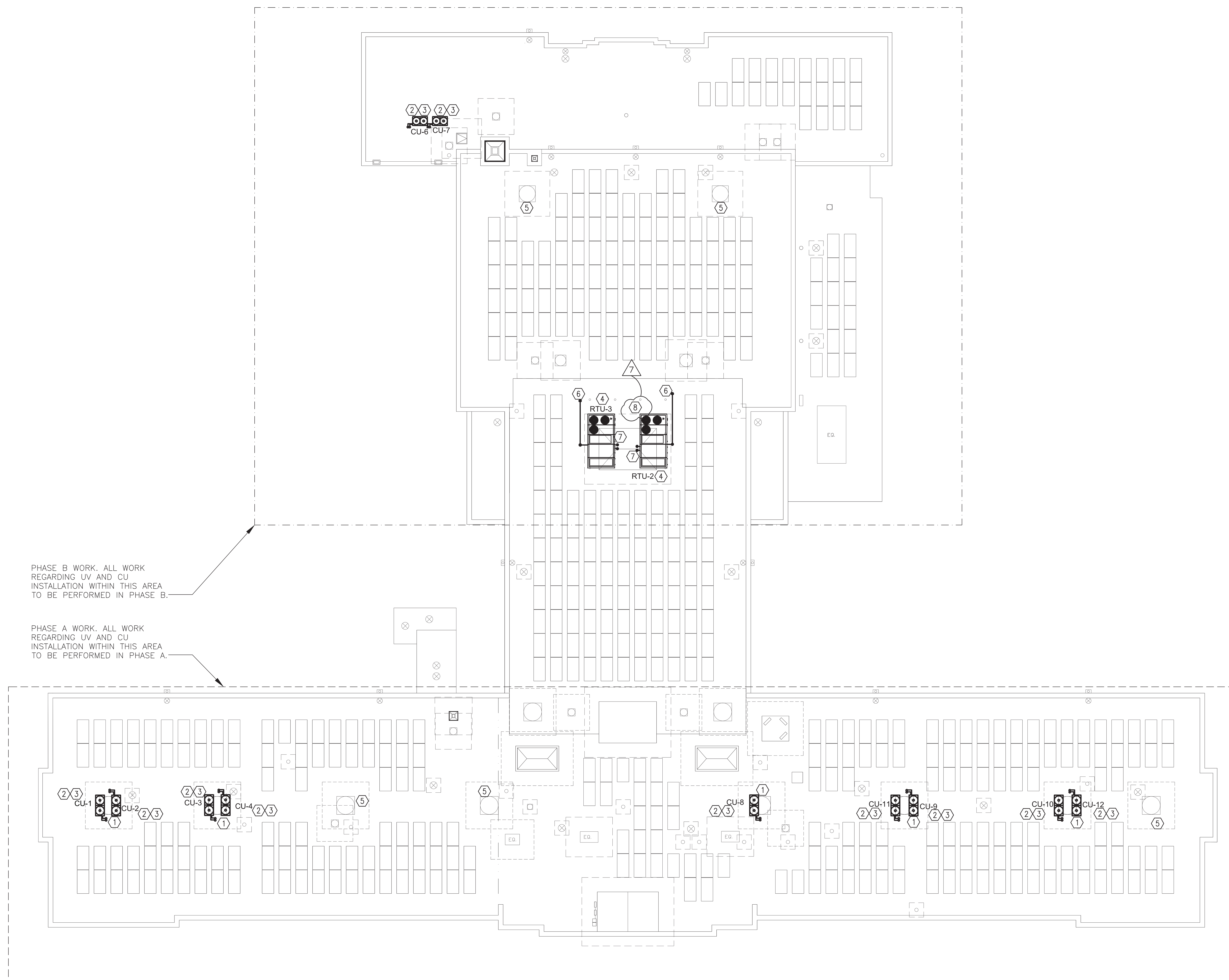
NOTES:

1. DEMOLISH EXISTING GRAVITY VENTILATOR AND DAMPER AT ROOF. DEMOLISH ASSOCIATED DUCTWORK DIRECTLY BELOW ROOF. DISCONNECT DAMPER FROM SIEMENS BMS CONTROL.
2. PROVIDE NEW OUTDOOR CONDENSING UNIT, SEE SCHEDULE ON DRAWING M–002. MOUNT UNIT ON MODIFIED ROOF CURB/DUNNAGE, SEE STRUCTURAL DRAWINGS.
3. PROVIDE NEW DX PIPING FROM BRANCH CONTROLLER, SEE FLOOR BELOW. FOR ROOF CURB AND ROOF SUPPORT DETAIL, SEE DRAWING M–502 AND ARCHITECTURAL DRAWINGS FOR PROPER SEALING FOR PIPE SIZES, SEE DRAWING M–401.
4. PROVIDE NEW ROOFTOP AIR HANDLING UNIT AT LOCATION OF EXISTING SKYLIGHT, SEE SCHEDULE ON DRAWING M–002. GC TO DEMO EXISTING SKYLIGHT. MOUNT AHUS ON NEW ROOF CURB. PROVIDE ADEQUATE CLEARANCE AS PER MANUFACTURER'S IOM. SEE DETAILS FOR MORE INFO.
5. EXISTING GRAVITY VENTILATOR TO REMAIN.
6. PROVIDE NEW CONDENSATE DRAINAGE, TERMINATE ON ROOF TO NEAREST DRAIN. PROVIDE SPLASH BLOCK. SEE DETAIL 5/M501 FOR SUPPORT OF PIPING ON ROOF.
7. PROVIDE NEW STEAM AND CONDENSATE PIPING, CONNECT TO EXISTING MAIN. SEE DETAIL 3/M501. PROVIDE FACTORY ASSEMBLED PIPE CABINET WITH ROOFTOP AIR HANDLING UNIT. EXTEND BASE FLASHING TO CURB.
8. ALTERNATE 5: OMIT INSTALLATION OF NEW STEAM & CONDENSATE PIPING ON ROOF. SEE DRAWING M–303 FOR SCOPE OF WORK.

7

NOTES

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A.



1 ROOF PLAN
SCALE: 1/16" = 1'-0"

PLAN NORTH

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02–17–22	ADDENDUM 7
6	01–26–22	ADDENDUM 5
3	12–17–21	ISSUED FOR BID
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Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
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Structural Engineer: — — -

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Drawing Title
ROOF PLAN - MECHANICAL

Drawing No.
M-104

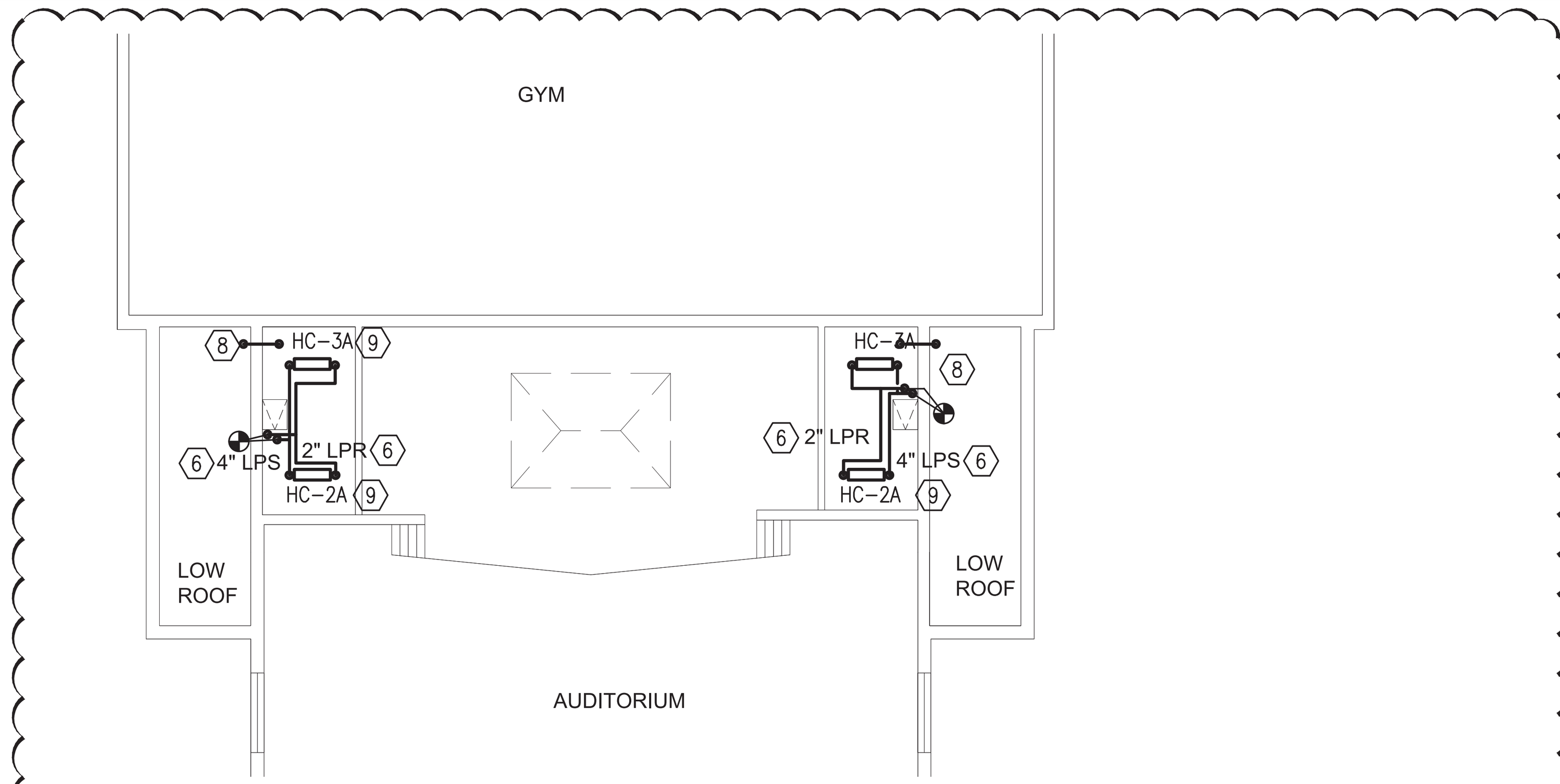
NOTES:

1. FURNISH AND INSTALL NEW STEAM PIPING AND INSULATION AT COIL CONNECTIONS AT NEW UNIT VENTILATOR. SEE DETAIL 4/M-501. ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION SHALL BE SLEEVED/FIRESTOPPED, SEE DETAILS ON M-502. PROVIDE ADEQUATE SUPPORTS THROUGHOUT, SEE DETAILS ON M-502.
2. FURNISH AND INSTALL NEW DX PIPING WITH INSULATION AT NEW INDOOR UNIT. FOR PIPE SIZES REFER TO DRAWING M-401. ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION SHALL BE SLEEVED/FIRESTOPPED, SEE DETAILS ON M-502. PROVIDE ADEQUATE SUPPORTS THROUGHOUT, SEE DETAILS ON M-502.
3. FURNISH AND INSTALL LEV KIT FOR NEW UNIT VENTILATOR, SEE VRF INDOOR UNIT SCHEDULE ON DRAWING M-003.
4. FURNISH AND INSTALL NEW BRANCH CIRCUIT CONTROLLER, SEE BC CONTROLLER SCHEDULE ON DRAWING M-002. FURNISH AND INSTALL 3/4" CONDENSATE DRAINAGE PIPING FOR EACH BRANCH CONTROLLER. TERMINATE DRAIN IN AIR GAP AT NEAREST JANITOR SINK. FOLLOW MANUFACTURER'S IOM MANUAL FOR ADDITIONAL INSTRUCTIONS.
5. FURNISH AND INSTALL ENCLOSURE TO CONCEAL EXPOSED PIPING CONNECTED TO UNIT. SEE ARCH PLANS FOR DETAILS, FINISH AND COLOR. ENCLOSURE SHALL BE REMOVABLE AND CONSTRUCTED OF 24 GA STEEL. ENCLOSURE SHALL BE PAINTED TO MATCH EXISTING FINISHES. VERIFY COLOR FINISH WITH ARCHITECT AND FACILITIES.
6. FURNISH AND INSTALL NEW STEAM SUPPLY AND RETURN PIPING AND INSULATION AT COIL CONNECTIONS FOR NEW RTU. SEE DETAIL 3/M-501. FIRESTOP ALL RATED PENETRATIONS, SEE DRAWING M-502.
7. AT EACH UNIT VENTILATOR, FURNISH AND INSTALL NEW 3/4" CONDENSATE DRAIN FROM DRAIN PAN. TERMINATE AT BUILDING EXTERIOR WALL, SEE DETAIL 1/M501.
8. AT EACH EVAPORATOR INDOOR UNIT, FURNISH AND INSTALL NEW 3/4" CONDENSATE DRAIN. TERMINATE DRAIN AT BUILDING EXTERIOR WALL THROUGH INSULATED PANEL BENEATH NEW OUTSIDE AIR LOUVER.
9. ALTERNATE #5: PROVIDE NEW STEAM HEATING COIL, SEE STEAM HEATING COIL SCHEDULE ON M-002. SEE DET. 3/M501 FOR PIPING, VALVE AND CONTROL ARRANGEMENTS. (7)

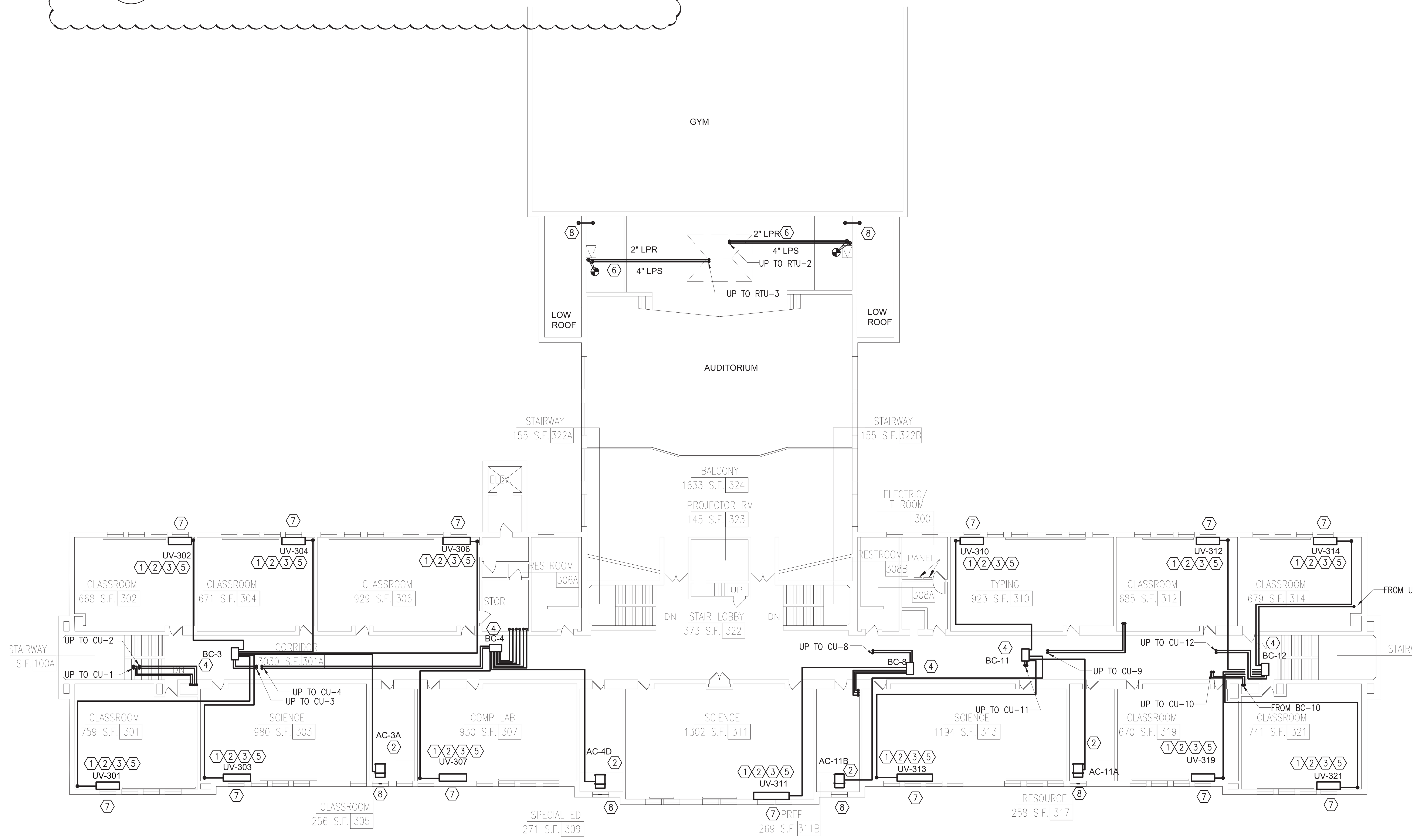
GENERAL NOTE:

FOR APPROXIMATE REFRIGERANT PIPE SIZES AND LENGTHS, SEE VRF PIPING RISERS DRAWING M-401.

NOTES



1 ALTERNATE 5 FAN ROOM PART PLAN
SCALE: 1/16" = 1'-0"



1 THIRD FLOOR PLAN
SCALE: 1/16" = 1'-0"

0 1/2 1
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Drawing Title: HVAC PIPING - 3RD FLOOR PLAN

Drawing No.: M-303