VRF EQUIPMENT SCHEDULE

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	RATED COOLING	RATED HEATING	IEER	O.U. VOLTS	O.U. FLA/ MOCP	COP	I.U. NAME	I.U. MODEL NO.	CFM	RATED TC/CORRECTED COOLING TOTAL	RATED TC/CORRECTED COOLING SENSIBLE	RATED TC/CORRECTED HEATING	BLOWER SPEED	VOLTS	FLA	REMARKS
OU-1	LG MODEL ARUB144BTE4	12	144,000 BTUH	162,000 BTUH	19.0	208/3	44.0/60	3.55	FC-1A,1B,1D	LG ARNU183S8R2	508	19.7/17.2	13.4/12.7	21.5/17.2	HIGH	208/1	0.3	37dB ③④
							① ② OU-700#		FC-1C,1E,1F,1G	LG ARNU123SER2	353	12.3/11.2	8.6/8.0	13.6/11.1	HIGH		0.3	41 dB ③④
	PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL.								AH-1A	LG ARNU483NKA2	1140	43.2/41.3	31.6/30.3	46.3/44.6	HIGH		1.62	UPFLOW DUCTED UNIT, 114 CFM OA, 0.65" ESP.
									AH-1B	LG ARNU303NJA2	770	30.3/28.7	21.3/20.1	33.5/31.8	HIGH		0.95	UPFLOW DUCTED UNIT, 91 CFM OA, 0.5" ESP.
OU-3	LG MODEL ARUB264BTE4	22	264000 BTUH	297,000 BTUH	18.5	208/3	33.4/60 44/60	3.53	FC-3A	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	W/ VENTILATION KIT 17 CFM OA ⑤
							① ② OU-1250#		FC-3B,3C,3D	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 14 CFM OA ⑤
	PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL.								FC-3E	LG ARNU153TQC2	388	15.4/13.8	11.2/10.8	17.5/16.0	HIGH		0.3	W/ VENTILATION KIT 15 CFM OA ⑤
									FC-3F	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	⑤
									AH-3A	LG ARNU303NJA2	880	30.3/28.7	21.3/20.1	33.5/31.8	HIGH		0.95	UPFLOW DUCTED UNIT, 94 CFM OA, 0.4" ESP.
									AH-3B	LG ARNU363NJA2	1060	36/34.3	26.3/25.0	39.5/37.8	HIGH		1.12	UPFLOW DUCTED UNIT, 163 CFM OA, 0.45" ESP.
									AH-3C	LG ARNU543NKA2	1475	54/51.7	39.4/37.2	59.5/57.8	HIGH		1.8	UPFLOW DUCTED UNIT, 163 CFM OA, 0.45" ESP.
									AH-3D	LG ARNU543NKA2	1475	54/51.7	39.4/37.2	59.5/57.8	HIGH		1.8	UPFLOW DUCTED UNIT, 140 CFM OA, 0.45" ESP.
																		③
OU-4	LG MODEL ARUB216TE4	18	216,000 BTUH	240,000 BTUH	19.0	208/3	21.0/40 44.0/60	3.55	FC-4A	LG ARNU093TRC2	283	9.7/9.2	7.1/6.5	10.8/10.1	HIGH		0.3	W/ VENTILATION KIT 13 CFM OA ⑤
							① ② OU-1250#		FC-4B,4C	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 16 CFM OA ⑤
	PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL.								AH-4A	LG ARNU963B8A2	2500	95.3/93.7	69.2/67.7	107/104.5	HIGH		4.5	HORIZ. DUCTED UNIT, 800 CFM OA, 0.65" ESP., 212 LBS.
									AH-4B	LG ARNU763B8A2	2050	76/74	55.4/53.2	86/84	HIGH		4.5	HORIZ. DUCTED UNIT, 500 CFM OA, 0.6" ESP., 212 LBS.
									AH-4C	LG ARNU243NJA2	630	23.8/26.7	17.3/16.5	27/25.8	HIGH		0.59	UPFLOW DUCTED UNIT, 120 CFM OA, 0.35" ESP.
OU-5	LG MODEL ARUB144BTE4	12	144,000 BTUH	162,000 BTUH	19.0	208/3	44.0/60	3.55	FC-5A,5J,5L	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 17 CFM OA ⑤
							① ② OU-700#		FC-5B,5C,5D,5E,5K	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 14 CFM OA ⑤
	PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL.								FC-5F,5G	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	W/ VENTILATION KIT 16 CFM OA ⑤
									FC-5H	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	⑤
OU-6	LG MODEL ARUB240TE4	20	240,000 BTUH	270,000 BTUH	19.0	208/3	33.0/60 44.0/60	3.55	FC-6A	LG ARNU243TPC2	671	24.2/22.0	16.9/16.3	27.3/21.8	HIGH		0.3	⑤
							① ② OU-1250#		FC-6B,6C,6D,6E	LG ARNU093TRC2	283	9.7/9.2	7.1/6.5	10.8/10.1	HIGH		0.3	W/ VENTILATION KIT 13 CFM OA ⑤
	PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL.								FC-6F,6G	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 15 CFM OA ⑤
									FC-6H	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	W/ VENTILATION KIT 45 CFM OA ⑤
									AH-6A	LG ARNU483NKA2	1170	43/41.8	31.3/29.0	46.5/45.2	HIGH		1.62	UPFLOW DUCTED UNIT, 100 CFM OA, 0.35" ESP.
									AH-6B	LG ARNU423NKA2	1105	38/36.3	28.3/27.0	41.5/39.8	HIGH		1.3	UPFLOW DUCTED UNIT, 135 CFM OA, 0.45" ESP.
									AH-6C	LG ARNU543NKA2	1470	54/51.7	39.4/37.2	59.5/57.8	HIGH		1.8	UPFLOW DUCTED UNIT, 145 CFM OA, 0.5" ESP.
									AH-6D	LG ARNU243NJA2	675	23.8/26.7	17.3/16.5	27/25.8	HIGH		0.59	UPFLOW DUCTED UNIT, 200 CFM OA, 0.35" ESP.

VRF NOTES:

① WITH HIGH AND LOW PRESSURE SWITCHES, REFRIGERANT LINE FILTER DRIER, R-410A REFRIGERANT, EEV, COMPRESSOR CRANKCASE HEATER, COMPRESSOR TIME DELAY RELAY.

② WITH NIGHT QUIET OPERATION, FAULT DETECTION AND DIAGNOSTICS AND ARCNB21 (FRAME CONNECTOR Y-BRANCH) TWO YEAR PARTS WARRANTY AND 5 YEAR COMPRESSOR WARRANTY.

③ WITH FIELD MOUNTED CONDENSATE PUMP (ASPEN MDL. MINI AQUA 2406 MOUNTED IN THE FAN COIL UNIT.

④ HIGH WALL INDOOR UNIT WITH WALL MOUNT BRACKET, REMOTE WIRED THERMOSTAT, RA FILTERS, EXV, 15A MOCP.

⑤ RECESSED CEILING UNIT, 4 WAY THROW, REMOTE WIRED THERMOSTAT, RA FILTERS, EXV, 15 A MOCP, INTEGRAL CONDENSATE LIFT PUMP.

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mechanical–electrical–industrial consultants
Harrisonburg, VA.
(540) 432–6272
www.MEIengineeringinc.com

HVAC SCHEDULE
Scale: NONE

Proposed New City Hall
Harrisonburg, Virginia

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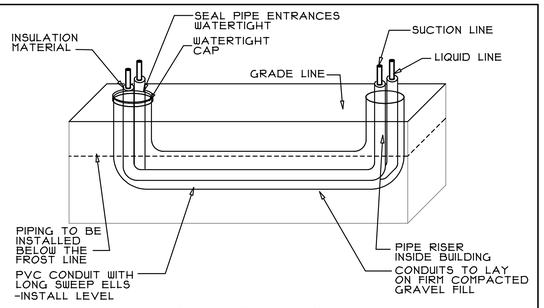
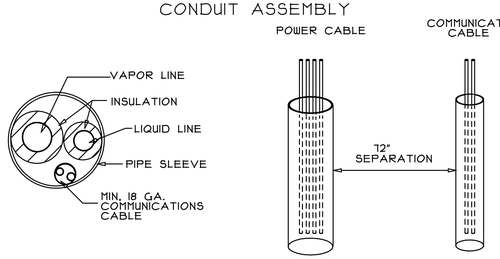
Date:	03/24/2014
Project:	13093
File:	13093-M01
Drawn By:	MSG

M0.1



CONDUIT ASSEMBLY



NOTES:

1. REFRIGERANT LINES UNDERGROUND SHALL BE CONTINUOUS WITH NO BRAZED JOINTS UNDERGROUND.
2. HORIZONTAL DISTANCE SHALL BE A MINIMUM OF 3 TIMES THE VERTICAL DISTANCE TO AVOID TRAPPING OF OIL IN THE SYSTEM.
3. LOCATE ALL CONDUIT SYSTEM SERVICE ACCESS POINTS ABOVE THE WATER TABLE AND/OR FLOOD PLAIN.
4. PRESSURE TEST THE REFRIGERANT PIPING BEFORE INSULATING OR SEALING IN THE UNDERGROUND CONDUIT.
5. WHERE THERE IS MORE THAN ON PIPING SYSTEM INVOLVED, USE A SEPARATE CONDUIT ASSEMBLY FOR EACH SET OF REFRIGERANT PIPING.

UNDERGROUND REFRIGERANT PIPING ASSEMBLY DIAGRAM

VRF EQUIPMENT SCHEDULE

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	RATED COOLING	RATED HEATING	IEER	O.U. VOLTS	O.U. FLA/ MOCP	COP	I.U. NAME	I.U. MODEL NO.	CFM	RATED TC/CORRECTED COOLING TOTAL	RATED TC/CORRECTED COOLING SENSIBLE	RATED TC/CORRECTED HEATING	BLOWER SPEED	VOLTS	FLA	REMARKS
OU-7	LG MODEL ARUB240TE4	20	240,000 BTUH	270,000 BTUH	19.0	208/3	33.0/60 44.0/60	3.55	FC-7A,7B,7C,7D,7F	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH	208/1	0.3	W/ VENTILATION KIT 14 CFM OA ③
									FC-7E	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	W/ VENTILATION KIT 15 CFM OA ③
									FC-7G,7H	LG ARNU093TRC2	283	9.7/9.2	7.1/6.5	10.8/10.1	HIGH		0.3	W/ VENTILATION KIT 13 CFM OA ③
									FC-7J	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	W/ VENTILATION KIT 55 CFM OA ③
									AH-7A	LG ARNU363NJA2	920	36/34.3	26.3/25.0	39.5/37.8	HIGH		1.12	UPFLOW DUCTED UNIT, 110 CFM OA, 0.4" ESP.
									AH-7B	LG ARNU483NKA2	1285	48/46.2	35/33.4	54/52.2	HIGH		1.6	UPFLOW DUCTED UNIT, 175 CFM OA, 0.5" ESP.
									AH-7C	LG ARNU543NKA2	1470	54/51.7	39.4/37.2	59.5/57.8	HIGH		1.8	UPFLOW DUCTED UNIT, 225 CFM OA, 0.5" ESP.
									AH-7D	LG ARNU303NJA2	750	30.3/28.7	21.3/20.1	33.5/31.8	HIGH		0.95	UPFLOW DUCTED UNIT, 150 CFM OA, 0.33" ESP.
OU-8	LG MODEL ARUB264BTE4	22	264000 BTUH	297,000 BTUH	18.5	208/3	33.4/60 44/60	3.53	FC-8A,8D,8H	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 35 CFM OA ③
									FC-8B	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	W/ VENTILATION KIT 14 CFM OA ③
									FC-8C,8E	LG ARNU183TQC2	396	18.9/18.5	13.9/13.5	21.3/20.9	HIGH		0.3	W/ VENTILATION KIT 19 CFM OA ③
									FC-8F,8G	LG ARNU093TRC2	283	9.7/9.2	7.1/6.5	10.8/10.1	HIGH		0.3	W/ VENTILATION KIT 14 CFM OA ③
									FC-8J	LG ARNU123TRC2	307	12.2/11.8	8.9/8.5	13.5/13.0	HIGH		0.3	③
									AH-8A	LG ARNU543NKA2	1370	52/50.7	38.4/36.2	57.5/55.8	HIGH		1.8	UPFLOW DUCTED UNIT, 144 CFM OA, 0.45" ESP.
									AH-8B	LG ARNU363NJA2	925	36/34.3	26.3/25.0	39.5/37.8	HIGH		1.12	UPFLOW DUCTED UNIT, 100 CFM OA, 0.4" ESP.
									AH-8C	LG ARNU363NJA2	915	36/34.3	26.3/25.0	39.5/37.8	HIGH		1.12	UPFLOW DUCTED UNIT, 120 CFM OA, 0.4" ESP.
									AH-8D	LG ARNU363NJA2	895	35/33.3	25.3/24.0	38.5/36.8	HIGH		1.12	UPFLOW DUCTED UNIT, 95 CFM OA, 0.4" ESP.
									AH-8E	LG ARNU303NJA2	775	30.3/28.7	21.3/20.1	33.5/31.8	HIGH		0.95	UPFLOW DUCTED UNIT, 145 CFM OA, 0.35" ESP.

PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL. ① ② OU-1250#

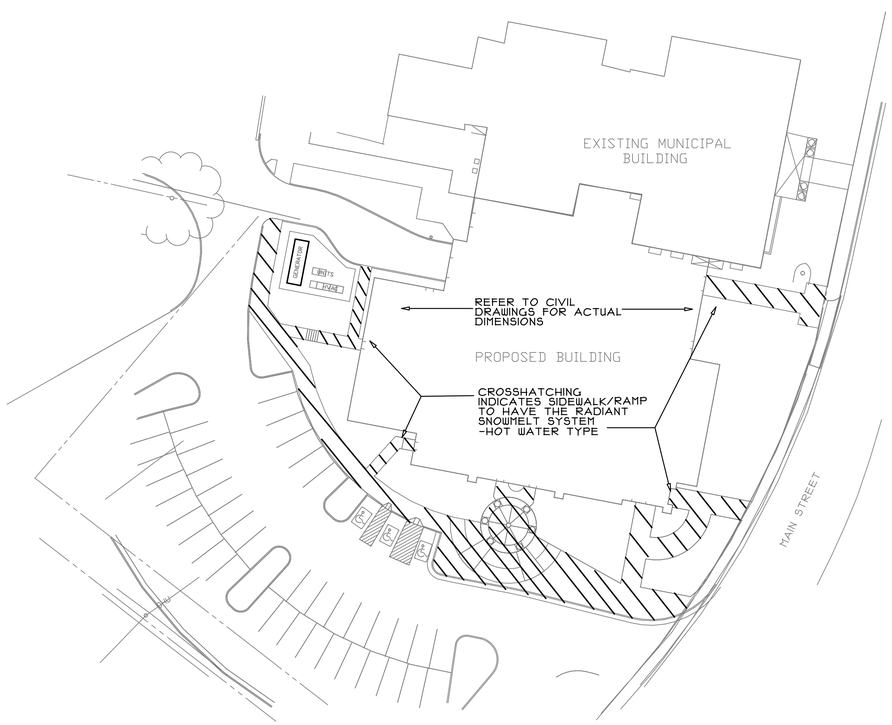
PROVIDE ALL PIPING, BRANCH CONTROLLERS, AC SMART DELUXE, CONTROL KIT, HEAT RECOVERY UNITS, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL. ① ② OU-1250#

VRF NOTES:

① WITH HIGH AND LOW PRESSURE SWITCHES, REFRIGERANT LINE FILTER DRIER, R-410A REFRIGERANT, EEV, COMPRESSOR CRANKCASE HEATER, COMPRESSOR TIME DELAY RELAY.

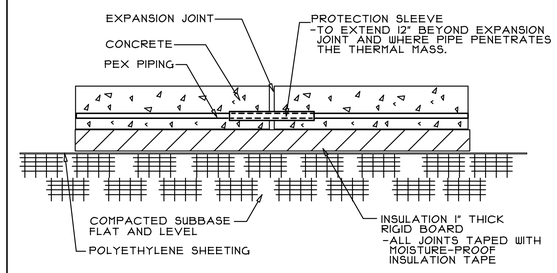
② WITH NIGHT QUIET OPERATION, FAULT DETECTION AND DIAGNOSTICS AND ARCNB21 (FRAME CONNECTOR Y-BRANCH) TWO YEAR PARTS WARRANTY AND 5 YEAR COMPRESSOR WARRANTY.

③ RECESSED CEILING UNIT, 4 WAY THROW, REMOTE WIRED THERMOSTAT, RA FILTERS, EXV, 15A MOCP, INTEGRAL CONDENSATE LIFT PUMP.



RADIANT HEAT SITE DIAGRAM

NOT TO SCALE



UNDERSLAB RADIANT PIPING DIAGRAM

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HVAC SCHEDULE AND DIAGRAMS

Scale: NONE

Proposed New City Hall
Harrisonburg, Virginia

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Date:	03/24/2014
Project:	13093
File:	13093-M02
Drawn By:	MSG

M0.2

EQUIPMENT LIST

EQUIPMENT: EQUIVALENT MANUFACTURERS MAY BE SUBSTITUTED. EQUIPMENT TO BE UL OR ETL LISTED.

UNDERSLAB RADIANT HEAT SYSTEM - ASTM F876 APPROVED FOR CROSSLINKED POLYETHYLENE (PEX), W/ OXYGEN PERMEATION BARRIER CONFORMING WITH DIN 4726. COMPLETE WITH SYSTEM TUBING, DISTRIBUTION MANIFOLDS W/ CIRCUIT ISOLATION, BALANCING VALVES, LOW VOLTAGE SOLENOID CONTROL VALVES FOR EACH THERMOSTAT ZONE. AIR VENTING/AIR PURGE VALVING, ENGINEERING AND SUPERVISION AS REQUIRED FOR A COMPLETE SYSTEM FOR AREAS AS NOTED ON PLAN. PROVIDE 25 YEAR MANUFACTURER WARRANTY FOR UNDERSLAB PIPING SYSTEM. TUBING SHALL BE RATED TO 180F AT 100 PSIG. DESIGN BASED ON 120F CIRCULATING WATER AT 25F OUTDOOR TEMP.

LAYOUT AND INSTALLATION OF SYSTEM TO BE PER MANUFACTURER'S REQUIREMENTS FOR AREAS AS INDICATED ON PLANS. PROVIDED SHOP DRAWINGS OF LAYOUT AND COMPONENTS WITH EQUIPMENT CUTS FOR APPROVAL. REHAU OR EQUAL. MAX. PRESSURE DROP FOR AN UNDERSLAB PIPE LOOP NOT TO EXCEED 19 FT. HEAD.

CRU - 24" WIDE AIR COOLED IN RACK COMPUTER ROOM AC UNIT. DOUBLE WALLED INSULATED CABINET. 27 RACK TEMPERATURE SENSORS WITH SIX SENSORS. ARI CERTIFIED, HIGH AND LOW PRESSURE SWITCHES, TXV, S/S CONDENSATE DRAIN PAN WITH FLOAT SWITCH FOR UNIT SHUTDOWN. LIQUID LINE FILTER DRIER. EC PLUG FANS. MICRO-PROCESSOR CONTROLS W/ LED KEY MEMBRANE KEY PAD AND ALARMS. REMOVABLE SERVICE PANELS. FIELD MOUNTED VIBRATION ISOLATORS. SA DISCHARGE BAFFLE. STEAM GENERATING CANISTER HUMIDIFIER. DISCONNECT SWITCH. SWEAT ADAPTER KIT. FILTER CLOG SWITCH. THERMAL OVERLOADS. 4 ROW DX COIL. LLSV. VARIABLE SCROLL COMPRESSOR. HOT GAS BYPASS. UNIT LOCKING DISCONNECT SWITCH. ALARM CONTACT. R-410A REFRIGERANT. MERV 8 RA FILTER. 208V/3PH. FIELD MTD. REMOTE SHUTDOWN TERMINAL. INTERNAL TRAPPED CONDENSATE DRAIN. LOW NOISE PACKAGE. BACNET INTERFACE CARD. CW MAKE-UP AIR GAP.

6 TON UNIT. 2453 CFM. 763 MBH TOTAL COOLING. 75 MBH SENS. COOL. 5 LB/HR HUMIDIFIER. 1.2 HP EVAP. BLOWER. EVAP - 42.8 FLA. 70 A MOCP. 760 LBS. LIEBERT MDL. CR020RAIC7-SD08

OUTDOOR UNIT - 5761 CFM. 101.1 MBH TOTAL HEAT OF REJECTION. 208V/3PH. 46 FLA. 15A MOCP. DISCONNECT SWITCH. LIEBERT MDL. TCSV28K. SURGE PROT. DEVICE. NEMA 3R CONTROL PANEL. OVERLOADS. STARTERS. ETC.. HEAD PRESSURE CONTROL 325 LBS.. VFD FAN CONTROLLER. COOLING DOWN TO -20F. AMBIENT.

FCU-2/OU-2 - DUCTLESS SPLIT FAN COIL UNIT. HIGH WALL MTD. INDOOR UNIT. WITH WIRED REMOTE THERMOSTAT. INTERCONNECTING REFRIGERANT PIPING. R-410A. 16.00 SEER. COOLING ONLY WITH LOW AMBIENT COOLING CONTROLS. 1.5 TON UNIT. 18,000 BTUH COOL. 508 CFM. 208V/1PH. CONDENSATE LIFT PUMP. SUCTION ACCUMULATOR. FILTER DRYER. LOW PRESS. SWITCH. COMPRESSOR TIME DELAY RELAY. INDOOR COIL FREEZE PROTECTION. EXV.

FCU-2 - 0.26 AMPS. RA FILTER. 350 CFM. LG MDL. SLZ-KA15NA.
OU-2 - 10.9 FLA. 15 A MOCP. LG MDL. SUZ-KA15NA.
(SINGLE POINT ELECTRICAL CONNECTION FOR BOTH OU-2 & FCU-2)

ERV UNIT - PACKAGED ENERGY RECOVERY AC UNIT/ WITH GAS HEAT. MOTORIZED INTAKE AND EXH. DAMPERS. HINGED ACCESS DOORS. ECONOMIZER FEATURE. BOTTOM DUCT CONNECTIONS. OA/EA HOODS WITH SCREEN. 5 YR. COMPRESSOR WARR.. AIR MEASURING STATION. WEATHERPROOF CONSTRUCTION. 2" INSULATED DOUBLE WALLED CONSTRUCTION. VARIABLE FREQUENCY DRIVES. PLATE TYPE HEAT EXCHANGER WITH DESICCANT COATING. 36" TALL CUSTOM ROOF CURB. BAS INTEGRATION. 5000 LBS.

ERV - 75% EFF. SENSIBLE. 68% EFF. LATENT. W/ OA AND EA FILTERS. INDEECO MDL.

EA - 4110 CFM. 75FDB/63FWB EAT SUMMER. 70F/52FWB EAT WINTER. 3 HP. 1.5" ESP. MERV 8 FILTRATION

SA - 5,890 CFM. 93FDB/75FWB EAT SUMMER. 9F/8WB EAT WINTER. 5 HP. 1.4" ESP. MERV 11 FILTRATION.

84.5FDB/68.9FWB LAT SUMMER. 38.8FDB/329.5FWB LAT WINTER OFF HEAT EXCHANGER.

DX COOL - HERMETIC SCOLL COMPRESSORS. COPPER TUBE/ALUM FIN COILS. SS DRAIN PAN. INSULATED COMPRESSOR WALL PANEL. 84.5/68.9F EWB. 55.9/55F WB LAT. WITH HOT GAS REHEAT. 26. MBH COOL. 11.3 EER. COND. COIL GUARDS

GAS HEAT SECTION - 400 MBH INPUT. 38.9 EAT. 87.1F LAT. 4:1 TURNDOWN 409 SS HEAT EXCHANGER. ELECTRONIC IGNITION.

CONTROLS - DUCT AND UNIT MTD. TEMP. SENSORS. FIELD MTD. DUCT TEMP. SENSORS. PHASE MONITOR. AIRFLOW MEASURING STATION. DUCT STATIC PRESSURE SENSOR. SMOKE DETECTOR. GFCI OUTLET. SPACE MTD. HUMIDITY SENSOR.

ELECTRICAL - 208V/3PH. 128.6 MCA. 150 A MOCP.

VALENT MDL. VPRP-210-20C-401-A

CO_2 SENSOR - CARBON DIOXIDE TYPE. 350 TO 2250 PPM RANGE. NON-GROUNDING. 24V TRANSFORMER. WALL MOUNT OR ASPIRATION BOX. 2 POSITION CONTROL. VULCAIN SERIES OR EQUAL BY TOX-ALERT. VAISALA. MICRO-METL.

MOD - 24VAC MOTORIZED DAMPER. 2 POSITION TYPE. W/ ACTUATOR AND LINKAGE MTD. OUTSIDE OF AIRSTREAM. NORMALLY CLOSED. SIZE TO FIT DUCT. COMPATIBLE W/ CO_2 SENSOR. HONEYWELL OR EQUAL.

EQUIPMENT: EQUIVALENT MANUFACTURERS MAY BE SUBSTITUTED. EQUIPMENT TO BE UL OR ETL LISTED.

(T) - THERMOSTAT- SHALL BE 24 VAC. HEATING-COOLING AUTO-CHANGEOVER TYPE. W/ FAN SWITCH SUBBASE. SUITABLE FOR HEAT PUMP USE AS APPLICABLE. 7 DAY PROGRAMMABLE. W/ OVERRIDE TIMER. AUX. CONTACT TO OPEN OA MOD IN OCCUPIED MODES. 2 STAGE HEAT. W/ LOCKING COVER FOR T'STATS IN PUBLIC AREAS. LG. HONEYWELL OR EQUAL. PROVIDE REMOTE TEMP. SENSORS WHERE INDICATED ON PLAN.

FLOAT SWITCH - LOCATED IN GALV. STEEL CONDENSATE DRAIN PAN. SPST. 24 VAC CONTACTS. LITTLE GIANT MDL. ACF-2 OR EQUAL.

SPRING VIBRATION ISOLATION RAIL - CURB BASE TO FIT OVER RAIL AND UNDER ISOLATION EQUIPMENT. ALUMINUM TOP MEMBER SHALL OVERLAP THE BOTTOM MEMBER TO PROVIDE WATER RUN-OFF INDEPENDENT OF THE SEAL. WEATHER SEAL SHALL CONSIST OF TOP AND BOTTOM CLOSED CELL SPONGE GASKETS AND WEATHERPROOF FLEXIBLE DUCTLIKE NEOPRENE CONNECTOR. ISOLATION PROVIDED BY INTERNAL SPRINGS SIZED FOR 1" MINIMUM DEFLECTION BASED ON THE WEIGHT DISTRIBUTION OF THE RTU. MASON TYPE CMAB OR EQUAL. (PROVIDE AT ERV)

(H) DEHUMIDISTAT. LOW VOLTAGE TYPE. 20-60% RH RANGE. DPDT. WALL MOUNT BOX. HONEYWELL OR EQUAL.

SOUNDTRAP - FIBERGLASS ACOUSTICALLY LINED GALV. PERFORATED STEEL INNER LINER. GALV. STEEL SHELL. SAME CROSS SECTION AS DUCT IN WHICH INSTALLED. 60" LONG. LOW FREQUENCY. 0.50" WC PRESSURE DROP. 23 DB NOISE REDUCTION AT 4TH BAND. 200 LBS.. 8" WC PRESS. CLASS.

ST-1 - 14,000 CFM SA. 38X40 DUCT. VAW SYSTEMS RSA-40V50
ST-2 - 14,000 CFM RA. 40X40 DUCT. VAW SYSTEMS RSA-40V50

CP - CONDENSATE PUMP - SHALL BE 120V LITTLE GIANT MDL. VCC-20UL5 OR EQUAL W/ PLUG AND CORD. RESERVOIR WITH FLOAT CONTROL. 40 GPH AT 10' HEAD.

BDD - BACKDRAFT DAMPER WITH ADJUSTABLE COUNTERBALANCE. 16 GA. GALV. STEEL FRAME. 22 GA. GALV. STEEL BLADES. PARALLEL BLADE DESIGN. JAMB AND BLADE SEALS. LOW LEAKAGE TYPE. SIZE TO FIT DUCT. POTTORF. PREFCO OR EQUAL.

PACKAGED UNIT - PACKAGED AC UNIT. NAT. GAS FIRED. UL LISTED. AGA CERTIFIED. 208V/3PH. MIN 80% HEATING EFF.. W/ MERV 8 RETURN AIR FILTERS. 5 YEAR COMPRESSOR AND 15 YEAR HEAT EXCHANGER WARRANTIES. COMPRESSOR TIME DELAY. HIGH AND LOW PRESSURE SWITCHES. REFRIGERANT LINE FILTER DRIER. BOTTOM SA AND END RA DUCT CONNECTIONS. R-410A REFRIGERANT. TXV. RA SMOKE DETECTOR. HINGED ACCESS PANELS. 0-100% OA ECONOMIZER. BAROMETRIC RELIEF AIR DAMPER/HOOD. PHASE MONITOR. MED. STATIC DRIVE. HAIL GUARD KIT. DOUBLE WALLED CONSTRUCTION. INSULATED. INTERNAL VIBRATION ISOLATION SPRINGS. EXTENDED FLUE CONNECTION. BURGLAR BARS. 4 STAGE COOL. 61 GAS BURNER TURNDOWN. BACNET INTERFACE KIT.

RTU- 40 TON UNIT. 14,000 CFM. 267 MBH GAS INPUT. 2.0" ESP. 6300 LBS.. 10.0 EER. 1300 CFM OA. 846 RPM. 36 MBH SENSIBLE COOLING. 20 HP HIGH EFF. BLOWER. 209 MCA. 250A MOCP. YORK MDL. V34D5327K

EXPANSION TANK - PRE-PRESSURIZED BLADDER TYPE. ENAMELED STEEL TANK. ASME RATED TO CLASS 150. AMTROL SX-90V. B16. WATTS OR EQUAL. HEATING WATER SYSTEM - 44 GAL. TOTAL VOLUME. 34 GAL. ACCEPTANCE

BOILER - GAS FIRED HOT WATER BOILER. ASME APPROVED. 120VAC. W/ ASME PRESSURE RELIEF VALVE. PROBE TYPE LOW WATER CUT-OFF. 1,000 MBH GAS INPUT. 96% EFF. SPARK IGNITION. LCD DIAGNOSTIC/CONTROL PANEL W/ NAVIGATION PANEL. GAS SAFETIES. VERTICAL S/S HEAT EXCHANGER. FLOW SWITCH. 10:1 TURNDOWN RATIO. 12 FT. HD. PRESSURE DROP. 800 LBS.. MICROPROCESSOR CONTROLS. TEMP. AND PRESS. GAUGES. CPVC VENT/CA PIPING. 10 YEAR LIMITED WARRANTY. CONDENSATE NEUTRALIZATION KIT. TWO ARMSTRONG E33-2 PUMPS AT 5.1 AMPS PER PUMP. LOCHINVAR MDL. SBN1000 OR APPROVED EQUAL. WITH BACNET INTERFACE KIT. WITH 80 GALLON BUFFER TANK.

BOILER - 5.5 AMPS. 15 A MOCP
PUMPS - 11.6 AMPS

PUMP - UL LISTED. ODP HIGH EFFICIENCY MOTOR. BRONZE FITTED MAIN PUMP - INLINE VERTICAL SPLIT COUPLED TYPE. VFD WITH INTEGRAL PRESSURE SENSING CONTROLS. 85 GPM AT 55 FT.HD.. 3 HP. 208V/3PH. ARMSTRONG MD. 4380 1506

GRILLES, REGISTERS, DIFFUSERS AND LOUVERS

TYPE	DESCRIPTION	NECK	FRAME	FINISH	MFR. MDL.	REMARKS
D1	4-WAY CEILING DIFFUSER	6X6	T-BAR LAY-IN	WHITE	AIR GUIDE AVP-4-OB-PLT	24" SQUARE PANEL
D2		9X9				
D3		12X12				
D4	2-WAY CEILING DIFFUSER	6X6			AIR GUIDE AVP-2-OB-PLT	
D5		9X9			AIR GUIDE AVP-2-OB-PLT	
D6		9X9			AIR GUIDE AVP-2C-OB-PLT	
D7	1-WAY CEILING DIFFUSER	9X9			AIR GUIDE AVP-1-OB-PLT	
D8	4-WAY CEILING DIFFUSER	6X6	BEVEL		AIR GUIDE JS-4-OB	
D9	SUPPLY REGISTER	8X4	FLANGE		AIR GUIDE H-OB	
D10	4-WAY CEILING DIFFUSER	12X12	BEVEL		AIR GUIDE JS-4-OB	
D11	SUPPLY REGISTER	38X16	FLANGE	SEL. BY ARCHIT.	AIR GUIDE HV-OB	
R1	RETURN AIR GRILLE	12X12	T-BAR LAY-IN	WHITE	AIR GUIDE RA-PLT	24" SQUARE PANEL
R2		10X8				
R3		14X14				
R4		18X18				
R5		48X30	FLANGE	SEL. BY ARCHIT.	AIR GUIDE RA	
R6		22X22	T-BAR LAY-IN	WHITE	AIR GUIDE RA-T	24" SQUARE PANEL
R7		8X6	FLANGE	WHITE	AIR GUIDE RA	
E1	EXHAUST AIR REGISTER	10X8	T-BAR LAY-IN	WHITE	AIR GUIDE RA-O-PLT	24" SQUARE PANEL
E2		8X6				
E3		6X6	FLANGE		AIR GUIDE RA-O	
E4		14X12	T-BAR LAY-IN		AIR GUIDE RA-O-PLT	24" SQUARE PANEL
L1	OUTSIDE AIR INTAKE LOUVER	12X12	CHANNEL	SEL. BY ARCHIT.	NCA MDL. XAD-4-45	W/ BIRDSCREEN

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HVAC SCHEDULES
Scale: NONE

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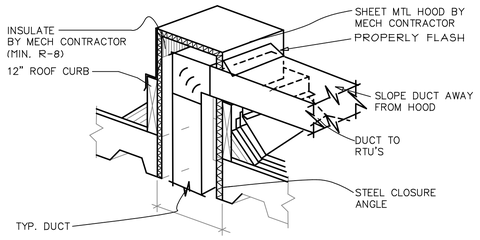
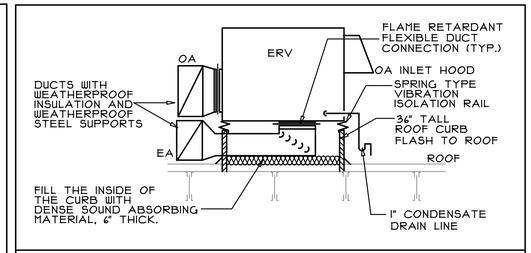
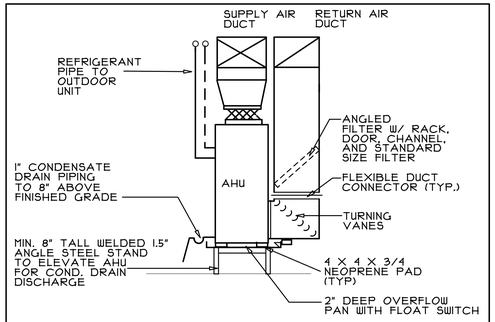
M0.3



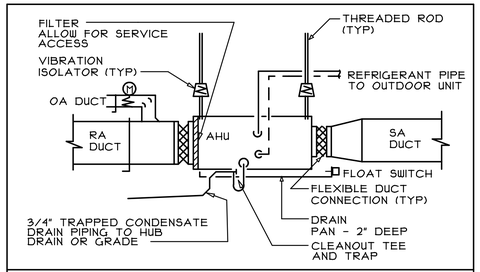
DUCT PENETRATION AT ROOF
N.T.S.



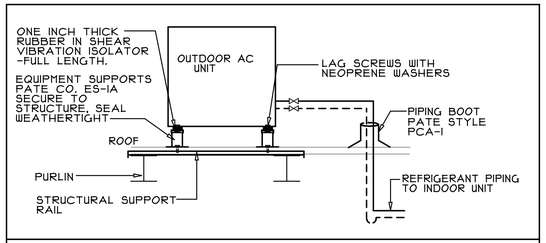
ERV DIAGRAM
NOT TO SCALE



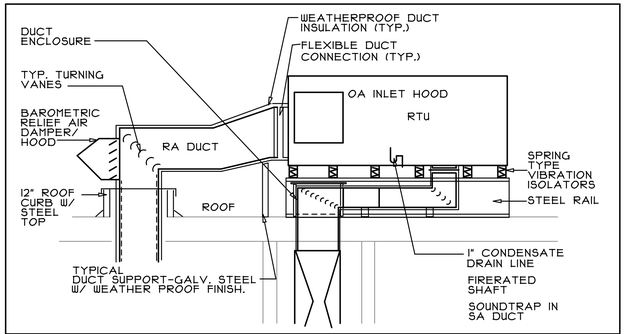
UPFLOW AIR HANDLER UNIT DIAGRAM



HORIZONTAL AIR HANDLING UNIT DIAGRAM



OUTDOOR AC UNIT ON ROOF DIAGRAM



RTU DIAGRAM
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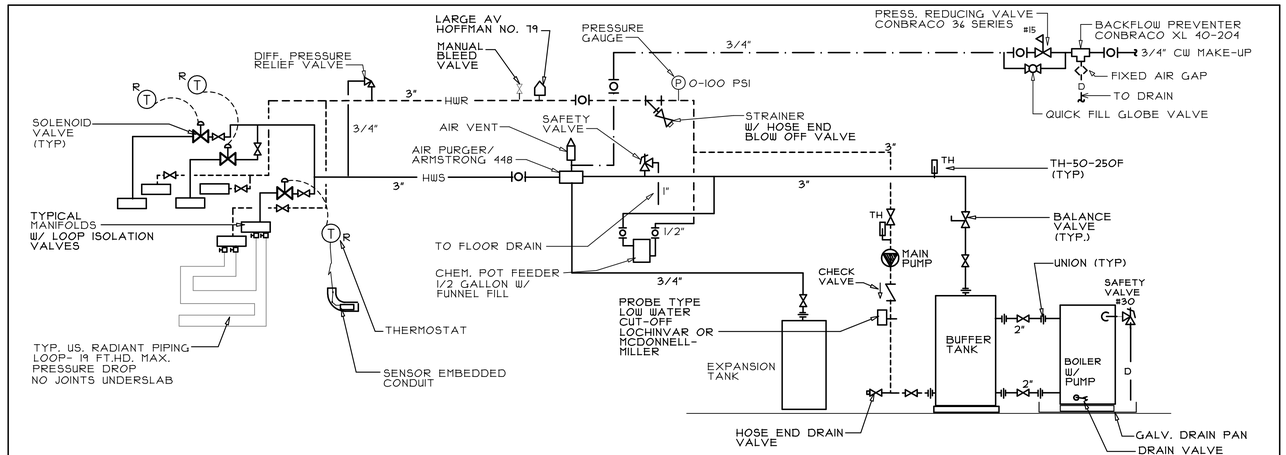
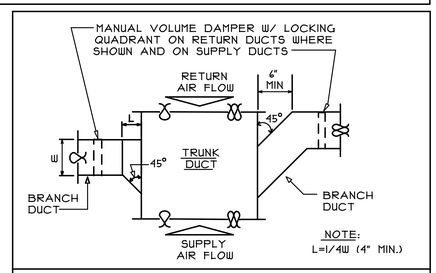
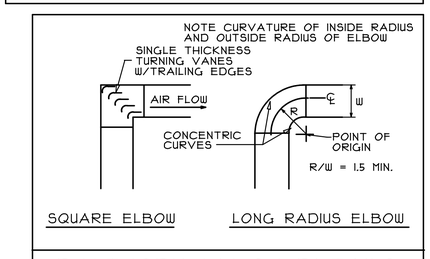


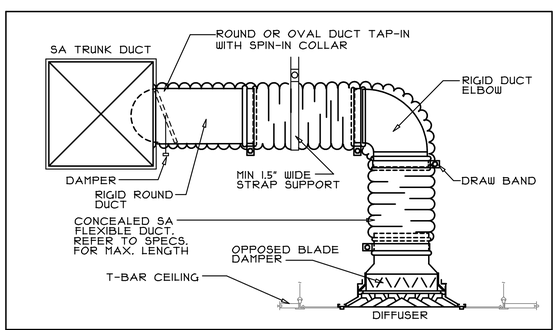
BOILER PIPING DIAGRAM
NO SCALE



BRANCH/TRUNK DUCT CONNECTION DETAIL



DUCTWORK ELBOW DETAILS



BRANCH DUCT DETAIL
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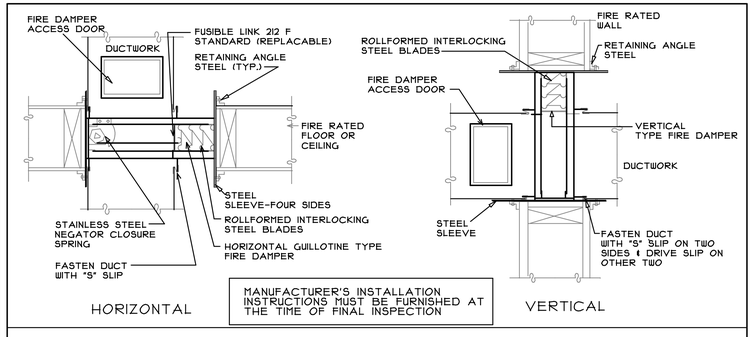

FIRE DAMPER DETAILS
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HVAC DIAGRAMS
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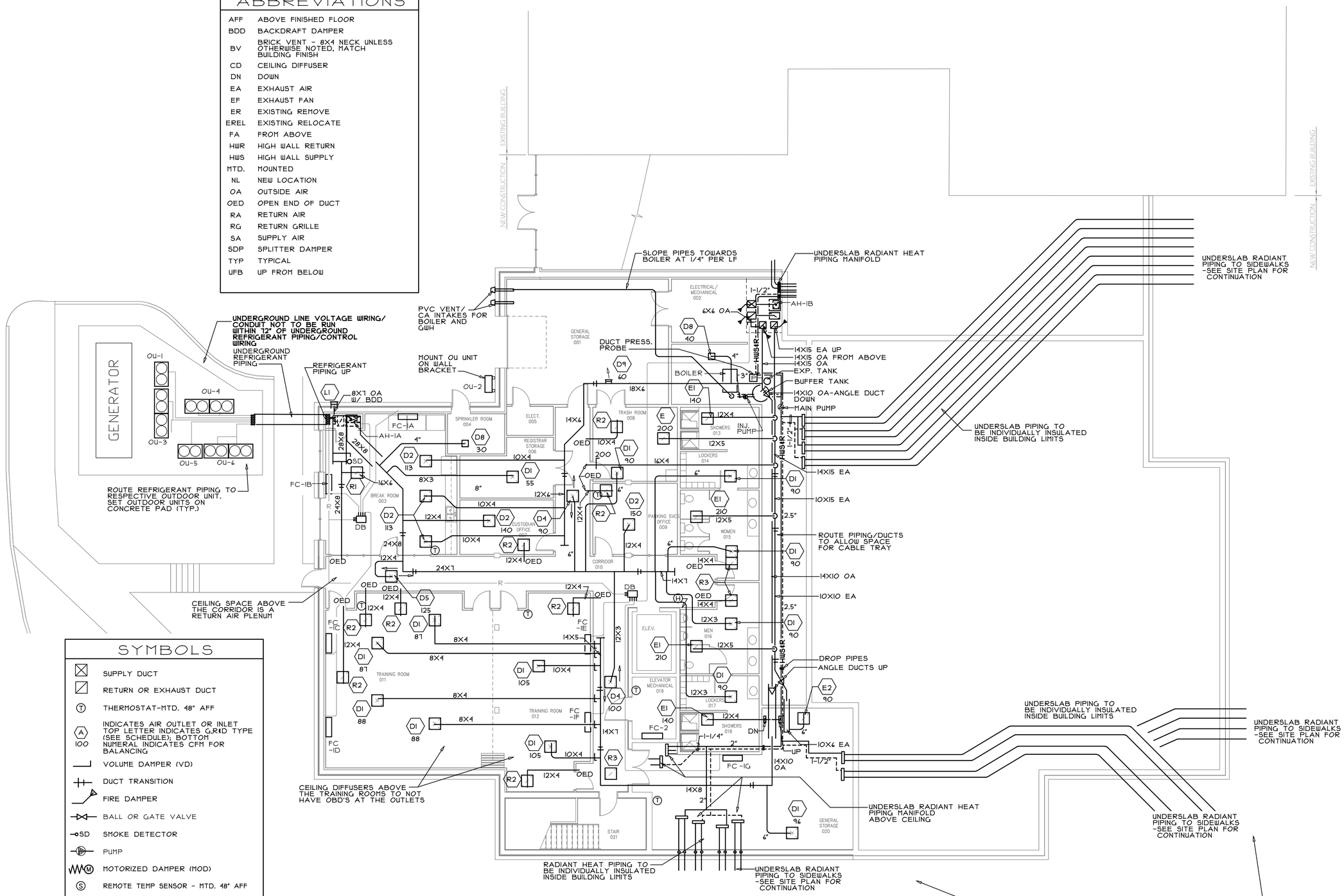
ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BDD	BACKDRAFT DAMPER
BV	BRICK VENT - 8X4 NECK UNLESS OTHERWISE NOTED, MATCH BUILDING FINISH
CD	CEILING DIFFUSER
DN	DOWN
EA	EXHAUST AIR
EF	EXHAUST FAN
ER	EXISTING REMOVE
EREL	EXISTING RELOCATE
FA	FROM ABOVE
HWR	HIGH WALL RETURN
HWS	HIGH WALL SUPPLY
MTD.	MOUNTED
NL	NEW LOCATION
OA	OUTSIDE AIR
OED	OPEN END OF DUCT
RA	RETURN AIR
RG	RETURN GRILLE
SA	SUPPLY AIR
SDP	SPLITTER DAMPER
TYP	TYPICAL
UFB	UP FROM BELOW



SYMBOLS

	SUPPLY DUCT
	RETURN OR EXHAUST DUCT
T	THERMOSTAT-MTD. 48" AFF
A 100	INDICATES AIR OUTLET OR INLET TOP LETTER INDICATES G,R,I,D TYPE (SEE SCHEDULE); BOTTOM NUMERAL INDICATES CFM FOR BALANCING
	VOLUME DAMPER (VD)
	DUCT TRANSITION
	FIRE DAMPER
	BALL OR GATE VALVE
SD	SMOKE DETECTOR
	PUMP
M	MOTORIZED DAMPER (MOD)
S	REMOTE TEMP SENSOR - MTD. 48" AFF
	EXISTING MECHANICAL WORK
	REMOVE EXISTING MECHANICAL WORK
CO	AIR QUALITY SENSOR - MTD. 48" AFF
HWS&R	HEATING WATER SUPPLY AND RETURN
DB	VRF REFRIGERANT PIPE DISTRIBUTION BOX
H	SPACE HUMIDITY SENSOR AT 72" AFF

LOWER LEVEL HVAC PLAN

SCALE: 1/8" = 1'-0"

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Lower Level HVAC Plan
Scale: 1/8" = 1'-0"

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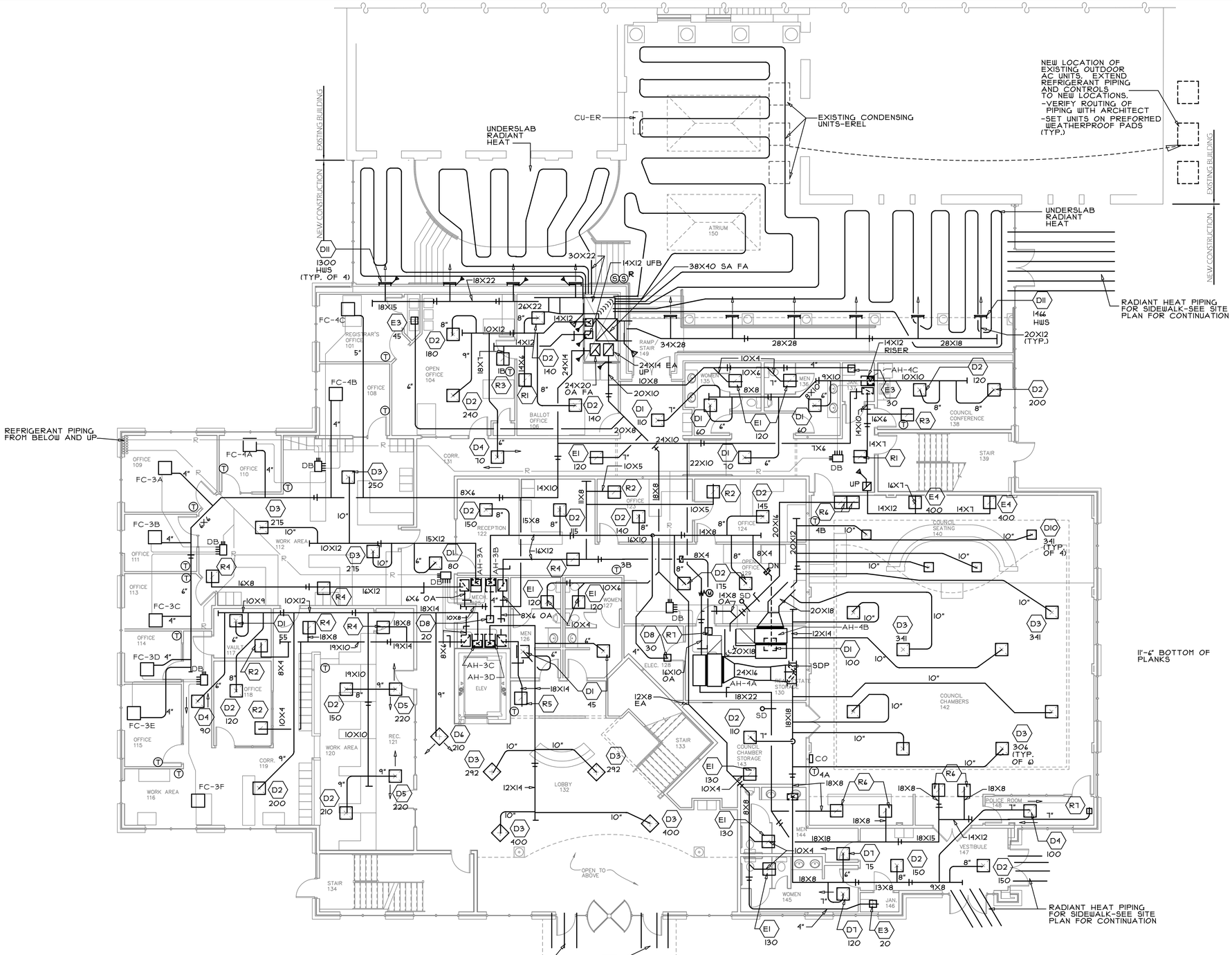
M1.1



DEMOLITION NOTES

1. REMOVE MECHANICAL ITEMS AS SHOWN OR AS REQUIRED TO CLEAR AREAS OF NEW CONSTRUCTION.
2. ITEMS TO REMAIN IN USE WHICH ARE DISTURBED BY NEW CONSTRUCTION SHALL BE REMOVED, CLEANED AND REINSTALLED TO ORIGINAL WORKING ORDER.
3. PROPERLY EVACUATE AND CAPTURE REFRIGERANT IN ACCORDANCE WITH APPLICABLE REGULATIONS. STORE OR DISPOSE OF CAPTURED REFRIGERANT AS DIRECTED BY THE OWNER.
4. CAP PIPING SYSTEMS TO BE ABANDONED TO BEYOND FINISHED SURFACES.

REMOVE ANY HVAC EQUIPMENT ON THE WEST WING OF THE COMMUNITY DEVELOPMENT BUILDING BEING DEMOLISHED. CAP UNUSED DUCTS, PIPES, ETC.

RADIANT HEAT PIPING FOR SIDEWALK-SEE SITE PLAN & LOWER LEVEL HVAC PLAN FOR CONTINUATION

FIRST FLOOR HVAC PLAN

SCALE: 1/8" = 1'-0"

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First Floor HVAC Plan

Scale: 1/8" = 1'-0"

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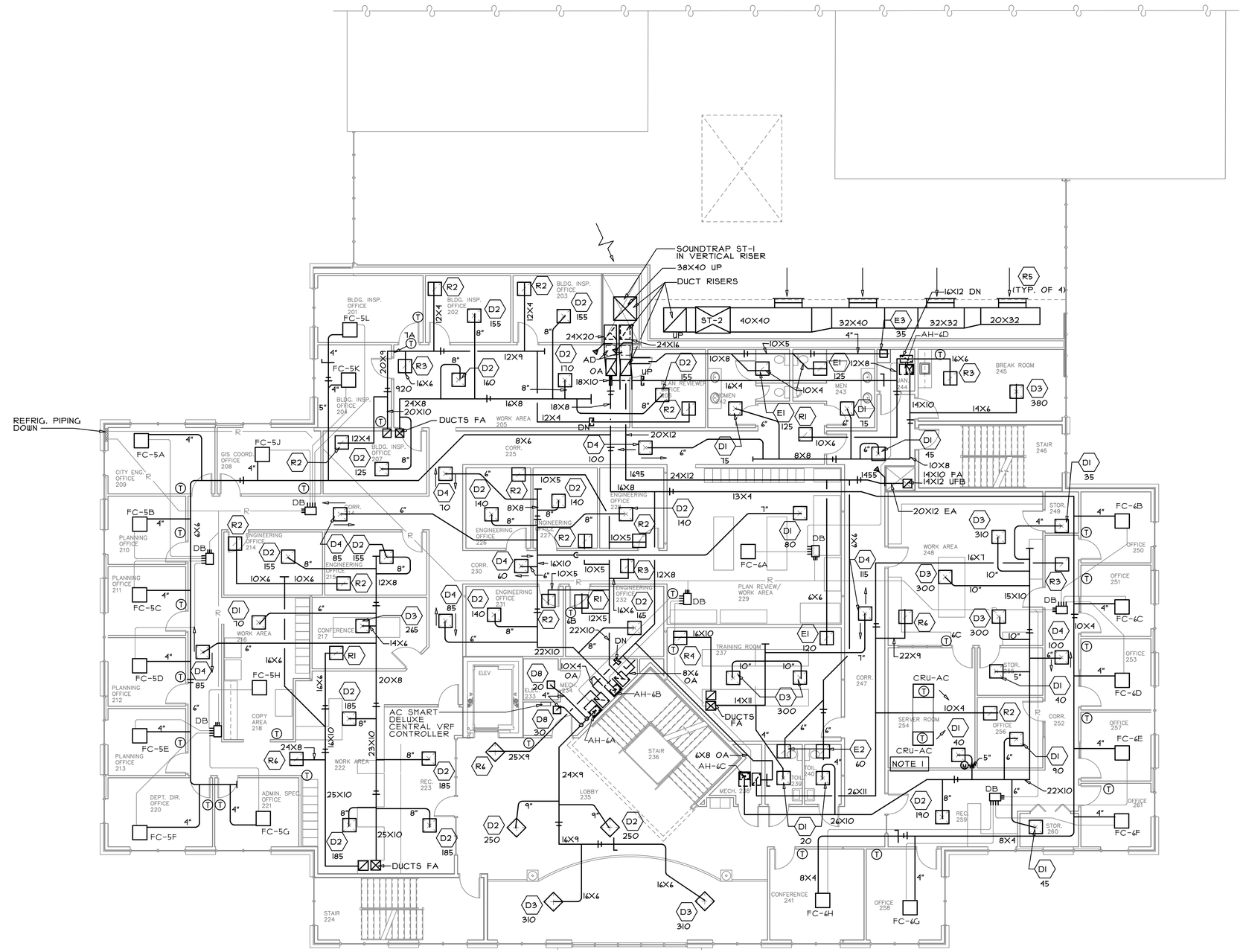
M1.2



DRAWING NOTES

1. PROVIDE A FM2000 CHEMICAL FIRE SUPRESSION SYSTEM FOR THE IT COMPUTER ROOM. THE INLET AIR MOTORIZED DAMPER TO BE CLOSED AND THE CRAC AC UNITS TO BE DISABLED IN CASE THE FIRE SUPPRESSION SYSTEM IS ENABLED.

SECOND FLOOR HVAC PLAN

SCALE: 1/8" = 1'-0"

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Second Floor HVAC Plan

Scale: 1/8" = 1'-0"

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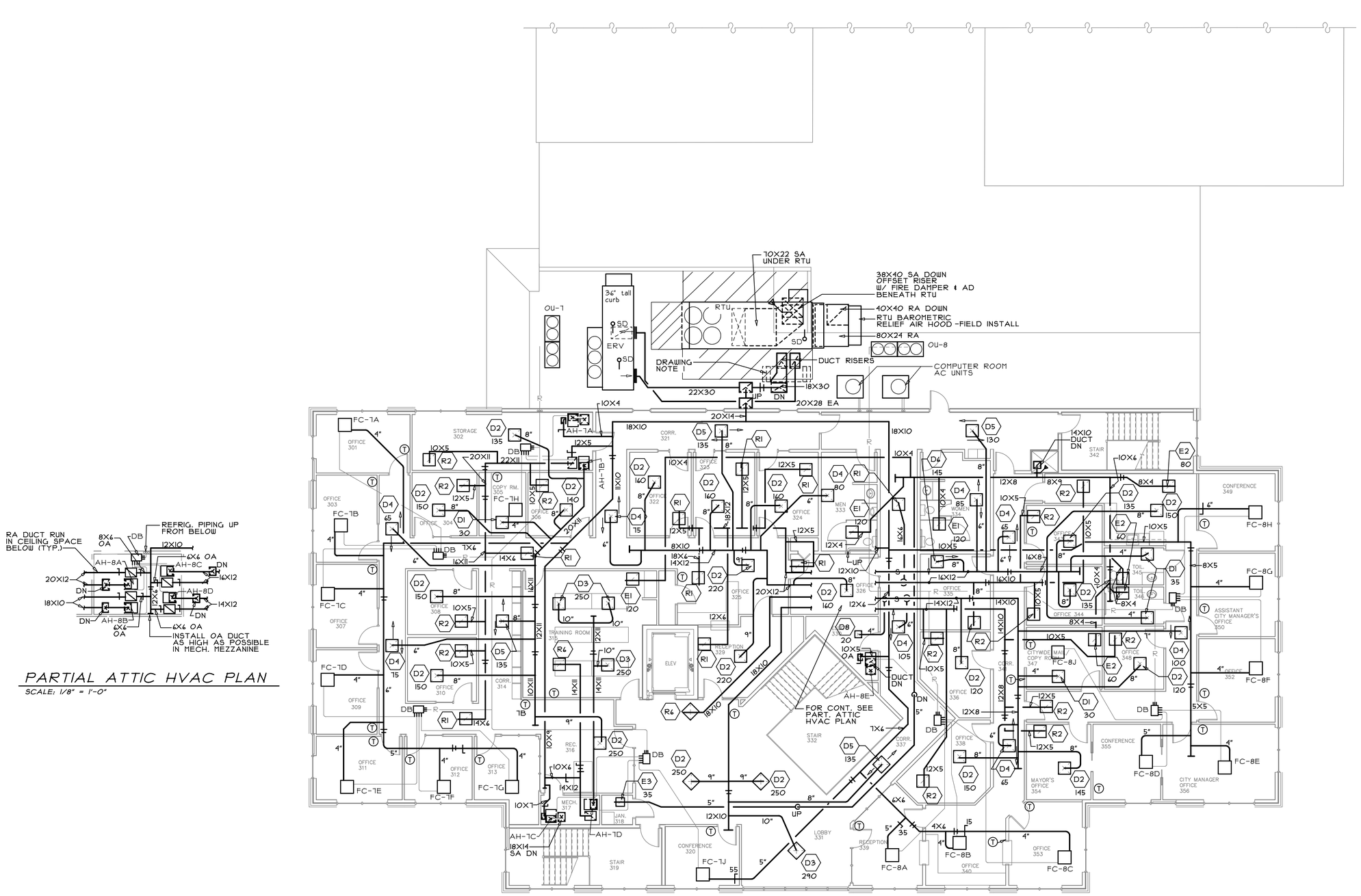

THIRD FLOOR HVAC PLAN

SCALE: 1/8" = 1'-0"

PARTIAL ATTIC HVAC PLAN

SCALE: 1/8" = 1'-0"

DRAWING NOTES

1. WALK WAY TO BE PROVIDED OVER DUCTWORK ON ROOF. -SEE ARCHITECTURAL DRAWINGS.

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Third Floor HVAC Plan

Scale: 1/8" = 1'-0"

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