

GRUNDY COUNTY COURTHOUSE HVAC MODIFICATIONS MORRIS, ILLINOIS

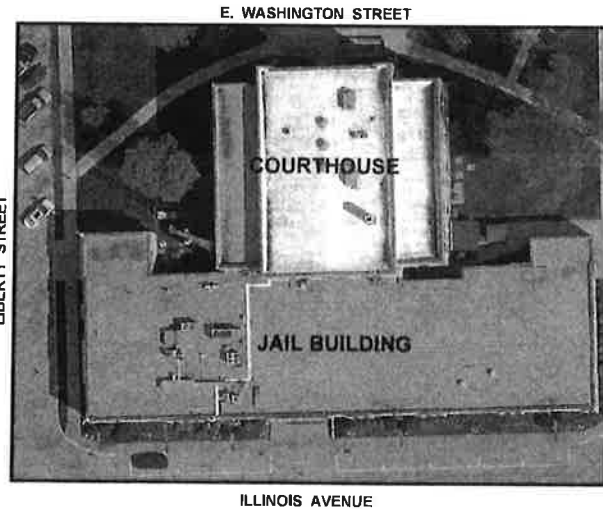
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BUILDING CODE INFORMATION

APPLICABLE BUILDING CODE:

- INTERNATIONAL BUILDING CODE, 2018
- ILLINOIS ENERGY CODE (MOST CURRENT)
- OTHER REGULATIONS MAY ALSO BE APPLICABLE



E. WASHINGTON STREET

COURTHOUSE

JAIL BUILDING

ILLINOIS AVENUE

SITE PLAN



PROJECT LOCATION

LOCATION MAP



LOCATION OF PROJECT INDICATED THUS ★

GRUNDY COUNTY OFFICIALS

COUNTY ADMINISTRATOR: GEORGE GRAY

SHERIFF: KEN BRILEY

CHAIRMAN: CHRIS BALKEMA

ENGINEER:

CHAMLIN & ASSOCIATES, INC.
4152 PROGRESS BOULEVARD
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PERU MORRIS
OTTAWA MENDOTA
ILLINOIS

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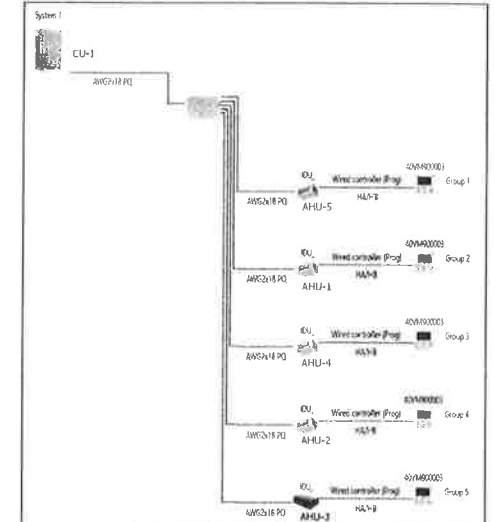
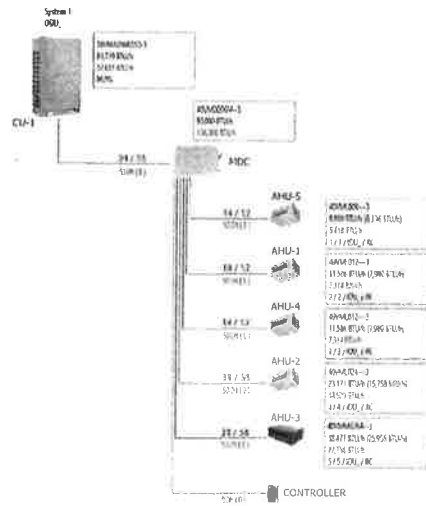
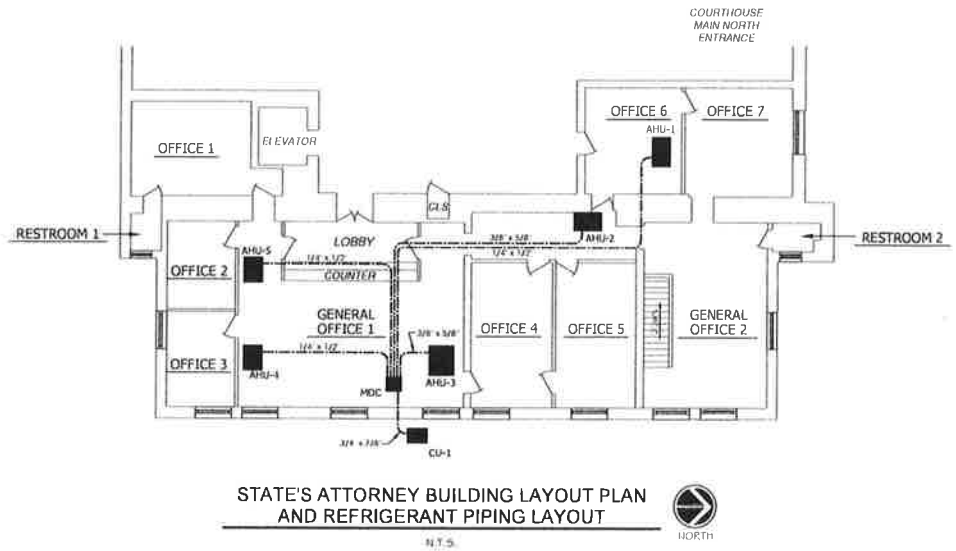
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EXISTING AIR DEVICE SCHEDULE									
MARK	MANUF.	MODEL NO.	BCRDR TYPE	DIFFUSER PATTERN	CFM RANGE	FACE SIZE	NECK SIZE	MAX NC LEVEL	REMARKS
S1	TITUS	300RL	SURFACE	DBL DEFL	0-175	12" Ø	10" G	25	W/OBD STEEL WHITE
S2	TITUS	TDC	LAY-IN	4 WAY	0-150	24" x 24"	8" Ø	25	W/OBD STEEL WHITE
S3	TITUS	TDC	LAY-IN	4 WAY	0-320	24" x 24"	10" Ø	25	W/OBD STEEL WHITE
R1	TITUS	350RL	SURFACE	SGL DEFL	0-350	14" x 12"	12" x 10"	25	STEEL WHITE
R2	TITUS	TDC	LAY-IN	SGL DEFL	0-250	24" x 24"	9" Ø	25	STEEL WHITE
R3	TITUS	TDC	LAY-IN	SGL DEFL	0-1600	24" x 48"	24" x 24"	25	STEEL WHITE
R4	TITUS	TDC	LAY-IN	SGL DEFL	0-640	24" x 24"	15" x 15"	25	STEEL WHITE

EXISTING CAST IRON RADIATOR SCHEDULE						
MARK	MANUF.	MODEL NO.	CAPACITY	TOTAL LENGTH	LOCATION	REMARKS
RAD-1	BURNHAM	9A	820 / LF	4' FOOT	OFFICE 5	
RAD-2	BURNHAM	9A	820 / LF	4' FOOT	OFFICE 4	
RAD-3	BURNHAM	9A	820 / LF	4' FOOT	OFFICE 3	
RAD-4	BURNHAM	9A	820 / LF	4' FOOT	OFFICE 3	
RAD-5					GENERAL OFFICE 1	SPECIFICATIONS UNKNOWN
RAD-6					GENERAL OFFICE 1	SPECIFICATIONS UNKNOWN
RAD-7					REST ROOM 2	SPECIFICATIONS UNKNOWN

EXISTING CONDENSING UNIT SCHEDULE (TO BE REMOVED)										
MARK	MANUF.	MODEL NO.	CAPACITY MBH TOTAL	AMBIENT TEMP.	COMPRESSOR		MCA	FAN RPM	VOLTS / PH	REMARKS
					LRA	RLA				
CU-1	TRANE	TP030D300A	30	95	104	10	15	825	208 / 3 Ø	ON COURTHOUSE ROOF
CU-2	TRANE	TP030D300A	30	95	104	10	15	825	208 / 3 Ø	ON COURTHOUSE ROOF
CU-3	TRANE	TP060D300A	60	95	123	22	29	825	208 / 3 Ø	ON GRADE

EXISTING AIR HANDLING UNITS (TO BE REMOVED)																
MARK	MANUF.	MODEL NO.	CMF	ESP	ELECTRICAL					COOLING COILS			HEATING			REMARKS
					HP	VOLTS	PH	HZ	THC	SHC	EAT - db / wb	LAT - db / wb	MBH	EAT	LAT	
AH-1	TRANE	LPCAAD3A	640	0.4	1/2	208	1	60	23.5	18.6	79.7 / 65.2	53.2 / 52.9	45.4	51	117	
AH-2	TRANE	LPCAAD3A	700	0.5	1/2	208	1	60	20.0	19.2	77.3 / 62.0	52.3 / 51.9	46.2	64	127	
AH-3	TRANE	LPCAAD6A	1600	0.7	1/2	208	1	60	50.3	45.6	77.5 / 62.4	51.5 / 51.3	111.5	62.0	126	



SYSTEM LAYOUT

SYSTEM WIRING DIAGRAM

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DATE: 04/2021

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STATE'S ATTORNEY OFFICE
2021

EXISTING EQUIPMENT SCHEDULES,
REFRIGERANT PIPING LAYOUT AND
PROPOSED SYSTEM LAYOUTS

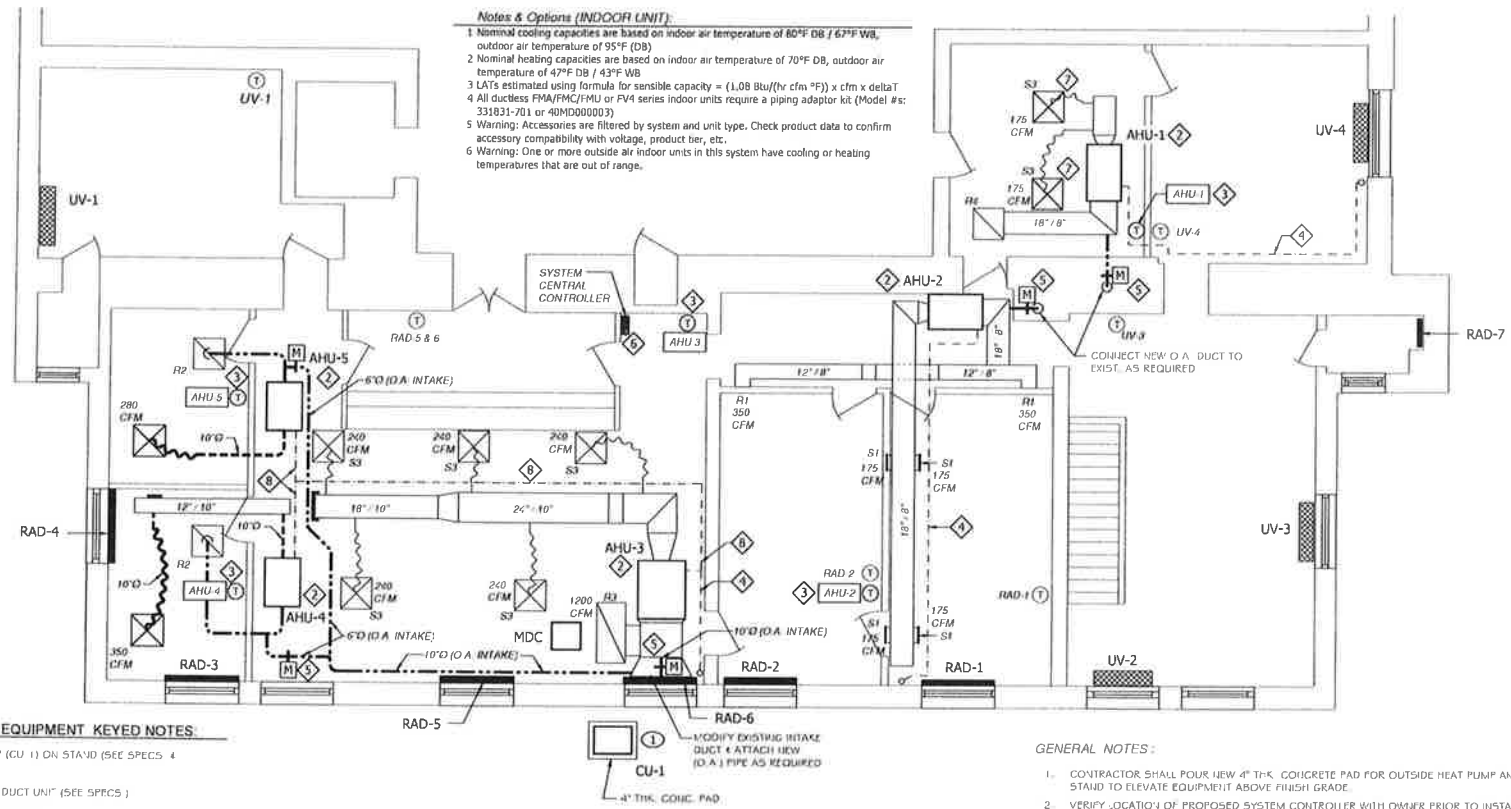
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INDOOR UNIT SCHEDULE

System Tag	Room Name	Tag Reference	Make	Model	Type	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Ratio Pipe (Dimensionless)	Project Cooling Design Entering Temp (DB/°F)	Project Heating Design Entering Temp (DB/°F)	Cooling Total Capacity (BTU/h)	Heating Capacity (BTU/h)	Corrected Capacity (BTU/h)	Estimated Heating Coil (AT/°F)	Voltage / Phase	MCA / MDCP	Selected Fan Speed	Rated Airflow at Selected Fan Speed (cfm)	Max Fan TSP Setting (EV/100)	Sound Pressure Per Fan Speed (1/100) (dBA)	Zone Nameplate Control (By 2)	ERV (DUDD) Manufacturer Model Number	Notes / Options
AHU-5	OFFICE 2	AHU-5	Carrier	90VM1408--3	Low Static Duct	9,000.0	10,000.0	1 1/4" / 1 1/2"	80.0 / 67.0	70.0	8,889.2	8,335.6	5,418.8	58.1	88.4	208-210V / 1ph	0.50 / 15	High	393	0.20	34.5 / 32.0 / 22.0	90VM1408003	1, 2, 4, 5
AHU-3	OFFICE 3	AHU-3	Carrier	40VM1612--3	Low Static Duct	12,000.0	13,500.0	1 1/4" / 1 1/2"	80.0 / 67.0	70.0	11,385.6	7,979.6	7,214.3	57.9	88.9		0.60 / 15	High	353	0.20	32.0 / 28.6 / 22.0	90VM1600003	1, 2, 1, 4, 5
AHU-4	OFFICES 4 & 5	AHU-4	Carrier	40VM1612--3	Low Static Duct	12,000.0	13,500.0	1 1/4" / 1 1/2"	80.0 / 67.0	70.0	11,385.6	7,979.6	7,214.3	57.9	88.9		0.60 / 15	High	353	0.20	32.0 / 28.6 / 22.0	90VM1600003	1, 2, 1, 4, 5
AHU-2	OFFICES 6 & 5	AHU-2	Carrier	90VM1615--3	Low Static Duct	24,000.0	27,000.0	3/8" / 3/4"	80.0 / 67.0	70.0	23,171.2	15,758.5	14,628.6	38.0	89.3		1.10 / 15	High	753	0.20	41.3 / 38.8 / 32.0	90VM1600003	1, 2, 3, 4, 5
AHU-1	GEN. OFFICE 1	AHU-1	Carrier	90VM1616--3	Duct	16,000.0	18,000.0	3/8" / 3/4"	80.0 / 67.0	70.0	16,477.2	25,938.2	22,755.5	58.8	88.2		1.0 / 15	High	1208	0.20	47.0 / 43.0 / 40.0	90VM1600003	1, 2, 3, 4, 5

Notes & Options (INDOOR UNIT):
 1 Nominal cooling capacities are based on indoor air temperature of 80°F DB / 67°F WB, outdoor air temperature of 95°F (DB)
 2 Nominal heating capacities are based on indoor air temperature of 70°F DB, outdoor air temperature of 47°F DB / 43°F WB
 3 LATs estimated using formula for sensible capacity = (1.08 Btu/(hr cfm °F)) x cfm x delta T
 4 All ductless PMA/PMC/FMU or PVA series indoor units require a piping adaptor kit (Model #: 331B31-701 or 40MDD00003)
 5 Warning: Accessories are filtered by system and unit type. Check product data to confirm accessory compatibility with voltage, product tier, etc.
 6 Warning: One or more outside air indoor units in this system have cooling or heating temperatures that are out of range.



GENERAL PROPOSED HVAC EQUIPMENT KEYED NOTES:

- 1 PROPOSED EXTERIOR HEAT PUMP (CU 1) ON STA'10 (SEE SPECS 4 GENERAL NOTES)
- 2 PROPOSED LOW STATIC INDOOR DUCT UNIT* (SEE SPECS)
- 3 PROPOSED 24 VOLT VRF THERMOSTAT
- 4 EXISTING CONDENSATE DRAINS TO BE RE USED.
- 5 [M] PROVIDE NEW 24 VOLT OUTSIDE AIR (O.A.) DAMPERS IN NEW DUCT AS INDICATED AND SPECIFIED IN THE PROJECT DOCUMENTS
- 6 SYSTEM TOUCH SCREEN CENTRAL CONTROLLER (SEE SPECS 4 NOTE #2)
- 7 ADJUST EXISTING SUPPLY DIFFUSERS TO PROVIDE REQUIRED CFM
- 8 PROVIDE NEW CONDENSATE DRAIN FROM AHU 4 & AHU 5. ATTACH TO EXISTING CONDENSATE LINE AS SHOWN

GENERAL NOTES:

- 1. CONTRACTOR SHALL POUR NEW 4" THK. CONCRETE PAD FOR OUTSIDE HEAT PUMP AND PROVIDE 24" H. METAL STAND TO ELEVATE EQUIPMENT ABOVE FINISH GRADE.
- 2. VERIFY LOCATION OF PROPOSED SYSTEM CONTROLLER WITH OWNER PRIOR TO INSTALLATION.
- 3. CONNECT NEW SUPPLY & RETURNS TO EXISTING AS SHOWN. REBALANCE TO PROPOSED CFM AS REQUIRED.
- 4. DUCT ROUTING IS DIAGRAMATIC. HVAC CONTRACTOR SHALL ADJUST TO FIELD ROUTING TO SATISFY DESIGN INTENT.
- 5. ALL RECTANGULAR DUCT SHALL BE CONSTRUCTED OF NEW PRIME GRADE GALVANIZED SHEET STEEL MANUFACTURED IN ACCORDANCE WITH ASTM A525 G 90 STANDARDS FOR HOT DIP GALVANIZED STEEL. DUCTWORK SHALL BE OF TRF GAUGE AND PROVIDED WITH THE RECOMMENDED REINFORCEMENT AS OUTLINED IN THE MOST CURRENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS FOR THE SPECIFIED SYSTEM OPERATING PRESSURE.
- 6. PROVIDE EXTERIOR DUCT INSULATION WHERE REQUIRED. INTERIOR DUCT LINES WILL NOT BE ACCEPTED.
- 7. PROVIDE REQUIRED DUCT SUPPORT FOR ALL DUCTWORK SHOWN. INSTALL HANGERS SECURED TO THE BUILDING STRUCTURE.

PROPOSED MECHANICAL PLAN

SCALE: 1/4" = 1' 0"



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OUTDOOR UNIT SCHEDULE

System Tag	Tag Reference	Make	Model Number	Models	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	System Connected Capacity	Main Refrigerant Pipe Size (inches)	Preliminary Added Field Charge (lb)	Sealed Pressure (PSIG)	Unit Weight (lbs)	Project Design Cooling Outdoor Temp DB (°F)	Project Design Heating Outdoor Temp WB (or DB) (°F)	Connected Cooling Total Capacity (BTU/h)	Connected Heating Capacity (BTU/h)	Voltage / Phase	MCA	RES (HUIC)	Cooling Efficiency IEER/SEER/IEER	Heating COP @ 47°F (or HSPF)	Notes / Options
CU-1	CU-1	Carrier	38VVA036400LS-1		96,000.0	108,000.0	96,000.0	3/4" / 1/2"	21.8	61.7	132.0	48.0	48.0	93,000.0	14,400.0	208/230V / 3-phase 4-wire	49	50	14 / 12.4	3.6	1, 2, 3, 4, 5

VRF HEAT RECOVERY MDC

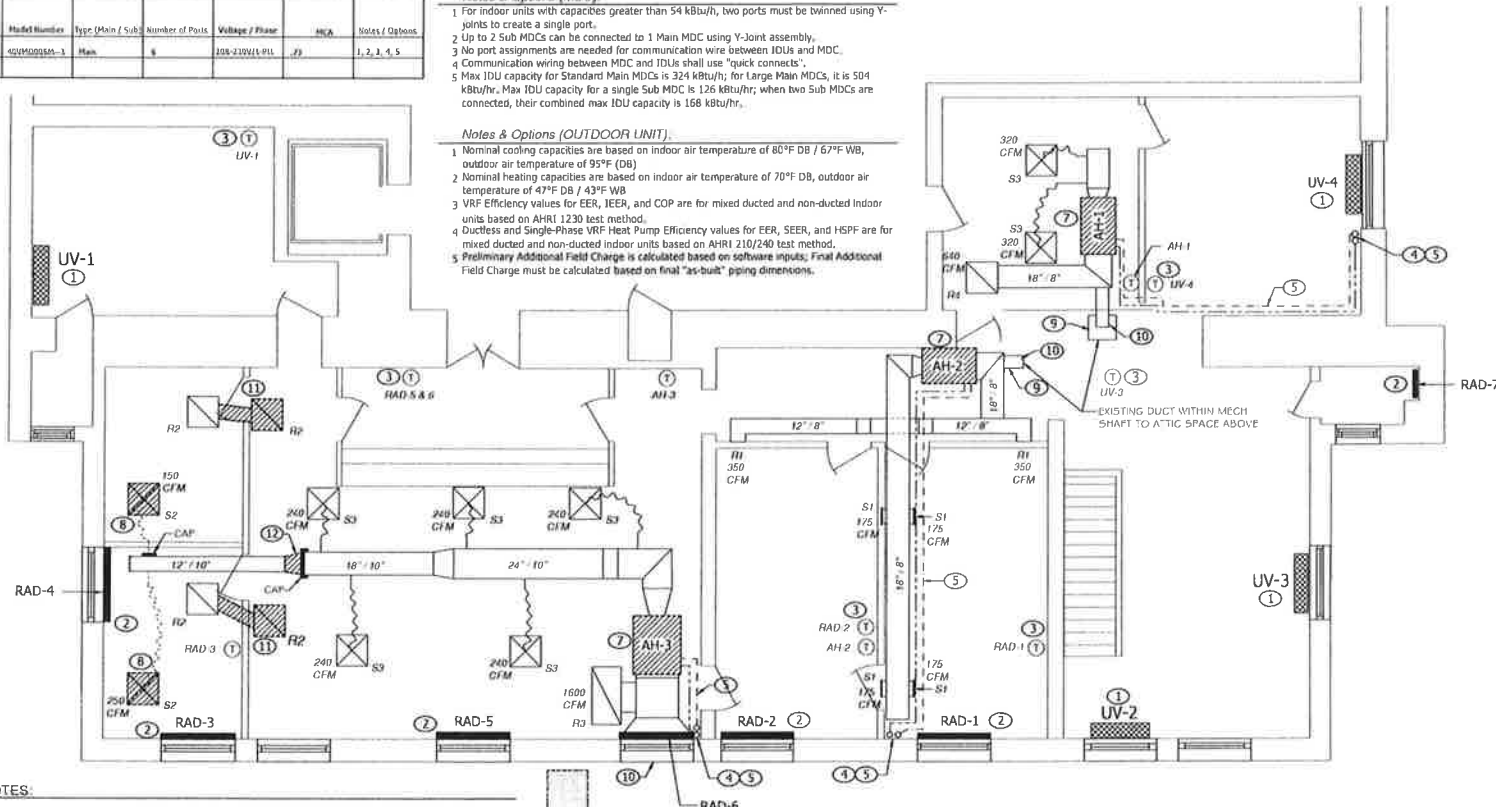
System Tag	Tag Reference	Make	Model Number	Type (Main / Sub)	Number of Ports	Voltage / Phase	MCA	Notes / Options
MDC	MDC	Carrier	42VHM00561-3	Main	6	208-230V/1-Ph	49	1, 2, 3, 4, 5

Notes & Options (MDC):

- For indoor units with capacities greater than 54 kBtu/h, two ports must be twinned using Y-joints to create a single port.
- Up to 2 Sub MDCs can be connected to 1 Main MDC using Y-Joint assembly.
- No port assignments are needed for communication wire between IDUs and MDC.
- Communication wiring between MDC and IDUs shall use "quick connects".
- Max IDU capacity for Standard Main MDCs is 324 kBtu/h; for Large Main MDCs, it is 504 kBtu/h. Max IDU capacity for a single Sub MDC is 126 kBtu/h; when two Sub MDCs are connected, their combined max IDU capacity is 168 kBtu/h.

Notes & Options (OUTDOOR UNIT):

- Nominal cooling capacities are based on indoor air temperature of 80°F DB / 67°F WB, outdoor air temperature of 95°F DB.
- Nominal heating capacities are based on indoor air temperature of 70°F DB, outdoor air temperature of 47°F DB / 43°F WB.
- VRF Efficiency values for EER, IEER, and COP are for mixed ducted and non-ducted indoor units based on AHRI 1230 test method.
- Ductless and Single-Phase VRF Heat Pump Efficiency values for EER, SEER, and HSPF are for mixed ducted and non-ducted indoor units based on AHRI 210/240 test method.
- Preliminary Additional Field Charge is calculated based on software inputs; Final Additional Field Charge must be calculated based on final "as-built" piping dimensions.



GENERAL DEMOLITION KEYED NOTES:

- 1 EXISTING UNIT VENTILATOR TO REMAIN
- 2 EXISTING CAST IRON RADIATOR TO REMAIN
- 3 EXISTING THERMOSTAT TO REMAIN
- 4 EXISTING STEEL HEAT LINES TO AIR HANDLING UNITS TO BE PROPERLY CAPPED
- 5 EXISTING CONDENSATE DRAINS TO BE RE USED.
- 6 DISCONNECT AND REMOVE (3) CONDENSING UNITS (2 ON ROOFTOP 4' AT GROUND LEVEL).
- 7 DISCONNECT AND COMPLETELY REMOVE THREE AIR HANDLING UNITS LOCATED ABOVE SUSPENDED CEILING. CAP PNEUMATIC CONTROL PIPING AS REQUIRED TO EACH UNIT
- 8 DEMO AND REMOVE SUPPLY AIR DIFFUSER AND FLEXIBLE DUCT.
- 9 REMOVE ALL REFRIGERANT LINE SETS FROM AHUS TO CONDENSERS.
- 10 CAP EXISTING OUTDOOR AIR DUCTS AS REQUIRED & PREPARE FOR NEW INTAKE DUCTS
- 11 DEMO AND REMOVE TRANSFER GRILLES AND RELATED DUCT
- 12 DEMO AND REMOVE EXISTING TRANSITION (1 2" / 10") SUPPLY DUCT. CAP END OF (1 8" / 10") DUCT

GENERAL NOTES:

- 1 CONTRACTOR SHALL REMOVE EXISTING SUSPENDED CEILING AS REQUIRED FOR REMOVAL OF EQUIPMENT & PIPING. PROPERLY STORE ALL MATERIALS TO BE RE USED. PROVIDE REPLACEMENT MATERIALS FOR A.J. DAMAGED OR FILL AREAS WHERE EQUIPMENT HAS BEEN REMOVED.

MECHANICAL DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



MECHANICAL DEMOLITION PLAN

DRAWN BY: SNS
 CHECKED BY: Tim H
 DATE: 04/2021

LEVEL	BY	DATE	REVISIONS	DESCRIPTION



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 STATE'S ATTORNEY OFFICE
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MECHANICAL DEMOLITION PLAN AND
 OUTDOOR UNIT & MDC SCHEDULES

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