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1 MECHANICAL DEMOLITION 1ST FLOOR PLAN
 SCALE: 1/16" = 1'-0"

ADD ALTERNATE NOTES

- ADD ALTERNATE #1**
 THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
- DOAS UNIT #3, #4, #5 AND ASSOCIATED ACCUs #6, #7, #8
 - VRF SYSTEMS ACCUs #2 & #3 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS
- ADD ALTERNATE #2**
 THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
- DOAS UNIT #1 & #2 AND ASSOCIATED ACCUs #4 & #5
 - VRF SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

MECHANICAL DEMOLITION NOTES

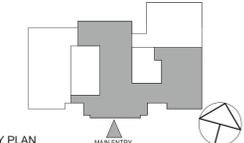
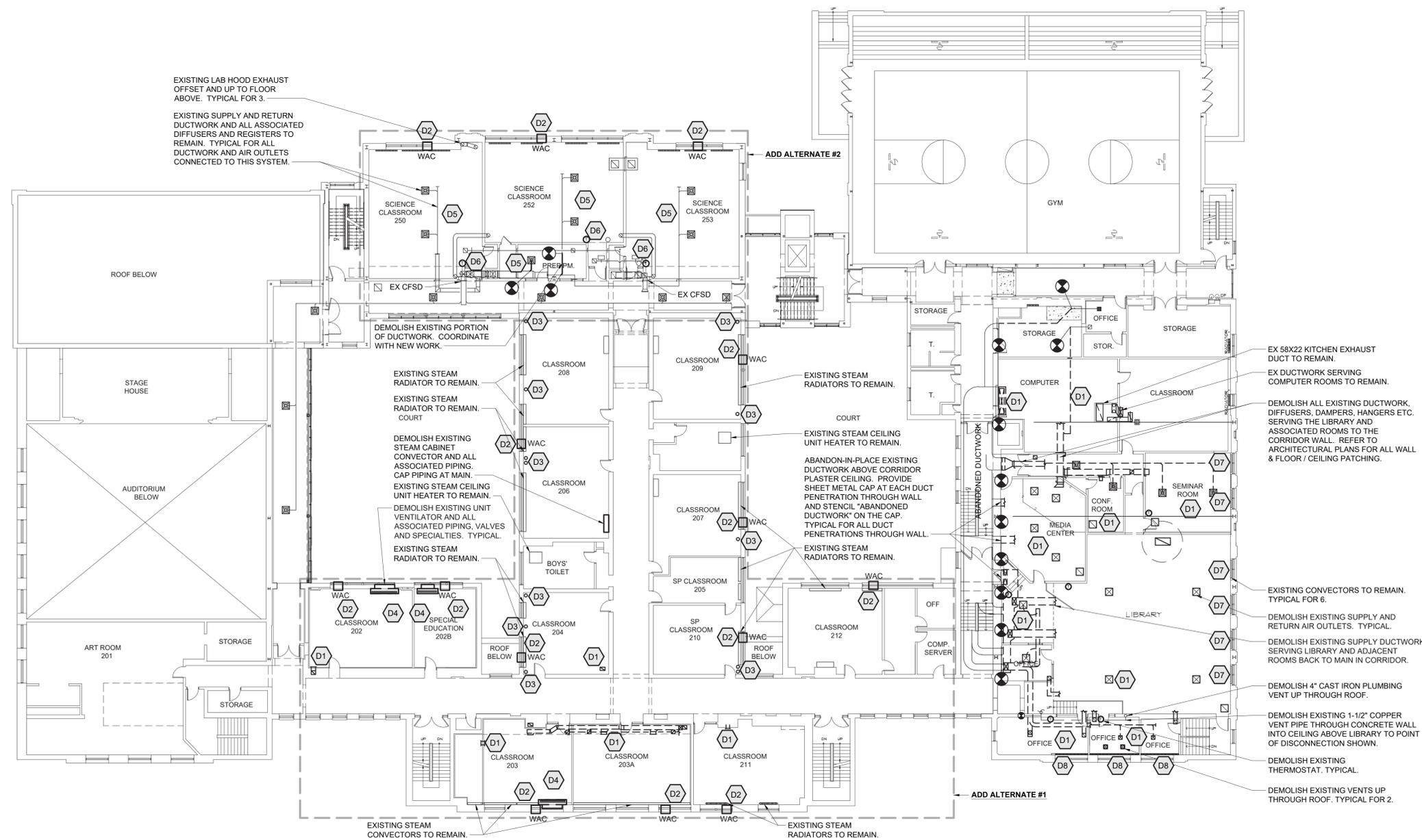
- D1** DEMOLISH EXISTING DUCTWORK, DUCTWORK INSULATION, AND ASSOCIATED AIR OUTLETS COMPLETE.
- D2** DEMOLISH EXISTING WINDOW AC UNIT (WAC) AND ALL ASSOCIATED POWER WIRING, WINDOW PANELS & SUPPORTS COMPLETE.
- D3** DEMOLISH EXISTING EXPOSED HOT WATER / STEAM PIPING INSULATION AND REPLACE WITH NEW PIPING INSULATION FROM FLOOR TO CEILING. NEW INSULATION SHALL BE JACKETED (REFER TO SPECIFICATIONS). COLOR SHALL BE COORDINATED WITH ARCHITECT.
- D4** DEMOLISH EXISTING CEILING FANS AND ALL ASSOCIATED POWER WIRING, CONDUITS, CONTROLS & SUPPORTS COMPLETE. COORDINATE ALL NEW CEILING WORK WITH ARCHITECTURAL PLANS.
- D5** DEMOLISH RADIATOR PANEL COVERS, STEAM TRAPS, SHUTOFF VALVES, DANFOSS VALVES. COORDINATE WITH ARCHITECTURAL PLANS AND NEW WORK PLANS.
- D6** DEMOLISH EXISTING PROPELLER EXHAUST FAN AND ALL ASSOCIATED POWER WIRING, CONDUITS, AND CONTROLS COMPLETE.
- D7** PROVIDE CFM READING ON EXISTING DIFFUSERS PRIOR TO ANY DEMOLITION OR NEW WORK.
- D8** EXISTING MAKEUP AIR FAN FOR KITCHEN TO REMAIN. DEMOLISH FAN STARTER AND ANY CONTROLS. REFER TO M205 FOR NEW WORK.
- D9** DEMOLISH EXISTING THERMOSTAT AND ASSOCIATED CONTROL WIRING TO EXISTING HOT WATER CONTROL VALVE.

1	03/31/2022	ISSUED FOR BID
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Sheet Title
DEMOLITION 1ST FLOOR PLAN

Job No.	NKGD0239.00	Date	09/10/2021
Scale	AS NOTED	Drawn / Checked	NW / RS

Sheet Number
M101



NOTE: ALL IDEAS, DESIGNS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND ARE THE PROPERTY OF KATIE, GARMENT & DAVIDSON ARCHITECTS, PC (KG&D), AND HERE CREATED FOR USE ON THIS PROJECT. NONE OF SUCH IDEAS, DESIGNS, ARRANGEMENTS OR PLANS SHALL BE USED BY OR DISCLOSED TO ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN PERMISSION OF (KG&D).
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1 MECHANICAL DEMOLITION 2ND FLOOR PLAN
 SCALE: 1/16" = 1'-0"

ADD ALTERNATE NOTES

- ADD ALTERNATE #1**
 THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
 • DOAS UNIT #3, #4, #5 AND ASSOCIATED ACCUs #6, #7, #8
 • VRF SYSTEMS ACCUs #2 & #3 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS
- ADD ALTERNATE #2**
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 • DOAS UNIT #1 & #2 AND ASSOCIATED ACCUs #4 & #5
 • VRF SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

MECHANICAL DEMOLITION NOTES

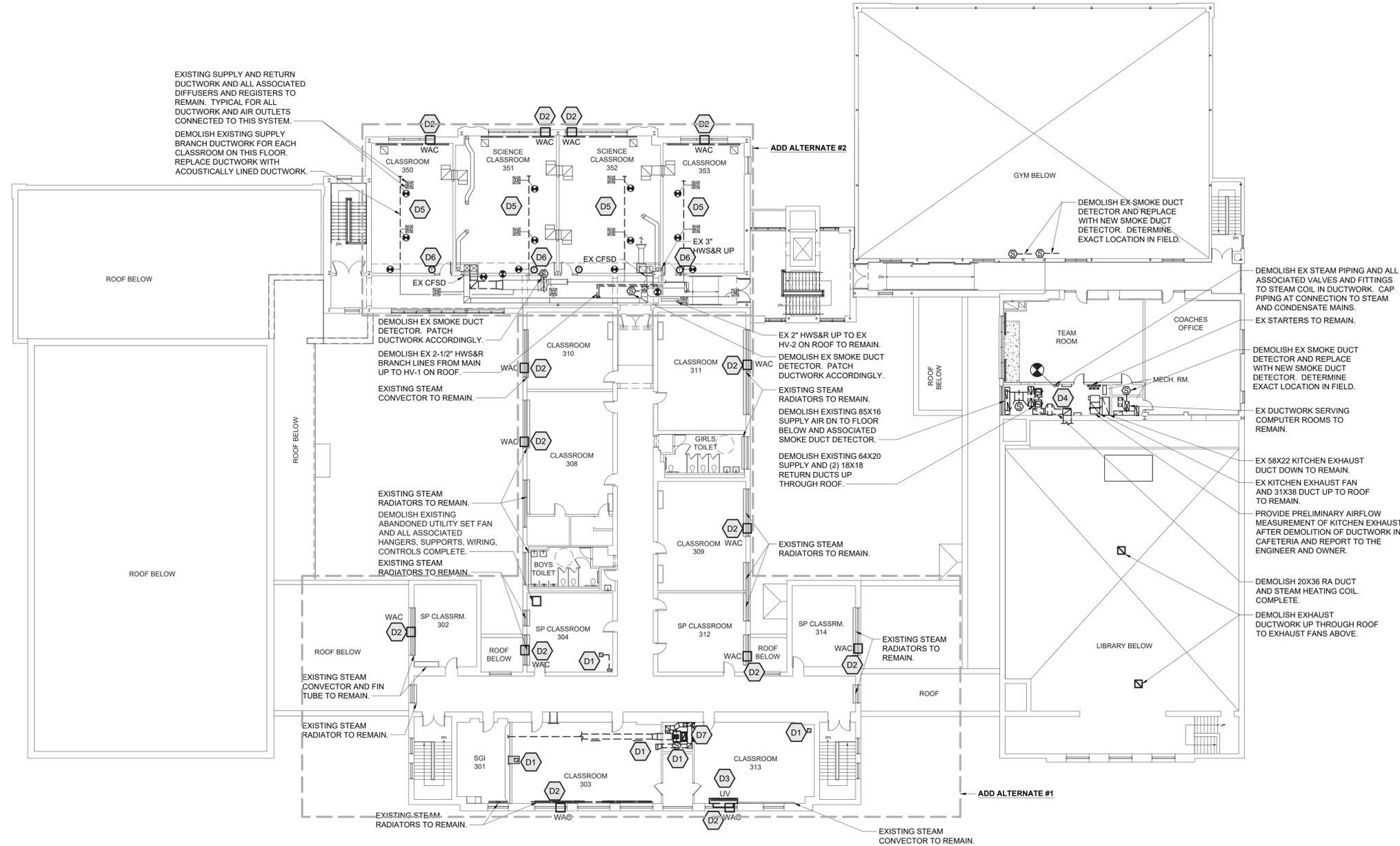
- D1 DEMOLISH EXISTING DUCTWORK, DUCTWORK INSULATION, AND ASSOCIATED AIR OUTLETS COMPLETE. FIELD VERIFY EXTENT OF DUCTWORK AND DEMOLISH THE ENTIRE SYSTEM UP THROUGH THE ROOF INCLUDING ROOF EQUIPMENT. PATCH AND FINISH WALLS OR CEILINGS OR FLOORS TO MATCH EXISTING. COORDINATE WITH ARCHITECTURAL PLANS.
- D2 DEMOLISH EXISTING WINDOW AC UNIT (WAC) AND ALL ASSOCIATED POWER WIRING, WINDOW PANELS & SUPPORTS COMPLETE.
- D3 DEMOLISH EXISTING EXPOSED HOT WATER / STEAM PIPING INSULATION AND REPLACE WITH NEW PIPING INSULATION FROM FLOOR TO CEILING. NEW INSULATION SHALL BE JACKETED (REFER TO SPECIFICATIONS). COLOR SHALL BE COORDINATED WITH ARCHITECT.
- D4 DEMOLISH EXISTING UNIT VENTILATOR AND ALL ASSOCIATED PIPING, PIPE SPECIALTIES, POWER WIRING, CONDUITS, CONTROLS & SUPPORTS COMPLETE. EXTEND STEAM PIPING TO NEW CONVECTOR. REFER TO NEW WORK PLANS.
- D5 PROVIDE CFM READING ON EXISTING DIFFUSERS PRIOR TO ANY DEMOLITION OR NEW WORK.
- D6 DEMOLISH EXISTING THERMOSTAT AND ASSOCIATED CONTROL WIRING TO EXISTING HOT WATER CONTROL VALVE.
- D7 EXISTING STEAM CONVECTORS TO REMAIN. DEMOLISH STEAM TRAPS, SHUTOFF VALVES, DANFOSS VALVES. COORDINATE WITH ARCHITECTURAL PLANS AND NEW WORK PLANS.
- D8 EXISTING FIN TUBE TO REMAIN. DEMOLISH STEAM TRAPS, SHUTOFF VALVES, DANFOSS VALVES. COORDINATE WITH ARCHITECTURAL PLANS AND NEW WORK PLANS.

1	03/31/2022	ISSUED FOR BID
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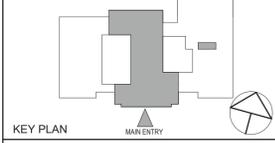
Sheet Title
DEMOLITION 2ND FLOOR PLAN

Job No.	NKGD0239.00	Date	09/10/2021
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Sheet Number
M102



DEMOLISH EX STEAM PIPING AND ALL ASSOCIATED VALVES AND FITTINGS TO STEAM COIL IN DUCTWORK. CAP PIPING AT CONNECTION TO STEAM AND CONDENSATE MAINS.
 EX STARTERS TO REMAIN.
 DEMOLISH EX SMOKE DUCT DETECTOR AND REPLACE WITH NEW SMOKE DUCT DETECTOR. DETERMINE EXACT LOCATION IN FIELD.
 EX DUCTWORK SERVING COMPUTER ROOMS TO REMAIN.
 EX 58X22 KITCHEN EXHAUST DUCT DOWN TO REMAIN.
 EX KITCHEN EXHAUST FAN AND 31X38 DUCT UP TO ROOF TO REMAIN.
 PROVIDE PRELIMINARY AIRFLOW MEASUREMENT OF KITCHEN EXHAUST AFTER DEMOLITION OF DUCTWORK IN CAFETERIA AND REPORT TO THE ENGINEER AND OWNER.
 DEMOLISH 20X36 RA DUCT AND STEAM HEATING COIL. COMPLETE.
 DEMOLISH EXHAUST DUCTWORK UP THROUGH ROOF TO EXHAUST FANS ABOVE.



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1 MECHANICAL DEMOLITION 3RD FLOOR PLAN
 SCALE: 1/16" = 1'-0"

ADD ALTERNATE NOTES

ADD ALTERNATE #1
 THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
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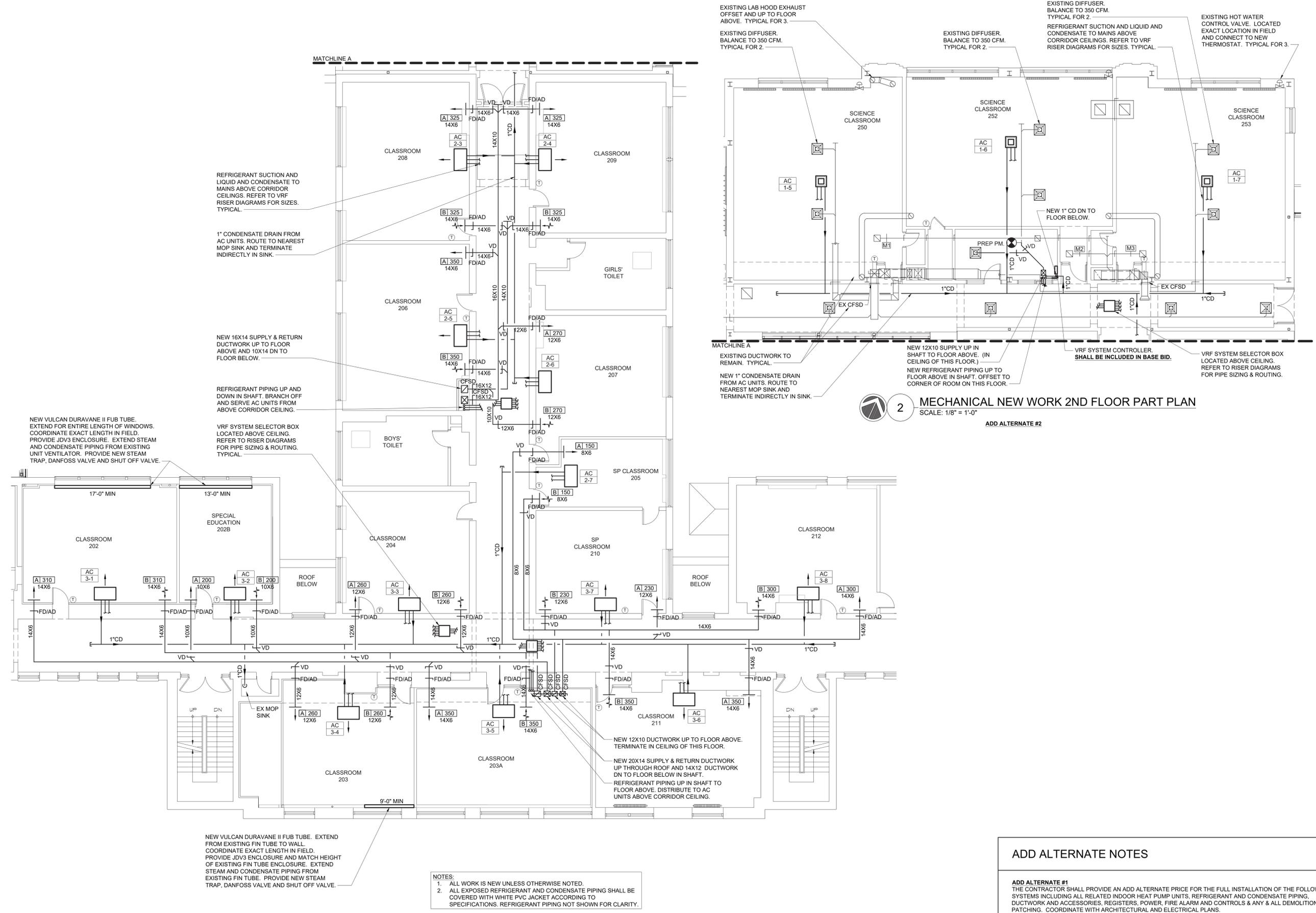
ADD ALTERNATE #2
 THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
 • DOAS UNIT #1 & #2 AND ASSOCIATED ACCUs #4 & #5
 • VRF SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

MECHANICAL DEMOLITION NOTES

- D1** DEMOLISH EXISTING DUCTWORK, DUCTWORK INSULATION, AND ASSOCIATED AIR OUTLETS COMPLETE. FIELD VERIFY EXTENT OF DUCTWORK AND DEMOLISH THE ENTIRE SYSTEM UP THROUGH THE ROOF INCLUDING ROOF EQUIPMENT. PATCH AND FINISH WALLS OR CEILINGS OR FLOORS TO MATCH EXISTING, COORDINATE WITH ARCHITECTURAL PLANS.
- D2** DEMOLISH EXISTING WINDOW AC UNIT (WAC) AND ALL ASSOCIATED POWER WIRING, WINDOW PANELS & SUPPORTS COMPLETE.
- D3** DEMOLISH EXISTING UNIT VENTILATOR AND ALL ASSOCIATED PIPING, PIPE SPECIALTIES, POWER WIRING, CONDUITS, CONTROLS & SUPPORTS COMPLETE. EXTEND STEAM PIPING TO NEW CONVECTOR. REFER TO NEW WORK PLANS.
- D4** DEMOLISH ALL EXISTING DUCTWORK, PIPING, VALVES, DAMPERS, ACTUATORS, FITTINGS, HANGERS AND SUPPORTS ASSOCIATED WITH EXISTING LIBRARY AC UNIT WHICH IS TO BE DEMOLISHED. COMPLETE.
- D5** PROVIDE CFM READING ON EXISTING DIFFUSERS PRIOR TO ANY DEMOLITION OR NEW WORK.
- D6** DEMOLISH EXISTING THERMOSTAT AND ASSOCIATED CONTROL WIRING TO EXISTING HOT WATER CONTROL VALVE.
- D7** DEMOLISH EXISTING AIR HANDLING UNIT INCLUDING ALL DUCTWORK, STEAM & CONDENSATE PIPING, PIPE SPECIALTIES, WIRING, CONTROLS, HANGERS AND SUPPORTS COMPLETE. TRACE STEAM AND CONDENSATE PIPING BELOW FLOOR BACK TO MAIN AND CAP AT MAIN.

1	03/31/2022	ISSUED FOR BID
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No.		Date	Issue
Sheet Title			
DEMOLITION 3RD FLOOR PLAN			
Job No.	NKGD0239.00	Date	09/10/2021
Scale	AS NOTED	Drawn / Checked	NW / RS
Sheet Number			
M103			



1 MECHANICAL NEW WORK 2ND FLOOR PART PLAN
 SCALE: 1/8" = 1'-0"
 ADD ALTERNATE #1

2 MECHANICAL NEW WORK 2ND FLOOR PART PLAN
 SCALE: 1/8" = 1'-0"
 ADD ALTERNATE #2

NOTES:
 1. ALL WORK IS NEW UNLESS OTHERWISE NOTED.
 2. ALL EXPOSED REFRIGERANT AND CONDENSATE PIPING SHALL BE COVERED WITH WHITE PVC JACKET ACCORDING TO SPECIFICATIONS. REFRIGERANT PIPING NOT SHOWN FOR CLARITY.

ADD ALTERNATE NOTES

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No.	Date	Issue
1	03/31/2022	ISSUED FOR BID

NEW WORK 2ND FLOOR PART PLANS

Job No.	NKGD0239.00	Date	09/10/2021
Scale	AS NOTED	Drawn / Checked	NW / RS

Sheet Number
M202



NOTE: ALL IDEAS, DESIGNS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND ARE THE PROPERTY OF KATZ, GARDNER & DAVIDSON ARCHITECTS, P.C. (KGD), AND HERE CREATED FOR USE ON THIS PROJECT. NONE OF SUCH IDEAS, DESIGNS, ARRANGEMENTS OR PLANS SHALL BE USED BY OR DISCLOSED TO ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN PERMISSION OF (KGD).

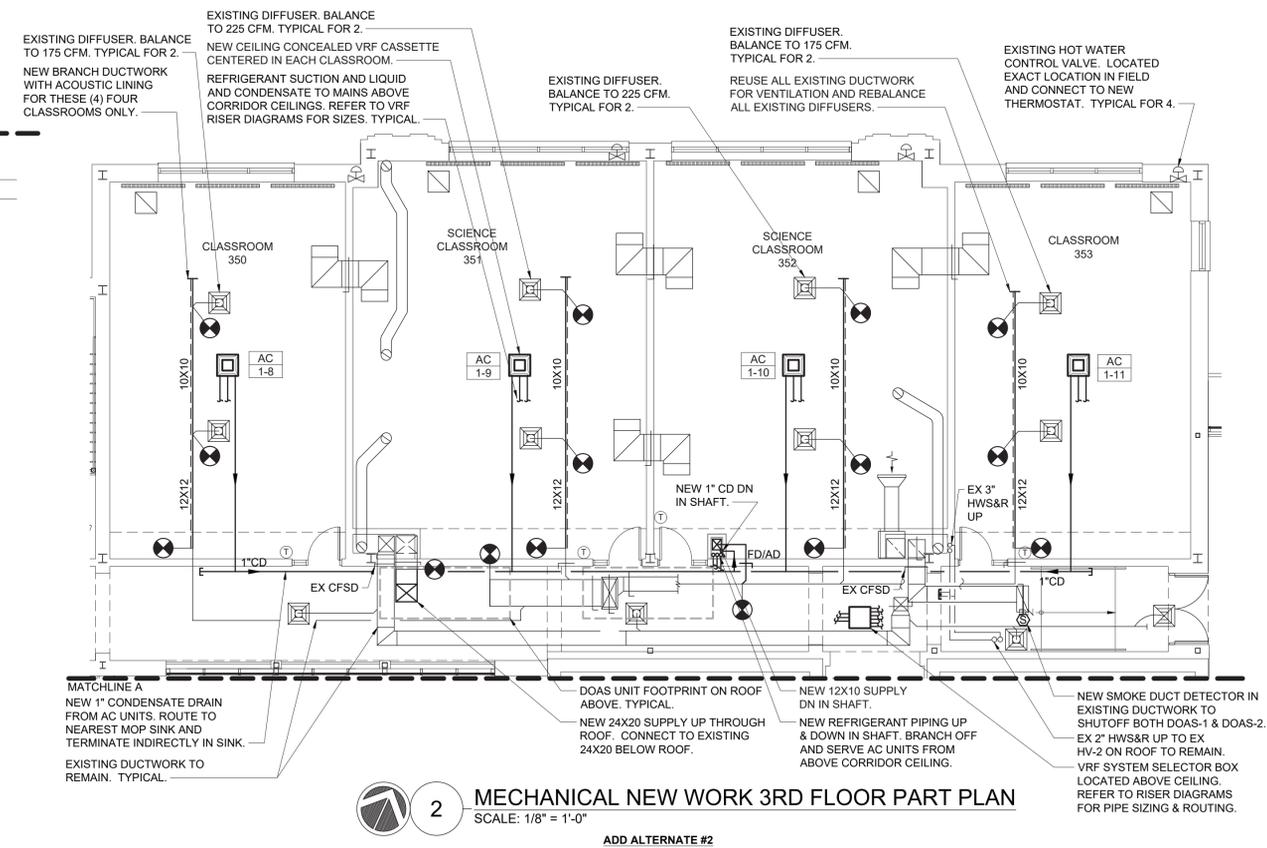
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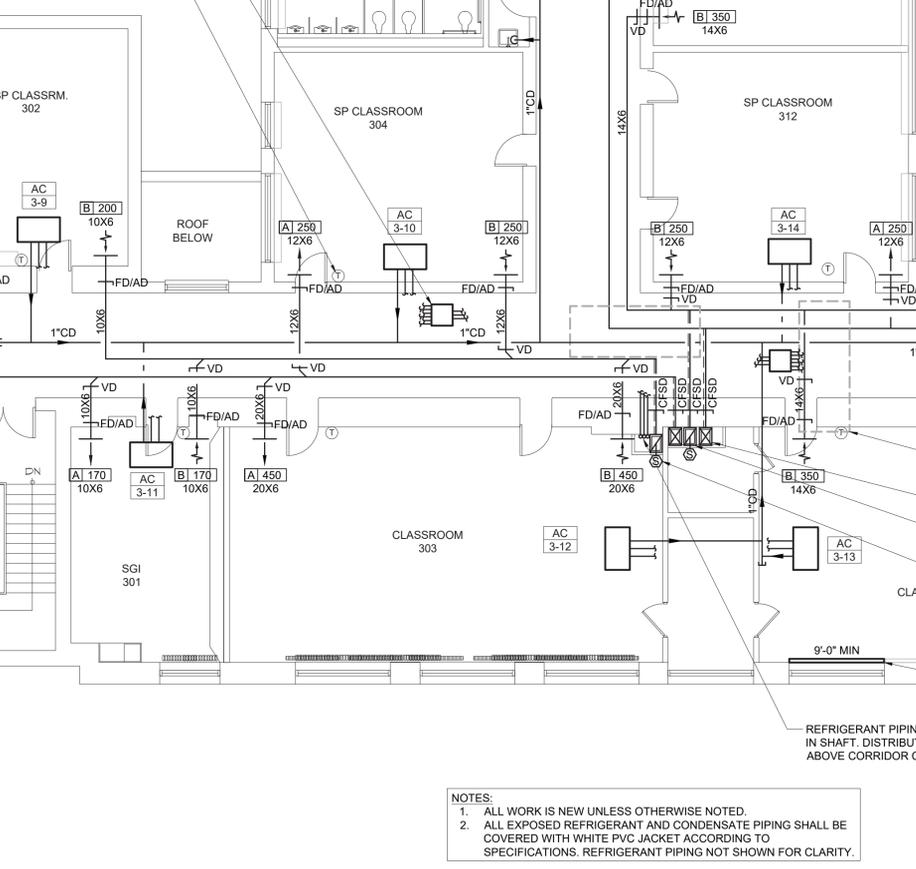
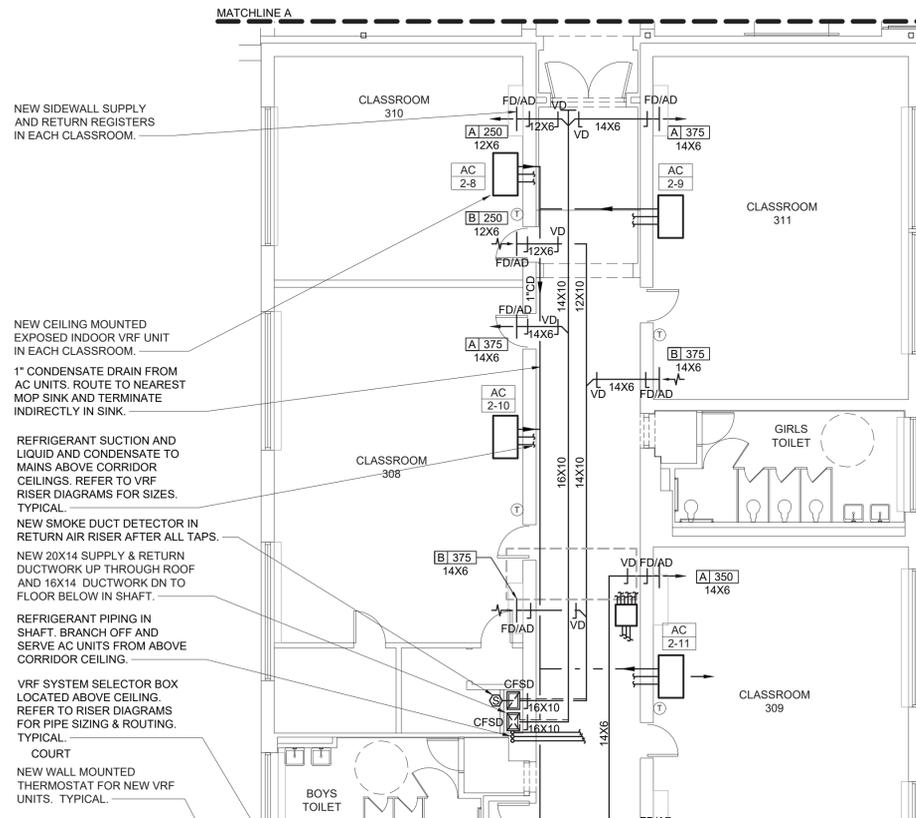


No.	Date	Issue
1	03/31/2022	ISSUED FOR BID

Sheet Title	
NEW WORK 3RD FLOOR PART PLANS	
Job No.	Date
NKGD0239.00	09/10/2021
Scale	Drawn / Checked
AS NOTED	NW / RS
Sheet Number	
M203	



2 MECHANICAL NEW WORK 3RD FLOOR PART PLAN
 SCALE: 1/8" = 1'-0"
 ADD ALTERNATE #2



1 MECHANICAL NEW WORK 3RD FLOOR PART PLAN
 SCALE: 1/8" = 1'-0"
 ADD ALTERNATE #1

- NOTES:**
- ALL WORK IS NEW UNLESS OTHERWISE NOTED.
 - ALL EXPOSED REFRIGERANT AND CONDENSATE PIPING SHALL BE COVERED WITH WHITE PVC JACKET ACCORDING TO SPECIFICATIONS. REFRIGERANT PIPING NOT SHOWN FOR CLARITY.

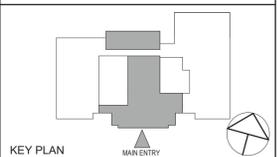
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- DOAS UNIT #3, #4, #5 AND ASSOCIATED ACCUS #6, #7, #8
- VRV SYSTEMS ACCUS #2 & #3 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

ADD ALTERNATE #2
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- DOAS UNIT #1 & #2 AND ASSOCIATED ACCUS #4 & #5
- VRV SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS



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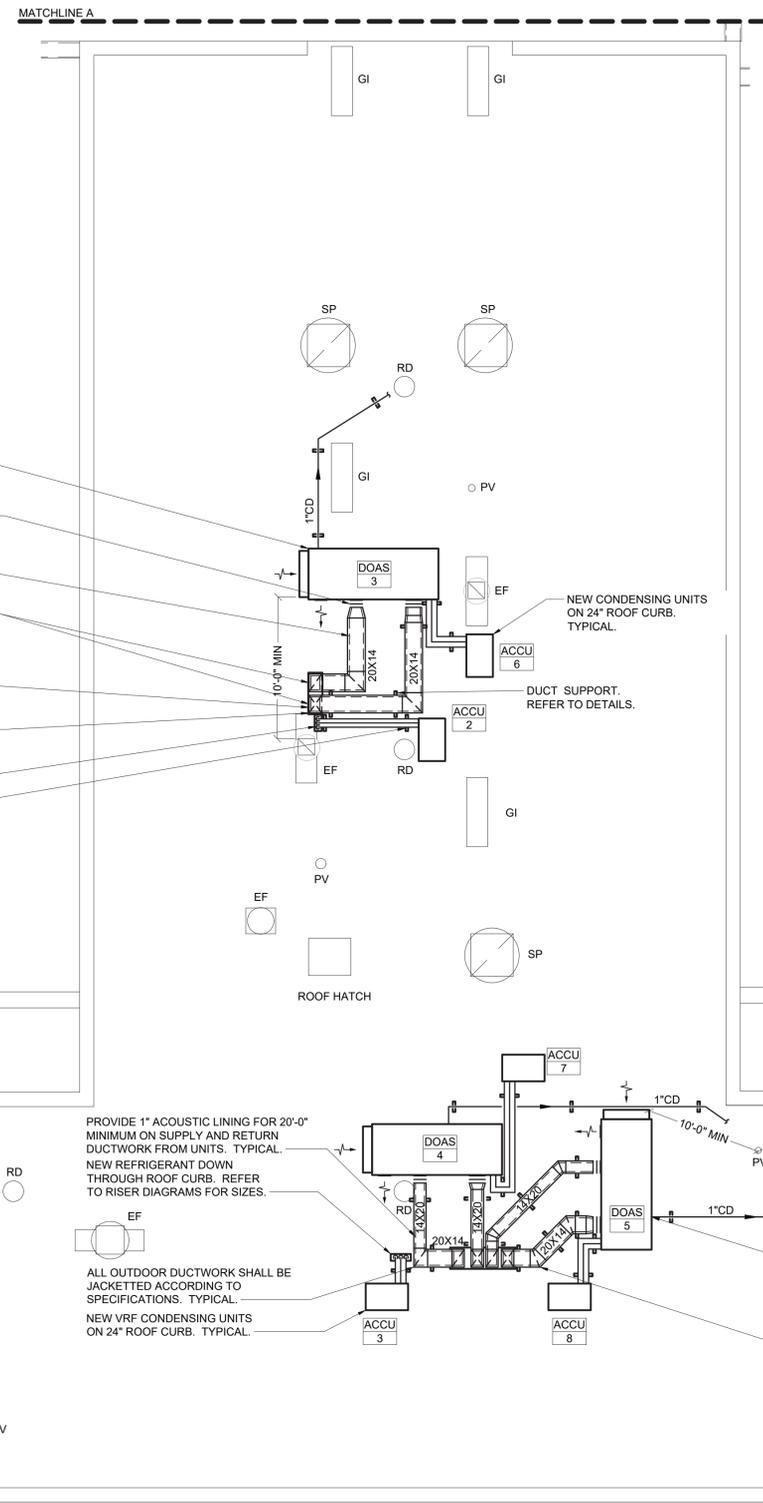


No.	Date	Issue
1	03/31/2022	ISSUED FOR BID

**NEW WORK
ROOF PART
PLANS**

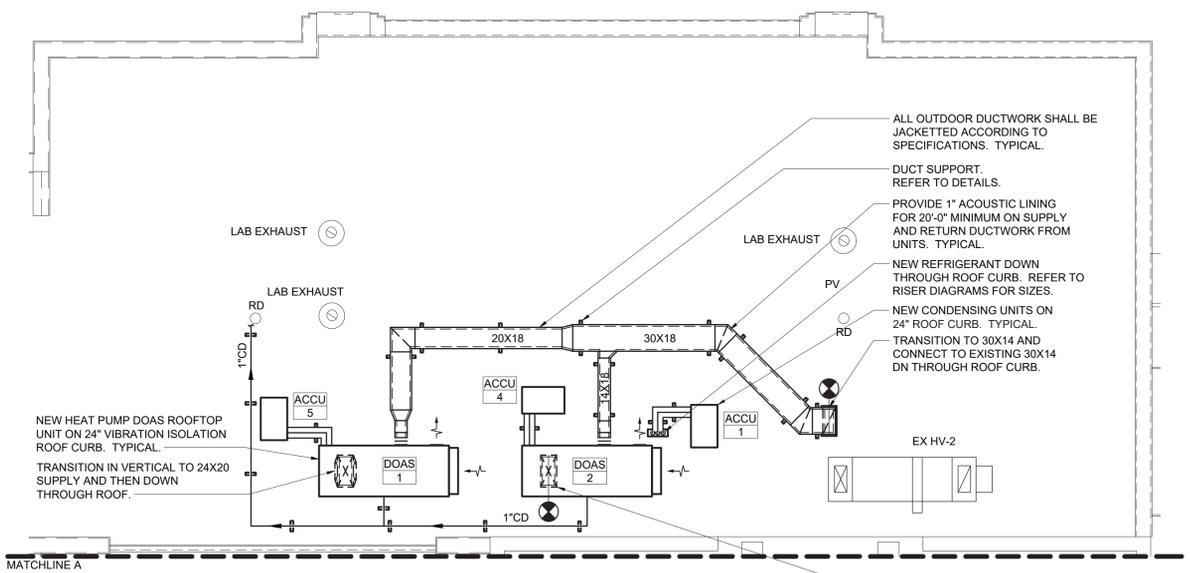
Job No.	NKGD0239.00	Date	09/10/2021
Scale	AS NOTED	Drawn / Checked	NW / RS

Sheet Number
M204



- NOTES:
1. ALL WORK IS NEW UNLESS OTHERWISE NOTED.
 2. ALL EXPOSED REFRIGERANT AND CONDENSATE PIPING SHALL BE COVERED WITH WHITE PVC JACKET ACCORDING TO SPECIFICATIONS. REFRIGERANT PIPING NOT SHOWN FOR CLARITY.

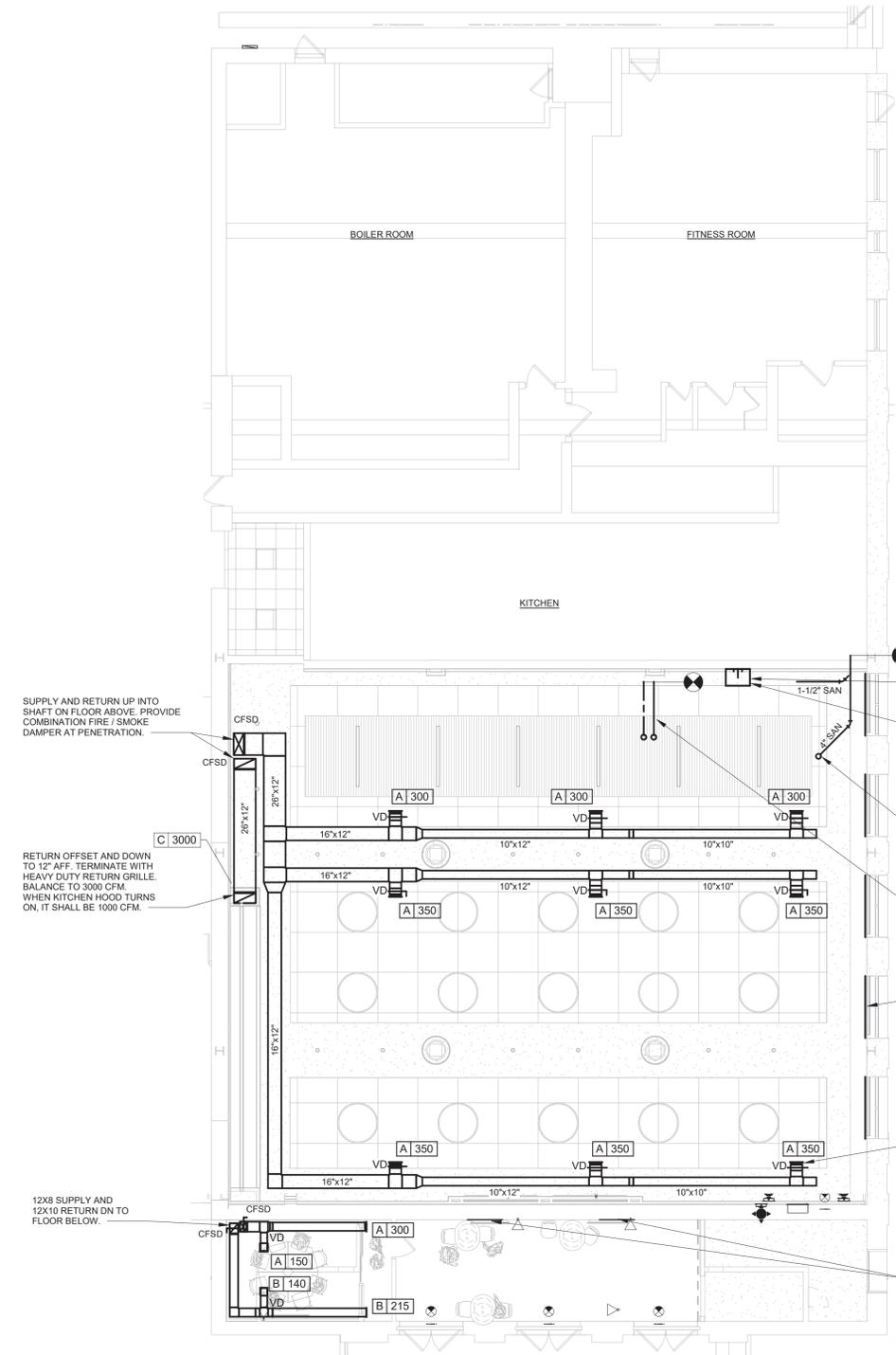
1 MECHANICAL NEW WORK ROOF PART PLAN
SCALE: 1/8" = 1'-0"
ADD ALTERNATE #1



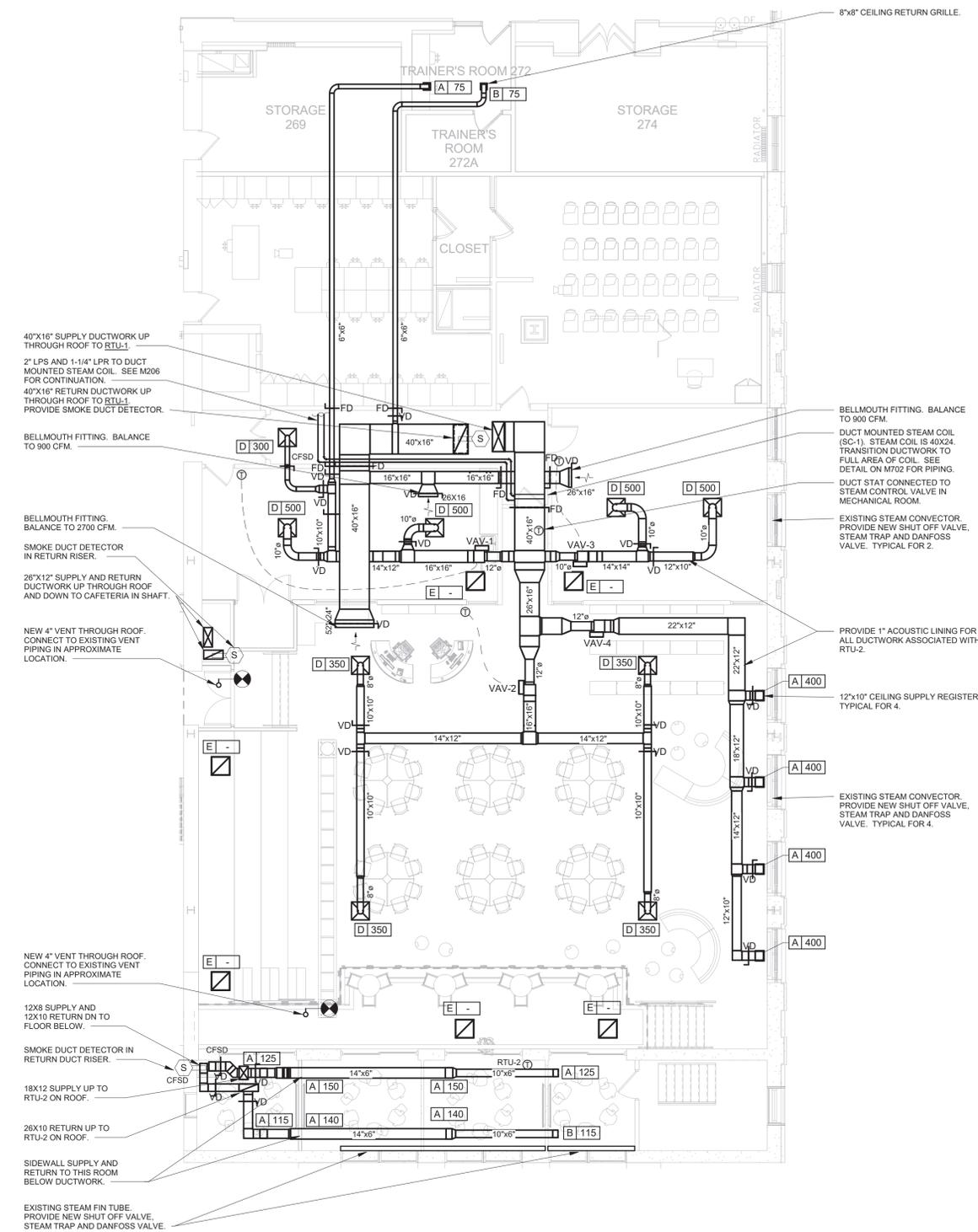
2 MECHANICAL NEW WORK ROOF PART PLAN
SCALE: 1/8" = 1'-0"
ADD ALTERNATE #2

ADD ALTERNATE NOTES

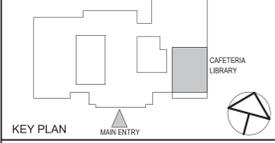
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- DOAS UNIT #1 & #2 AND ASSOCIATED ACCUs #4 & #5
 - VRF SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS



1 MECHANICAL CAFETERIA NEW WORK PLAN
 SCALE: 1/8" = 1'-0"
 NORTH



2 MECHANICAL LIBRARY NEW WORK PLAN
 SCALE: 1/8" = 1'-0"
 NORTH



KEY PLAN

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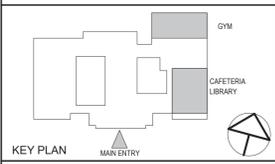
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Professional Seal

 STATE OF NEW YORK
 BARBARA JILL WALSH
 LICENSED PROFESSIONAL ENGINEER
 075260

1	03/31/2022	ISSUED FOR BID
No.	Date	Issue
Sheet Title		
CAFETERIA & LIBRARY NEW WORK PART PLANS		
Job No.	NKGD0239.00	Date
Scale	AS NOTED	Drawn / Checked
Sheet Number	M205	

CONSTRUCTION DOCUMENTS



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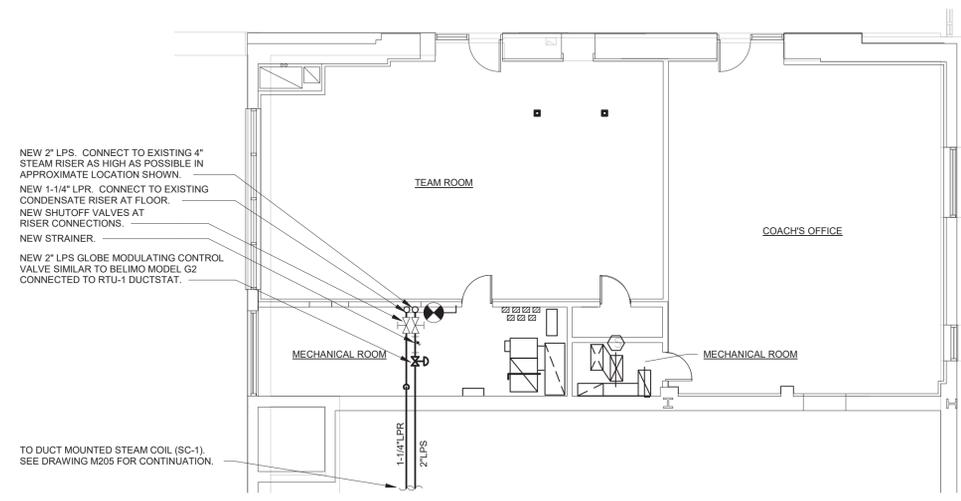


1	03/31/2022	ISSUED FOR BID
No.	Date	Issue

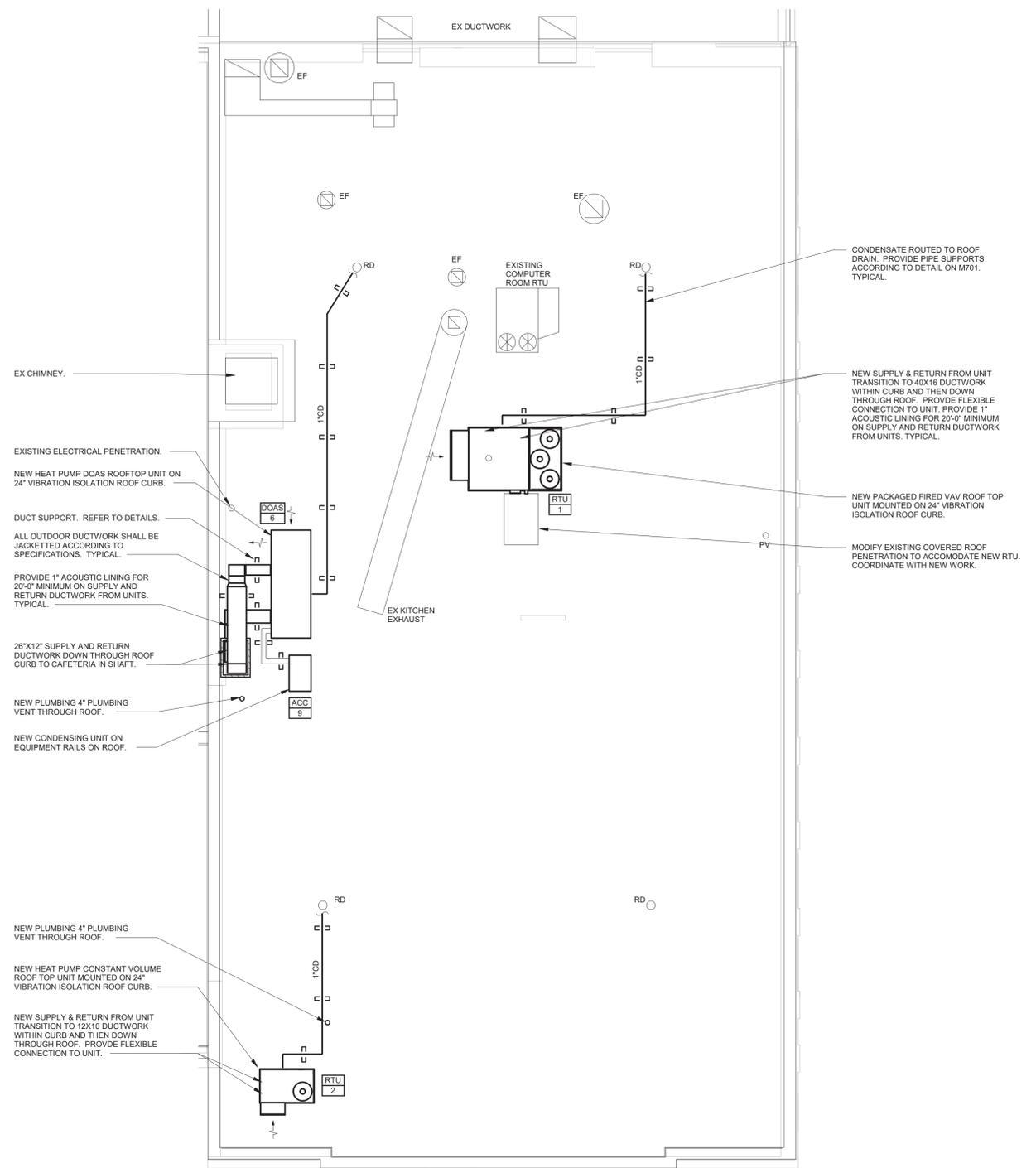
CAFETERIA & LIBRARY ROOF NEW WORK PART PLAN

Job No.	Date
NKGD0239.00	09/10/2021
Scale	Drawn / Checked
AS NOTED	Author Checker

Sheet Number
M206



2 MECHANICAL 3RD FLOOR PART PLAN
 SCALE: 1/8" = 1'-0"
 NORTH



1 MECHANICAL CAFETERIA & LIBRARY NEW WORK ROOF PLAN
 SCALE: 1/8" = 1'-0"
 NORTH

VARIABLE AIR VOLUME BOX SCHEDULE				
DESIGNATION	VAV-1	VAV-2	VAV-3	VAV-4
MANUFACTURER	TITUS	TITUS	TITUS	TITUS
MODEL	DESV-12	DESV-12	DESV-10	DESV-12
INLET SIZE (IN)	12	12	10	12
OUTLET SIZE (IN)	16x16	16x16	14x12	16x16
DESIGN MINIMUM CFM	-	-	-	-
DESIGN MAXIMUM CFM	1300	1400	1000	1600
CATALOG MINIMUM CFM	0	0	0	0
CATALOG MAXIMUM CFM	2000	2000	1400	2000
ELEC HEATING COIL (KW)	-	-	-	-

NOTES:

- VAV BOXES SHALL BE SINGLE DUCT COOLING/HEATING, WITH DIGITAL ELECTRONIC PRESSURE INDEPENDENT CONTROLS.
- VAV BOX CONTROLLER SHALL BE CAPABLE OF "DUAL" MAXIMUM CONTROL SEQUENCE, I.E. HEATING & COOLING MAXIMUMS.
- MAXIMUM RADIATED NC<30, MAXIMUM DISCHARGE NC<28, UNLESS OTHERWISE NOTED IN SCHEDULE ABOVE.
- MAXIMUM DESIGN AIRFLOW FOR EACH VAV BOX SHALL NOT EXCEED 80% OF MANUFACTURER'S LISTED MAXIMUM AIRFLOW FOR THAT BOX SIZE, UNLESS OTHERWISE NOTED IN SCHEDULE ABOVE.
- VAV BOXES SHALL HAVE 1" ACOUSTIC LINING.
- VAV BOXES SHALL BE U.L. LISTED AND LABELED.
- VAV BOXES SHALL BE PROVIDED WITH SHEETMETAL CONTROL ENCLOSURE BY TERMINAL MANUFACTURER.
- FURNISH AND INSTALL ALL VAV BOX CONTROLS.

VRF SYSTEM - OUTDOOR CONDENSING UNIT SCHEDULE									
INDOOR UNIT DESIGNATION	ACCU-1	ACCU-2	ACCU-3	ACCU-4	ACCU-5	ACCU-6	ACCU-7	ACCU-8	ACCU-9
LOCATION	ROOF								
MODEL	ARUM192BTE5	ARUM144BTE5							
TYPE	HEAT RECOVERY								
UNITS SERVED	SEE RISER								
REFRIGERANT TYPE	R410A								
NOMINAL COOLING / HEATING CAPACITY (MBH)	192/216	168/189	233/243	144/162	144/162	144/162	144/162	144/162	144/162
HEATING CAPACITY @10F (MBH)	216	189	243	162	162	162	162	162	162
No. FANS	2	2	2	2	2	2	2	2	2
No. COMPRESSORS	2	2	2	2	2	2	2	2	2
REFRIGERANT PIPE SIZES	SEE RISER								
VOLTS/Ø/Hz	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60
FLA/MCA/MOCP	52.1/57.9/80	48.3/53.8/70	56.8/63.2/80	46.1/51.1/70	46.1/51.1/70	46.1/51.1/70	46.1/51.1/70	46.1/51.1/70	46.1/51.1/70
EER / IEER	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9	12.4 / 25.9
WEIGHT (LBS.)	659	639	666	666	666	666	666	666	666
HEIGHT x WIDTH x LENGTH (INCHES)	66.5 x 29.9 x 48.8								

NOTES:

- UNITS BASED ON LG.
- MECHANICAL CONTRACTOR SHALL PROVIDE BASE PAN HEATER MODEL ZPLT1A52A FOR EACH UNIT. ELECTRICAL CONTRACTOR SHALL INSTALL THE BASE PAN HEATER.
- PROVIDE RUBBER VIBRATION ISOLATION FOR EACH OUTDOOR UNIT.
- PROVIDE SYSTEM CONTROLLER MODEL PAC5A000 AC SMART 5 CONTROLLER FOR GRAPHICAL INTERFACE, REMOTE MONITORING AND CONTROL.
- CONDENSING UNIT VRF SYSTEMS SHALL MAINTAIN CONTINUOUS HEATING DURING DEFROST OPERATION. REVERSE CYCLE (COOLING MODE) DEFROST OPERATION SHALL NOT BE PERMITTED DUE TO THE POTENTIAL REDUCTION IN SPACE TEMPERATURE.
- MULTIPLE CONDENSING UNIT VRF SYSTEMS SHALL MAINTAIN CONTINUOUS HEATING DURING OIL RETURN OPERATION. REVERSE CYCLE (COOLING MODE) OIL RETURN DURING HEATING OPERATION SHALL NOT BE PERMITTED DUE TO THE POTENTIAL REDUCTION IN SPACE TEMPERATURE.
- THE OPERATING RANGE IN COOLING WILL BE 5°F TO 122°F.
- THE OPERATING RANGE IN HEATING WILL BE -22°F TO 61°F.
- WARRANTY SHALL BE 10 YEARS PARTS AND 10 YEARS ON THE COMPRESSORS.
- CONTRACTOR SHALL HIRE THE MANUFACTURER'S INSTALLATION TECHNICIAN FOR INSTALLATION AND STARTUP. PROVIDE STARTUP REPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL.

EQUIPMENT NOTES

- SUPPLY AIR REGISTERS (TYPE A): SHALL BE TITUS MODEL 300FL, ALUMINUM CONSTRUCTION, WITH 3/4" SPACING, DOUBLE DEFLECTION AIRFOIL BLADES, OPPOSED BLADE VOLUME DAMPER IN NECK, SIZE AND CFM AS NOTED ON PLANS. FINISH SHALL BE BAKED ON ENAMEL. SUBMIT COLOR CHART FOR APPROVAL. FRAME SHALL BE SUITABLE FOR SURFACE MOUNTING. COORDINATE WITH ARCHITECTURAL PLANS.
- SEAWALL RETURN AIR REGISTERS (TYPE B): SHALL BE TITUS MODEL 355FL, ALUMINUM CONSTRUCTION, WITH 1/2" SPACING, 35° FIXED DEFLECTION AIRFOIL BLADES, OPPOSED BLADE VOLUME DAMPER IN NECK, SIZE AND CFM AS NOTED IN TABLE ON PLANS. FINISH SHALL BE BAKED ON ENAMEL. SUBMIT COLOR CHART FOR APPROVAL. FRAME SHALL BE SUITABLE FOR SURFACE MOUNTING. COORDINATE WITH REFLECTED CEILING PLANS.
- HEAVY DUTY RETURN GRILLE (TYPE C): SHALL BE TITUS MODEL 30RL. A STEEL HEAVY DUTY RETURN GRILLE WITH 3/8" BLADE SPACING, 0 DEGREE DEFLECTION, BLADES PARALLEL TO LONG DIMENSION. SIZE AND CFM AS NOTED ON PLANS. FINISH SHALL BE BAKED ON ENAMEL. SUBMIT COLOR CHART FOR APPROVAL. COORDINATE WITH ARCHITECTURAL PLANS.
- SUPPLY CEILING DIFFUSER (TYPE D): SHALL BE TITUS MODEL TMS, STEEL CONSTRUCTION, 24"x24", NECK SIZE AND CFM AS NOTED ON PLANS. FINISH SHALL BE BAKED ON ENAMEL. SUBMIT COLOR CHART FOR APPROVAL. FRAME SHALL BE SUITABLE FOR GRID CEILING MOUNTING. COORDINATE WITH REFLECTED CEILING PLANS.
- EGGCRATE RETURN CEILING GRILLE (TYPE E): SHALL BE TITUS MODEL 50F, ALUMINUM CONSTRUCTION, 24"x24" UNLESS OTHERWISE NOTED. CFM AS NOTED ON PLANS. FINISH SHALL BE BAKED ON ENAMEL. SUBMIT COLOR CHART FOR APPROVAL. FRAME SHALL BE SUITABLE FOR GRID CEILING MOUNTING. COORDINATE WITH RCP.
- OUTDOOR DUCT JACKET: SHALL BE INSULATED AS PER THE SPECIFICATIONS AND COVERED WITH POLYGUARD INSUL-WRAP 50W MEMBRANE FOR WATERPROOF INSULATION JACKET. USE ONLY MATERIALS AND ADHESIVES COMPATIBLE WITH POLYGUARD INSULATION SYSTEM. INSTALL AS PER MANUFACTURERS RECOMMENDATIONS.
- REFRIGERANT PIPE INSULATION: SHALL BE AP ARMAFLEX PIPE INSULATION. 3/4" THICK UNSLIT. TO BE INSTALLED BEFORE FINAL CONNECTION. FIELD FABRICATE FITTING INSULATION WITH MITER-CUTS. ALL BUTT JOINTS AND SEAMS ARE TO BE SEALED WITH ARMSTRONG 520 ADHESIVE. ALL INSULATION INSTALLED OUTDOORS SHALL BE COATED WITH ARMSTRONG ARMAFLEX FINISH, AS PER THE MANUFACTURERS RECOMMENDATIONS.
- PIPE INSULATION JACKETING FOR INDOOR EXPOSED PIPES: SHALL BE WHITE ZESTON 2000 PVC COVERS FOR PIPING AND FITTINGS. JACKET ALL PIPING AND FITTING THAT ARE EXPOSED IN ANY ROOM. JACKET ALL PIPING EXPOSED TO VIEW IN CLASSROOMS, EQUIPMENT ROOMS ETC.
- DOMESTIC COLD & HOT WATER PIPING: COPPER TYPE L ACCORDING TO STANDARD ASTM B88 WITH 95/5 SOLDERED FITTINGS ACCORDING TO STANDARD ASME B16.9. PIPING SHALL BE INSULATED WITH 1-1/2" THICK GLASS FIBER INSULATION WITH A K VALUE OF 0.23 AT 75°F, NON COMBUSTIBLE, AND A MINIMUM DENSITY OF 3.5 LBS/CU FT.
- SANITARY PIPING: CAST IRON ACCORDING TO STANDARD ASTM A888 AND CISPI 301 WITH HUBLESS COUPLINGS ACCORDING TO STANDARD CISPI 310 AND ASTM C-1277.

ADD ALTERNATE NOTES

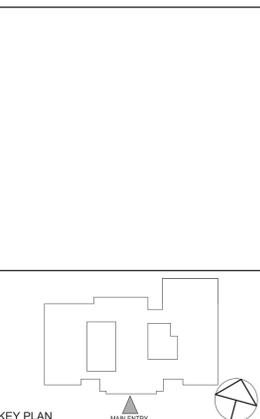
- ADD ALTERNATE #1**
THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
- DOAS UNIT #3, #4, #5 AND ASSOCIATED ACCUS #6, #7, #8
 - VRF SYSTEMS ACCUS #2 & #3 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS
- ADD ALTERNATE #2**
THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.
- DOAS UNIT #1 & #2 AND ASSOCIATED ACCUS #4 & #5
 - VRF SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

TUCKAHOE MIDDLE/HIGH SCHOOL ALTERATIONS
TUCKAHOE UNION FREE SCHOOL DISTRICT
65 SIWANOV BLVD
EASTCHESTER, N. Y. 10709



NY SED PROJECT CONTROL NO.
66-03-02-03-0-002-024

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VRF SYSTEM - INDOOR HEAT PUMP UNIT SCHEDULE																	
INDOOR UNIT DESIGNATION	AC-1-1	AC-1-2	AC-1-3	AC-1-4	AC-1-5	AC-1-6	AC-1-7	AC-1-8	AC-1-9	AC-1-10	AC-1-11	AC-2-1	AC-2-2	AC-2-3	AC-2-4	AC-2-5	AC-2-6
MANUFACTURER	LG	LG	LG	LG	LG	LG											
MODEL	ARNU153TQD4	ARNU183V1A4	ARNU183V1A4	ARNU183V1A4	ARNU183V1A4	ARNU183V1A4	ARNU183V1A4										
TYPE	4-WAY CASSETTE	CEILING SUSPEND															
COOLING CAPACITY (BTU/HR)	15400	15400	15400	19100	19100	19100	19100	19100	19100	15400	19100	19100	19100	19100	19100	19100	19100
HEATING CAPACITY (BTU/HR)	17100	17100	17100	21500	21500	21500	21500	21500	21500	17100	21500	21500	21500	21500	21500	21500	21500
REFRIGERANT TYPE	R410A	R410A	R410A	R410A	R410A	R410A											
FAN:																	
CFM (LOW/MED/HIGH)												424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477
VOLTS/Ø/Hz	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60
MCA (AMPS)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1.21	1.21	1.21	1.21	1.21	1.21
MOCP (AMPS)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

AC-2-7	AC-2-8	AC-2-9	AC-2-10	AC-2-11	AC-3-1	AC-3-2	AC-3-3	AC-3-4	AC-3-5	AC-3-6	AC-3-7	AC-3-8	AC-3-9	AC-3-10	AC-3-11	AC-3-12	AC-3-13	AC-3-14	AC-3-15
LG																			
ARNU183V1A4																			
CEILING SUSPEND																			
19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100	19100
21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500	21500
R410A																			
424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477	424/441/477
208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60
1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

- NOTES:
- UNITS BASED ON LG.
 - PROVIDE MULTISITE CRC1 CONTROLLER MODEL #PRMTBVC0 FOR EACH UNIT. CONTROLLER HAS DIGITAL DISPLAY AND IS BACNET COMPATIBLE.
 - INTEGRAL CONDENSATE PUMP CAPABLE OF 27" LIFT. CONDENSATE DRAIN PIPE SIZE SHALL BE 3/4" FOR ALL UNITS.
 - PROVIDE GRILLE KIT FOR EACH 4-WAY CEILING CASSETTE.
 - PROVIDE AUXILIARY HEATER KIT - PRARH1 FOR ALL UNITS SHOWN ON PLAN TO CONTROL AN EXISTING HOT WATER CONTROL VALVE.

1	03/31/2022	ISSUED FOR BID
No.	Date	Issue

SCHEDULES & EQUIPMENT NOTES

Job No. NKGD0239.00 Date 09/10/2021
Scale AS NOTED Drawn / Checked NW / RS
Sheet Number

M601

DEDICATED OUTSIDE AIR SYSTEM WITH ENERGY RECOVERY SCHEDULE

DESIGNATION	DOAS-1	DOAS-2	DOAS-3	DOAS-4	DOAS-5	DOAS-6
LOCATION	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF
AREA SERVED	SCIENCE CLASSROOMS	SCIENCE CLASSROOMS	OLD CLASSROOMS	OLD CLASSROOMS	OLD CLASSROOMS	CAFETERIA
MANUFACTURER	LG	LG	LG	LG	LG	LG
MODEL	ARND30UDBE4	ARND30UDBE4	ARND30UDBE4	ARND30UDBE4	ARND30UDBE4	ARND30UDBE4
WEIGHT (LBS)	2,326	2,326	2,326	2,326	2,326	2,326
WEIGHT OF ROOF CURB (LBS)						
DESIGN DATA:						
SUPPLY AIR (CFM)	3000	2550	2970	2450	2180	3000
OUTDOOR AIR (CFM)	3000	2550	2970	2450	2180	3000
RETURN AIR (CFM)	3000	2550	2970	2450	2180	3000
EXHAUST (CFM)	3000	2550	2970	2450	2180	3000
SUMMER OA TEMP (°F) DB/WB	92/74	92/74	92/74	92/74	92/74	92/74
SUMMER RA TEMP (°F) DB/WB	75/62	75/62	75/62	75/62	75/62	75/62
WINTER OA TEMP (°F)	10	10	10	10	10	10
WINTER RA TEMP (°F)	70	70	70	70	70	70
SUPPLY FAN MODULE:						
AIRFLOW (CFM)	3000	2550	2970	2450	2180	3000
HP	10	10	10	10	10	10
RPM	2352	2352	2352	2352	2352	2352
ESP/TSP (IN H ₂ O)	2/4.6	2/4.6	2/4.6	2/4.6	2/4.6	2/4.6
EXHAUST FAN MODULE:						
AIRFLOW (CFM)	3000	2550	2970	2450	2180	3000
HP	10	10	10	10	10	10
RPM	2352	2352	2352	2352	2352	2352
ESP/TSP (IN H ₂ O)	2/4.6	2/4.6	2/4.6	2/4.6	2/4.6	2/4.6
ENERGY RECOVERY MODULE - ENTHALPY WHEEL TYPE:						
SUMMER E.A.T. (°F) DB/WB	92/74	92/74	92/74	92/74	92/74	92/74
SUMMER L.A.T. (°F) DB/WB	79.2/66	79.2/66	79.2/66	79.2/66	79.2/66	79.2/66
SUMMER RECOVERY SEN./TOT (MBH)	41.7/94.5	35.4/80.3	41.3/93.5	34.0/77.2	30.3/68.7	41.7/94.5
WINTER E.A.T./L.A.T. (°F)	10/44	10/44	10/44	10/44	10/44	10/44
WINTER RECOVERY (MBH)	110.7	94.1	109.6	90.4	80.4	110.7
MOTOR HP	10	10	10	10	10	10
ESP/TSP (IN H ₂ O)	2/4.6	2/4.6	2/4.6	2/4.6	2/4.6	2/4.6
DX COOLING COIL:						
E.A.T. (°F) DB/WB	79.2/66	79.2/66	79.2/66	79.2/66	79.2/66	79.2/66
L.A.T. (°F) DB/WB	55/55	55/55	55/55	55/55	55/55	55/55
CAPACITY (MBH) SENS./TOTAL	78.8/105.3	67.0/89.5	78.0/104.2	64.4/86.0	57.3/76.6	78.8/105.3
HOT GAS REHEAT COIL:						
E.A.T./L.A.T. (°F)	55/70	55/70	55/70	55/70	55/70	55/70
CAPACITY (MBH)	48.8	41.5	48.3	43.9	35.8	48.8
DX COIL (ASHP - HEATING MODE)						
E.A.T./L.A.T. (°F) (WITH ENERGY RECOVERY)	44/75	44/75	44/75	44/75	44/75	44/75
CAPACITY (MBH) (WITH ENERGY RECOVERY)	100.9	85.8	100.0	82.4	73.2	100.9
E.A.T./L.A.T. (°F) (WITHOUT ENERGY RECOVERY)	10/54	10/61	10/54	10/64	10/70	10/54
CAPACITY (MBH) (WITHOUT ENERGY RECOVERY)	142.7	142.7	142.7	142.7	142.7	142.7
FILTER:						
PRE-FILTERS SUPPLY & EXHAUST	2" MERV 8					
QUANTITY/SIZE	(2) 25X20 RETURN AIR (2) 25X25 OUTDOOR AIR (4) 25X20 SUPPLY AIR	(2) 25X20 RETURN AIR (2) 25X25 OUTDOOR AIR (4) 25X20 SUPPLY AIR	(2) 25X20 RETURN AIR (2) 25X25 OUTDOOR AIR (4) 25X20 SUPPLY AIR	(2) 25X20 RETURN AIR (2) 25X25 OUTDOOR AIR (4) 25X20 SUPPLY AIR	(2) 25X20 RETURN AIR (2) 25X25 OUTDOOR AIR (4) 25X20 SUPPLY AIR	(2) 25X20 RETURN AIR (2) 25X25 OUTDOOR AIR (4) 25X20 SUPPLY AIR
SINGLE POINT POWER CONNECTION:						
VOLTS/ØHz	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60
MCA/MOCP (AMPS)	24.8/35	24.8/35	24.8/35	24.8/35	24.8/35	24.8/35
NOTES:						
1. EACH PACKAGED UNIT INCLUDES THE FOLLOWING COMPONENTS:						
<ul style="list-style-type: none"> RETURN PLENUM WITH SIDE INLET OR BOTTOM INLET (SEE PLANS). EXHAUST FAN WITH DISCHARGE OUTLET. ENERGY RECOVERY W/ ENTHALPY WHEEL AND OAI HOODS. FLAT FILTER MODULE FOR OUTSIDE AIR AND EXHAUST AIR. DX COIL WITH AIR SOURCE HEAT PUMP COIL AND HOT GAS REHEAT COIL. SUPPLY FAN AND DISCHARGE PLENUM WITH SIDE OUTLET OR BOTTOM OUTLET (SEE PLANS). FLAT FILTER FOR SUPPLY AIR. UNIT SHALL BE MOUNTED ON VIBRATION ISOLATION ROOF CURB. HEIGHT OF CURB IS TO BE COORDINATED WITH FINAL FINISHED ROOF SURFACE, INCLUDING DEVIATIONS DUE TO CRICKETS, ROOF DRAINS, ETC. LOWER PORTION OF VIBRATION CURB SHALL EXTEND 12" MINIMUM ABOVE FINISHED ROOF SURFACE. PROVIDE BLOCKING OR SIMILAR AS NECESSARY. MASON INDUSTRIES TYPE RSC OR EQUIVALENT. 						
2. PROVIDE THE FOLLOWING FOR EACH UNIT:						
<ul style="list-style-type: none"> SINGLE POINT EXTERNAL POWER CONNECTION AT UNIT. PROVIDE FACTORY INSTALLED, UNIT-MOUNTED, NON-FUSED LOCAL DISCONNECT SWITCH. EACH UNIT SHALL BE CONNECTED TO THE PACSSA000 AC SMART 5 CONTROLLER FOR GRAPHICAL INTERFACE, REMOTE MONITORING AND CONTROL. EXTRA FILTER SET FOR EACH UNIT. 						
3. CONTRACTOR SHALL HIRE THE MANUFACTURER'S INSTALLATION TECHNICIAN FOR INSTALLATION AND STARTUP. PROVIDE STARTUP REPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL.						

PACKAGED ROOFTOP AC UNIT SCHEDULE

DESIGNATION	RTU-1	RTU-2
LOCATION	ROOF	ROOF
AREA SERVED	LIBRARY	LIBRARY OFFICES
MANUFACTURER	CARRIER	CARRIER
MODEL	50LC0B14A3A5-1R5A0	50FCA04A2A5-0F5C0
NOMINAL CAPACITY (TONS)	12.5	3
WEIGHT OF UNIT (LBS)	2234	570
WEIGHT OF ROOF CURB (LBS)	240	115
EER	12.40	14.30 SEER
DESIGN DATA:		
SUPPLY AIR (CFM)	5300	900
OUTDOOR AIR (CFM)	1300	130
RETURN AIR (CFM)	4000	770
SPILL AIR (CFM)	575	0
SUMMER OA TEMP (°F) DB/WB	92/74	92/74
SUMMER RA TEMP (°F) DB/WB	75/62	75/62
WINTER OA TEMP (°F)	10	10
WINTER RA TEMP (°F)	68	68
CONDENSER:		
COMPRESSOR No./TYPE	2	1
REFRIGERANT TYPE	R-410A	R-410A
No. OF REFRIGERANT CIRCUITS	1	1
No. OF FANS	3	1
FLA (AMPS) EA.	1.3	1.5
AMBIENT TEMP. (°F)	92	92
FILTERS:		
OA-FILTER (QTY / SIZE)	4 / 16X25X1	1 / 20X24X1
MAIN FILTER (QTY / SIZE)	6 / 20X25X2	2 / 16X25X2
EVAPORATOR COIL:		
E.A.T. (°F) DB/WB	80.7/64.9	79.3/63.8
L.A.T. (°F) DB/WB	55/55	55/55
SENS./TOTAL CAPACITY (MBH)	147.7/164.5	26.4/27.0
HEATING:	DUCT STEAM COIL (SC-1) (SEE BELOW)	HEAT PUMP
CAPACITY (MBH)	180	13
E.A.T./L.A.T. (°F)	53.8/85.0	59.3/72
SUPPLY FAN:		
CFM	5300	1000
ESP/TSP (IN H ₂ O)	1.5	0.8
BHP/HP	2.86 BHP	0.41
RPM	942	1771
STARTER TYPE	VFD	HOA
ELECTRICAL DATA - SINGLE POINT POWER CONNECTION:		
VOLTS/ØHz	208/3/60	208/3/60
MCA/MOCP (AMPS)	76.5/90	42/45
ENERGY PERFORMANCE		
EER	12.6	14.3
IEER	19.3	-

EQUIPMENT NOTES

STEAM COIL (SC-1) - SHALL BE SIMILAR TO SUPER RADIATOR COILS MODEL 40X24-1R-0.625/120. UNIT SHALL BE 40X24 AND CAPABLE OF 180MBH HEATING CAPACITY WITH A STEAM PRESSURE OF 5PSI AND 0.13 WC AIR PRESSURE DROP ACROSS THE COIL WITH 5,300 CFM. TUBE MATERIAL SHALL BE COPPER AND FIN MATERIAL SHALL BE ALUMINUM. COORDINATE RIGHT / LEFT HAND COIL CONNECTION IN THE FIELD. REFER TO DETAIL ON M702 FOR PIPING.

ADD ALTERNATE NOTES

ADD ALTERNATE #1
THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.

- DOAS UNIT #3, #4, #5 AND ASSOCIATED ACCUs #6, #7, #8
- VRF SYSTEMS ACCUs #2 & #3 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

ADD ALTERNATE #2
THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE PRICE FOR THE FULL INSTALLATION OF THE FOLLOWING SYSTEMS INCLUDING ALL RELATED INDOOR HEAT PUMP UNITS, REFRIGERANT AND CONDENSATE PIPING, DUCTWORK AND ACCESSORIES, REGISTERS, POWER, FIRE ALARM AND CONTROLS & ANY & ALL DEMOLITION & PATCHING. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL PLANS.

- DOAS UNIT #1 & #2 AND ASSOCIATED ACCUs #4 & #5
- VRF SYSTEM ACCU #1 AND ALL ASSOCIATED INDOOR HEAT PUMP UNITS

**TUCKAHOE
MIDDLE/HIGH
SCHOOL
ALTERATIONS**

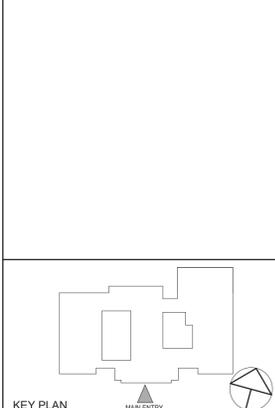
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SCHOOL DISTRICT
65 SIWANOW BLVD
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KG+D . ARCHITECTS PC
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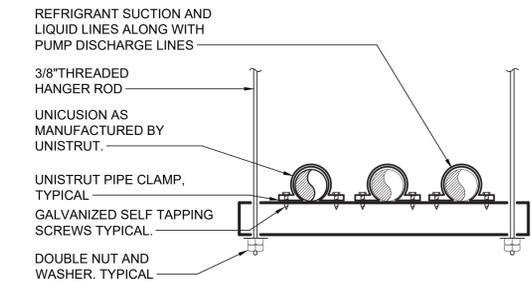
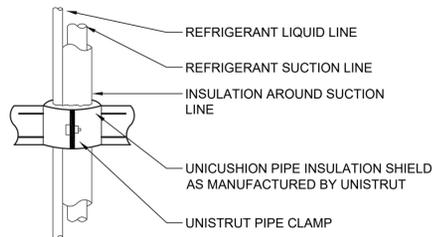


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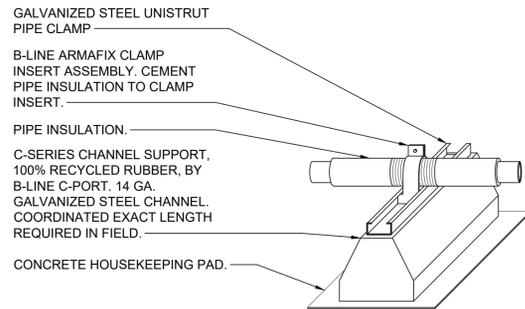
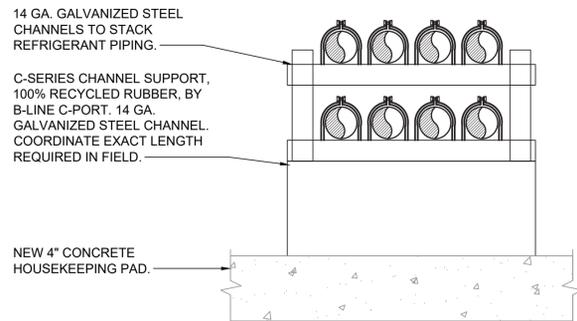
SCHEDULES

Job No. NKGD0239.00 Date 09/10/2021
 Scale AS NOTED Drawn / Checked NW / RS
 Sheet Number **M602**



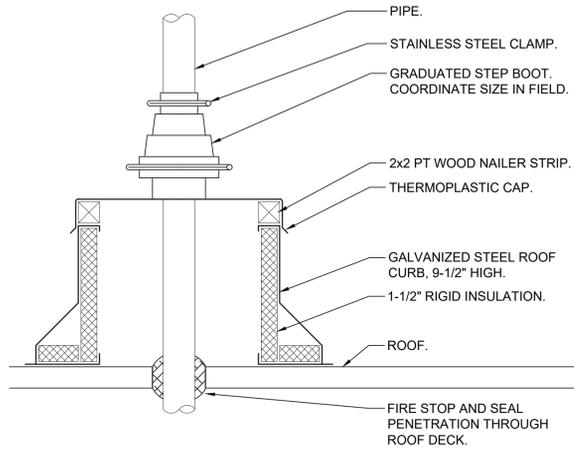
- NOTES:**
- LIQUID AND SUCTION LINES MAY BE ROUTED TOGETHER FOR CONVENIENCE, BUT MUST BE COMPLETELY INSULATED FROM EACH OTHER. DO NOT SOLDER LIQUID AND SUCTION LINES TOGETHER. DO NOT ALLOW METAL TO METAL CONTACT.
 - LINES SHOULD BE INSTALLED WITH AS FEW BENDS AS POSSIBLE, ALLOWING SERVICE ACCESS TO THE INDOOR COIL.
 - USE LONG RADIUS ELBOWS WHEREVER POSSIBLE, EXCEPT IN OIL RETURN TRAPS, WHERE SHORT RADIUS ELBOWS SHOULD BE USED.
 - SLOPE HORIZONTAL SUCTION LINES 1 INCH EVERY 20 FEET TOWARD THE OUTDOOR UNIT.

8 REFRIGERANT PIPE SUPPORT DETAIL
SCALE: NONE



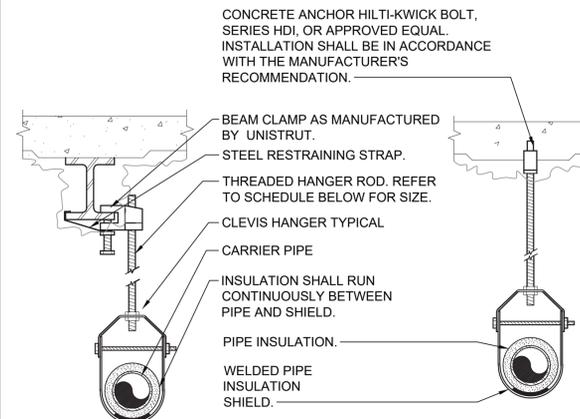
- NOTES:**
- ALL BRACKETS, HANGERS, AND FASTENERS SHALL BE GALVANIZED STEEL.
 - CLAMP INSERT ASSEMBLY SHALL INCLUDE GALVANIZED STEEL PIPE CLAMP, ARMAFLEX INSULATION WITH PAINTED ALUMINUM JACKET, AND INTERIOR SUPPORTS.
 - CEMENT RUBBER SUPPORT BLOCKS TO HOUSEKEEPING PAD.

6 REFRIGERANT ON PAD PIPE SUPPORT DETAIL
SCALE: NONE



- NOTES:**
- PIPE PENETRATION ROOF CURBS SHALL BE PATE MODEL PCA-5, 9-1/2" HIGH. PIPE CURB ASSEMBLY SHALL CONSIST OF 18 GAUGE GALVANIZED STEEL ROOF CURB, UNITARY CONSTRUCTION, WITH INTEGRAL BASE PLATE, 1-1/2" INSULATION, 2x2 TREATED WOOD NAILER, ACRYLIC CLAD THERMOPLASTIC COVER, FASTENING SCREWS, & GRADUATED STEP BOOTS WITH STAINLESS STEEL CLAMPS. CONTRACTOR TO SELECT CAP & BOOT PACKAGE BASED ON QUANTITY & SIZE OF PIPE PENETRATIONS. PROVIDE FLASHING AND COUNTER FLASHING FOR A WATERTIGHT SEAL.
 - CURBS SHALL BE CUSTOM FABRICATED, SUCH THAT THE CAP IS MOUNTED LEVEL. CONTRACTOR TO VERIFY EXACT ROOF PITCH ANGLE IN FIELD.
 - COORDINATE QUANTITIES AND SIZES OF PIPE PENETRATIONS IN THE FIELD WITH CAP AND BOOT REQUIREMENTS.

4 ROOF PIPE PENETRATION CURB ASSEMBLY DETAIL
SCALE: NONE

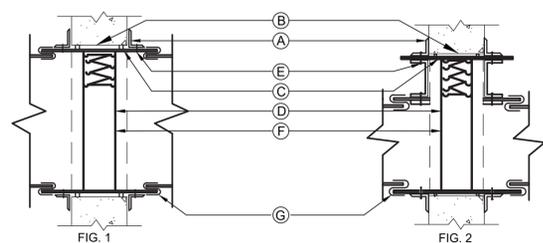


PIPE HANGER SCHEDULE

PIPE DIA.	3/4"-2"	2 1/2"-3"	4"-5"	6"	8"-12"
HANGER DIA.	3/8"	1/2"	5/8"	3/4"	7/8"

- NOTES:**
- CLEVIS HANGERS WITH WELDED INSULATION SHIELDS SIMILAR TO RAUCH FIG. 100SH ON ALL PIPES LARGER THAN 1".
 - FOR PIPES 1" OR SMALLER, A BAND HANGER WITH INSULATION SHIELD MAY BE USED SIMILAR TO RAUCH FIG. NO. 1ASH.
 - FOR NON-INSULATED PIPE, INSULATION SHIELDS MAY BE OMITTED.
 - ALL PIPE HANGERS SHALL BE GALVANIZED STEEL OR FACTORY PAINTED BLACK WITH ENAMEL.
 - FOR NON FERROUS PIPING WITHOUT INSULATION, ALL HANGERS SHALL BE COPPER PLATED OR FURNISHED WITH A DI-ELECTRIC BETWEEN PIPE AND HANGERS.
 - WHERE EXISTING BUILDING STRUCTURAL COMPONENTS HAVE FIREPROOF MATERIAL, ANY AREA THAT IS DISTURBED OR DAMAGED AS A RESULT OF HANGER INSTALLATION SHALL BE PATCHED WITH UL AND FM APPROVED FIREPROOFING TO MATCH EXISTING.
 - ANY AREA WITH A CEILING WHICH IS DISTURBED OR DAMAGED AS A RESULT OF HANGER INSTALLATION SHALL BE PATCHED. REPLACE WIRE LATH AND RE-CEMENT IF REQUIRED.

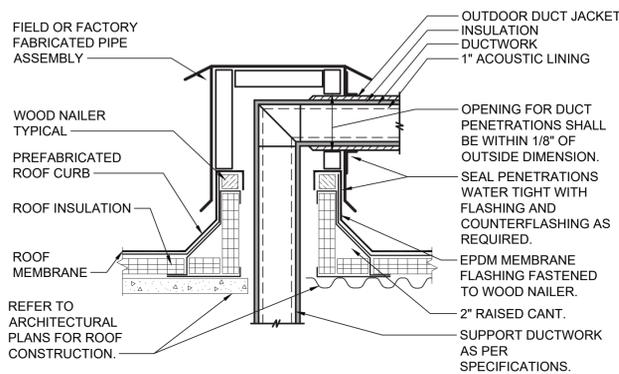
2 PIPE HANGER DETAIL
SCALE: NONE



- NOTES:**
- RETAINING ANGLES SHALL BE A MINIMUM 1-1/2"x1-1/2"x16 GAUGE AND MUST OVERLAP THE STRUCTURAL OPENING BY A MINIMUM OF 1".
 - CLEARANCE BETWEEN SLEEVE AND OPENING SHALL BE 1/8" PER LINEAR FOOT, AS PER SMACNA FIG. 2-1.
 - STEEL SLEEVE SHALL BE AS PER SMACNA TABLE 2-2.
 - U.L. APPROVED FIRE DAMPER.
 - SECURE RETAINING ANGLES TO SLEEVE ONLY AT 8" CENTERS AS PER SMACNA FIG. 2-1.
 - SECURE DAMPER TO SLEEVE AT 8" CENTERS AS PER SMACNA FIG. 2-1.
 - CONNECT DUCT TO SLEEVE WITH BREAK-AWAY CONNECTION AS PER SMACNA FIG. 2-2.

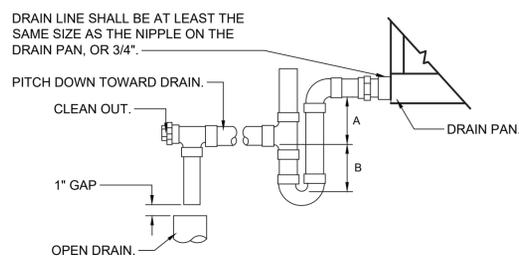
- FIRE DAMPERS TO BE CONSTRUCTED AND INSTALLED ACCORDING TO NFPA 90A, UL LABELS AND THE LATEST ISSUE OF S.M.A.C.N.A. CHAPTER 2.
- CURTAIN TYPE FIRE DAMPERS SHOWN. MULTI-BLADE PIVOTED FIRE DAMPERS MEETING THE ABOVE STANDARD WILL BE ACCEPTABLE.
- PROVIDE ACCESS DOORS. INSTALL (1) AD FOR EACH FIRE DAMPER AS PER SMACNA FIG. 6-1.
- FOR DUCT 12" OR LESS IN DEPTH, FIRE DAMPER SHALL BE OUT OF THE AIR STREAM. REFER TO FIGURE 2.

7 SHUTTER TYPE FIRE DAMPER AND SLEEVE DETAIL
SCALE: NONE



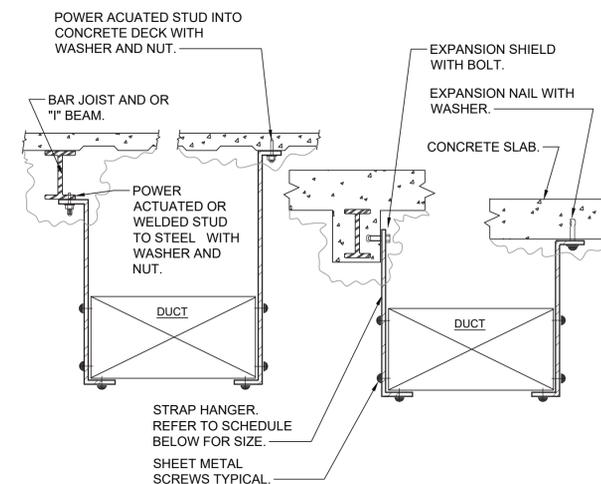
- NOTES:**
- PREFABRICATED ROOF CURB AND BOX ASSEMBLY BASED ON CUSTOM CURB INC. MODEL CPBA-1 CUSTOM ROOF CURB BOX ASSEMBLY WITH 1.5 INCH THICK 3.5 POUND RIGID INSULATION, 18 GAGE GALVANIZED STEEL SHELL AND BASE PLATE, AND 0.050 ALUMINUM PIPE BOX.
 - CONTRACTOR SHALL PROVIDE ALL FLASHING, COUNTERFLASHING, AND ANY OTHER MATERIALS AND LABOR NECESSARY TO ENSURE A WATERTIGHT ROOF PENETRATION ENCLOSURE.

5 ROOF DUCT BOX DETAIL
SCALE: NONE



- NOTES:**
- DRAW THRU UNITS: DIMENSION A (DEPTH OF SEAL) SHALL BE 2" MINIMUM AND DIMENSION B SHALL BE 1.2 x THE STATIC PRESSURE OF THE UNIT.
 - BLOW THRU UNITS: DIMENSION A (DEPTH OF SEAL) SHALL BE 1" MINIMUM AND DIMENSION B SHALL BE 2.0 x THE STATIC PRESSURE OF THE UNIT.

3 AIR CONDITIONING UNIT CONDENSATE DRAIN DETAIL
SCALE: NONE



- NOTES:**
- FOR DUCTS OVER 49" WIDE, THE STRAP HANGER SHALL BE TURNED UNDER THE BOTTOM OF THE DUCT.
 - WHERE EXISTING BUILDING STRUCTURAL COMPONENTS HAVE FIREPROOF MATERIAL, ANY AREA THAT IS DISTURBED OR DAMAGED AS A RESULT OF HANGER INSTALLATION SHALL BE PATCHED WITH UL AND FM APPROVED FIREPROOFING TO MATCH EXISTING.

HANGER STRAP SCHEDULE

DUCT SIZE	HANGER SIZE	MAXIMUM SPACING
UP TO 2 SQ. FT.	1" x 1/8"	8'-0"
2 SQ. FT. TO 4 SQ. FT.	1" x 1/4"	8'-0"
4 SQ. FT. TO 10 SQ. FT.	1" x 1/2"	6'-0"
OVER 10 SQ. FT.	1" x 3/4"	4'-0"

1 DUCT HANGER DETAIL
SCALE: NONE

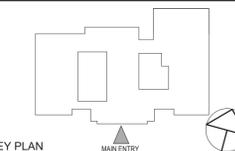
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TUCKAHOE UNION FREE SCHOOL DISTRICT
65 SIWANOWY BLVD
EASTCHESTER, N. Y. 10709

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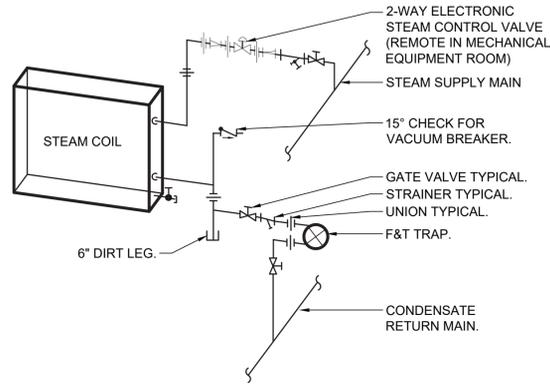


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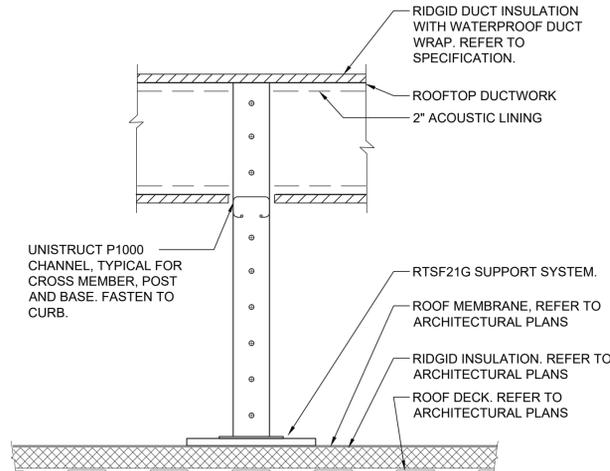
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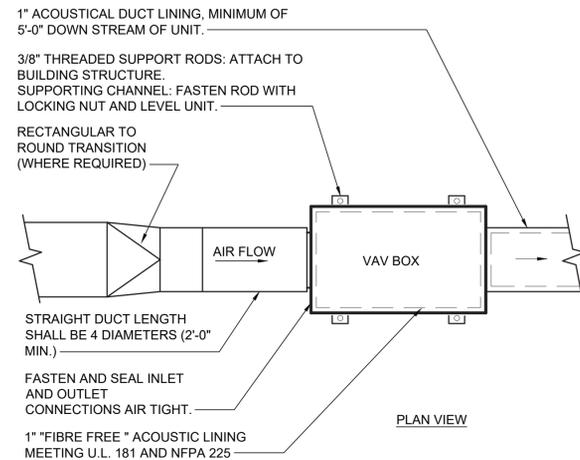
- NOTES:**
1. LOCATE ALL COIL UNIONS CLOSE TO, AND CLEAR OF, COIL. ARRANGE PIPING SO AS NOT TO INTERFERE WITH COIL REMOVAL.
 2. EXPAND DUCTWORK AND TRANSITION TO FULL SIZE OF THE COIL.
 3. CHECK VALVE IS NECESSARY WHEN MORE THEN ONE UNIT IS CONNECTED TO THE RETURN LINE.
 4. THE DIRT LEG MAY BE REPLACED BY A STRAINER, OTHERWISE THE DIRT LEG SHALL BE THE SAME SIZE AS THE UNIT OUTLET.

8 LPS COIL PIPING SCHEMATIC
SCALE: NONE



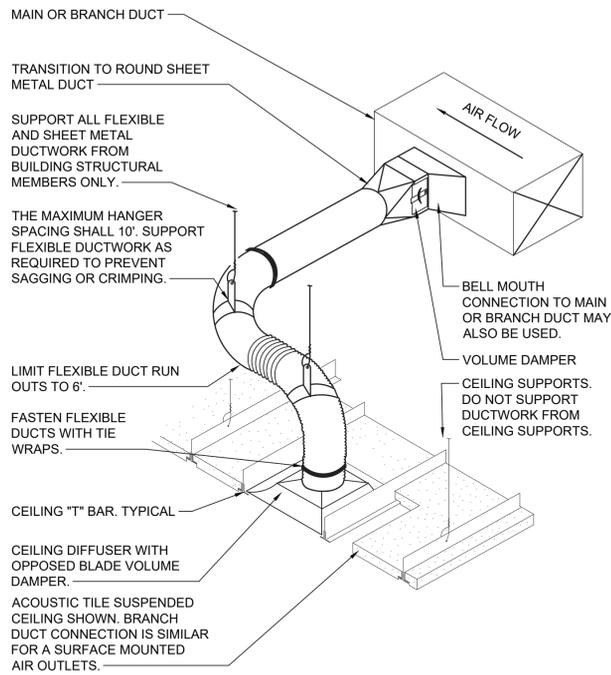
- NOTES:**
- 1.) ROOF DUCT SUPPORT SHALL BE ROOFTOP SUPPORT SYSTEMS RTSF21G, 13-1/2" NOMINAL HEIGHT, MINIMUM LENGTH SHALL BE 48" OR 12" LONGER THAN DUCT WIDTH.
 - 2.) ALL BRACKETS, HANGERS, FASTENERS AND SUPPORTS LOCATED OUTDOORS SHALL BE GALVANIZED OR NICKEL PLATED.

6 ROOF DUCT SUPPORT DETAIL
SCALE: NONE



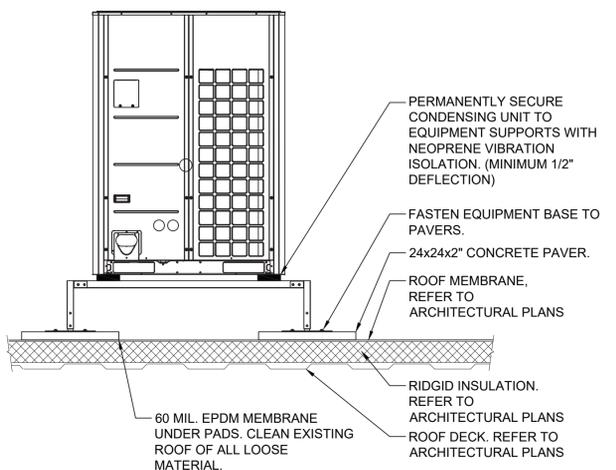
- NOTES:**
- 1.) THE OPERATION OF VARIABLE VOLUME TERMINAL UNITS ARE AFFECTED BY EXCESSIVE TURBULENCE ON THE ENTERING SIDE OF EACH TERMINAL UNIT. THEREFORE, TERMINAL UNITS MUST NOT BE INSTALLED TO CLOSE TO MAIN DUCTS, ELBOWS AND FITTINGS.
 - 2.) WHEN MINIMUM UPSTREAM STRAIGHT DUCT CONNECTION TO TERMINALS AS INDICATED ABOVE CANNOT BE MAINTAINED, PROVIDE ORIFICE PLATE, STRAIGHTENING VANES OR OTHER DEVICE AS RECOMMENDED BY TERMINAL UNIT MANUFACTURER AND SUBMIT TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
 - 3.) TERMINAL UNITS SHALL BE PROVIDED WITH CONTROLS ON LEFT OR RIGHT SIDE AS REQUIRED BY FIELD CONDITIONS. FOR UNITS WITH ELECTRONIC CONTROLS FURNISH NEMA 1 RATED ENCLOSURE AND U.L. II TRANSFORMER AND DISCONNECT SWITCH.
 - 4.) ARRANGE ACCESS TO PERMIT EASY FIELD BALANCING AND MAINTENANCE.
 - 5.) COORDINATE THE LOCATION, SIZE, AND QUANTITY OF REQUIRED ACCESS DOORS. INDICATE REQUIREMENT IN SHEET-METAL SHOP DRAWING SUBMITTAL FOR COORDINATION WITH G.C.

4 VARIABLE AIR VOLUME (VAV) BOX INSTALLATION DETAIL
SCALE: NONE



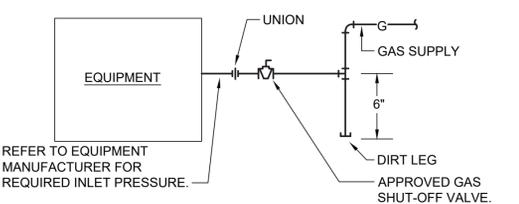
- NOTES:**
1. THIS BRANCH DUCT ARRANGEMENT IS SIMILAR FOR PLENUM SLOT DIFFUSERS.

2 FLEXIBLE DUCT CONNECTION DETAIL
SCALE: NONE



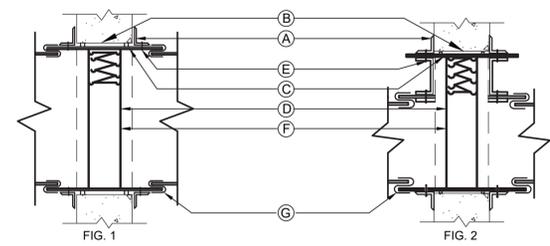
- NOTES:**
- 1.) EQUIPMENT SUPPORTS SHALL BE QUICK-SLING SUPER STAND, MADE WITH 7-GAUGE STEEL AND 11-GAUGE STEEL TUBING.
 - 2.) EACH PIECE OF EQUIPMENT SHALL BE MOUNTED ON CONTINUOUS SUPPORTS. EQUIPMENT SUPPORTS SHALL BE AT LEAST 6" LONGER THAN THE PIECE OF EQUIPMENT TO BE SUPPORTED.
 - 3.) ALL BRACKETS, HANGERS, AND FASTENERS SHALL BE GALVANIZED STEEL.
 - 4.) CEMENT EQUIPMENT SUPPORT TO ROOF - USE ONLY MATERIALS COMPATIBLE WITH THE ROOFING SYSTEM.

7 SUPPORT DETAIL FOR CONDENSING UNITS LOCATED ON ROOF
SCALE: NONE



REFER TO EQUIPMENT MANUFACTURER FOR REQUIRED INLET PRESSURE.

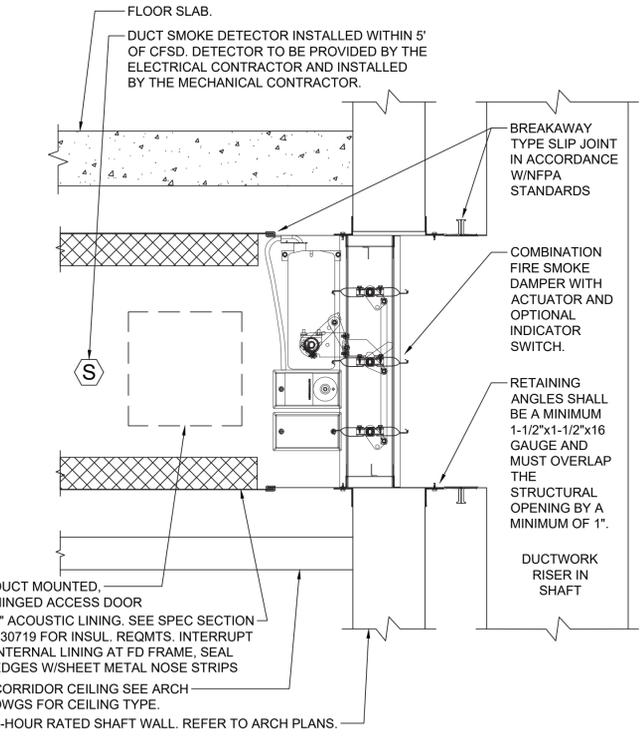
5 GAS CONNECTION SCHEMATIC
SCALE: NONE



- NOTES:**
- A. RETAINING ANGLES SHALL BE A MINIMUM 1-1/2"x1-1/2"x16 GAUGE AND MUST OVERLAP THE STRUCTURAL OPENING BY A MINIMUM OF 1".
 - B. CLEARANCE BETWEEN SLEEVE AND OPENING SHALL BE 1/8" PER LINEAR FOOT, AS PER SMACNA FIG. 2-1.
 - C. STEEL SLEEVE SHALL BE AS PER SMACNA TABLE 2-2.
 - D. U.L. APPROVED FIRE DAMPER.
 - E. SECURE RETAINING ANGLES TO SLEEVE ONLY AT 8" CENTERS AS PER SMACNA FIG. 2-4.
 - F. SECURE DAMPER TO SLEEVE AT 8" CENTERS AS PER SMACNA FIG. 2-1.
 - G. CONNECT DUCT TO SLEEVE WITH BREAK-AWAY CONNECTION AS PER SMACNA FIG. 2-2.

1. FIRE DAMPERS TO BE CONSTRUCTED AND INSTALLED ACCORDING TO NFPA 90A, U.L. LABELS AND THE LATEST ISSUE OF S.M.A.C.N.A. CHAPTER 2. CURTAIN TYPE FIRE DAMPERS SHOWN. MULTI-BLADE PIVOTED FIRE DAMPERS MEETING THE ABOVE STANDARD WILL BE ACCEPTABLE.
2. PROVIDE ACCESS DOORS. INSTALL (1) AD FOR EACH FIRE DAMPER AS PER SMACNA FIG. 6-1.
3. FOR DUCT 12" OR LESS IN DEPTH, FIRE DAMPER SHALL BE OUT OF THE AIR STREAM. REFER TO FIGURE 2.

3 SHUTTER TYPE FIRE DAMPER AND SLEEVE DETAIL
SCALE: NONE



1 CORRIDOR COMBINATION FIRE SMOKE DAMPER DETAIL
SCALE: NONE

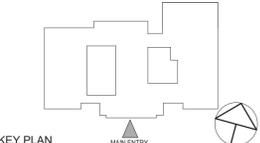
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CONSTRUCTION DOCUMENTS



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