MECHANICAL SYMBOLS - GENERAL

———	NEW PIPING, DUCTWORK, OR EQUIPMENT
———	EXISTING PIPING, DUCTWORK, OR EQUIPMENT TO REMAIN
- - - - - - - -	EXISTING PIPING, DUCTWORK, OR EQUIPMENT TO BE REMOVED
	NEW EQUIPMENT
ER	EXISTING EQUIPMENT TO BE REMOVED
E	EXISTING EQUIPMENT TO REMAIN
ERR	EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED
RE	RELOCATED POSITION OF EXISTING EQUIPMENT
	CONTINUATION FOR DUCTWORK OR PIPING
AHU-1	TYPE OF EQUIPMENT (AIR HANDLING UNIT) UNIT NUMBER
	POINT OF CONNECTION (OF NEW WORK TO EXISTING WORK) OR POINT OF DISCONNECTION (TO REMOVE AND PATCH EXISTING WORK)
#	DRAWING NOTE TAG
1	REVISION SYMBOL
A B	SECTION DESIGNATION ON DRAWING WHERE SECTION IS CUT A - SECTION DESIGNATION B - DRAWING NO.
T	THERMOSTAT (HAS DISPLAY, OCCUPANT ADJUSTMENT, OR BOTH) TO BE WALL MOUNTED. REFER TO PLANS FOR LOCATION.
TS	TEMPERATURE SENSOR (HAS NO DISPLAY OR OCCUPANT ADJUSTMENT) TO BE WALL OR DUCT MOUNTED. REFER TO PLANS FOR LOCATION.
SD	DUCT MOUNTED SMOKE DETECTOR

MECHANICAL ABBREVIATIONS

ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
ATC	AUTOMATIC TEMPERATURE CONTROL
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CV	CONSTANT VOLUME
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
ER	EXISTING EQUIPMENT TO REMOVED
ERR	EXISTING EQUIPMENT TO REMOVED AND RELOCATED
EWT	ENTER WATER TEMPERATURE
FLA	FULL LOAD AMPS
FPI	FIN PER INCH
FTR	FIN TUBE RADIATION
GPM	GALLONS PER MINUTE
HX	HEAT EXCHANGER
HZ	HERTZ
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NK	NECK SIZE
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OED	OPEN END DUCT
PH	PHASE
PSI	POUND PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
RE	RELOCATED POSITION OF EXISTING EQUIPMENT
RE:	REFER TO...
TYP	TYPICAL
VN	VENT
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WMS	WIRE MESH SCREEN

MECHANICAL SYMBOLS - DUCTWORK

18X12	DUCT SIZE (FIRST FIGURE INDICATES HORIZONTAL SIZE)
18Ø	ROUND DUCT DIAMETER
	SUPPLY OR OUTSIDE AIR INTAKE DUCT UP
	SUPPLY OUTSIDE AIR INTAKE DUCT DOWN
	RETURN OR EXHAUST DUCT UP
	RETURN OR EXHAUST DUCT DOWN
	ACOUSTICAL LINING IN DUCT
	TRANSITION FROM RECTANGULAR TO ROUND OR OVAL DUCT
AD	ACCESS DOOR IN DUCT
R	SLOPING RISE IN DUCT IN DIRECTION OF ARROW
D	SLOPING DROP IN DUCT IN DIRECTION OF ARROW
	MITERED ELBOW WITH TURNING VANES
	RADIUS ELBOW (INNER RADIUS = WIDTH)
	DUCT SPLIT
	90° BRANCH TAP (USE 45° BOOT, OR CONICAL TAP FOR BRANCH SERVING A SINGLE DIFFUSER/REGISTER ONLY)
	45° BRANCH TAP
	SPLIT (SUPPLY) OR CONVERGENCE (RETURN/EXHAUST) RADIUS ELBOW TYPE
	SPLIT (SUPPLY) OR CONVERGENCE (RETURN/EXHAUST) MITERED ELBOW TYPE WITH TURNING VANES
	SPLIT (SUPPLY) OR CONVERGENCE (RETURN/EXHAUST) BULLHEAD TYPE
	OFFSET (WITH RADIUS ELBOWS)
	SUPPLY REGISTER
	RETURN OR EXHAUST REGISTER
VD	VOLUME DAMPER
FXC	FLEXIBLE CONNECTION
TVD	BRANCH TAKEOFF TO CEILING DIFFUSER/REGISTER
CD-B(500)	DIFFUSER TYPE AND CFM (CUBIC FEET PER MINUTE). REFER TO SCHEDULE.
	RETURN CEILING GRILLE OR REGISTER
SA	SUPPLY AIR DUCT
RA	RETURN AIR DUCT

MECHANICAL GENERAL NOTES

1. THESE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AS WELL AS INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTWORK AND PIPING. THE CONTRACTOR SHALL ADHERE TO THESE DRAWINGS AS CLOSELY AS POSSIBLE. HOWEVER, THE RIGHT IS RESERVED TO VARY THE RUNS OF DUCTWORK AND PIPING AND TO MAKE OFFSETS, WHERE NECESSARY, TO ACCOMMODATE CONDITIONS ARISING AT THE JOB SITE. THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL NO WORK SHALL BE PERFORMED PRIOR TO RECEIPT OF EQUIPMENT, DUCTWORK, AND PIPING FABRICATION SHOP DRAWING APPROVAL.
2. THE DRAWINGS AND SPECIFICATIONS SHALL BE INTERPRETED SO AS TO REQUIRE THE MOST SUBSTANTIAL AND COMPREHENSIVE PERFORMANCE OF THE WORK, CONSISTENT WITH THE INTENT AND REQUIREMENTS OF THE CONTRACT DOCUMENTS, AND SUCH WORK SHALL BE PERFORMED BY THE CONTRACTOR WITHOUT EXTRA COST TO THE OWNER. IN THE CASE OF A DISCREPANCY WITHIN THE CONTRACT DOCUMENTS, THE WORST CASE OR HIGHEST COST SHALL APPLY FOR BIDDING PURPOSES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCY VIA RFI PRIOR TO PERFORMING THE ASSOCIATED WORK.
3. ANY MATERIAL, WORK, OR INCIDENTAL ACCESSORIES OR MINOR DETAILS NOT SHOWN BUT NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SHOWN ON THE DRAWINGS, SHALL BE PROVIDED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
4. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHERE ACOUSTICALLY LINED DUCT IS SPECIFIED, OUTER DUCT DIMENSIONS SHALL BE INCREASED TO ACCOMMODATE LINING.
5. WHERE WORK IS INDICATED TO BE BY OTHER CONTRACTORS, FOR EXAMPLE: "BY GENERAL CONSTRUCTION CONTRACTOR", THIS WORK IS NOT IN THE HVAC/MECHANICAL CONTRACT. EACH CONTRACTOR WILL BE RESPONSIBLE FOR CLOSE COORDINATION WITH OTHER CONTRACTORS' WORK.
6. REFER TO APPROPRIATE SPECIFICATION SECTION FOR EQUIPMENT SELECTION PARAMETERS WHERE DRAWINGS DO NOT CONTAIN EQUIPMENT SCHEDULES.
7. FOR AIR SYSTEMS, THE MECHANICAL CONTRACTOR SHALL INCLUDE IN BID PRICING SUPPLYING AND INSTALLING BRANCH VOLUME DAMPERS FOR ALL SUPPLY, RETURN, AND EXHAUST BRANCH DUCTWORK, REGARDLESS IF VOLUME DAMPERS ARE NOT SHOWN IN CONTRACT DOCUMENTS. ALL VOLUME DAMPERS SHALL BE ADJUSTABLE HANDLE TYPE FOR LAY-IN ACCESSIBLE CEILING OR CABLE OPERATED FOR CONCEALED TYPE OF CEILING. ALL BRANCH DUCT VOLUME DAMPERS SERVING DIFFUSERS IN GYPSUM BOARD CEILINGS (OR OTHERWISE INACCESSIBLE) SHALL BE REMOTELY (CORD OR CABLE) OPERABLE THROUGH THE FACE OF THE DIFFUSER.
8. INSTALL THERMOSTATS, FAN SPEED CONTROLLERS, AND OTHER ROOM OCCUPANT ADJUSTABLE CONTROLS WITH TOP OF DEVICE 4'-0" ABOVE FINISHED FLOOR OR AS DIRECTED OTHERWISE BY ARCHITECT. COORDINATE EXACT LOCATIONS WITH THE ARCHITECTURAL PLANS. DEVICE COLORS TO BE SELECTED BY THE ARCHITECT. MANUFACTURER'S LOGO SHALL NOT BE EXPOSED.
9. WHERE PIPING CONNECTIONS FOR EQUIPMENT SUCH AS PUMPS, AC UNITS, COILS, ETC. DIFFER FROM THE LINE SIZE PIPING, IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO FURNISH AND INSTALL THE NECESSARY REDUCER/EXPANDER FITTINGS TO ENABLE CONNECTION BETWEEN THE PIPING SYSTEM AND THE EQUIPMENT.
10. PROVIDE UL LISTED AND LABELED FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS, REGARDLESS IF FIRE DAMPERS ARE NOT SHOWN IN CONTRACT DOCUMENTS. PROVIDE 1-1/2 HOUR RATED FIRE DAMPERS AT WALLS/FLOORS WITH 2 HOUR OR LESS RATING. PROVIDE 3 HOUR RATED FIRE DAMPERS AT WALLS/FLOORS WITH 3 HOUR OR MORE RATING. ALL FIRE DAMPERS SHALL BE TYPE "B" WITH SHUTTER OUT OF AIRSTREAM, AND SHALL BE RATED FOR DYNAMIC AIRFLOW CONDITIONS 2,000 FT/MIN AND 4.0 IN-WC. PROVIDE ACCESS DOORS IN DUCTWORK, 18"x18" UNLESS OTHERWISE NOTED. COORDINATE WITH GENERAL CONTRACTOR FOR LOCATIONS AND SIZES OF ACCESS DOORS IN GENERAL CONSTRUCTION.
11. PROVIDE UL LISTED AND LABELED COMBINATION FIRE/SMOKE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FIRE AND SMOKE RATED WALLS AND FLOORS, REGARDLESS IF FIRE DAMPERS ARE NOT SHOWN IN CONTRACT DOCUMENTS. ALL COMBINATION FIRE/SMOKE DAMPERS SHALL BE PROVIDED WITH AN END SWITCH FOR STATUS SIGNAL TO THE BMS AND FIRE SMOKE CONTROL PANEL. ALL COMBINATION FIRE/SMOKE DAMPERS SHALL BE RATED FOR DYNAMIC AIRFLOW CONDITIONS 2,000 FT/MIN AND 4.0 IN-WC. PROVIDE ACCESS DOORS IN DUCTWORK, 18"x18" UNLESS OTHERWISE NOTED. COORDINATE WITH GENERAL CONTRACTOR FOR LOCATIONS AND SIZES OF ACCESS DOORS IN GENERAL CONSTRUCTION.
12. PROVIDE FIRESTOPPING FOR ALL DUCT, PIPE, AND CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS.
13. WHERE DUCTS AND PIPES PENETRATE FIRE AND/OR SMOKE RATED WALLS, LEAVE A MINIMUM OF 2 INCHES CLEAR ABOVE THE DUCTS AND PIPES, SUCH THAT THE GENERAL CONTRACTOR CAN SEAL THE WALL ABOVE THE DUCTS. DO NOT INSTALL FLEXIBLE DUCTWORK THROUGH FIRE AND/OR SMOKE RATED WALLS.
14. PROVIDE ESCUTCHEON PLATES WHERE DUCTS OR PIPES PENETRATE CEILINGS, WALLS, OR FLOORS WHERE EXPOSED TO VIEW IN FINISHED AREAS. ESCUTCHEONS FOR DUCTS SHALL BE CONSTRUCTED OF THE SAME MATERIAL AS DUCT. PIPE ESCUTCHEONS SHALL BE CHROME-PLATED BRASS.
15. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN BID PRICING SUPPLYING AND INSTALLING THERMOSTATS FOR ANY EQUIPMENT THAT REQUIRES CONTROL, SUCH AS VAV BOXES, FCU, FANS, HEATERS, FINNED TUBE RADIATION, RTU'S, ETC., REGARDLESS IF THERMOSTATS ARE NOT SHOWN IN CONTRACT DOCUMENTS. ALL THERMOSTATS SHALL BE DIRECT DIGITAL PROGRAMMABLE TYPE, UNLESS OTHERWISE NOTED. PROVIDE ONE THERMOSTAT FOR EACH FAN COIL UNIT, FAN UNIT, VAV, FPB, ENTRANCE HEATER, BASEBOARD RADIATION, ETC. THERMOSTAT LOCATIONS SHALL BE AS SHOWN ON PLANS AND/OR WHERE DIRECTED AND APPROVED BY THE ARCHITECT AND ENGINEER.
16. ALL DUCTWORK AND PIPING REQUIRING FIRE RATING AND WHERE SHOWN ON PLANS SHALL BE PROVIDED WITH UL LISTED FIRE-RATED DUCT WRAP WITH APPROPRIATE FIRE RATING (1-HOUR, 2-HOUR, ETC.), UNLESS A FIRE-RATED ARCHITECTURAL ENCLOSURE IN THAT LOCATION IS SPECIFIED WITHIN DRAWINGS AND SPECIFICATIONS FOR ANOTHER TRADE.
17. ALL LINEAR DIFFUSERS ARE TO BE COORDINATED WITH ARCHITECTURAL PLANS FOR EXACT LENGTHS AND LOCATIONS. ACTIVE PLENUM SECTIONS SHALL BE OF THE SIZES AS SHOWN ON PLANS. EACH BRANCH TAP SERVING THE LINEAR DIFFUSER SHALL BE PROVIDED WITH A VOLUME DAMPER WHICH SHALL BE OPERABLE THROUGH THE DIFFUSER FACE. ACTIVE SUPPLY SECTION OF LINEAR DIFFUSER SHALL BE PROVIDED WITH PATTERN CONTROL DEVICES AND EQUALIZING GRIDS. ACTIVE OR INACTIVE RETURN SECTIONS SHALL NOT BE FURNISHED WITH PATTERN CONTROL OR EQUALIZING GRIDS.
18. BORDER TYPES AND METHOD OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES, AND REGISTERS SHALL BE COORDINATED WITH THE ARCHITECTURAL CEILING DETAILS AND SPECIFICATIONS.
19. REFER TO SPECIFICATIONS FOR ACOUSTIC LINING REQUIREMENTS NOT SHOWN ON THE DRAWINGS.
20. FOR WATER SYSTEMS: THE MECHANICAL CONTRACTOR SHALL INCLUDE IN BID PRICING SUPPLYING AND INSTALLING BALL TYPE SHUT-OFF VALVES AND SEPARATE BALANCING VALVE FOR ALL BRANCH PIPING REGARDLESS IF VALVES ARE NOT SHOWN IN CONTRACT DOCUMENTS. ALL SHUT-OFF VALVES SHALL BE FULL PORT AND PRESSURE RATED FOR SYSTEM PRESSURE. THE BALANCING VALVE SHALL BE SIMILAR TO B&G CIRCUIT SETTER PLUS CALIBRATED BALANCE VALVE, UNLESS OTHERWISE NOTED.
21. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN BID PRICING SUPPLYING AND INSTALLING SECONDARY DRAIN PANS FOR ALL AIR CONDITIONING CEILING HUNG EQUIPMENT REGARDLESS IF DRAIN PANS ARE NOT SHOWN IN CONTRACT DOCUMENTS. REFER TO DETAIL FOR INSTALLATION OF DRAIN PANS. IF NO DETAIL IS SHOWN, CONTRACTOR MUST REQUEST DRAIN PAN DETAIL THRU RFI PROCESS DURING BIDDING.

MECHANICAL GENERAL NOTES (CONT.)

22. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN BID PRICING SUPPLYING AND INSTALLING CONDENSATE PIPING FOR ALL COOLING TYPE EQUIPMENT REGARDLESS IF CONDENSATE PIPING IS NOT SHOWN IN CONTRACT DOCUMENTS. ALL CONDENSATE PIPING SHALL BE INSULATED AND ROUTED TO NEAREST DRAIN OR JANITORS CLOSET. IF NO CONDENSATE PIPING IS SHOWN, CONTRACTOR MUST REQUEST CONDENSATE PIPING ROUTING THRU RFI PROCESS DURING BIDDING.
23. GENERAL NOTES, SYMBOLS, ABBREVIATIONS, AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
24. RELOCATE EXISTING WORK THAT INTERFERES WITH WORK OF THIS CONTRACT.
25. COORDINATE THIS WORK WITH THAT OF OTHER TRADES.
26. DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL, EXCEPT IN WAY OF STRUCTURAL STEEL, DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
27. PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURERS' RECOMMENDATIONS.
28. PROVIDE HINGED ACCESS DOORS IN DUCTWORK IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS FOR ALL CONCEALED EQUIPMENT THAT REQUIRES PERIODIC SERVICE, INCLUDING AIR CONDITIONING UNITS, FANS, CONDENSATE PUMPS, FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND DUCT MOUNTED SMOKE DETECTORS.
29. WHERE EQUIPMENT OR A DUCT ACCESS DOOR IS LOCATED ABOVE A HARD (INACCESSIBLE) CEILING, PROVIDE AN ACCESS DOOR IN CEILING, MINIMUM SIZE 24"X24", OR 6" LONGER/WIDER THAN EQUIPMENT OR DUCT ACCESS DOOR ABOVE CEILING, OR IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS, WHICHEVER IS LARGEST. ACCESS DOOR SHALL BE MILCOR STYLE DW, MOD. 3203-019 OR APPROVED EQUAL, UNLESS OTHERWISE NOTED. SUBMIT ACCESS DOOR AND COLOR CHART FOR ARCHITECTURAL APPROVAL, ALONG WITH A FLOOR PLAN INDICATING LOCATIONS AND SIZES OF ALL PROPOSED ACCESS DOORS.
30. PROVIDE HANGERS, INSERTS, ANCHORS, SUPPLEMENTAL STEEL & SUPPORTS AS REQUIRED TO SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM STRUCTURE.
31. SCHEDULE WORK OF THIS SECTION TO AVOID INTERFERING WITH EXISTING OPERATIONS IN THE FACILITY.
32. COORDINATE ALL ROOF PENETRATIONS WITH THE WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS. COORDINATE ALL ROOF PENETRATION LOCATIONS WITH THE OWNER. NOTIFY THE OWNER PRIOR TO STARTING WORK AND VERIFY COMPLIANCE WITH BOND AND WARRANTY OF THE ROOF.
33. RUN DUCTS AND PIPING CONCEALED, UNLESS OTHERWISE SPECIFIED, AND CLEAR OF CEILING INSERTS.
34. PROVIDE CLEARANCE IN FRONT OF ALL ELECTRIC CONTROL PANELS PER N.E.C. AND EQUIPMENT MANUFACTURERS' REQUIREMENTS.
35. PRIOR TO SUBMISSION OF SHOP DRAWINGS, COORDINATE WITH ELECTRICAL CONTRACTOR TO VERIFY VOLTAGES AVAILABLE FOR MECHANICAL EQUIPMENT.
36. MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES FOR HVAC EQUIPMENT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED/WIRED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED. COORDINATE AND VERIFY WITH ELECTRICAL CONTRACTOR PRIOR TO SHOP DRAWING SUBMISSION.
37. ALL DISCONNECT SWITCHES FOR HVAC EQUIPMENT SHALL BE FURNISHED, INSTALLED, AND WIRED BY THE ELECTRICAL CONTRACTOR, UNLESS INTEGRAL TO HVAC EQUIPMENT OR OTHERWISE NOTED. COORDINATE AND VERIFY WITH ELECTRICAL CONTRACTOR PRIOR TO SHOP DRAWING SUBMISSION.
38. USE FLAT TRANSVERSE SEAM FOR DUCTWORK WHERE SPACE AVAILABLE DICTATES.
39. BRANCH DUCTS TO INDIVIDUAL DIFFUSERS AND REGISTERS SHALL BE THE SAME SIZE AS THE DIFFUSER OR REGISTER NECK, UNLESS OTHERWISE NOTED.
40. ALL DUCTWORK AND PIPING SHALL BE INSTALLED TIGHT TO BOTTOM OF STRUCTURAL MEMBERS UNLESS OTHERWISE NOTED OR ABSOLUTELY REQUIRED BY FIELD CONDITIONS.
41. DO NOT INSTALL DUCTWORK OR PIPING DIRECTLY UNDER AND PARALLEL TO THE WEB OF STRUCTURAL MEMBERS. OFFSET IN ORDER TO ALLOW FUTURE DUCTWORK AND PIPING TO CROSS OVER IN BETWEEN STRUCTURAL MEMBERS.
42. BRANCH DUCTS TO INDIVIDUAL DIFFUSERS AND REGISTERS SHALL BE PROVIDED WITH VOLUME DAMPERS, WHETHER OR NOT THE VOLUME DAMPERS ARE SHOWN ON PLAN.
43. VOLUME DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS SHALL BE CABLE OPERATED TYPE, WITH CABLE OPERATORS LOCATED IN ACCESSIBLE LOCATIONS AND CLEARLY LABELED FOR DIFFUSER OR REGISTER SERVED.
44. UNLESS OTHERWISE NOTED, ALL EXPOSED DUCTWORK IN FINISHED SPACES SHALL BE SPIRAL ROUND OR FLAT OVAL TYPE, WITH SOLID OUTER WALL, PERFORATED INNER WALL, AND 1 INCH THICK INTERSTITIAL ACOUSTICAL LINING.
45. CONDENSATE DRAIN (CD) AND CONDENSATE PUMP DISCHARGE (PD) PIPING SHALL BE RIGID COPPER, TYPE L, MINIMUM 3/4" NOMINAL PIPE SIZE, BRAZED OR SOLDERED, WITH 1" INSULATION, UNLESS OTHERWISE NOTED ON DRAWINGS.
46. NEW AND EXISTING PERMANENT HVAC AIR EQUIPMENT MAY BE USED BY CONTRACTORS DURING CONSTRUCTION FOR TEMPORARY HEATING, COOLING, AND VENTILATION, ONLY UNDER THE FOLLOWING CONDITIONS:
    - 46.1. CONTRACTOR TO PROVIDE TEMPORARY FILTERS IN EACH UNIT DURING CONSTRUCTION, WHICH SHALL BE REPLACED WITH NEW CLEAN FILTERS AFTER GENERAL CONSTRUCTION IS COMPLETED.
    - 46.2. CONTRACTOR TO PROVIDE FILTER FABRIC AT ALL RETURN AND EXHAUST REGISTERS, GRILLES, AND OPENINGS DURING CONSTRUCTION.
    - 46.3. THE WARRANTY PERIOD FOR ALL EQUIPMENT SHALL NOT BEGIN UNTIL CONSTRUCTION IS COMPLETED. IF THE EQUIPMENT MANUFACTURER'S WARRANTY PERIOD BEGINS WHILE THE UNIT USED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH EXTENDING THE WARRANTY TO PROVIDE THE FULL PERIOD OF COVERAGE TO THE OWNER.
    - 46.4. IF NEW PERMANENT HVAC AIR EQUIPMENT INSTALLED UNDER THIS PROJECT WILL NOT BE OPERATED BY THE CONTRACTOR DURING CONSTRUCTION, ALL OPEN OR INCOMPLETE DUCTWORK SHALL BE CAPPED AIRTIGHT WITH WITH HEAVY POLYETHYLENE PLASTIC. AFTER THE INSTALLATION OF DUCTWORK, REGISTERS, GRILLES, AND DIFFUSERS, THE CONTRACTOR SHALL BLANK OFF ALL REGISTERS, GRILLES, AND DIFFUSERS WITH HEAVY POLYETHYLENE PLASTIC AND TAPE AIR TIGHT, IN AREAS THAT ARE UNDER CONSTRUCTION, UNTIL WORK IS COMPLETE IN THOSE AREAS.
    - 46.5. IF THE ABOVE CONDITIONS ARE NOT MET, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY NECESSARY TEMPORARY HEATING, COOLING, AND VENTILATION EQUIPMENT, DUCTWORK, CONTROLS, PIPING, AND POWER AT HIS OWN EXPENSE.
    - 46.6. IF PERMANENT HVAC EQUIPMENT IS USED DURING CONSTRUCTION BUT NOT PROPERLY PROTECTED AS DESCRIBED ABOVE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OUT DUST AND DEBRIS FROM DUCTWORK AND EQUIPMENT, AS WELL AS ANY NECESSARY REPAIR OR REPLACEMENT OF DAMAGED EQUIPMENT AT HIS OWN EXPENSE.
    - 46.7. WHEN GENERAL CONSTRUCTION IS COMPLETE, VACUUM CLEAN ALL DIFFUSERS, REGISTERS, GRILLES, AND HVAC EQUIPMENT IN THE PROJECT AREA OR SERVING THE PROJECT AREA. REMOVE ANY CONSTRUCTION DEBRIS.

MECHANICAL DEMOLITION GENERAL NOTES

1. DEMOLITION NOTES, SYMBOL LIST, AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
2. ALL PIPING IN WALLS AND FLOORS NOT TO BE REUSED WILL BE PLUGGED OR CAPPED, AND CUTTING AND PATCHING WILL BE PERFORMED TO RESTORE SURFACE TO ORIGINAL CONDITION BY THIS CONTRACTOR.
3. AFTER REMOVING PIPE THROUGH THE FLOOR SLABS, PACK OPENING WITH APPROVED FIRE-RATED PACKING.
4. THE CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF HVAC WORK AS DESCRIBED ON THE DRAWINGS AND IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE OWNER/ENGINEER.
5. THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE WITH FUNCTIONING HVAC SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
6. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR, OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
7. THE CONTRACTOR SHALL REMOVE ALL DUCT AND PIPING SUPPORTS, ETC. FROM PARTITIONS THAT ARE TO BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING PIPING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL AND PROVIDE BYPASS CONNECTIONS NECESSARY.
8. ALL PIPING WHICH BECOMES EXPOSED DURING THE ALTERATION WORK SHALL BE REAVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
9. PORTIONS OF PIPING AND DUCTWORK TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ACTIVE, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED, AND RECONNECTED.
10. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE, SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
11. ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THE HVAC CONTRACTOR, AS DIRECTED BY THE OWNER.
12. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVER TIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
13. THE SHUTDOWN OF EXISTING BUILDING HVAC SERVICES SHALL BE COORDINATED WITH WITH THE OWNER. MAKE ARRANGEMENTS AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO A SHUTDOWN.
14. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS.
15. WHERE THE DEMOLITION OF EXISTING PNEUMATIC CONTROL EQUIPMENT, THERMOSTATS, OR TUBING IS INDICATED IN THE PLANS, THE CONTRACTOR SHALL CAP THE ENDS OF ALL EXISTING TO REMAIN PNEUMATIC LINES AIRTIGHT UNLESS OTHERWISE NOTED. IF ADDITIONAL PNEUMATIC LINES OR DEVICES ARE DISCOVERED BY THE CONTRACTOR INSIDE WALLS OR ABOVE CEILINGS DURING DEMOLITION, THE CONTRACTOR SHALL INFORM THE DESIGN TEAM PRIOR TO REMOVAL OF THESE LINES OR DEVICES.

NEW YORK STATE CODES & STANDARDS

- 2020 BUILDING CODE OF NEW YORK STATE
- 2020 FIRE CODE OF NEW YORK STATE
- 2020 PLUMBING CODE OF NEW YORK STATE
- 2020 MECHANICAL CODE OF NEW YORK STATE
- 2020 FUEL GAS CODE OF NEW YORK STATE
- 2020 NYS UNIFORM CODE SUPPLEMENT
- NYS EDUCATION DEPARTMENT 1998 MANUAL OF PLANNING STANDARDS

NEW YORK STATE ENERGY CODES

- 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE
- 2016 ASHRAE 90.1

REFERENCED STANDARDS

APPLICABLE REFERENCE STANDARDS SHALL BE AS REFERENCED BY ALL STATE CODES. THE LIST BELOW IS FOR QUICK REFERENCE AND DOES NOT INCLUDE ALL APPLICABLE REFERENCE STANDARDS.

- 2016 NPFA 13 – STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS
- 2016 NFPA 14 – STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS
- 2016 NFPA 20 – STANDARD FOR THE INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION
- 2017 NFPA 70 – NATIONAL ELECTRICAL CODE
- 2016 NFPA 72 – NATIONAL FIRE ALARM AND SIGNALING CODE

MECHANICAL DRAWING LIST

EASTCHESTER UNION FREE SCHOOL DISTRICT

2021-2022 MIDDLE SCHOOL GYMNASIUMS RENOVATIONS AND MIDDLE SCHOOL ROOF REPLACEMENT PROJECT

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STRUCTURAL CONSULTANT
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MEP CONSULTANT
STANTEC
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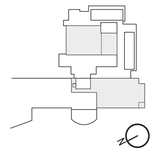
PROJECT NUMBER: 223030768

HAZARDOUS MATERIALS CONSULTANT
WSP
96 MORTON STREET, 8TH FLOOR
NEW YORK, NY 10014
212.612.7924

SEAL

ISSUE	DATE
ISSUED FOR BID	12/10/2021
SED SUBMISSION	10/06/2021

KEY PLAN



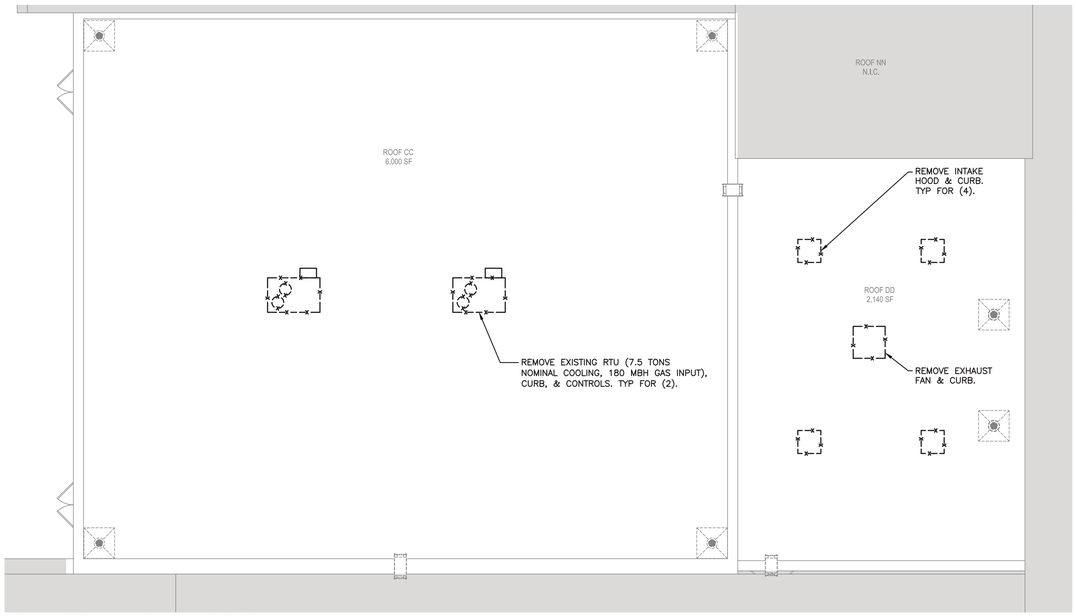
PROJECT NO. 66-03-01-03-0-003-028
MEMASI PROJECT NO. 102-2101

COVER SHEET

MS M001

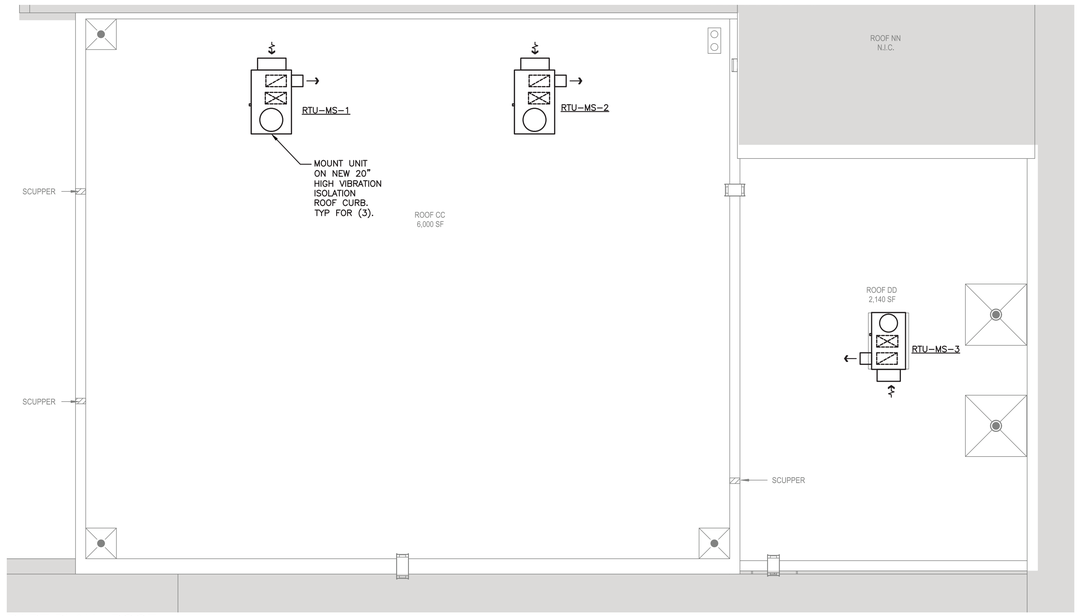
PLAN NOTES:

1. ALL DUCTWORK SHALL BE INSTALLED TIGHT TO BOTTOM OF STRUCTURE UNLESS OTHERWISE NOTED OR ABSOLUTELY REQUIRED BY FIELD CONDITIONS.
2. DO NOT INSTALL DUCTWORK DIRECTLY UNDER AND PARALLEL TO THE WEB OF STRUCTURAL MEMBERS. OFFSET IN ORDER TO ALLOW FUTURE DUCTWORK AND PIPING TO CROSS OVER IN BETWEEN STRUCTURAL MEMBERS.
3. ALL EXPOSED DUCTWORK IN FINISHED SPACES INDICATED TO BE ROUND OR FLAT OVAL (F.O.) SHALL BE SPIRAL TYPE, WITH SOLID OUTER WALL, PERFORATED INNER WALL, AND 1 INCH THICK INTERSTITIAL ACOUSTICAL LINING. NO EXTERNAL INSULATION.
4. ALL EXPOSED DUCTWORK IN FINISHED SPACES INDICATED TO BE RECTANGULAR SHALL BE PROVIDED WITH 1 INCH THICK INTERSTITIAL ACOUSTICAL LINING. NO EXTERNAL INSULATION.
5. ALL EXPOSED DUCTWORK IN FINISHED SPACES SHALL BE PROVIDED WITH SURFACE FINISH SUITABLE FOR FIELD PAINTING BY GENERAL CONTRACTOR. PRIOR TO FIELD PAINTING, MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DUCT SURFACE INCLUDING REMOVAL OF DUST, GREASE, FINGERPRINTS, MARKINGS, AND CONSTRUCTION DEBRIS.
6. DUCT SIZE INDICATED ON PLAN IS THE INSIDE CLEAR DIMENSION UNLESS OTHERWISE NOTED. OVERALL DIMENSIONS OF DUCTWORK SHALL BE INCREASED TO ACCOMMODATE THE THICKNESS OF INTERNAL ACOUSTICAL LINING.



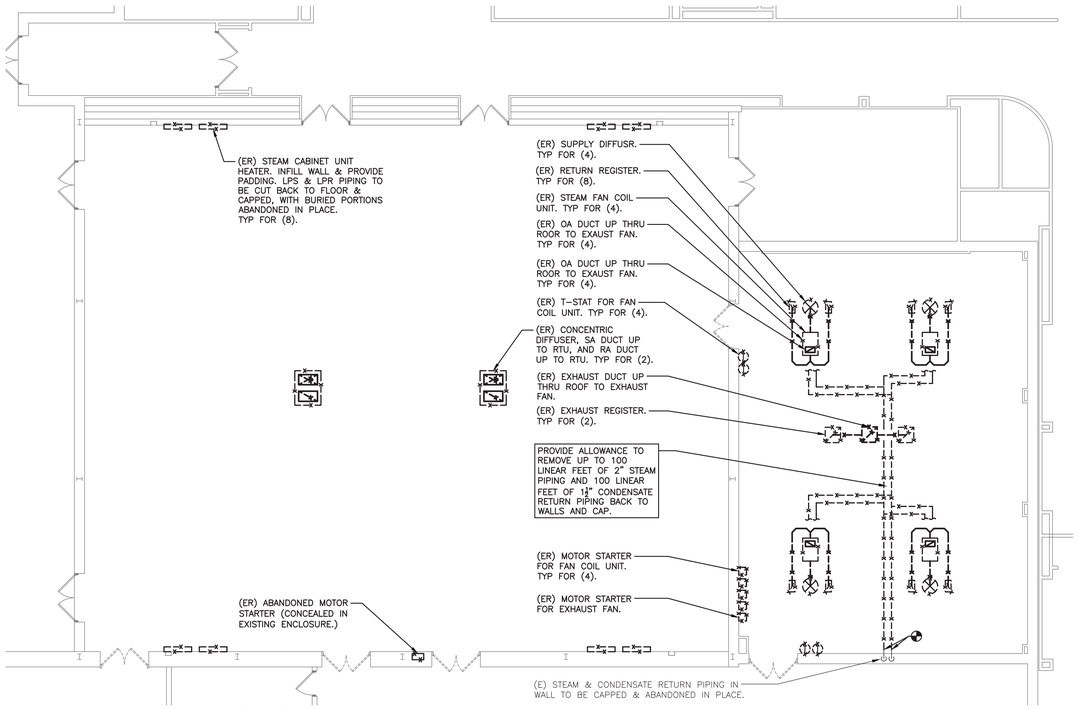
DEMOLITION PART PLAN - ROOF

1/8" = 1'-0"



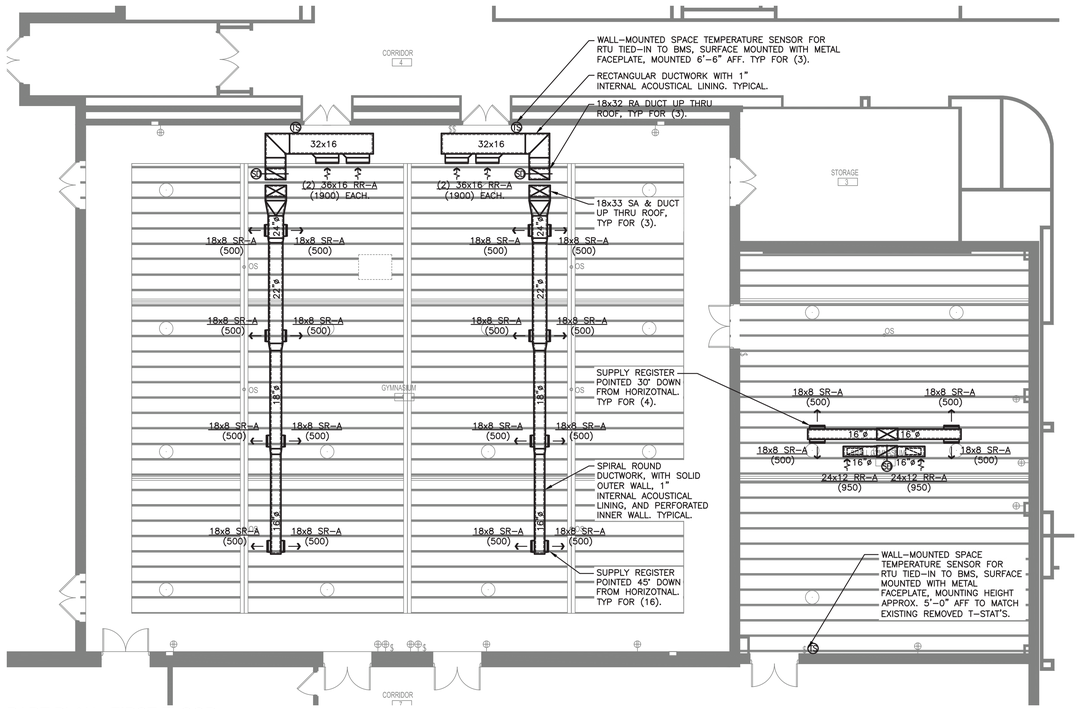
PART PLAN - ROOF

1/8" = 1'-0"



DEMOLITION PART PLAN - FIRST FLOOR

1/8" = 1'-0"



PART PLAN - FIRST FLOOR

1/8" = 1'-0"

EASTCHESTER UNION FREE SCHOOL DISTRICT

2021-2022 MIDDLE SCHOOL GYMNASIUMS RENOVATIONS AND MIDDLE SCHOOL ROOF REPLACEMENT PROJECT

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SEAL

ISSUE	DATE
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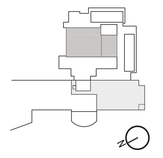
SED SUBMISSION	10/06/2021

KEY PLAN



PROJECT NO.	66-03-01-03-0-003-028
MEMASI PROJECT NO.	102-2101

PART PLANS

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PACKAGED ROOFTOP UNIT SCHEDULE (PART 1 OF 2)

DESIGNATION	LOCATION	AREA SERVED	NOMINAL COOLING CAPACITY (TONS)	DUCT CONNECTIONS		SUPPLY FAN DATA												POWER EXHAUST FAN DATA										DX COOLING DATA															FURNACE HEATING DATA									
				SUPPLY	RETURN	SUPPLY AIRFLOW (CFM)	MIN. OUTSIDE AIRFLOW	ESP (IN W.C.)	NO. OF FANS	NO. OF MOTORS	HP (PER MOTOR)	BHP (PER MOTOR)	FAN TYPE	DRIVE TYPE	STARTER TYPE	STARTER LOCATION	SPEED CONTROL	RETURN OR EXHAUST	NO. OF FANS	NO. OF MOTORS	HP (PER MOTOR)	FAN TYPE	DRIVE TYPE	STARTER TYPE	STARTER LOCATION	SPEED CONTROL	REFRIG. TYPE	EER AT AHRI COND.	IEER AT AHRI COND.	DESIGN AMBIENT TEMP. DB (°F)	NO. OF COMPR.	NO. OF REFRIG. CKTS.	CAPACITY CONTROL	NO. OF COND. FANS	GROSS TOT. MBH	GROSS SENS. MBH	NET TOT. MBH	NET SENS. MBH	E.A.T. DB (°F)	E.A.T. WB (°F)	COIL L.A.T. DB (°F)	COIL L.A.T. WB (°F)	UNIT L.A.T. DB (°F)	UNIT L.A.T. WB (°F)	FUEL TYPE	INLET SIZE (IN)	MIN PRESSURE (IN-WC)	MAX PRESSURE (IN-WC)	NO. OF STAGES	INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)	OUTPUT CAPACITY W/ FAN HEAT (MBH)	EFF. (%)	E.A.T. (°F)	L.A.T. (°F)
RTU-MS-1	ROOF	GYMNASIUM	10	DOWNFLOW	DOWNFLOW	4,000	920	1.25	1	1	2.75	1.43	PLENUM	DIRECT	CONST. SPD.	UNIT MTD.	CONST. SPD.	EXHAUST	1	1	0.87	FC CENTRIFUGAL	DIRECT	CONST. SPD.	UNIT MTD.	CONST. SPD.	R-410A	12.6	14.7	95	2	2	3-STAGE	1	114	94	110	90	80	67	58	57	60	58	NAT. GAS	3/4	4.5	14.0	2	150	120	124	80	55	84
RTU-MS-2	ROOF	GYMNASIUM	10	DOWNFLOW	DOWNFLOW	4,000	920	1.25	1	1	2.75	1.43	PLENUM	DIRECT	CONST. SPD.	UNIT MTD.	CONST. SPD.	EXHAUST	1	1	0.87	FC CENTRIFUGAL	DIRECT	CONST. SPD.	UNIT MTD.	CONST. SPD.	R-410A	12.6	14.7	95	2	2	3-STAGE	1	114	94	110	90	80	67	58	57	60	58	NAT. GAS	3/4	4.5	14.0	2	150	120	124	80	55	84
RTU-MS-3	ROOF	SMALL GYMNASIUM	5	DOWNFLOW	DOWNFLOW	2,000	635	1.10	1	1	1	1.22	PLENUM	DIRECT	CONST. SPD.	UNIT MTD.	CONST. SPD.	EXHAUST	1	1	0.33	FC CENTRIFUGAL	DIRECT	CONST. SPD.	UNIT MTD.	CONST. SPD.	R-410A	11.9	14.2	95	2	2	3-STAGE	1	114	94	110	90	80	67	58	57	60	58	NAT. GAS	1/2	4.5	14.0	2	60	48	52	80	55	79

REGISTER, GRILLE, AND DIFFUSER SCHEDULE

DESIGNATION	SERVICE	TYPE	NOMINAL OVERALL DIMENSION (IN)	NECK SIZE (IN)	CFM RANGE	CONFIGURATION	BORDER TYPE	MATERIAL OF CONSTRUCTION	EQUALIZING GRID IN NECK	OPPOSED BLADE DAMPER IN NECK	FILTER RACK	FINISH COLOR	MANUFACTURER	MODEL	REMARKS
RR-A	RETURN	SIDEWALL REGISTER	RE: PLAN	RE: PLAN	0-100	LOUVERED FACE, 1/2" BLADE SPACING, 45° FIXED DEFLECTION	LAY-IN OR SURFACE MOUNTED	STEEL	NO	YES	NO	WHITE	PRICE	535	SEE NOTES BELOW
SR-A	SUPPLY	CEILING/SIDEWALL REGISTER	RE: PLAN	RE: PLAN	RE: PLAN	INDIVIDUALLY ADJUSTABLE BLADES, 3/4" BLADE SPACING, DOUBLE DEFLECTION	LAY-IN OR SURFACE MOUNTED	STEEL	NO	YES	NO	WHITE	PRICE	520	SEE NOTES BELOW

NOTES:
1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS.
2. ALL FINISH COLORS ARE SUBJECT TO APPROVAL BY THE ARCHITECT. SUBMIT COLOR CHART FOR REVIEW.
3. COORDINATE BORDER TYPES WITH ARCHITECTURAL CEILING SPECIFICATIONS.

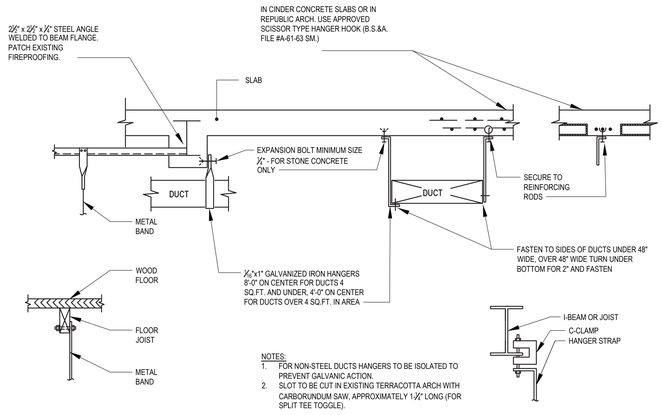
VENTILATION SCHEDULE

AIR HANDLING SYSTEM DATA			ROOM DATA					OUTSIDE VENTILATION AIRFLOW REQUIRED PER THE 2020 NEW YORK STATE MECHANICAL CODE - SECTION 403					OUTSIDE VENTILATION AIRFLOW REQUIRED PER THE NYSED 1998 MANUAL OF PLANNING STANDARDS - SECTION S606-3-A				
AIR HANDLING SYSTEM DESIGNATION	DESIGN SUPPLY AIRFLOW (CFM)	DESIGN OUTSIDE VENTILATION AIRFLOW (CFM)	ROOM NUMBER	ROOM NAME	FLOOR AREA	NUMBER OF PEOPLE	DESIGN SUPPLY AIRFLOW (CFM)	DESIGN MINIMUM OUTSIDE VENTILATION AIRFLOW (CFM)	OUTSIDE VENTILATION AIRFLOW PER PERSON (CFM / PERSON)	OUTSIDE VENTILATION AIRFLOW PER SQUARE FOOT (CFM / SF)	ZONE AIR DISTRIBUTION EFFECTIVENESS	ROOM OUTSIDE VENTILATION AIRFLOW (CFM)	ROOM DESIGN OUTSIDE VENTILATION AIRFLOW MEETS OR EXCEEDS CODE REQUIREMENT (YES / NO)	OUTSIDE VENTILATION AIRFLOW PER PERSON (CFM / PERSON)	OUTSIDE VENTILATION AIRFLOW PER SQUARE FOOT (CFM / SF)	ROOM OUTSIDE VENTILATION AIRFLOW (CFM)	ROOM DESIGN OUTSIDE VENTILATION AIRFLOW MEETS OR EXCEEDS NYSED REQUIREMENT (YES / NO)
RTU-1 & RTU-2	8,000	1,840	1	GYMNASIUM	5,768	40	8,000	1,840	20	0.18	1.0	1,838	YES	15	0.00	600	YES
RTU-3	2,000	635	2	SMALL GYMNASIUM	1,961	14	2,000	635	20	0.18	1.0	633	YES	15	0.00	210	YES

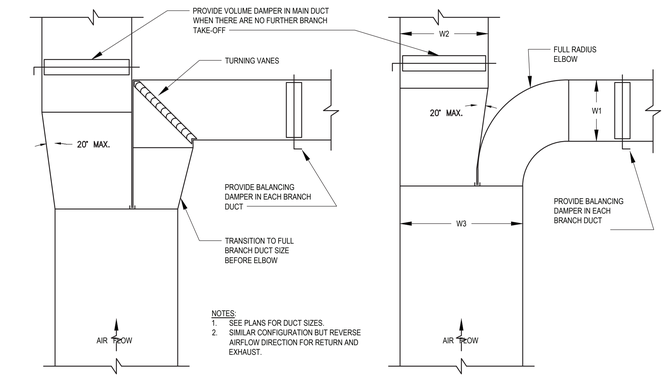
PACKAGED ROOFTOP UNIT SCHEDULE (PART 2 OF 2)

DESIGNATION	ELECTRICAL DATA						FILTERS			BASE DIMENSIONS (IN)		OVERALL DIMENSIONS INCLUDING HOODS AND ACCESSRIES (IN)			OPERATING WEIGHT (LBS)			MANUFACTURER	MODEL	REMARKS
	VOLTS	PH	Hz	MCA	MOP	BY E.C OR MANUF.	DISCONNECT LOCATION	DISCONNECT TYPE	DISCONNECT ENCL. TYPE	EMER. PWR. (Y/N)	PRE-FILTER	MAIN FILTER	WIDTH	LENGTH OR DEPTH	HEIGHT	WIDTH	LENGTH OR DEPTH	UNIT ONLY	ROOF CURB	TOTAL			
RTU-MS-1	208	3	60	48.0	60	MANUF.	UNIT MTD.	NON-FUSED	NEMA 3R	N	N/A	2" MERV-13	63	100	52	85	116	1,610	300	1,910	TRANE	YCH-120	SEE NOTES BELOW
RTU-MS-2	208	3	60	48.0	60	MANUF.	UNIT MTD.	NON-FUSED	NEMA 3R	N	N/A	2" MERV-13	63	100	52	85	116	1,610	300	1,910	TRANE	YCH-120	SEE NOTES BELOW
RTU-MS-3	208	3	60	26.0	40	MANUF.	UNIT MTD.	NON-FUSED	NEMA 3R	N	N/A	2" MERV-13	53	89	41	75	105	1,000	250	1,250	TRANE	YCH-060	SEE NOTES BELOW

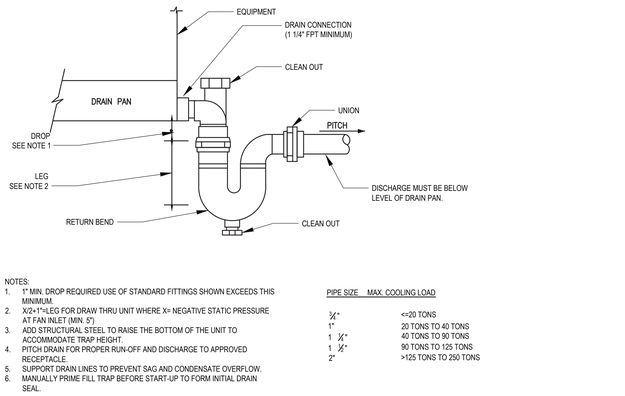
NOTES:
1. PROVIDE THE FOLLOWING FACTORY SUPPLIED FEATURES AND OPTIONS FOR EACH UNIT:
   1.1. UNIT (INCLUDING ACCESS DOORS) SHALL BE CONSTRUCTED TO WITHSTAND WIND SPEED OF 125 MPH IN ACCORDANCE WITH STANDARD ASCE 7.
   1.2. DIGITAL PROGRAMMABLE CONTROLLER WITH BACNET COMMUNICATIONS INTERFACE FOR BMS TIE-IN.
   1.3. DUAL ENTHALPY AIRSIDE ECONOMIZER WITH FULLY MODULATING OUTSIDE AIR / RETURN AIR DAMPERS AND BAROMETRIC EXHAUST DAMPERS.
   1.4. 2" FIXED DEFLECTION VIBRATION ISOLATION ROOF CURB, MINIMUM 20" HIGH INCLUDING VIBRATION ISOLATION RAILS AND CLIPS, CONSTRUCTED AND INSTALLED TO WITHSTAND A WIND SPEED OF 125 MPH IN ACCORDANCE STANDARD ASCE 7, SEISMIC RATED.
   1.5. MODULATING REFRIGERANT HOT GAS REHEAT FOR DEHUMIDIFICATION.
   1.6. FACTORY-SUPPLIED UNIT-MOUNTED POWER EXHAUST FAN WITH INTEGRAL STARTER, DISCONNECT, GRAVITY BACKDRAFT DAMPER, RAIN HOOD, AND BIRDSCREEN.



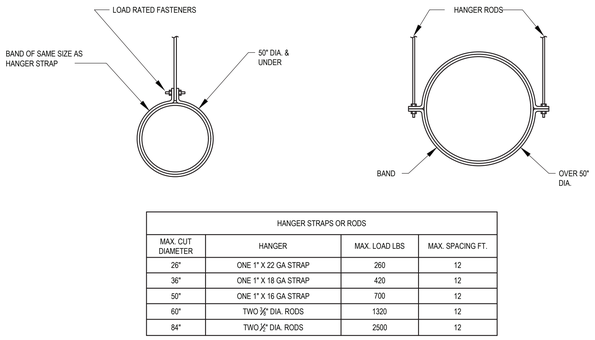
TYPICAL DUCT HANGING DETAIL
N.T.S.



DETAIL OF LOW PRESSURE SUPPLY AIR DUCT NECK CONNECTIONS
N.T.S.



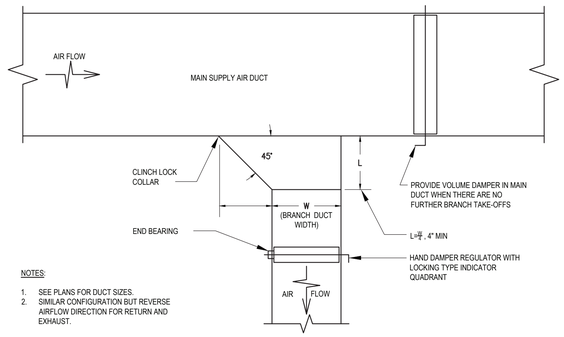
TYPICAL CONDENSATE DRAIN PIPING DETAIL (DRAW THROUGH)
N.T.S.



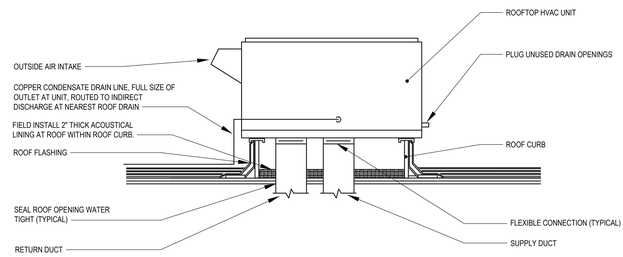
HANGER STRAPS OR RODS			
MAX. CUT DIAMETER	HANGER	MAX. LOAD LBS	MAX. SPACING FT.
26"	ONE 1" X 22 GA STRAP	260	12
36"	ONE 1" X 18 GA STRAP	420	12
50"	ONE 1" X 16 GA STRAP	700	12
60"	TWO ½" DIA. RODS	1320	12
84"	TWO ½" DIA. RODS	2500	12

NOTES:
1. TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.
2. INSULATION AROUND HANGER.

ROUND DUCTWORK HANGERS
N.T.S.



TYPICAL DETAIL OF RECTANGULAR SUPPLY AIR DUCT TAP
N.T.S.



ROOFTOP UNIT INSTALLATION DETAIL - CURB MOUNTED
N.T.S.

EASTCHESTER UNION FREE SCHOOL DISTRICT

2021-2022 MIDDLE SCHOOL GYMNASIUMS RENOVATIONS AND MIDDLE SCHOOL ROOF REPLACEMENT PROJECT

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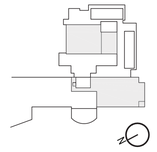
KEY PLAN



PROJECT NO.	66-03-01-03-0-003-028
MEMASI PROJECT NO.	102-2101

SCHEDULES AND DETAILS

MS M201