



GENERAL NOTES

- 1. GENERAL NOTES ON THIS DRAWING ARE APPLICABLE TO EACH MECHANICAL DRAWING OF THIS SET. SEE EACH DRAWING FOR SPECIFIC NOTES APPLICABLE TO THAT DRAWING.
- 2. OUTSIDE AIR INTAKE OPENINGS FOR VENTILATION AIR SHALL BE LOCATED 10 FEET MEASURED IN ANY DIRECTION FROM ANY FLUES, VENTS, CHIMNEYS, GAS, METERS, GAS REGULATORS, PLUMBING VENTS UNLESS TOP OF SUCH INTAKE OPENING IS 2 FEET BELOW ANY OF THE LISTED ITEMS.
- 3. OVERHEAD PIPING IN SPACES WITHOUT CEILINGS SHALL BE INSTALLED AS CLOSE TO ROOF DECK AS PRACTICABLE, AS CLOSE TO PARALLEL JOISTS AS POSSIBLE AND ABOVE LIGHTING FIXTURE TO CONCEAL PIPING.
- 4. OVERHEAD DUCTWORK AND PIPING IN SPACES WITH CEILINGS SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
- 5. COORDINATE LOCATION OF GRILLES, REGISTERS, DIFFUSERS, THERMOSTATS, AND OTHER WALL OR CEILING MOUNTED HVAC ACCESSORIES WITH REFLECTED CEILING PLAN, COORDINATE LIGHTING FIXTURE LAYOUT AND ACCESSORIES INSTALLED BY OTHER TRADES SO AS TO PRESENT A NEAT AND ATTRACTIVE INSTALLATION THROUGHOUT THE ENTIRE BUILDING. IT IS THE INTENT FOR CEILING MOUNTED GRILLES, REGISTERS AND DIFFUSERS TO BE INSTALLED IN THE CENTER OF CEILING PANELS.
- 6. ARRANGE PIPING AND DUCTWORK, PARTICULARLY ABOVE CEILING, AS REQUIRED TO CLEAR STRUCTURE, DUCTS, CONDUITS, ETC. ALLOWING SPACE FOR PIPE HANGERS, EXPANSION LOOPS AND ACCESS TO VALVES, FILTER AND MAINTENANCE OF EQUIPMENT.
- 7. THE DIAMETER OF THE SUPPLY PIPE AT ANY GAS FIRED EQUIPMENT SHALL NOT BE OF A SMALLER SIZE THAN THE INLET CONNECTION TO THE EQUIPMENT WITH FILTERS SHALL BE INSTALLED SO THAT FILTERS CAN BE EASILY REMOVED AND REPLACED.
- 8. EQUIPMENT WITH FILTERS SHALL BE INSTALLED SO THAT FILTERS CAN BE EASILY REMOVED AND REPLACED.
- 9. CONTRACTOR SHALL VERIFY REFRIGERANT PIPE SIZES WITH EQUIPMENT MANUFACTURER FOR THE INDICATED INSTALLATION.
- 10. COORDINATE LOCATION AND INSTALLATION OF EQUIPMENT WITH OTHER TRADES.
- 11. THERMOSTATS SHALL BE LOCATED IN THE ROOMS INDICATED. INSTALL AT 4'-0" (1220) ABOVE FINISHED FLOOR TO TOP OF THE DEVICE.
- 12. VALVES AND SPECIALTIES SHALL BE LINE SIZE, EXCEPT TO CONTROL & BALANCING VALVES OR UNLESS NOTED OTHERWISE.
- 13. EXTEND DRAIN LINES TO NEAREST FLOOR DRAIN OR AS INDICATED. ROUTING SHALL NOT INTERFERE WITH PASSAGEWAYS AND MAINTENANCE. DRAINS FROM AIR CONDITIONING CONDENSATE DRAIN PANS SHALL BE TRAPPED. SLOPE SUSPENDED CONDENSATE DRAIN PIPING AT 1/8" PER FOOT (1 PER 100).
- 14. PIPING AND DUCTWORK INSULATION SHALL BE CONTINUOUS THROUGH NON-RATED FLOORS, WALLS AND PARTITIONS, UNLESS OTHERWISE NOTED.
- 15. NO PIPING SHALL BE SMALLER THAN 1/2" (13) UNLESS OTHERWISE NOTED.
- 16. PIPE RUNOUTS SHALL PITCH DOWN IN DIRECTION OF FLOW A MINIMUM OF 1/8" PER FOOT (1 PER 100).
- 17. FOR PIPE SIZES NOT INDICATED ON PLANS SEE EQUIPMENT CONNECTION DETAILS, FLOW DIAGRAMS, RISER DIAGRAMS AND SCHEDULES.
- 18. PROVIDE UNIONS OR FLANGED CONNECTIONS AT EACH PIECE OF EQUIPMENT AND ON BOTH SIDES ON CONTROL VALVES AND PRESSURE REGULATING VALVES. PROVIDE SHUT-OFF VALVES ON BOTH SIDES OF AUTOMATIC VALVES.
- 19. RELIEF VALVE DRAIN PIPING SHALL BE EXTENDED TO 6" (150) ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- 20. FLOOR MOUNTED EQUIPMENT IN THE MECHANICAL ROOM SHALL BE LOCATED ON 6" (150) THICK CONCRETE PADS WITH CHAMFERED EDGES UNLESS OTHERWISE NOTED.
- 21. PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATION. ADDITIONAL SUPPORTS OR HANGERS SHALL BE ADJACENT TO ELBOWS, TO PREVENT WEIGHT OF PIPING BEING PLACED ON THE EQUIPMENT.
- 22. CORRECT SETTING ON BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
- 23. LOCATE AND SIZE CONCRETE PADS AND CURBS FOR MECHANICAL EQUIPMENT IN ACCORDANCE WITH ACTUAL EQUIPMENT PURCHASED.
- 24. FOR LOCATION OF MOTOR STARTERS, SEE ELECTRICAL DRAWINGS.
- 25. ALL VALVES IN MECHANICAL ROOM OVER 10FT AFF SHALL BE CHAIN OPERATED. ALL INSULATED VALVES TO HAVE EXTENSION HANDLES.
- 26. COORDINATE THE LOCATION OF DRAINS, THERMOSTATS, GAS OUTLETS ETC. WITH ALL CASEWORK EQUIPMENT, MECHANICAL ROOM EQUIPMENT, ETC. PRIOR TO COMMENCING INSTALLATION. WORK NOT SO COORDINATED SHALL BE REMOVED AND PROPERLY INSTALLED AT THE EXPENSE OF THE CONTRACTOR.
- 27. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN THE COURSE OF THEIR WORK SO AS TO INSURE THAT THEY DO NOT INTERRUPT ANY EXISTING SERVICE. FOR SAFETY PURPOSES, PAY PARTICULAR ATTENTION TO THIS PRECAUTION RELATIVE TO NATURAL GAS AND ELECTRICAL LINES. VERIFY THE LOCATION, SIZE, TYPE, ETC. OF EACH UNDERGROUND OR OVERHEAD UTILITY. ALL WORK SHALL BE PERFORMED IN ACCORD WITH ALL FEDERAL, STATE AND/OR LOCAL RULES, REGULATIONS, STANDARD AND SAFETY REQUIREMENTS. UTILITIES SHALL BE INSTALLED IN ACCORD WITH THE APPLICABLE MUNICIPALITY OR UTILITY COMPANY STANDARDS. IN ALL CASES, THE MOST STRINGENT REQUIREMENT SHALL APPLY.
- 28. ALL NEW WORK SHALL BE HUNG FROM STRUCTURE, NOT FROM THE WORK OF OTHER TRADES.
- 29. OBSERVE ALL APPLICABLE CODES, RULES AND REGULATIONS THAT MAY APPLY TO THE WORK UNDER THIS CONTRACT.
- 30. ALL PENETRATIONS OF FIRE AND SMOKE RATED ASSEMBLIES SHALL BE APPROPRIATELY FIRE STOPPED PER AN APPROVED U.L. LISTED STANDARD. CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO INSULATED PIPING PENETRATIONS.
- 31. ALL DUCTWORK, PIPING, CONDUITS, ETC. IN ROOMS WITH CEILINGS SHALL BE ABOVE CEILING EXCEPT AS NOTED.
- 32. INSTALL AIR VENTS AT HIGH POINTS IN PIPING AND DRAINS IN LOW POINTS. USE CARE TO AVOID FREEZING OF EXTERIOR VENTS.
- 33. LOCATIONS OF PIPING, DUCTS AND EQUIPMENT ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. DO NOT SCALE THE DRAWINGS.
- 34. ALL OFFSETS IN DUCTS AND PIPING ARE NOT NECESSARILY SHOWN. PROVIDE ADDITIONAL OFFSETS WHERE NECESSARY.
- 35. COORDINATE ALL HVAC WORK WITH ELECTRICAL, PLUMBING AND OTHER TRADES TO AVOID INTERFERENCE WITH PIPING, DUCTS, CONDUIT AND OTHER EQUIPMENT.
- 36. INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTION. IF IN CONFLICT WITH THE DESIGN INDICATED IN CONTRACT DOCUMENTS, ADVISE THE CONTRACTING OFFICER PRIOR TO INSTALLATION FOR CLARIFICATION. PROVIDE RECOMMENDED ACCESS AND SERVICE CLEARANCES FOR ALL EQUIPMENT.
- 37. SEAL ALL NEW DUCTWORK JOINTS WITH WATER BASED SEALANT.
- 38. ALL MOTOR DRIVEN EQUIPMENT SHALL BE INSTALLED WITH FLEXIBLE CONNECTIONS TO DUCTWORK, PIPING, ETC., UNLESS OTHERWISE NOTED.

- 39. WHERE MOUNTING HEIGHTS ARE NOT INDICATED OR ARE IN CONFLICT WITH ANY OTHER BUILDING SYSTEM, CONTACT THE CONTRACTING OFFICER BEFORE INSTALLATION. REFER ALSO TO ARCHITECTURAL INTERIOR AND EXTERIOR WALL ELEVATIONS, CEILING HEIGHTS AND OTHER DETAIL OF THESE DOCUMENTS.
- 40. DOUBLE WIDTH TURNING VANES SHALL BE INSTALLED IN ALL SUPPLY, RETURN AND EXHAUST DUCTWORK ELBOWS. TURNING VANES NOT REQUIRED FOR KITCHEN EXHAUSTS.
- 41. ANY VIBRATING, OSCILLATING OR OTHER NOISE OR MOTION PRODUCING EQUIPMENT SHALL BE ISOLATED FROM SURROUNDING SYSTEMS IN AN APPROVED MANNER. NOISY OR STRUCTURALLY DAMAGING INSTALLATIONS SHALL BE SATISFACTORILY REPLACED OR REPAIRED AT THE INSTALLING CONTRACTOR'S EXPENSE. THE FINAL DECISION ON THE SUITABILITY OF A PARTICULAR INSTALLATION'S ACCEPTABILITY SHALL BE THAT OF THE CONTRACTING OFFICER.
- 42. VALVES, BALANCING DAMPERS OR ANY MECHANICAL/ELECTRICAL ITEM REQUIRING ACCESS SHALL NOT BE LOCATED ABOVE A HARD CEILING. IF THIS IS NOT POSSIBLE, THEN AN APPROPRIATELY SIZED ACCESS DOOR SHALL BE PLACED UNDER THE ITEM TO ALLOW EASY MAINTENANCE AND ADJUSTMENT. ADDITIONALLY ALL SUCH ITEMS SHALL NOT BE LOCATED AN UNREASONABLE DISTANCE ABOVE THE CEILINGS. IN GENERAL ALL SUCH ITEMS UNLESS INDICATED OTHERWISE SHALL BE MOUNTED SIX TO TWELVE INCHES ABOVE THE CEILING.
- 43. WHEN INSTALLING ANY TYPE OF PIPING BELOW A FOOTER, OR IN THE ZONE OF INFLUENCE, THE PIPING SHALL BE BACKFILLED WITH CEMENTITIOUS FLOWABLE FILL PER SPECIFICATIONS. WHENEVER POSSIBLE, LOCATE PIPING OUTSIDE OF THE ZONE OF INFLUENCE. THE ZONE OF INFLUENCE IS THE AREA UNDER THE FOOTER WITHIN A 45 DEGREE ANGLE PROJECTING DOWN FROM THE BOTTOM EDGE OF THE FOOTER OF ALL SIDES OF THE FOOTER. ADDITIONALLY, GREASE TRAPS, MANHOLES, VAULTS AND OTHER UNDERGROUND STRUCTURES SHALL BE HELD AWAY FROM BUILDING WALLS FAR ENOUGH TO BE OUTSIDE OF THE ZONE OF INFLUENCE. REFER TO FOUNDATION NOTES ON SHEET S001 FOR ADDITIONAL INFORMATION.
- 44. FLEXIBLE PIPING SHALL NOT BE USED FOR CHANGES IN DIRECTION OR MISALIGNMENT OF PIPES.
- 45. FLEXIBLE DUCT SHALL NOT BE USED FOR EXHAUST BRANCH DUCT FOR TOILET OR JANITOR ROOMS.
- 46. OFFSETS IN DUCTWORK SHALL NOT EXCEED 45 DEGREE ANGLE.
- 47. REFER TO STRUCTURAL DRAWINGS FOR REQUIREMENTS AT PENETRATIONS THROUGH CONCRETE WALLS.
- 48. SEISMIC DESIGN CATEGORY B PER SHEET S002.
- 49. REFER TO CONCRETE NOTE 7, SHEET S001 AND HOUSEKEEPING PAD DETAIL, SHEET S002 FOR CONCRETE PAD INFORMATION.
- 50. COORDINATE ALL PENETRATIONS THRU CONCRETE WALLS. REFER TO WALL ELEVATION NOTE #6, SHEET S201, TYPICAL.
- 51. DO NOT INSTALL ANY PIPING OR CONDUIT UNDERNEATH OR THRU COLUMN FOOTINGS.
- 52. COORDINATE ALL PIPE AND CONDUITS UNDER WALL FOOTINGS. REFER TO DETAIL 10, SHEET S001.
- 53. REFER TO DETAIL 5, SHEET S001 FOR CONCRETE PADS FOR EXTERIOR EQUIPMENT AND EMERGENCY GENERATOR.
- 54. REFER TO SHEET A101WP FOR WATERPROOFING PENETRATIONS THRU WALLS AND CONCRETE SLABS.

HOT AND CHILLED WATER PIPING SYSTEMS

- 55. PROVIDE MANUAL AIR VENTS AT HIGH POINTS OF SYSTEM.
- 56. PROVIDE 1/2" (13) DRAIN VALVES AND CAPPED CONNECTIONS AT LOW POINTS IN PIPING SYSTEMS FOR DRAINAGE.
- 57. PROVIDE MINIMUM PITCH SUFFICIENT TO INSURE ADEQUATE VENTING AND DRAINAGE.
- 58. PROVIDE SWING JOINTS FOR RUNOUTS AND BRANCH PIPING FROM MAINS FOR EXPANSION MOVEMENT.
- 59. INSTALL ANCHORS AND EXPANSION LOOPS WHERE INDICATED AND WHERE REQUIRED TO ALLOW FOR EXPANSION.

SHEET METAL

- 60. INSTALL CEILING REGISTERS A MINIMUM OF 4" (100) FROM EXTERIOR WALL.
- 61. PROVIDE A MINIMUM OF THREE TIMES THE FAN DIAMETER OF STRAIGHT DUCTWORK OFF THE SUPPLY AIR DISCHARGE BEFORE ANY TAKEOFFS OR ELBOWS.
- 62. EXHAUST DUCTS FROM SHOWERS SHALL BE SOLDERED TO PROVIDE WATERTIGHT JOINTS AND SLOPED BACK TO THE SHOWER.
- 63. SPACE ABOVE CEILINGS IS TO BE USED AS A RETURN AIR PLENUM WHERE DUCTWORK IS NOT INDICATED ABOVE RETURN AIR GRILLES.
- 64. PROVIDE ACCESS DOORS IN DUCTWORK WHERE INDICATED OR REQUIRED FOR ACCESS TO SYSTEM COMPONENTS INCLUDING THE FOLLOWING.
- 65. DAMPER MOTORS AND/OR MOTOR OPERATED DAMPERS.
- 66. FIRE DAMPERS AND SMOKE DAMPERS.

SYMBOLS AND ABBREVIATIONS

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS NECESSARILY USED ON THIS PROJECT.

	SUPPLY DIFFUSER		PIPE ELBOW TURNING UP/TURNING DOWN
	RETURN GRILLE		AIR DISTRIBUTION DEVICE DESIGNATOR XXX INDICATES CFM
	EXHAUST GRILLE		
	SLOT DIFFUSER		
CA	COMPRESSED AIR		BALANCING VALVE
BD	BOILER DRAIN		TWO WAY CONTROL VALVE (CONTROL VALVE GENERAL)
BBD	BOILER BLOW-DOWN		CONTROL VALVE (3-WAY)
SA	SUPPLY AIR DUCT		BUTTERFLY VALVE
RA	RETURN AIR DUCT		TRIPLE DUTY VALVE
OA	OUTSIDE AIR DUCT		UNION
EA	EXHAUST AIR DUCT		PETE'S PLUG
TA	TRANSFER AIR DUCT		CHECK VALVE
COA	COMBUSTION AIR DUCT		DOUBLE CHECK VALVE ASSEMBLY
	VOLUME DAMPER		STRAINER
	EXHAUST AIR DUCT TURNING UP (SIMILAR FOR OTHER DUCT TYPES.)		O S & Y VALVE (GATE)
	EXHAUST AIR DUCT TURNING DOWN (SIMILAR FOR OTHER DUCT TYPES.)		PRESSURE REDUCING VALVE (STEAM, GAS, WATER, ETC.)
	MOTORIZED DAMPER		BALL VALVE
	FLEXIBLE DUCT		SAFETY RELIEF VALVE
	THERMOSTAT, TEMPERATURE SENSOR		GLOBE VALVE
	CARBON DIOXIDE SENSOR		MANUAL AIR VENT (AUTOMATIC AIR VENT WITH CIRCLE)
	EMERGENCY VENTILATION SHUTDOWN SWITCH		PUMP SUCTION DIFFUSER
	OCCUPANCY SENSOR		THERMOMETER
CD	CONDENSATE DRAIN		ACCESS DOOR IN BOTTOM OF DUCT
CD	UNDERSLAB CONDENSATE DRAIN		ACCESS DOOR IN SIDE OF DUCT
HPR	HEAT PUMP RETURN		PIPING TEE (TURNED UP/DOWN)
HPS	HEAT PUMP SUPPLY		MECHANICAL EQUIPMENT MARK / IDENTIFIER
CS	CONDENSER SUPPLY		HUMIDISTAT
CR	CONDENSER RETURN		PRESSURE GAUGE & COCK
HWR	HOT WATER RETURN		COMPOUND GAUGE
HWS	HOT WATER SUPPLY		VACUUM BREAKER
CWR	CHILLED WATER RETURN		ABOVE FINISHED FLOOR
CWS	CHILLED WATER SUPPLY		ABOVE FINISHED ROOF
DTS	DUAL TEMPERATURE SUPPLY		CONSTANT AIR VOLUME REHEAT BOX
DTR	DUAL TEMPERATURE RETURN		CONDENSATE DRAIN
RS #	REFRIGERANT SUCTION ZONE #		CAST IRON
RL #	REFRIGERANT LIQUID ZONE #		DOWN
FSD	FIRE/SMOKE DAMPER WITH ACCESS DOOR		FIRE DAMPER
FD	FIRE DAMPER WITH ACCESS DOOR		
SD	SMOKE DAMPER WITH ACCESS DOOR		
DD	DUCT SMOKE DETECTOR		

SMACNA SEALING REQUIREMENTS

DUCT TYPE	DUCT PRESS. CLASS	SEALING PRESS. CLASS	LEAKAGE CLASS
RECTANGULAR	4" W.G. AND ABOVE (+OR-)	A	6
ROUND	4" W.G. AND ABOVE (+OR-)	A	3
RECTANGULAR	3" W.G. (+OR-)	B	12
ROUND	3" W.G. (+OR-)	B	6
RECTANGULAR	2" W.G. (+OR-)	C	24
ROUND	2" W.G. (+OR-)	C	12
RECTANGULAR	1" W.G. AND BELOW (+OR-)	C	24
ROUND	1" W.G. AND BELOW (+OR-)	C	12

REMARKS

- 1. SEAL CLASS A: TRAVERSE AND LONGITUDINAL JOINTS AND DUCT WALL PENETRATIONS TO BE SEALED.
- 2. SEAL CLASS B: TRAVERSE AND LONGITUDINAL JOINTS TO BE SEALED.
- 3. SEAL CLASS C: TRAVERSE JOINTS ONLY TO BE SEALED.
- 4. ALL EXTERIOR DUCT TO BE SEAL CLASS A REGARDLESS OF PRESSURE CLASS.
- 5. ALL DUCTWORK CARRYING HAZARDOUS FUMES (CLASS 3 OR 4 ARE NOT REQUIRING LIQUID TIGHT JOINTS AND SEAMS, REGARDLESS OF PRESSURE CLASS SHALL BE SMACNA SEAL CLASS A.
- 6. ALL DUCTWORK SERVING COMMERCIAL KITCHEN HOODS, DISHWASHERS OR WHERE SPECIFIED, SHALL HAVE WELDED, LIQUID TIGHT JOINTS AND SEAMS. USE APPROPRIATE GASKET AND SEALANTS WHERE WELDING IS NOT POSSIBLE.
- 7. CONTRACTOR SHALL PRESSURE TEST ALL OUTSIDE AIR AND EXHAUST AIR DUCTWORK ASSOCIATED WITH OA-1 AND OA-2, AND SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH HEAT PUMPS OVER 4 TONS IN CAPACITY. ALLOWED DUCT LEAKAGE SHALL BE CALCULATED BY THE FOLLOWING FORMULA: F=CL(P/95), CL= LEAKAGE CLASS, P=PRESSURE, F=DUCT LEAKAGE (CFM/100 SF).

SITE DATA:

- BUILDING LOCATION: QUANTICO MARINE BASE, VIRGINIA
- LATITUDE: 38.50 N
- LONGITUDE: 77.30 W
- ELEVATION: 13 FT.
- ASHRAE 90.1 CLIMATE ZONE: A4

COOLING DESIGN CONDITIONS USED FOR LOAD CALCULATIONS:

- OUTDOOR AIR DRY BULB 92.0° F (ASHRAE 1% PEAK DESIGN CONDITION)
- MEAN COINCIDENT OUTDOOR AIR WET BULB: 76.1°F (ASHRAE 1% PEAK DESIGN CONDITION)
- 39.96 BTU/LB
- OUTDOOR AIR WET BULB: 78.0°F (ASHRAE 1% PEAK DESIGN CONDITION)
- MEAN COINCIDENT OUTDOOR AIR DRY BULB: 89.0°F (ASHRAE 1% PEAK DESIGN CONDITION)
- 41.9 BTU/LB
- ALL CONDITIONED SPACES UNLESS OTHERWISE NOTED
- INDOOR AIR DRY BULB: 74°F
- INDOOR AIR RELATIVE HUMIDITY: 50% (SUMMER)
- DATA ROOMS:
- INDOOR AIR DRY BULB: 72°F
- INDOOR AIR RELATIVE HUMIDITY: 50% (SUMMER)

HEATING DESIGN CONDITIONS USED FOR LOAD CALCULATIONS

- THE CONTRACTOR SHALL SUBMIT CALCULATIONS INDICATING ALLOWED LEAKAGE RATE TO BE SUBMITTED AS PART OF TEST AND BALANCE REPORT.
- OUTDOOR AIR DRY BULB: 16°F (ASHRAE 99% PEAK DESIGN CONDITION)
- INDOOR AIR DRY BULB: 68°F
- INDOOR AIR DRY BULB: 55°F (MECHANICAL/ELECTRICAL SPACES)
- NOTE: NOT POSITIVE CONTROL OF HUMIDITY WILL BE INCORPORATED INTO THIS DESIGN EXCEPT FOR DATA C118 WILL MAINTAIN 30% RX MINIMUM

APPR

DATE

SYM DESCRIPTION

SEAL

**EWING COLE**  
Federal Reserve Bank Building  
100 North 6th Street  
Philadelphia, PA 19106-1500  
Tel: 215-923-2020 Fax: 215-574-0952

PROFESSIONAL ENGINEER

AE INFO

APPROVED

FOR COMMANDER NAVFAC ACTIVITY

SATISFACTORY TO DATE

CRK LMM/CRK KDM

PM/DM

BRANCH MANAGER

CHIEF ENGR ARCH

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND  
NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON  
MARINE CORPS BASE QUANTICO, VIRGINIA

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
MARINE CORPS BASE QUANTICO  
QUANTICO, VA

**REPLACE QUANTICO M/H SCHOOL**

HVAC LEGEND AND NOTES

SCALE: As Indicated

PROJECT NO: P-021

CONSTR CONTR NO: W91236-15-C-0023

NAVFAC DRAWING NO: 13091207

SHEET 453 OF 789

M002

DRAWING REVISION 10 MARCH 2009

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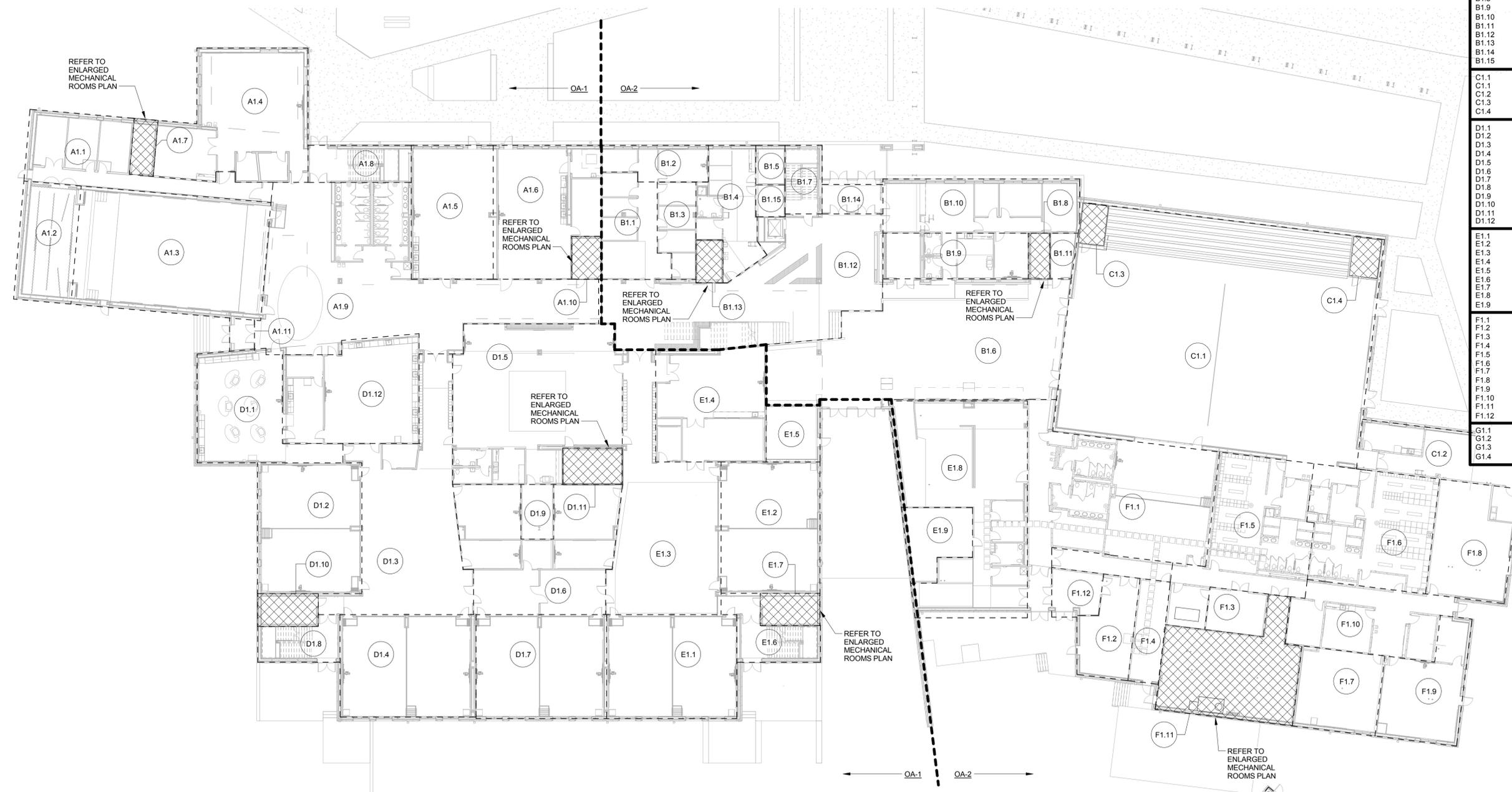
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D

C

B

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ZONE SCHEDULE		
ZONE	UNIT TAG	UNIT NOMINAL SIZE
A1.1	VHP-12-1C55	1 TON
A1.2	VHP-30-1C47.1	2.5 TON
A1.3	VHP-96-1C47	8 TON
A1.4	VHP-42-1C52	3.5 TON
A1.5	VHP-36-1C41	3 TON
A1.6	VHP-36-1C38	3 TON
A1.7	UNCONDITIONED	
A1.8	FCU-2-1S05	1.5 TON
A1.9	VHP-60-1C00	5 TON
A1.10	UNCONDITIONED	
A1.11	FCU-2-1C00b	1.5 TON
B1.1	VHP-12-1A27	1 TON
B1.2	VHP-6-1A35	5 TON
B1.3	VHP-6-1A32	5 TON
B1.4	VHP-12-1A39	1 TON
B1.5	SS-18-1A22	1.5 TON
B1.6	VHP-96-1C01	6 TON
B1.7	FCU-2-1S02	1.5 TON
B1.8	UNCONDITIONED	
B1.9	VHP-12-1A12	1 TON
B1.10	VHP-24-1A07	2 TON
B1.11	SS-18-1A16	1.5 TON
B1.12	VHP-60-1C00	6 TON
B1.13	UNCONDITIONED	
B1.14	FCU-4-1A01	2 TON
B1.15	FCU-1-1S02	1 TON
C1.1	VHP-120-1C03	10 TON
C1.2	VHP-120-1C03-01	10 TON
C1.3	UNCONDITIONED	1 TON
C1.4	UNCONDITIONED	
D1.1	VHP-30-1D06	2.5 TON
D1.2	VHP-48-1D10	4 TON
D1.3	VHP-36-1D00	3 TON
D1.4	VHP-48-1D12	4 TON
D1.5	VHP-36-1E100	3 TON
D1.6	VHP-42-1B01	3.5 TON
D1.7	VHP-48-1D16	4 TON
D1.8	FCU-2-1S04	1.5 TON
D1.9	SS-18-1E06	1.5 TON
D1.10	UNCONDITIONED	
D1.11	UNCONDITIONED	
D1.12	VHP-24-1D04	2 TON
E1.1	VHP-48-1B12	4 TON
E1.2	VHP-48-1B10	4 TON
E1.3	VHP-36-1B00	3 TON
E1.4	VHP-24-1B02	2 TON
E1.5	FCU-1-1B05	1 TON
E1.6	FCU-2-1S03	1.5 TON
E1.7	UNCONDITIONED	
E1.8	VHP-120-1F02	10 TON
E1.9	SS-18-1F09	1.5 TON
F1.1	HHP-36-1C18	3 TON
F1.2	HHP-18-1C19	1.5 TON
F1.3	SS-36-1C25	3 TON
F1.4	SS-36-1C21	3 TON
F1.5	HHP-18-1C22	1.5 TON
F1.6	HHP-18-1C28	1.5 TON
F1.7	HHP-24-1C32	2 TON
F1.8	HHP-12-1C10	1 TON
F1.9	HHP-24-1C30	2 TON
F1.10	HHP-18-1C33	1.5 TON
F1.11	UNCONDITIONED	
F1.12	FCU-3-1C17	1.5 TON
G1.1	EUH-1	5 KW
G1.2	EUH-1	5 KW
G1.3	EUH-1	5 KW
G1.4	EUH-1	10 KW

ZONE LEGEND	
	PLAN AREA
	FLOOR LEVEL
	ZONE IDENTIFIER

APPROVED

FOR COMMANDER NAVFAC ACTIVITY

SATISFACTORY TO DATE

CRK LMM/CRK KDM

PM/DM

BRANCH MANAGER

CHIEF ENGR ARCH

FIRE PROTECTION

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON  
 DDOEA  
 MARINE CORPS BASE QUANTICO, VIRGINIA  
 QUANTICO, VA

REPLACE QUANTICO M/H SCHOOL

FIRST FLOOR HVAC ZONING

SCALE: As indicated

PROJECT NO.: P-021

CONSTR. CONTR. NO. W91236-15-C-0023

NAVFAC DRAWING NO. 13091208

SHEET 454 OF 789

M003

RTA SUBMISSION - 10/13/2016

DATE

DESCRIPTION

SYMBOL

APPROVED

STATE OF KENTUCKY  
 KEVIN J. MUSSIE  
 22266  
 PROFESSIONAL ENGINEER

SEAL

EWING COLE

Federal Reserve Bank Building  
 100 North 6th Street  
 Philadelphia, PA 19106-1500  
 Tel: 215-923-2020 Fax: 215-574-0982

AE INFO

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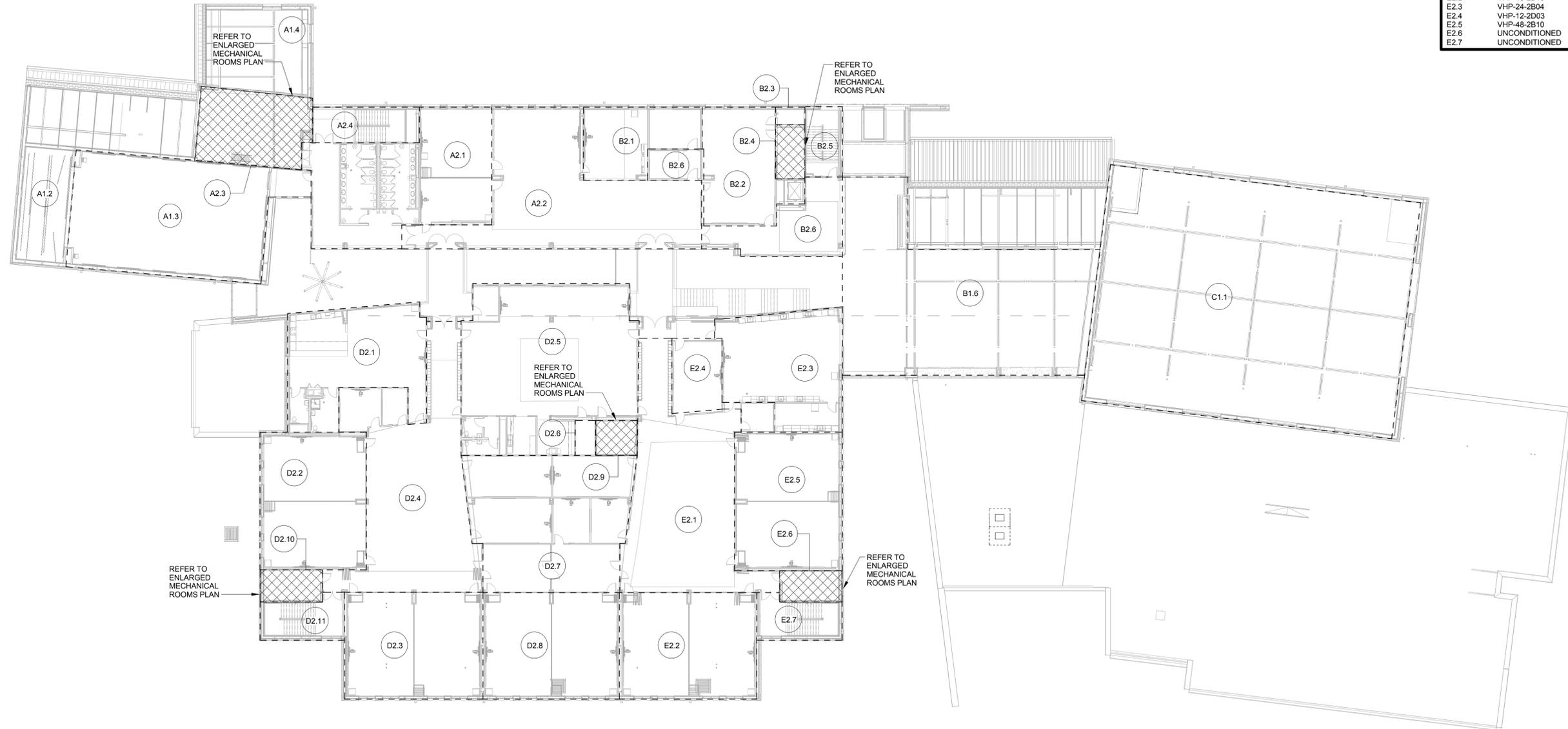
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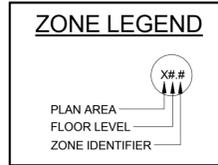
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ZONE SCHEDULE		
ZONE	UNIT TAG	UNIT NOMINAL SIZE
A2.1	VHP-48-2C09	4 TON
A2.2	VHP-36-2C01	3 TON
A2.3	UNCONDITIONED	
A2.4	UNCONDITIONED	
B2.1	VHP-30-2C04	2.5 TON
B2.2	VHP-30-2C05	2.5 TON
B2.3	SS-18-2C06	1.5 TON
B2.4	UNCONDITIONED	
B2.5	UNCONDITIONED	
B2.6	VHP-18-2C07	1.5 TON
D2.1	VHP-24-2D02	2 TON
D2.2	VHP-48-2D10	4 TON
D2.3	VHP-48-2D12	4 TON
D2.4	VHP-36-2D00	3 TON
D2.5	VHP-42-2E00	3.5 TON
D2.6	SS-18-2E06	1.5 TON
D2.7	VHP-42-2D03	3.5 TON
D2.8	VHP-48-2B18	4 TON
D2.9	UNCONDITIONED	
D2.10	UNCONDITIONED	
D2.11	UNCONDITIONED	
E2.1	VHP-36-2B00	3 TON
E2.2	VHP-48-2B16	4 TON
E2.3	VHP-24-2B04	2 TON
E2.4	VHP-12-2D03	1 TON
E2.5	VHP-48-2B10	4 TON
E2.6	UNCONDITIONED	
E2.7	UNCONDITIONED	



**Mechanical Room Zoning Second Floor**

ALL VENTILATION AIR ON SECOND FLOOR IS PROVIDED BY OA-1



SYMBOL	DESCRIPTION	DATE	APPROVED



**EWING COLE**  
 Federal Reserve Bank Building  
 100 North 6th Street  
 Philadelphia, PA 19106-1590  
 Tel: 215-923-2020 Fax: 215-574-0952

APPROVED  
 FOR COMMANDER NAVFAC  
 ACTIVITY

SATISFACTORY TO DATE  
 CRK LMM/CRK KDM

PRJDM  
 BRANCH MANAGER  
 CHIEF ENGR ARCH  
 FIRE PROTECTION

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON  
 DDOEA  
 MARINE CORPS BASE QUANTICO, VIRGINIA  
 QUANTICO, VA  
**REPLACE QUANTICO M/H SCHOOL**  
 SECOND FLOOR HVAC ZONING

SCALE: As Indicated  
 PROJECT NO.: P-021  
 CONSTR. CONTR. NO.: W91236-15-C-0023  
 NAVFAC DRAWING NO.: 13091209  
 SHEET 455 OF 789  
 M004

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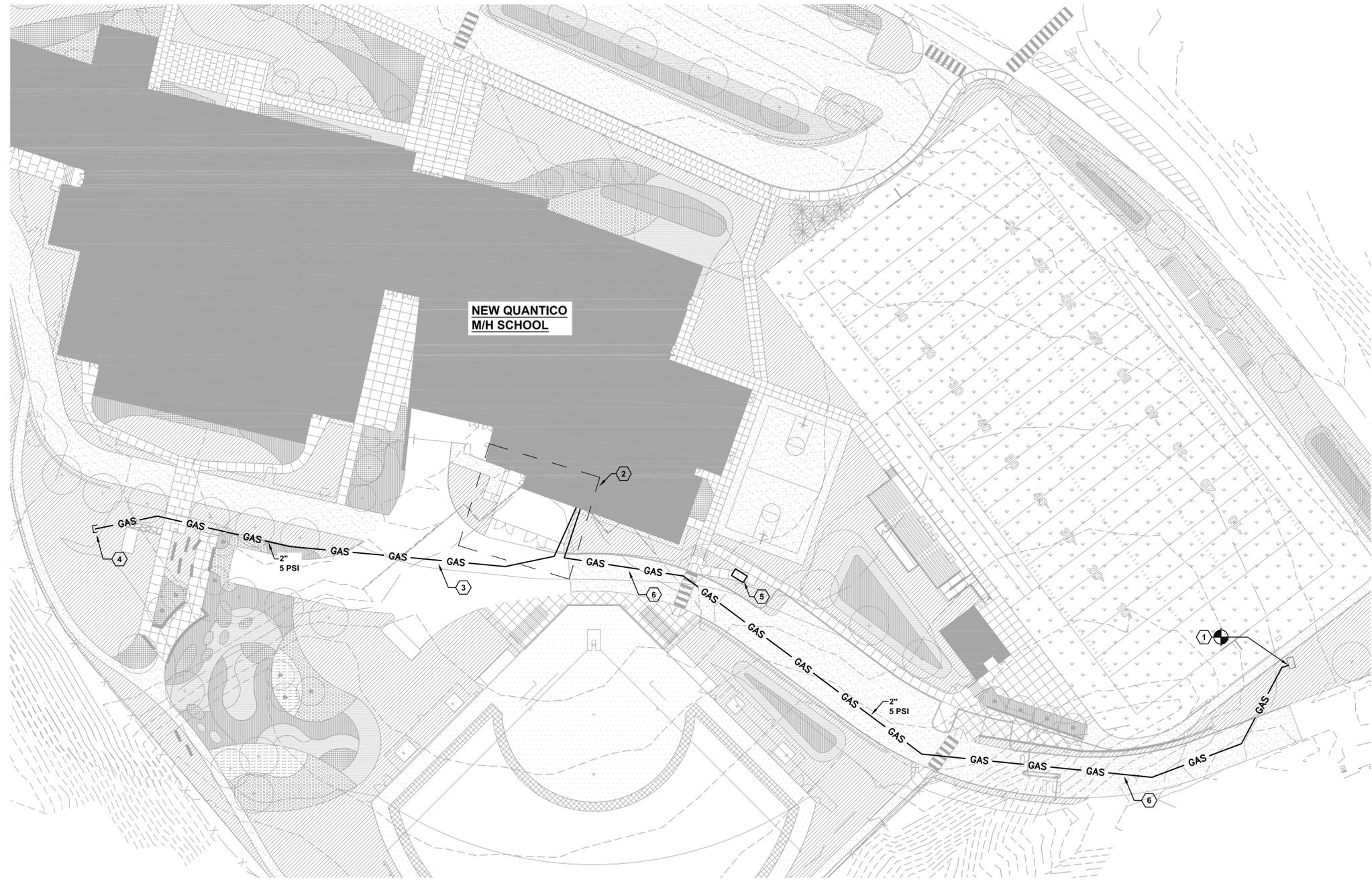
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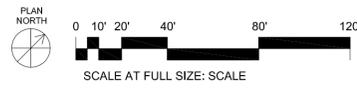
C

B

A



- TAGGED NOTES:**
- CONNECT NEW GAS LINE IN EXISTING 3" GAS VALVE VAULT. PROVIDE A GAS PRESSURE REGULATOR IN EXISTING VAULT TO TAKE PRESSURE FROM 20 PSI TO 5 PSI.
  - REFER TO ENLARGED SITE PLAN, SHEET MS102 FOR CONTINUATION.
  - GAS PIPING TO FUTURE GREEN HOUSE. COORDINATE WITH OTHER UTILITIES.
  - GAS PIPING SHALL BE CAPPED AND LOCATION MARKED ABOVE GRADE.
  - GREASE INTERCEPTOR. REFER TO PLUMBING DETAIL & SCHEDULE SHEETS FOR MORE INFORMATION. REFER TO CIVIL DRAWINGS FOR ROUTING OF GREASE WASTE PIPING ON THE INLET SIDE & SANITARY PIPING ON THE OUTLET SIDE OF GREASE INTERCEPTOR.
  - GAS PIPING TO SCHOOL BUILDING. COORDINATE WITH OTHER UTILITIES.



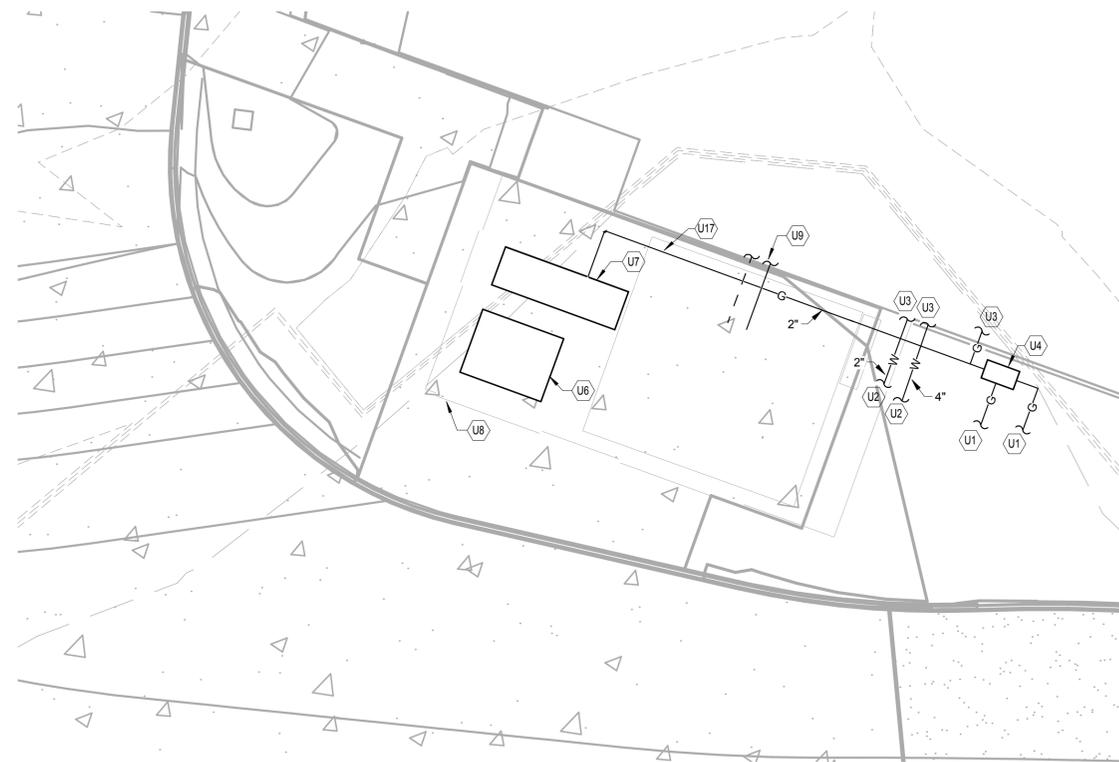
SYMBOL	DESCRIPTION	DATE	APPROVED
			
			
			
Federal Reserve Bank Building 100 North 6th Street Philadelphia, PA 19106-1590 Tel: 215-923-2020 Fax: 215-574-0852			
AE INFO			
APPROVED			
FOR COMMANDER NAVFAC ACTIVITY			
SATISFACTORY TO	DATE		
JAC	JAC	KDM	
PM/DM			
BRANCH MANAGER			
CHIEF ENGR/ARCH			
FIRE PROTECTION			
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON DODGE MARINE CORPS BASE QUANTICO, VIRGINIA <b>REPLACE QUANTICO M/H SCHOOL</b> QUANTICO, VA MECHANICAL SITE PLAN - NEW WORK			
SCALE:	P-021		
PROJECT NO.:	W91236-15-C-0023		
CONSTR. CONTR. NO.:	13091210		
NAVFAC DRAWING NO.:	456 OF 789		
SHEET	MS101		

D

C

B

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**ENLARGED SITE PLAN**

**MECHANICAL SITE GENERAL NOTES:**

- A. DO NOT SCALE FROM MECHANICAL AND ELECTRICAL DRAWINGS. FIELD VERIFY REQUIRED DIMENSIONS.
- B. FEDERAL, STATE, LOCAL, MUNICIPALITY AND UTILITY COMPANY CODES, RULES, REGULATIONS AND REQUIREMENTS APPLY UNLESS EXCEEDED BY THIS DESIGN.
- C. WHEN INTERRUPTION OF ANY EXISTING UTILITY OR SERVICES IS PLANNED OR OCCURS ACCIDENTALLY, THE CONTRACTOR(S) SHALL WORK CONTINUOUSLY AS NEEDED TO RESTORE THE SAME PROVIDING PREMIUM TIME AS NEEDED AT NO INCREASE IN THE CONTRACT PRICE. PLANNED INTERRUPTION OF ANY SERVICE SHALL BE COORDINATED WITH THE APPROPRIATE MUNICIPALITY, UTILITY COMPANY AND PUBLIC WORKS POC. A SCHEDULE FOR THESE OUTAGES SHALL BE DEVELOPED AND AGREED UPON BETWEEN THE CONTRACTING OFFICER AND PUBLIC WORKS POC TO AVOID UNNECESSARY INCONVENIENCE TO THE OWNER OR ANY AFFECTED PARTY. NOTIFY THE UTILITY COMPANY OF ANY ANTICIPATED SERVICES REQUIRED FROM THEM AT LEAST TWO WEEKS IN ADVANCE IN WRITING AND ENSURE THAT THEY DO NOT DELAY WORK.
- E. LOCATIONS, DEPTHS, MATERIAL TYPES, ELEVATIONS, ETC. OF ALL APPURTENANCES, LINES, BUILDINGS, ETC. INDICATED ON THESE DRAWINGS WERE TAKEN FROM VARIOUS SOURCES. ARE DIAGRAMMATIC ONLY AND ARE SUBJECT TO SUBSTANTIAL VARIATION FROM EXISTING CONDITIONS. EXISTING UTILITIES LOCATIONS MAY VARY (CONSEQUENTLY ALL CONTRACTORS SHALL EXERCISE EXTREME CARE IN THE COURSE OF THEIR WORK SO AS ENSURE THAT THEY DO NOT INTERRUPT ANY EXISTING SERVICE. FOR SAFETY PURPOSES, PAY PARTICULAR ATTENTION TO THIS PRECAUTION RELATIVE TO NATURAL GAS AND ELECTRICAL LINES. ALL WORK SHALL BE PERFORMED IN ACCORD WITH ALL FEDERAL, STATE, AND/OR LOCAL RULES, REGULATIONS, STANDARDS AND SAFETY REQUIREMENTS. UTILITIES SHALL ALSO BE INSTALLED IN ACCORD WITH THE APPLICABLE MOST STRINGENT REQUIREMENT SHALL APPLY. IF ANY VARIATION OCCURS, CONSULT THE CONTRACTING OFFICER. CONTRACTOR SHALL VISIT SITE AND FIELD VERIFY THE ROUTING OF ALL UTILITIES NEW AND EXISTING PRIOR TO SUBMISSION OF BIDS. SUBMISSION OF A BID PROPOSAL INDICATES THAT THE CONTRACTOR IS FULLY AWARE OF ALL OBSTRUCTIONS AND WILL INSTALL ALL OF THE NEW UTILITIES WITHOUT REQUESTS FOR ANY ADDITIONAL CHANGES.
- F. CONTRACTOR SHALL VERIFY EXACT LOCATION OF OUTDOOR RECEPTACLES WITH CONTRACTING OFFICER PRIOR TO ROUGH-IN.
- G. CONTRACTOR SHALL PATCH AND REPAIR ALL LANDSCAPING THAT IS DISTURBED BY WORK OCCURRING IN THIS PROJECT AS REQUIRED.
- H. MINIMUM BURY OF ALL PIPING SHALL BE 40 INCHES.

**TAGGED NOTES**

U1	REFER TO SHEET MS101 FOR CONTINUATION.
U2	REFER TO SHEET CU121 FOR CONTINUATION.
U3	REFER TO SHEET PL116 FOR CONTINUATION.
U4	PROVIDE NATURAL GAS METER SET. REFER TO MECH-1C27 & FOOD PREP-1F02 GAS PIPING SCHEMATIC ON SHEET P714 & TYPICAL GAS SERVICE DETAIL ON SHEET P501 FOR ADDITIONAL INFORMATION.
U6	PADMOUNT ELECTRIC TRANSFORMER REFER TO SHEET ES103.
U7	EMERGENCY GENERATOR. REFER TO SHEET ES103.
U8	MECHANICAL YARD FENCE. REFER TO SHEET L101. COORDINATE EQUIPMENT WITH FENCE GATES. REFER TO STRUCTURAL FOR CONCRETE REQUIREMENTS IN MECHANICAL YARD.
U9	CONDENSER WATER SUPPLY AND RETURN PIPING. REFER TO M302 FOR CONTINUATION.
U17	ROUTE 1" GAS PIPING TO GENERATOR. SUPPORT PIPING AGAINST WALL & ROUTE ON CONCRETE PAD TO UNIT. SECURE PIPING TO PAD WITH ANCHORS.

	APPR
	DATE
	SYM DESCRIPTION
	
	
	
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AE INFO	
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FOR COMMANDER NAVFAC ACTIVITY	
SATISFACTORY TO DATE	
CRK	LMM/CRK KDM
PRM/DM	
BRANCH MANAGER	
CHIEF ENGR ARCH	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON DDOEA MARINE CORPS BASE QUANTICO, VIRGINIA QUANTICO, VA <b>REPLACE QUANTICO M/H SCHOOL</b> ENLARGED SITE PLAN	
SCALE: As indicated	
PROJECT NO.: P-021	
CONSTR. CONTR. NO. W91236-15-C-0023	
NAVFAC DRAWING NO. 13091211	
SHEET 457 OF 789	
MS102	
DRAWING REVISION: 10 MARCH 2009	

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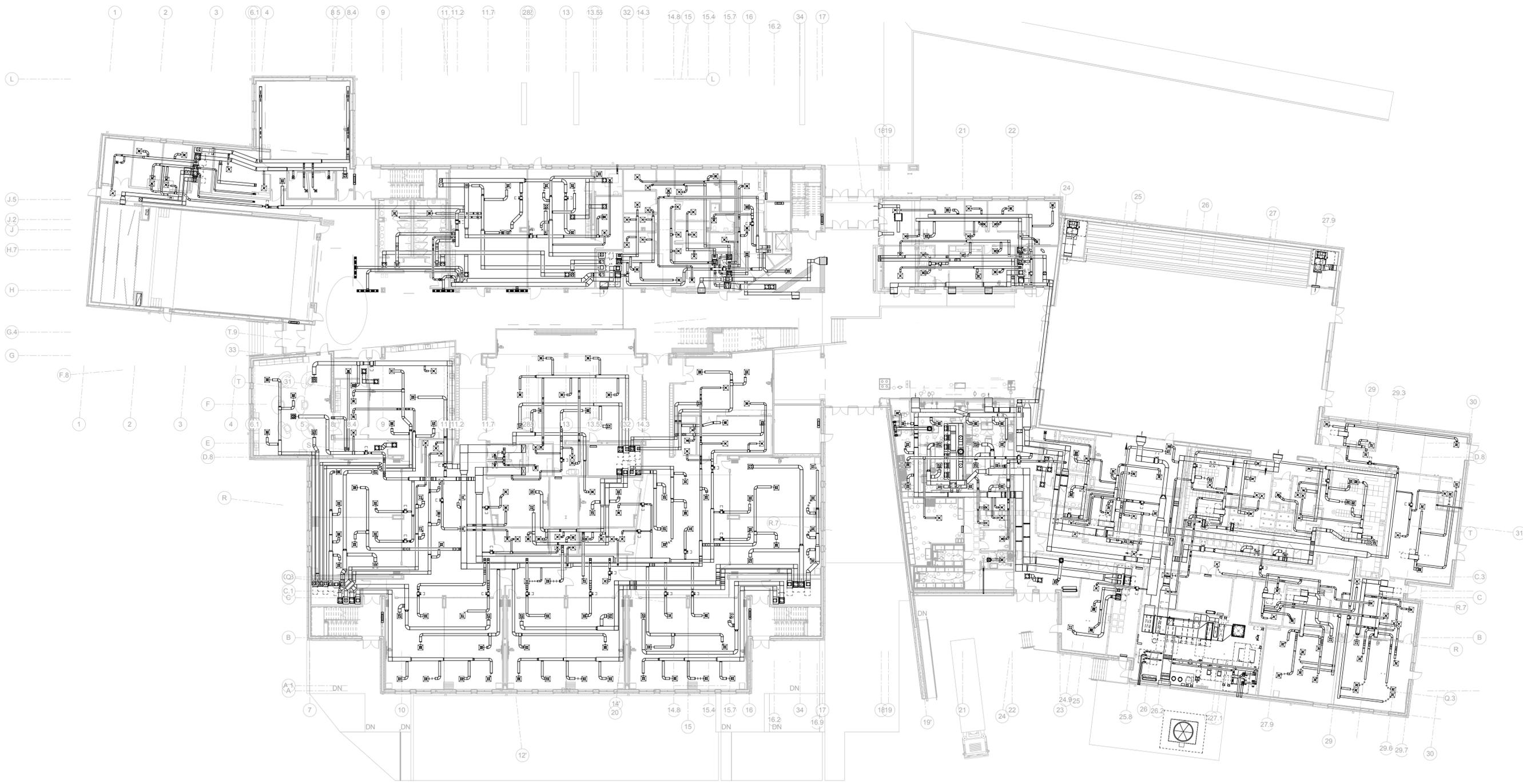
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A



**FIRST FLOOR AIR DISTRIBUTION - FOR REFERENCE ONLY**

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SYN	DESCRIPTION	DATE	APPR



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AE INFO

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FOR COMMANDER NAVFAC ACTIVITY	
SATISFACTORY TO	DATE
CRK	LMM/CRK KDM
PRMCM	
BRANCH MANAGER	
CHIEF ENGR ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON  
 DODEA  
 MARINE CORPS BASE QUANTICO, VIRGINIA  
**REPLACE QUANTICO M/H SCHOOL**  
 QUANTICO, VA  
 FIRST FLOOR PLAN REFERENCE - AIR DISTRIBUTION

SCALE: 1" = 20'-0"  
 PROJECT NO.: P-021  
 CONSTR. CONTR. NO.: W91236-15-C-0023  
 NAVFAC DRAWING NO.: 13091212  
 SHEET 458 OF 789  
 MH101



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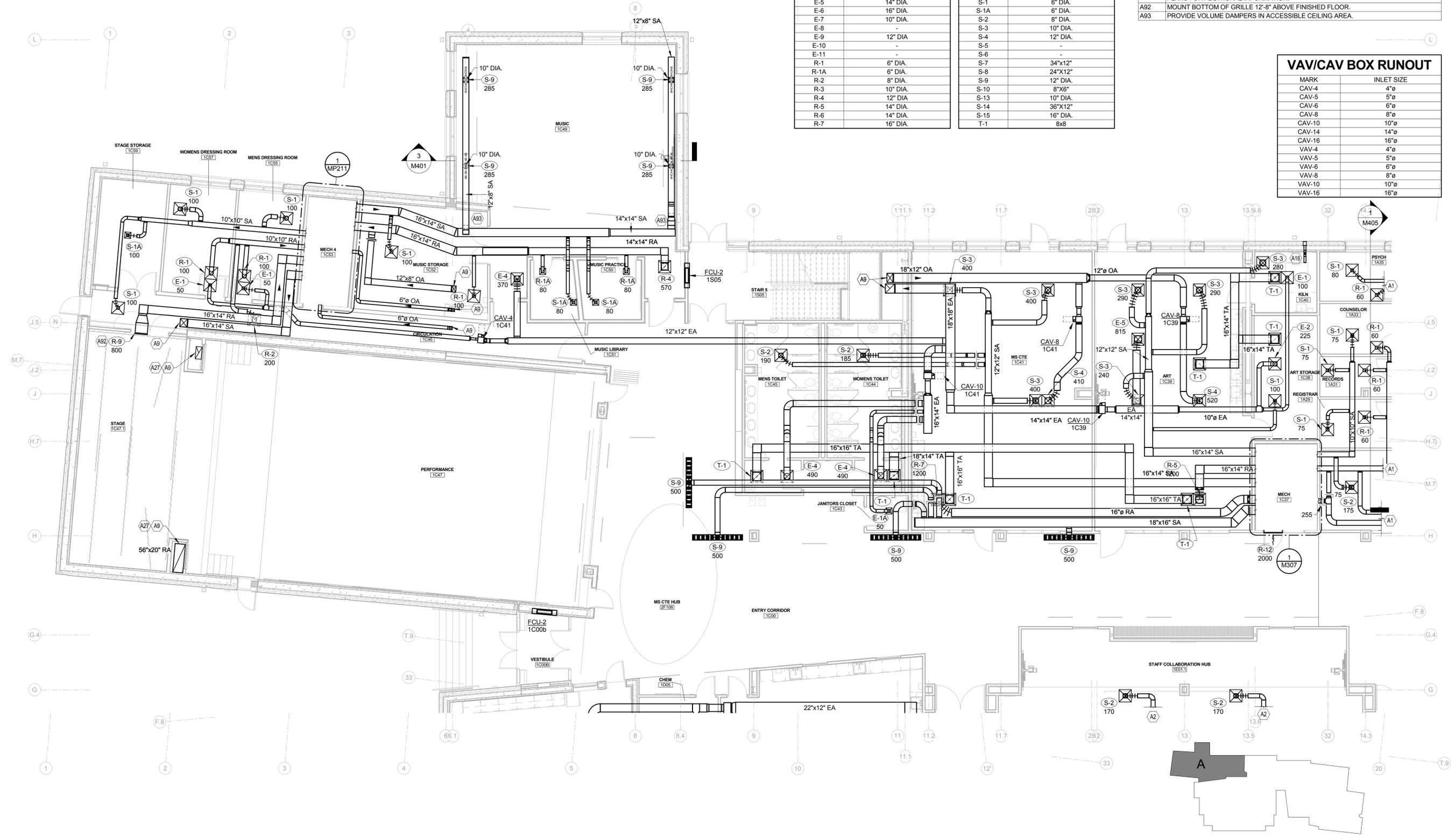
A

R,G,D RUNOUT	
MARK	BRANCH DUCT SIZE
E-1	6" DIA.
E-1A	6" DIA.
E-2	8" DIA.
E-3	10" DIA.
E-4	12" DIA.
E-5	14" DIA.
E-6	16" DIA.
E-7	10" DIA.
E-8	-
E-9	12" DIA.
E-10	-
E-11	-
R-1	6" DIA.
R-1A	6" DIA.
R-2	8" DIA.
R-3	10" DIA.
R-4	12" DIA.
R-5	14" DIA.
R-6	14" DIA.
R-7	16" DIA.

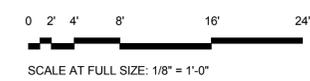
R,G,D RUNOUT	
MARK	BRANCH DUCT SIZE
R-9	-
R-10	-
R-11	24"x12"
R-12	34"x30"
R-13	-
S-1	6" DIA.
S-1A	6" DIA.
S-2	6" DIA.
S-3	10" DIA.
S-4	12" DIA.
S-5	-
S-6	-
S-7	34"x12"
S-8	24"x12"
S-9	12" DIA.
S-10	8"x6"
S-13	10" DIA.
S-14	36"x12"
S-15	16" DIA.
T-1	8x8

TAGGED NOTES	
A1	REFER TO FIRST FLOOR - AREA 'B' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A2	REFER TO FIRST FLOOR - AREA 'D' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A9	REFER TO SECOND FLOOR - AREA 'A' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A16	PROVIDE 4" STAINLESS STEEL KILN EXHAUST AIR DUCT. CONNECT DUCT TO KILN VENTILATION SYSTEM. ROUTE DUCT TO WALL VENT ON EXTERIOR WALL. REFER TO ARCHITECTURAL ELEVATION DRAWINGS FOR VENT CAP MOUNTING HEIGHT.
A27	CONNECT DUCT TO GRILLE SPECIFIED BY ARCHITECT. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION.
A92	MOUNT BOTTOM OF GRILLE 12'-8" ABOVE FINISHED FLOOR.
A93	PROVIDE VOLUME DAMPERS IN ACCESSIBLE CEILING AREA.

VAV/CAV BOX RUNOUT	
MARK	INLET SIZE
CAV-4	4"ø
CAV-5	5"ø
CAV-6	6"ø
CAV-8	8"ø
CAV-10	10"ø
CAV-14	14"ø
CAV-16	16"ø
VAV-4	4"ø
VAV-5	5"ø
VAV-6	6"ø
VAV-8	8"ø
VAV-10	10"ø
VAV-16	16"ø



**FIRST FLOOR AREA A - AIR DISTRIBUTION**



DATE

SYMBOL DESCRIPTION

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**EWING COLE**

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100 North 6th Street  
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AE INFO

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FOR COMMANDER NAVFAC  
ACTIVITY

SATISFACTORY TO DATE

CRK LMM/CRK KDM

PRMCM

BRANCH MANAGER

CHIEF ENGR ARCH

FIRE PROTECTION

NAVFACILITIES ENGINEERING COMMAND  
NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON  
DODEA  
MARINE CORPS BASE QUANTICO, VIRGINIA  
QUANTICO, VA

**REPLACE QUANTICO M/H SCHOOL**

DEPARTMENT OF THE NAVY  
NAVFACILITIES ENGINEERING COMMAND  
MARINE CORPS BASE QUANTICO  
QUANTICO, VA

**REPLACE QUANTICO M/H SCHOOL**

FIRST FLOOR - AREA 'A' - AIR DISTRIBUTION

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

PROJECT NO.: P-021

CONSTR. CONTR. NO.: W91236-15-C-0023

NAVFAC DRAWING NO.: 13091214

SHEET 460 OF 789

MH111

DATE: 10 MARCH 2016

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D

C

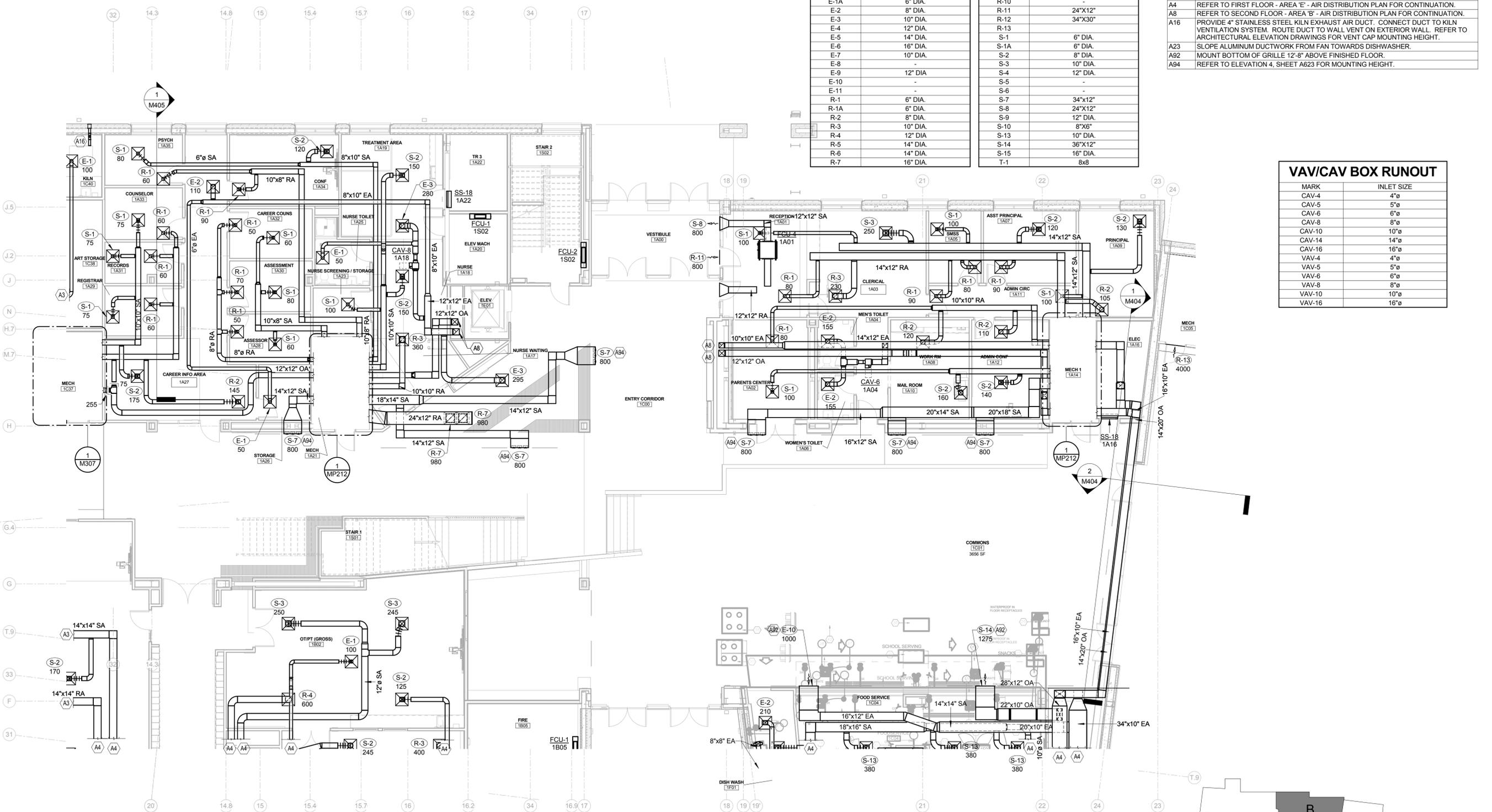
B

A

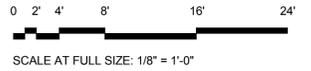
R,G,D RUNOUT		R,G,D RUNOUT	
MARK	BRANCH DUCT SIZE	MARK	BRANCH DUCT SIZE
E-1	6" DIA.	R-9	-
E-1A	6" DIA.	R-10	-
E-2	8" DIA.	R-11	24"x12"
E-3	10" DIA.	R-12	34"x30"
E-4	12" DIA.	R-13	-
E-5	14" DIA.	S-1	6" DIA.
E-6	16" DIA.	S-1A	6" DIA.
E-7	10" DIA.	S-2	8" DIA.
E-8	-	S-3	10" DIA.
E-9	12" DIA.	S-4	12" DIA.
E-10	-	S-5	-
E-11	-	S-6	-
R-1	6" DIA.	S-7	34"x12"
R-1A	6" DIA.	S-8	24"x12"
R-2	8" DIA.	S-9	12" DIA.
R-3	10" DIA.	S-10	8"x6"
R-4	12" DIA.	S-13	10" DIA.
R-5	14" DIA.	S-14	36"x12"
R-6	14" DIA.	S-15	16" DIA.
R-7	16" DIA.	T-1	8x8

TAGGED NOTES	
A2	REFER TO FIRST FLOOR - AREA 'D' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A3	REFER TO FIRST FLOOR - AREA 'A' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A4	REFER TO FIRST FLOOR - AREA 'E' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A8	REFER TO SECOND FLOOR - AREA 'B' - AIR DISTRIBUTION PLAN FOR CONTINUATION.
A16	PROVIDE 4" STAINLESS STEEL KILN EXHAUST AIR DUCT. CONNECT DUCT TO KILN VENTILATION SYSTEM. ROUTE DUCT TO WALL VENT ON EXTERIOR WALL. REFER TO ARCHITECTURAL ELEVATION DRAWINGS FOR VENT CAP MOUNTING HEIGHT.
A23	SLOPE ALUMINUM DUCTWORK FROM FAN TOWARDS DISHWASHER.
A92	MOUNT BOTTOM OF GRILLE 12"-8" ABOVE FINISHED FLOOR.
A94	REFER TO ELEVATION 4, SHEET A623 FOR MOUNTING HEIGHT.

VAV/CAV BOX RUNOUT	
MARK	INLET SIZE
CAV-4	4"ø
CAV-5	5"ø
CAV-6	6"ø
CAV-8	8"ø
CAV-10	10"ø
CAV-14	14"ø
CAV-16	16"ø
VAV-4	4"ø
VAV-5	5"ø
VAV-6	6"ø
VAV-8	8"ø
VAV-10	10"ø
VAV-16	16"ø



**FIRST FLOOR AREA B - AIR DISTRIBUTION**



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FOR COMMANDER NAVFAC ACTIVITY

SATISFACTORY TO DATE

CRK LMM/CRK KDM

PROJECT NO. P-021

CONSTR. CONTR. NO. W91236-15-C-0023

NAVFAC DRAWING NO. 13091215

SHEET 461 OF 789

MH112

DATE

DESCRIPTION

SEAL

**EWING COLE**

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100 North 6th Street  
Philadelphia, PA 19106-1500  
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STATE OF KENTUCKY  
KEVIN J. MUSSEY  
22266  
PROFESSIONAL ENGINEER

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON  
DODEA  
MARINE CORPS BASE QUANTICO, VIRGINIA  
QUANTICO, VA

**REPLACE QUANTICO M/H SCHOOL**

FIRST FLOOR - AREA 'B' - AIR DISTRIBUTION

10 MARCH 2016