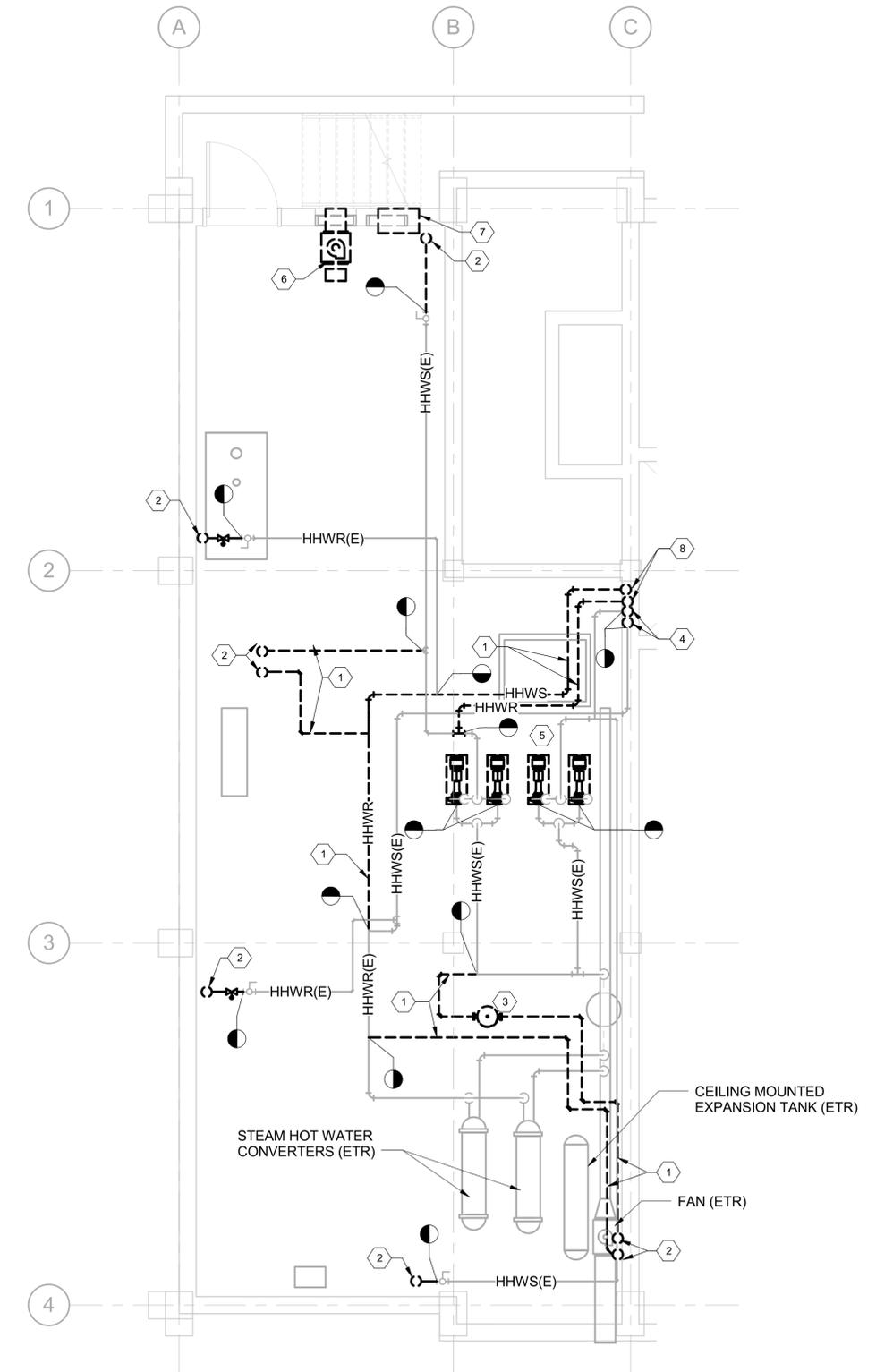


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FILE NAME: C:\Revit\Projects\87997-NGS\6781\Mod\15\MEP\97997_M_cvsouthall(Renovation).rvt



PLAN NORTH
HVAC DEMOLITION PLAN - BASEMENT
 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
2. SEE MD801 FOR HEATING HOT WATER DEMOLITION RISER DIAGRAMS.

DEMOLITION NOTES: (#)

1. DEMOLISH EXISTING PIPING BACK TO MAIN. CAP PIPING AT MAIN TO ELIMINATE DEAD LEGS.
2. DEMOLISH EXISTING PIPING UP TO FIRST FLOOR.
3. DEMOLISH EXISTING CIRC PUMP.
4. DEMOLISH EXISTING RISER. TEMPORARILY CAP PIPES AT BASE OF RISER.
5. DEMOLISH EXISTING HHW PUMPS.
6. DEMOLISH SUPPLY FAN, PLENUM, LOUVER, AND ASSOCIATED CONTROLS. TEMPORARILY SEAL OPENING UNTIL INSTALLATION OF NEW WORK.
7. DEMOLISH EXHAUST LOUVER AND PLENUM. TEMPORARILY SEAL OPENING UNTIL INSTALLATION OF NEW WORK.
8. DEMOLISH EXISTING RISER.

NO.	DATE	DESCRIPTION



BURNS MEDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23320

APPROVED		
FOR COMMANDER NAVFAC		
ACTIVITY		
PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI		
SATISFACTORY TO DATE		
4/23/16		
DES CWS	DRW CWS	CHK CG
PM / DM	MLW/EJ	
BRANCH MANAGER		
CHIEF ENGINEER	DWG	
TIRE PROTECTION		

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
 NORTH LPT
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678
 BASEMENT - HVAC DEMO PLAN

SCALE:	AS NOTED
PROJECT NO.	1382693
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12722088
SHEET	102 OF 177
MD100	

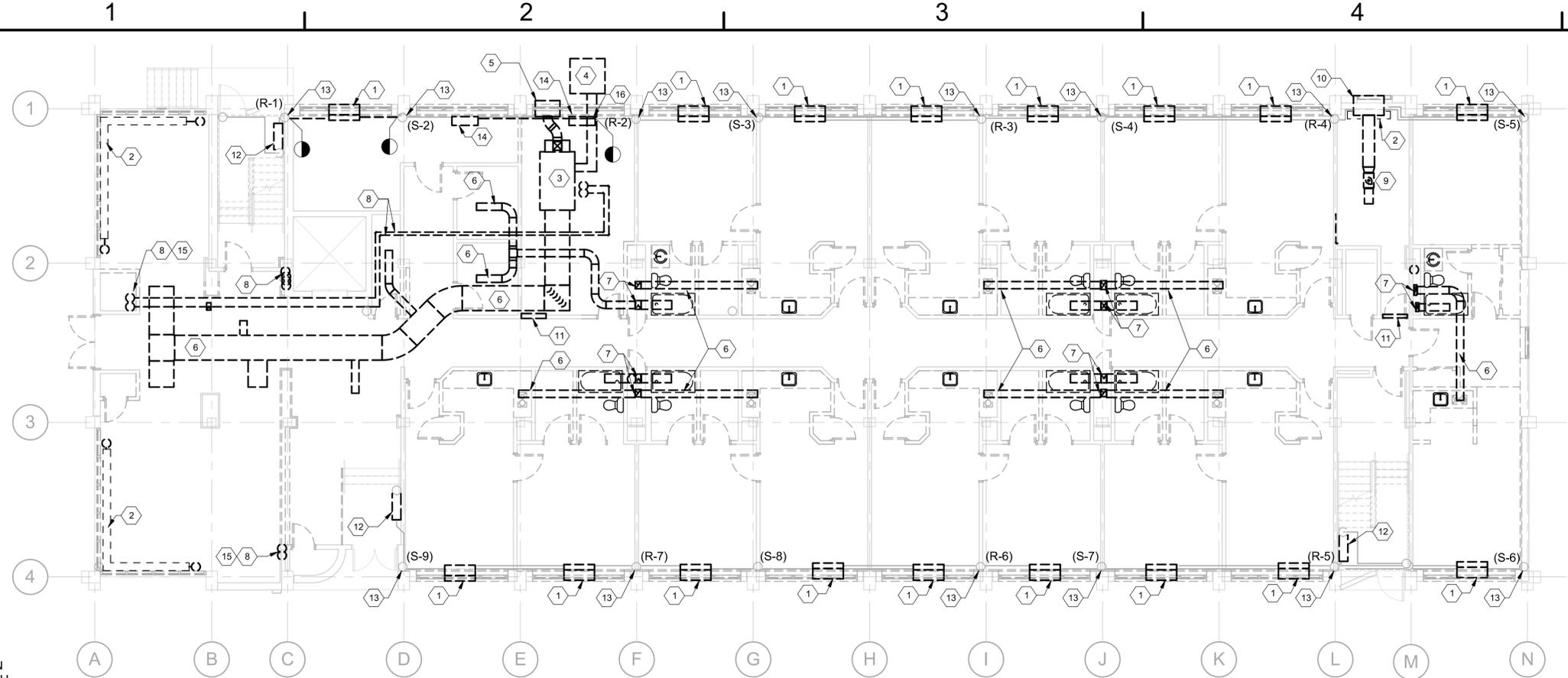


GENERAL NOTES:

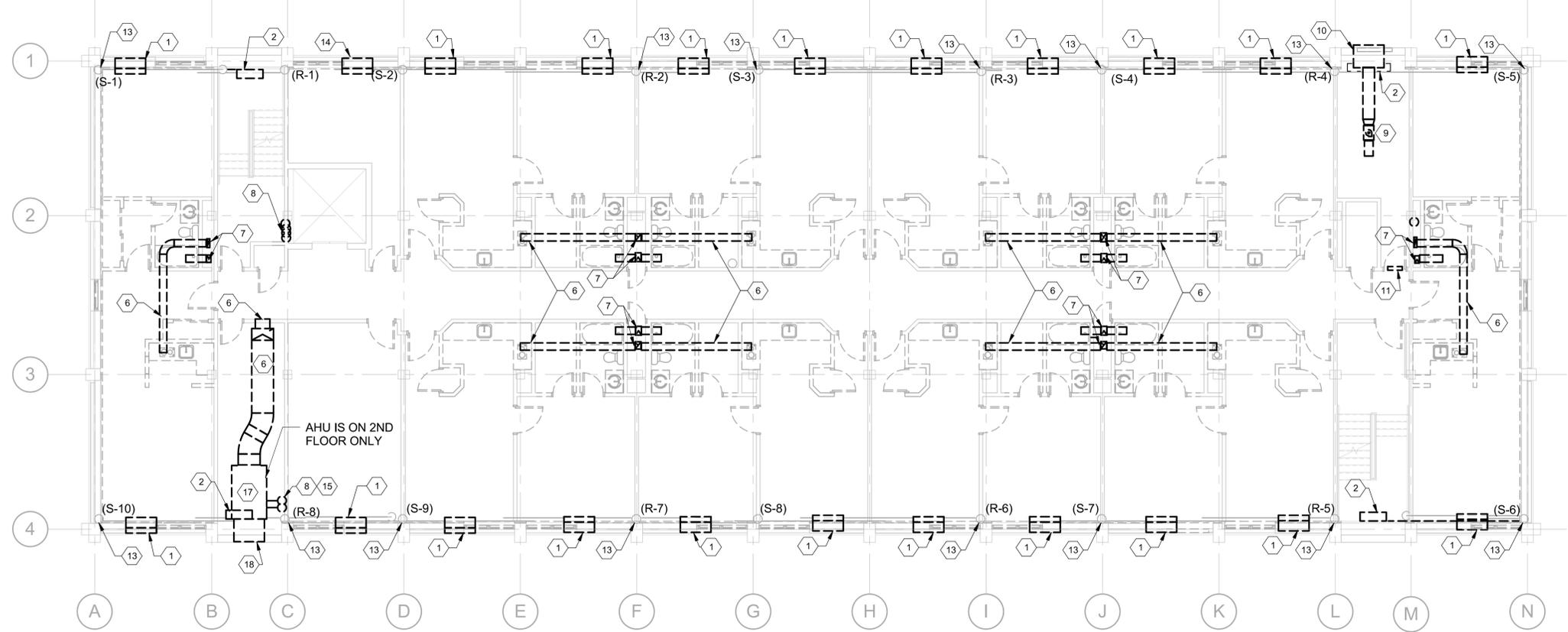
- 1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
- 2. SEE MD801 FOR HEATING HOT WATER DEMOLITION RISER DIAGRAMS.

DEMOLITION NOTES: #

- 1. DEMOLISH EXISTING PTAC, HHW CONNECTIONS BACK TO BRANCHES AND ASSOCIATED CONTROLS. PROVIDE TEMPORARY SEAL IN EXTERIOR OPENING VACATED BY PTAC UNTIL NEW PTHP CAN BE INSTALLED.
- 2. DEMOLISH EXISTING FIN-TUBE RADIATORS, HHW CONNECTIONS BACK TO BRANCH PIPING, AND ASSOCIATED CONTROLS.
- 3. DEMOLISH EXISTING AHU, HHW PIPE CONNECTIONS, HANGERS, REFRIGERANT PIPING, AND ASSOCIATED CONTROLS.
- 4. DEMOLISH EXISTING CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING. SEAL OPENING IN WALL VACATED BY REFRIGERANT PIPING.
- 5. DEMOLISH EXISTING INTAKE AND EXHAUST LOUVERS, PLENUMS, DAMPERS, ACTUATORS, AND ASSOCIATED DUCTWORK. SEAL VACATED OPENINGS IN WALL. SEE ARCH DRAWINGS FOR DETAIL.
- 6. DEMOLISH EXISTING DUCTWORK, REGISTERS, GRILLES, AND ASSOCIATED HANGERS.
- 7. DEMOLISH EXISTING DUCTWORK RISERS AND ASSOCIATED HANGERS AND FIRE DAMPERS.
- 8. DEMOLISH EXISTING HHW PIPING.
- 9. DEMOLISH EXISTING EXHAUST FAN AND ASSOCIATED DUCTWORK AND CONTROLS.
- 10. DEMOLISH EXISTING EXHAUST AIR PLENUM AND LOUVER. SEAL VACATED OPENING. SEE ARCH DRAWINGS FOR DETAIL.
- 11. DEMOLISH EXISTING TRANSFER OPENING. SEAL OPENING. SEE ARCH DRAWINGS FOR DETAIL.
- 12. DEMOLISH EXISTING CONVECTOR. ASSOCIATED HHW CONNECTIONS BACK TO BRANCH PIPING AND CONTROLS.
- 13. EXISTING HHW RISERS TO REMAIN.
- 14. DEMOLISH EXISTING FAN COIL UNIT, ASSOCIATED HHW CONNECTIONS, AND CONTROLS.
- 15. REPAIR HOLE VACATED BY REMOVAL OF HHW PIPE.
- 16. HHWR PIPING BETWEEN FAN COIL AND PTAC CONNECTION SHALL BE DEMOLISHED. HHWR FROM PTAC TO R-2 SHALL IS EXISTING TO REMAIN. PROTECT PIPING TO REMAIN TO ALLOW RE-USE.
- 17. DEMOLISH EXISTING AHU, HHW PIPE CONNECTIONS, HANGERS, AND ASSOCIATED CONTROLS.
- 18. DEMOLISH EXISTING INTAKE LOUVERS, PLENUMS, DAMPERS, ACTUATORS, AND ASSOCIATED DUCTWORK. SEAL VACATED OPENINGS IN WALL. SEE ARCH DRAWINGS FOR DETAIL.



PLAN NORTH
HVAC DEMOLITION PLAN - FIRST FLOOR
 SCALE: 1/8" = 1'-0"



PLAN NORTH
HVAC DEMOLITION PLAN - SECOND, THIRD, AND FOURTH FLOOR
 SCALE: 1/8" = 1'-0"



DATE	APPR
DESCRIPTION	SWR
 1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320	
APPROVED	DATE
FOR COMMANDER NAVFAC	4/23/16
ACTIVITY	
PER SAT-TO DOCUMENT FROM GERARD MONTAN (PHARMACEUTICAL) WITH HEADS AT NAVAL STATION NEWPORT-NEWPORT, RI	
SATISFACTORY TO DATE	
DES CWS	DRW JR
CHK CG	
PM / DM	MLW/LEJ
BRANCH MANAGER	
CHIEF ENGINEER	DWG
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NORTH LIFT NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND	
RENOVATION OF BUILDING 678 FIRST, SECOND, THIRD AND FOURTH FLOOR - HVAC DEMO PLAN	
SCALE	AS NOTED
EPROJCT NO.	1382693
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12722089
SHEET	103 OF 177
MD101 <small>DRAWNFORM REVISION: 10 MAY 2014</small>	

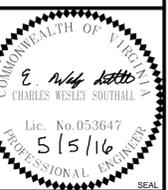
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 REV DATE: 5/2/2016 3:42:22 PM
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GENERAL NOTES:

- 1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
- 2. SEE MD801 FOR HEATING HOT WATER DEMOLITION RISER DIAGRAMS.

DEMOLITION NOTES: #

- 1. DEMOLISH EXISTING PTAC, HHW CONNECTIONS BACK TO BRANCHES AND ASSOCIATED CONTROLS. PROVIDE TEMPORARY SEAL IN EXTERIOR OPENING VACATED BY PTAC UNTIL NEW PTHP CAN BE INSTALLED.
- 2. DEMOLISH EXISTING DUCTWORK, REGISTERS, GRILLES, AND ASSOCIATED HANGERS.
- 3. DEMOLISH EXISTING DUCTWORK RISERS AND ASSOCIATED HANGERS AND FIRE DAMPERS.
- 4. DEMOLISH EXISTING HHW PIPING.
- 5. DEMOLISH EXISTING EXHAUST FAN AND ASSOCIATED ROOF CURBS, DUCTWORK AND CONTROLS. PATCH EXISTING OPENINGS. SEE STRUCTURAL AND ARCH DRAWINGS FOR DETAIL.
- 6. EXISTING HEATING HOT WATER RISERS TO REMAIN.
- 7. DEMOLISH EXISTING FIN-TUBE RADIATOR, AND ASSOCIATED HHW CONNECTIONS BACK TO BRANCH PIPING AND CONTROLS.
- 8. EXISTING PIPING TO REMAIN.
- 9. DEMOLISH EXISTING GRAVITY VENTILATOR AND ASSOCIATED DUCTWORK AND CONTROLS. PATCH EXISTING OPENINGS. SEE STRUCTURAL AND ARCH DRAWINGS FOR DETAIL.
- 10. DEMOLISH EXISTING FAN COIL UNIT, ASSOCIATED HHW CONNECTIONS AND CONTROLS.
- 11. DEMOLISH EXISTING PTAC, HHW PIPING AND ASSOCIATED CONTROLS. SEAL WALL OPENING VACATED BY PTAC.
- 12. DEMOLISH EXISTING TRANSFER OPENING. SEAL OPENING. SEE ARCH DRAWINGS FOR DETAIL.



APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
PER SAT-TO DOCUMENT FROM GERARD MONTANI (PH/BRANCH HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI

SATISFACTORY TO DATE 4/23/16

DES CWS DRW CWS CHK CG

PM / DM ML/WLEJ

BRANCH MANAGER

CHIEF ENGINEER DWG

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
NEWPORT, RHODE ISLAND

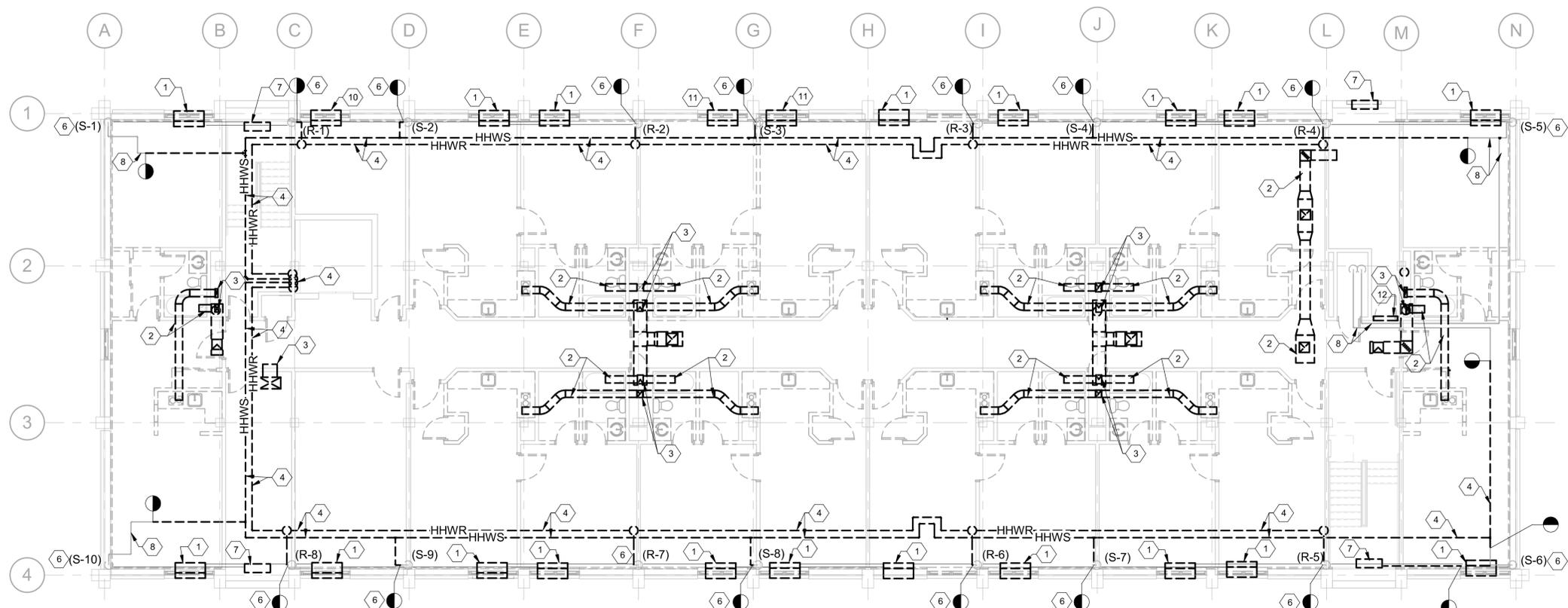
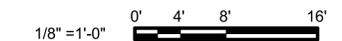
RENOVATION OF BUILDING 678
FIFTH FLOOR AND ROOF - HVAC DEMO PLAN

SCALE: AS NOTED
EPROJCT NO. 1382693
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12722090
SHEET 104 OF 177

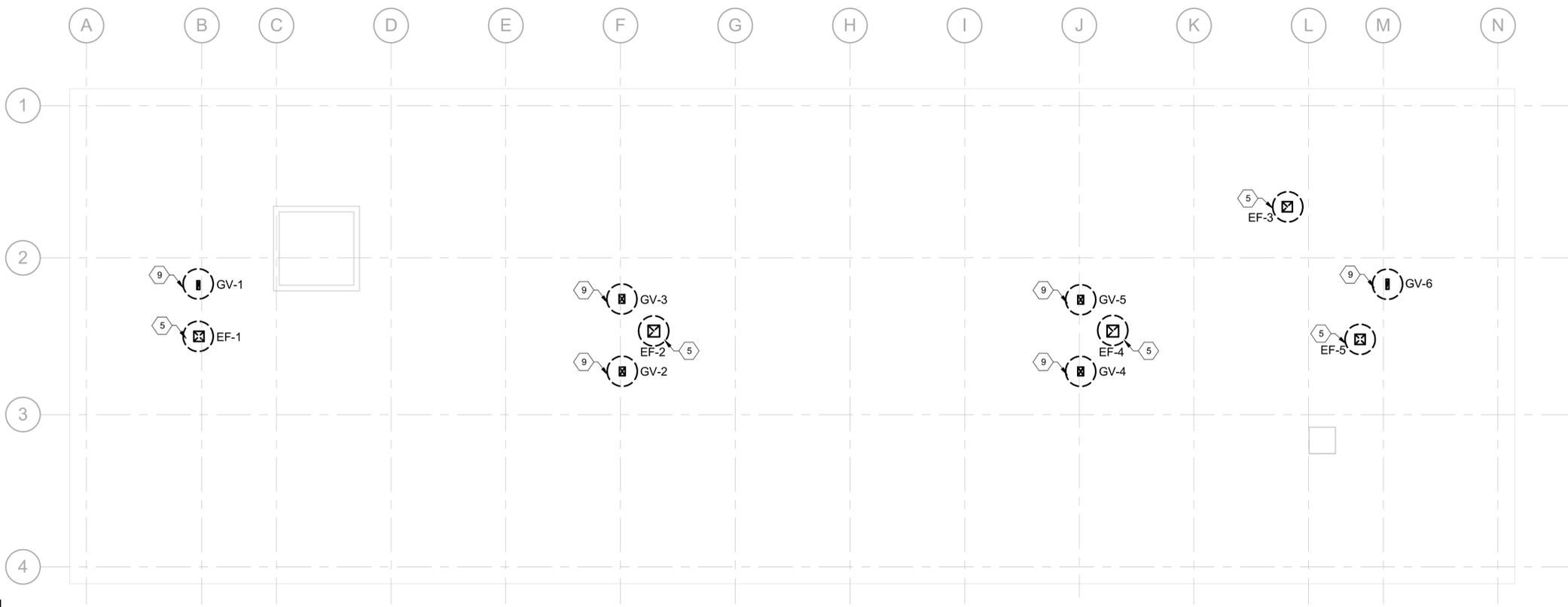
MD102

DRAWING REVISION: 10 MAY 2014

GRAPHIC SCALE:



PLAN NORTH
HVAC DEMOLITION PLAN - FIFTH FLOOR
SCALE: 1/8" = 1'-0"



PLAN NORTH
MECH DEMOLITION PLAN - ROOF PLAN
SCALE: 1/8" = 1'-0"

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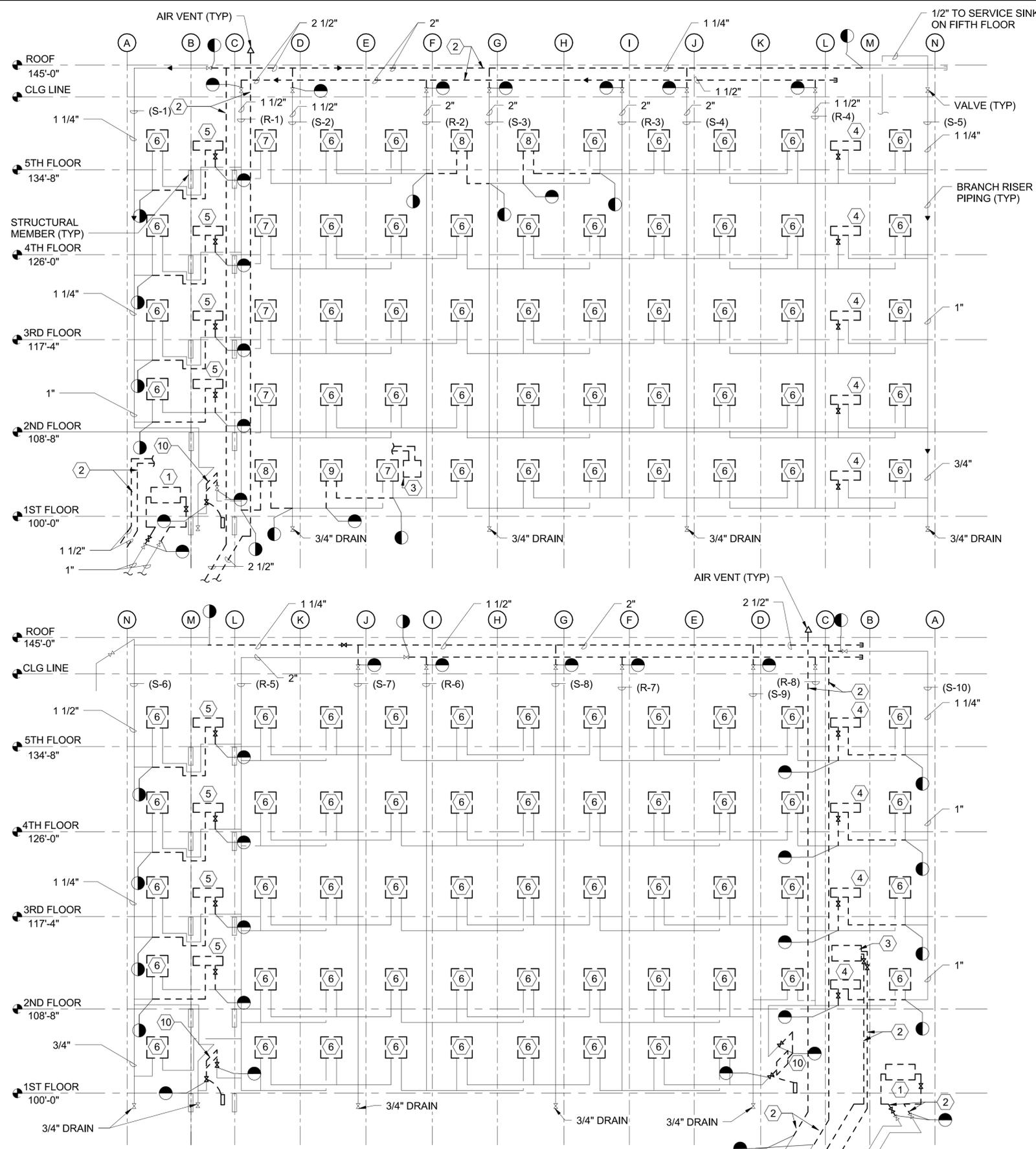
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1

2

3

4



GENERAL NOTES:

- SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
- FIRST FLOOR ELEVATION OF 100'-0" IS ESTABLISHED FOR INTERNAL BUILDING ELEVATIONS ONLY. REFER TO CIVIL DRAWINGS FOR ACTUAL GRADING ELEVATIONS.

DEMOLITION NOTES: #

- DEMOLISH EXISTING FIN TUBE RADIATORS AND ASSOCIATED PIPING.
- DEMOLISH EXISTING HHW PIPING.
- DEMOLISH EXISTING AHU AND ASSOCIATED PIPING.
- DEMOLISH EXISTING FIN TUBE RADIATORS AND ASSOCIATED PIPING BACK TO BRANCH. CAP RUNOUTS AT TAKEOFF.
- DEMOLISH EXISTING FIN TUBE RADIATORS AND ASSOCIATED CONTROLS AND UNIT ISOLATION VALVES. TEMPORARILY CAP PIPING FOR RE-CONNECTION.
- DEMOLISH EXISTING PTAC UNITS. TEMPORARILY CAP PIPING FOR RE-CONNECTION.
- DEMOLISH EXISTING FAN COIL UNITS. TEMPORARILY CAP PIPING FOR RE-CONNECTION.
- DEMOLISH EXISTING PTAC UNITS AND ASSOCIATED PIPING BACK TO BRANCH. CAP RUNOUTS AT TAKEOFF.
- DEMOLISH EXISTING FAN COIL UNIT AND ASSOCIATED PIPING.
- DEMOLISH EXISTING CONVECTORS AND ASSOCIATED CONTROLS AND UNIT ISOLATION VALVES. TEMPORARILY CAP PIPING FOR RE-CONNECTION.

HEATING HOT WATER RISER DIAGRAMS - DEMO
SCALE: NOT TO SCALE

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REV DATE: 5/22/2016 3:42:23 PM

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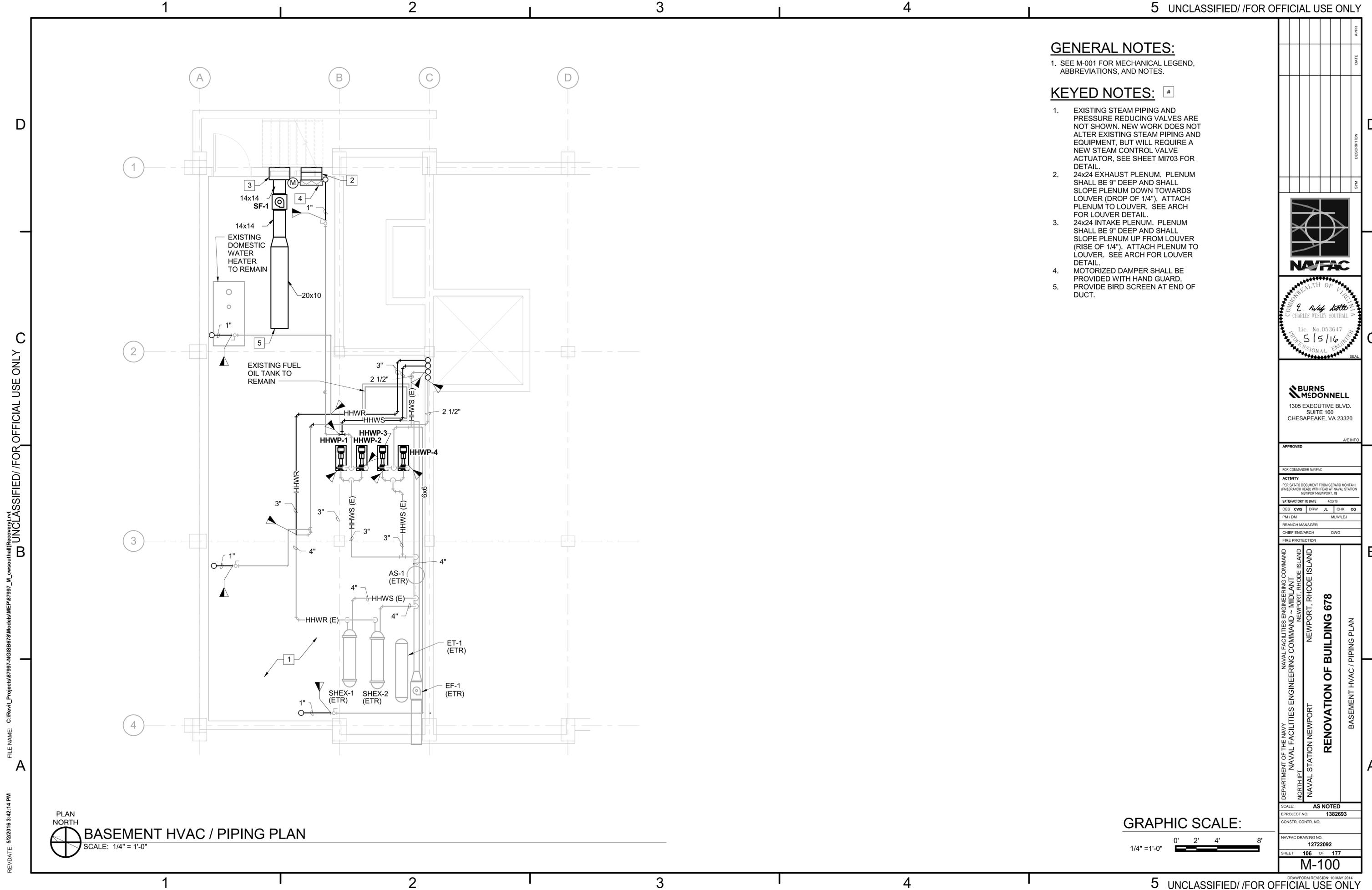
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DESCRIPTION	DATE
 	
 1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320	
APPROVED	
FOR COMMANDER NAVAC	
ACTIVITY	
PER SAT TO DOCUMENT FROM GERARD MONTANI (PHARMACIST HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI	
SATISFACTORY TO DATE 4/23/16	
DES	CMS
DRW	JR
CHK	CG
PM / DM	MLW/LEJ
BRANCH MANAGER	
CHIEF ENGINEER	
DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NORTH LIFT NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND	
RENOVATION OF BUILDING 678 HEATING HOT WATER RISER DIAGRAMS - DEMO	
SCALE: AS NOTED	
PROJECT NO. 1382693	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12722091	
SHEET 105 OF 177	
MD801 <small>DRAWING REVISION: 10 MAY 2014</small>	

GENERAL NOTES:

- SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

KEYED NOTES: #

- EXISTING STEAM PIPING AND PRESSURE REDUCING VALVES ARE NOT SHOWN. NEW WORK DOES NOT ALTER EXISTING STEAM PIPING AND EQUIPMENT, BUT WILL REQUIRE A NEW STEAM CONTROL VALVE ACTUATOR, SEE SHEET M1703 FOR DETAIL.
- 24x24 EXHAUST PLENUM. PLENUM SHALL BE 9" DEEP AND SHALL SLOPE PLENUM DOWN TOWARDS LOUVER (DROP OF 1/4"). ATTACH PLENUM TO LOUVER. SEE ARCH FOR LOUVER DETAIL.
- 24x24 INTAKE PLENUM. PLENUM SHALL BE 9" DEEP AND SHALL SLOPE PLENUM UP FROM LOUVER (RISE OF 1/4"). ATTACH PLENUM TO LOUVER. SEE ARCH FOR LOUVER DETAIL.
- MOTORIZED DAMPER SHALL BE PROVIDED WITH HAND GUARD. PROVIDE BIRD SCREEN AT END OF DUCT.



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FILE NAME: C:\Revit\Projects\87997-NGSB678\Modals\MEP\87997_M_cvsouthall\Revit\mep.dwg

PLAN NORTH
BASEMENT HVAC / PIPING PLAN
 SCALE: 1/4" = 1'-0"



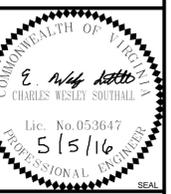
DATE	DESCRIPTION	BY	APPR
1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320			
APPROVED			
FOR COMMANDER NAVFAC			
ACTIVITY			
PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI			
SATISFACTORY TO DATE 4/23/16			
DES	CWS	DRW	JL
PM / DM			MLW/LEJ
BRANCH MANAGER			
CHIEF ENGINEER			
DWG			
FIRE PROTECTION			
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND NEWPORT, RHODE ISLAND NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND RENOVATION OF BUILDING 678 BASEMENT HVAC / PIPING PLAN			
SCALE: AS NOTED			
EPROJECT NO. 1382693			
CONSTR. CONTR. NO.			
NAVFAC DRAWING NO. 12722092			
SHEET 106 OF 177			
M-100			
DRAWING REVISION: 10 MAY 2014			

GENERAL NOTES:

- 1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

KEYED NOTES: #

- 1. EXHAUST AIR UP. SEE RISER E1 ON SHEET M-802 FOR DUCT SIZES.
- 2. SUPPLY AIR FROM ABOVE. SEE RISER S1 ON SHEET M-802 FOR DUCT SIZES. CONNECT EXHAUST DUCT TO BACK OF WALL VENT. WALL VENT SHALL BE PROVIDED W/ BACKDRAFT DAMPER. BALANCING DAMPER AND OUT-OF-THE-WALL, GRILLE-ACCESS FIRE DAMPER. SEE DETAIL A4/M-501.
- 3. SUPPLY AIR FROM ABOVE. SEE RISER S2 ON SHEET M-802 FOR DUCT SIZES.
- 4. SUPPLY AIR FROM ABOVE. SEE RISER S3 ON SHEET M-802 FOR DUCT SIZES.
- 5. SUPPLY AIR FROM ABOVE. SEE RISER S4 ON SHEET M-802 FOR DUCT SIZES.
- 6. SUPPLY AIR FROM ABOVE. SEE RISER S5 ON SHEET M-802 FOR DUCT SIZES.
- 7. EXHAUST AIR UP. SEE RISER E2 ON SHEET M-802 FOR DUCT SIZES.
- 8. EXHAUST AIR UP. SEE RISER E3 ON SHEET M-802 FOR DUCT SIZES.
- 9. EXHAUST AIR UP. SEE RISER E4 ON SHEET M-802 FOR DUCT SIZES.
- 10. PROVIDE FIRE DAMPER FOR FLOOR PENETRATION.
- 11. BALANCING DAMPER AND OUT-OF-THE-FLOOR, GRILLE-ACCESS FIRE DAMPER. SEE DETAIL A2/M-502.
- 12. SUPPLY AIR FROM ABOVE. SEE RISER S6 ON SHEET M-802 FOR DUCT SIZES.
- 13. OA EMERGENCY SHUTOFF SWITCH. PTHP REQUIRES NEW WALL OPENING. PROVIDE UNIT WITH SLEEVE TO SPAN DEPTH BETWEEN INTERIOR WALL AND NEW EXTERIOR WALL SYSTEM.
- 14. PTHP WILL UTILIZE EXISTING WALL OPENING. PROVIDE UNIT WITH SLEEVE TO SPAN DEPTH BETWEEN INTERIOR WALL AND NEW EXTERIOR WALL SYSTEM.
- 15. DOAS ALARM LIGHT. PROVIDE WALL MOUNTED RED LIGHT TO INDICATE DOAS ALARM. PROVIDE LABEL BELOW "HVAC SYSTEM ALARM, NOTIFY PWC IF BLINKING RED". CONNECT LIGHT TO DOAS CONTROLLER AS INDICATED ON MI701.
- 16. HHW PLANT ALARM LIGHT. PROVIDE WALL MOUNTED RED LIGHT TO INDICATE HHW PLANT ALARM. PROVIDE LABEL BELOW "HVAC SYSTEM ALARM, NOTIFY PWC IF BLINKING RED". CONNECT LIGHT TO HHW PLANT CONTROLLER AS INDICATED ON MI703.
- 17. PROVIDE 4"Ø DRYER EXHAUST DUCT. DUCT SHALL TERMINATE AT WALL CAP. WALL CAP IS TO BE PROVIDED WITH BACKDRAFT BUT NO SCREEN. INSTALL DRYER DUCT EXHAUST IN ACCORDANCE WITH IMC 2012 SECTION 504. SEE C2/M-501 FOR DRYER DUCT CONNECTION DETAIL.



BURNS MEDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23320

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
 PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI

SATISFACTORY DATE 4/23/16

DES CWS DRW JL CHK CG

PM/DM MLW/JEL

BRANCH MANAGER

CHIEF ENGINEER DWG

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND

NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND

NEWPORT, RHODE ISLAND

NAVAL STATION NEWPORT

NEWPORT, RHODE ISLAND

RENOVATION OF BUILDING 678

FIRST, SECOND, THIRD AND FOURTH FLOOR HVAC PLANS

SCALE AS NOTED

EPROJCT NO. 1382693

CONSTR. CONTR. NO.

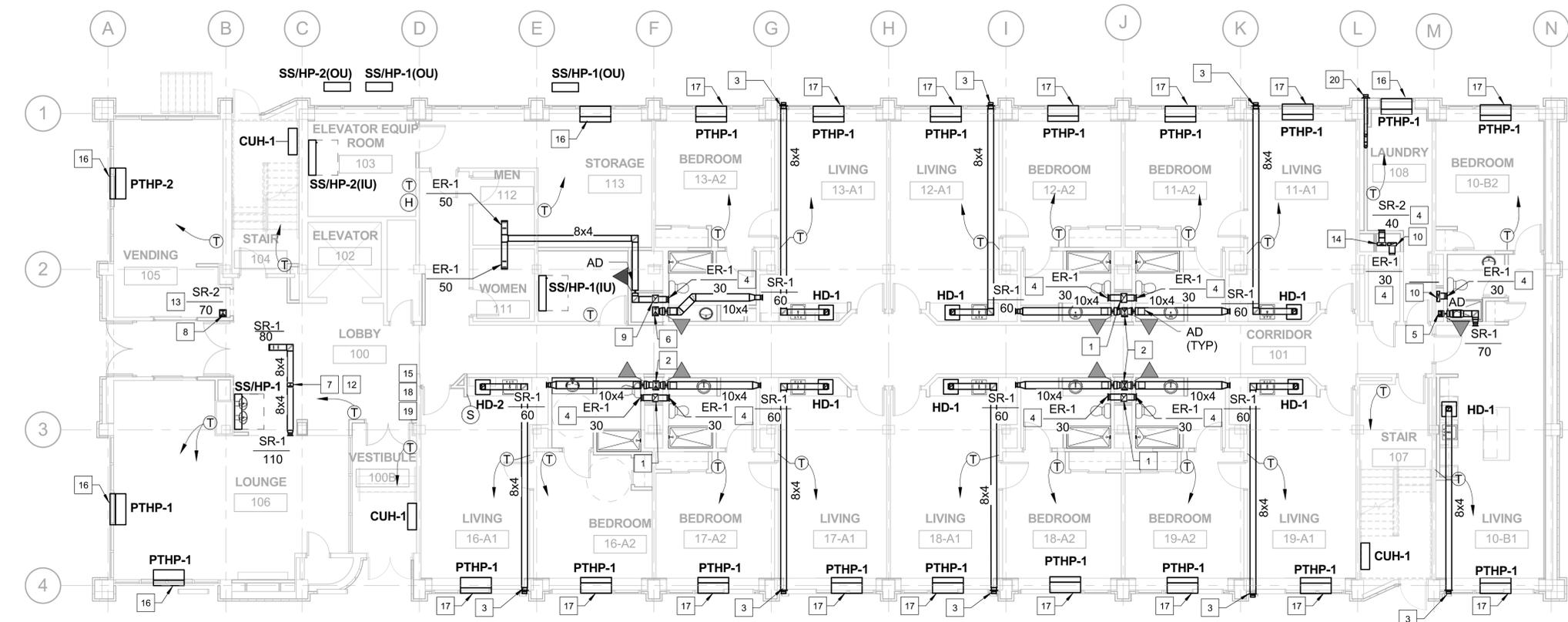
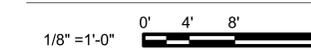
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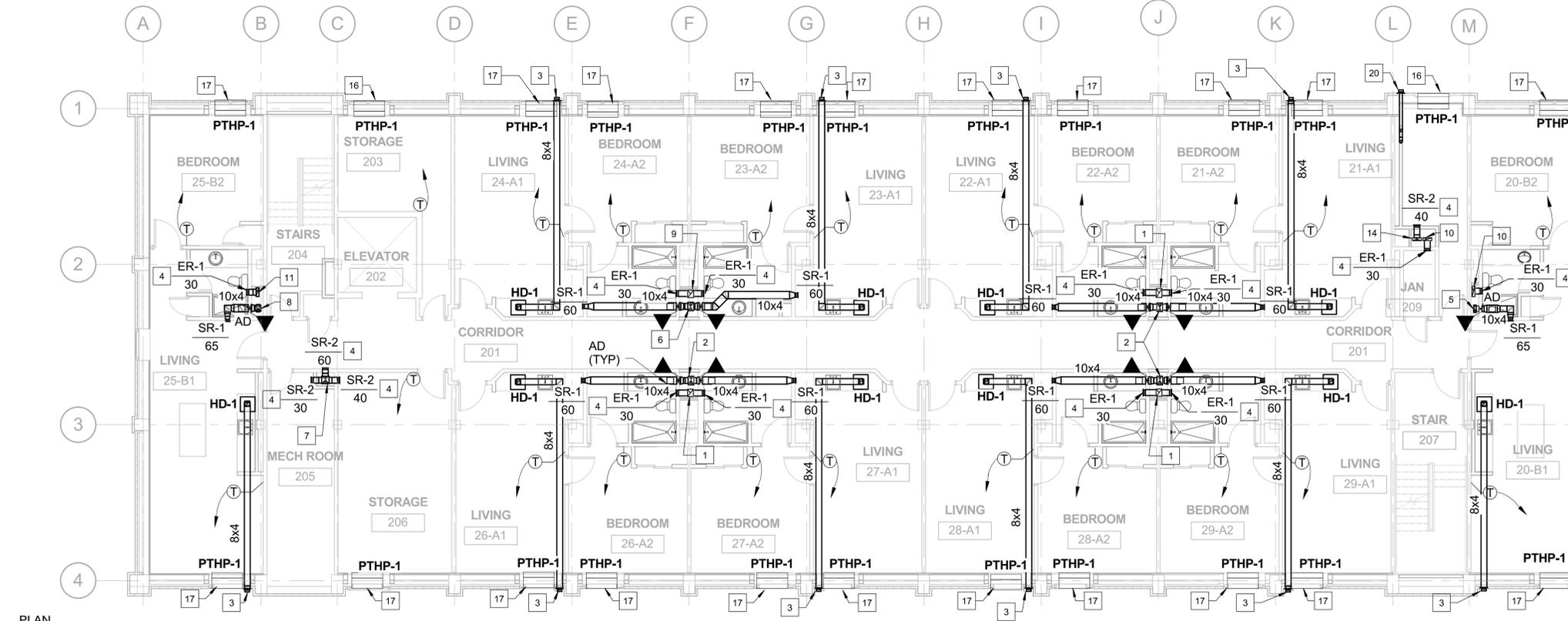
MH101

DRAWFORM REVISION: 10 MAY 2014

GRAPHIC SCALE:



PLAN NORTH
FIRST FLOOR HVAC PLAN - NEW WORK
 SCALE: 1/8" = 1'-0"



PLAN NORTH
SECOND, THIRD AND FOURTH FLOOR HVAC PLANS - NEW WORK
 SCALE: 1/8" = 1'-0"

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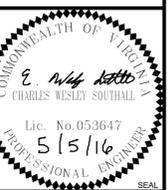
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GENERAL NOTES:

- SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

KEYED NOTES: #

- EXHAUST AIR FROM BELOW. SEE RISER E1 ON SHEET M-802 FOR DUCT SIZES.
- SUPPLY AIR DOWN. SEE RISER S1 ON SHEET M-802 FOR DUCT SIZES. CONNECT EXHAUST DUCT TO BACK OF WALL VENT. WALL VENT SHALL BE PROVIDED W/ BACKDRAFT DAMPER, BALANCING DAMPER AND OUT-OF-THE-WALL, GRILLE-ACCESS FIRE DAMPER. SEE DETAIL A4/M-501.
- SUPPLY AIR DOWN. SEE RISER S2 ON SHEET M-802 FOR DUCT SIZES.
- SUPPLY AIR DOWN. SEE RISER S3 ON SHEET M-802 FOR DUCT SIZES.
- SUPPLY AIR DOWN. SEE RISER S4 ON SHEET M-802 FOR DUCT SIZES.
- SUPPLY AIR DOWN. SEE RISER S5 ON SHEET M-802 FOR DUCT SIZES.
- EXHAUST AIR FROM BELOW. SEE RISER E2 ON SHEET M-802 FOR DUCT SIZES.
- EXHAUST AIR FROM BELOW. SEE RISER E3 ON SHEET M-802 FOR DUCT SIZES.
- EXHAUST AIR FROM BELOW. SEE RISER E4 ON SHEET M-802 FOR DUCT SIZES.
- NEW 60"x18" LOUVER. LOUVER SHALL HAVE MINIMUM FREE AREA OF 3 SF. ATTACH MOTORIZED DAMPER TO INTERIOR FACE OF LOUVER. DAMPER SHALL FAIL UPON LOSS OF POWER. NOT USED.
- SUPPLY AIR DOWN. SEE RISER S6 ON SHEET M-802 FOR DUCT SIZES. PTHP WILL UTILIZE EXISTING WALL OPENING. PROVIDE UNIT WITH SLEEVE TO SPAN DEPTH BETWEEN INTERIOR WALL AND NEW EXTERIOR WALL SYSTEM.
- PTHP REQUIRES NEW WALL OPENING. PROVIDE UNIT WITH SLEEVE TO SPAN DEPTH BETWEEN INTERIOR WALL AND NEW EXTERIOR WALL SYSTEM. MANUAL BALANCING DAMPER VERTICAL IN TAKEOFF.
- PROVIDE 4"Ø DRYER EXHAUST DUCT. DUCT SHALL TERMINATE AT WALL CAP. WALL CAP IS TO BE PROVIDED WITH BACKDRAFT BUT NO SCREEN. INSTALL DRYER DUCT EXHAUST IN ACCORDANCE WITH IMC 2012 SECTION 504. SEE C2/M-501 FOR DRYER DUCT CONNECTION DETAIL.



APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEADS AT NAVAL STATION NEWPORT-NEWPORT, RI

SATISFACTORY TO DATE 4/23/16

DES CWS DRW JL CHK CG

PM / DM MLW/LEJ

BRANCH MANAGER

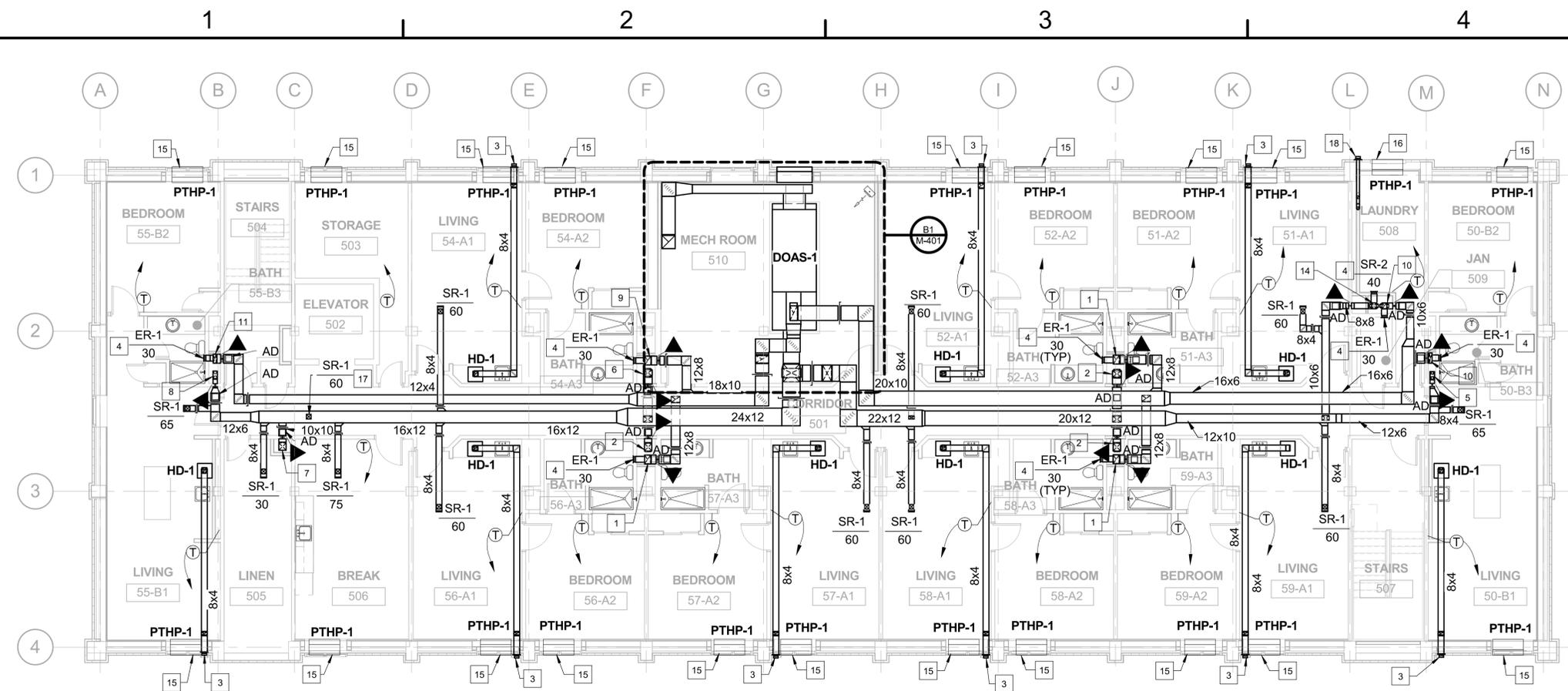
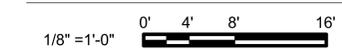
CHIEF ENGINEER DWG

FIRE PROTECTION

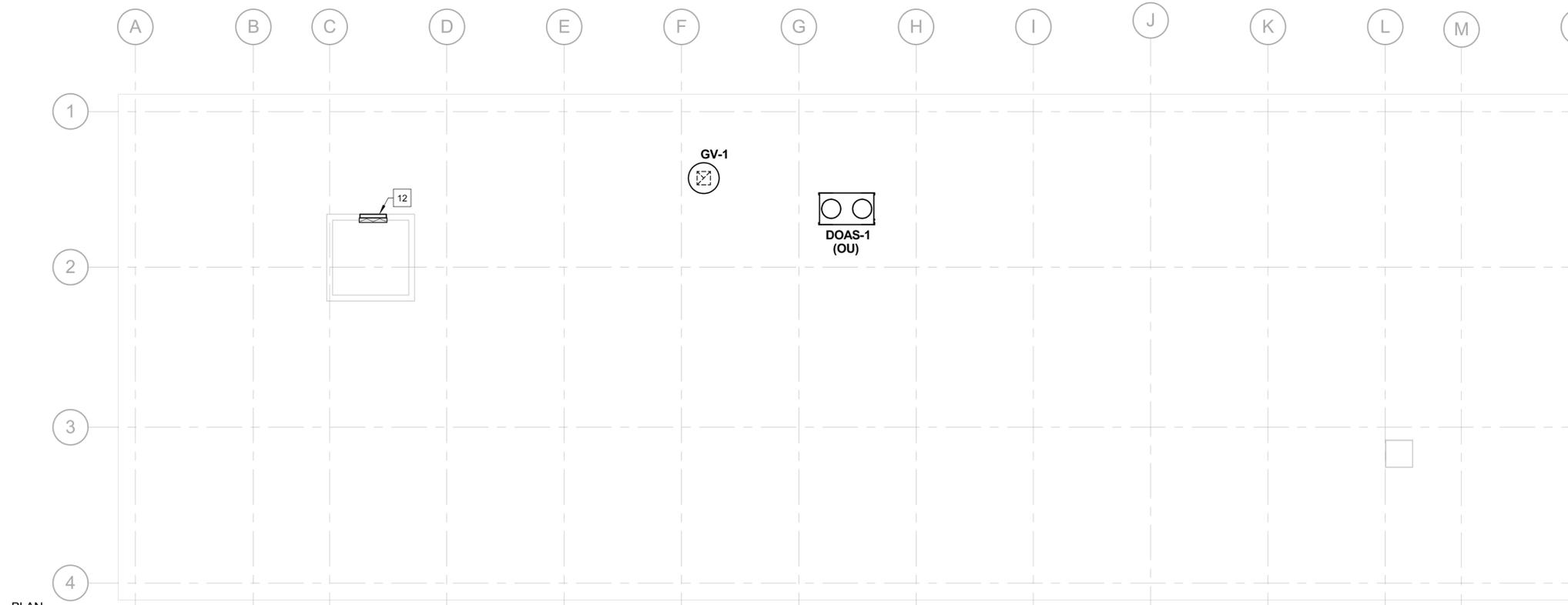
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678
FIFTH FLOOR AND ROOF HVAC PLANS

SCALE: AS NOTED
EPROJCT NO. 1382693
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12722094
SHEET 108 OF 177
MH102

GRAPHIC SCALE:



PLAN NORTH
FIFTH FLOOR HVAC PLAN - NEW WORK
SCALE: 1/8" = 1'-0"



PLAN NORTH
MECH HVAC ROOF PLAN
SCALE: 1/8" = 1'-0"

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C

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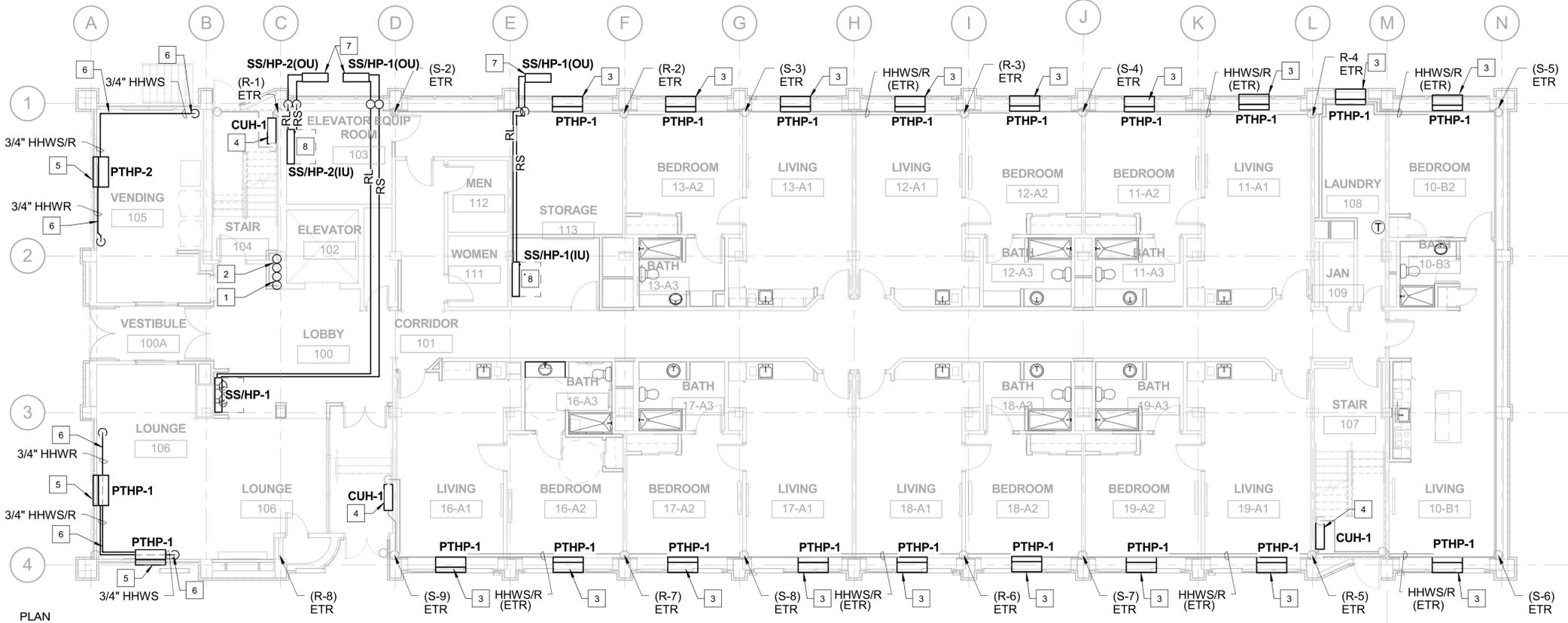
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GENERAL NOTES:

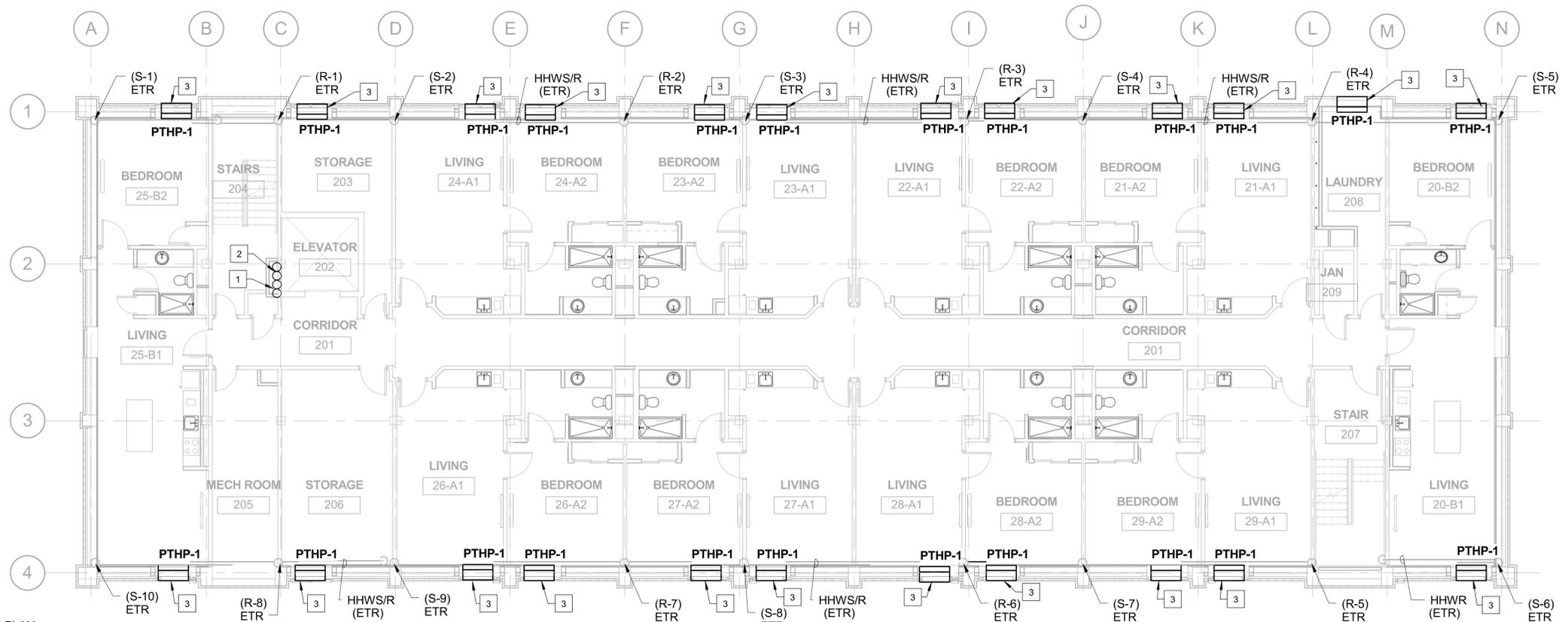
- SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
- SEE M-801 FOR HEATING HOT WATER RISER DIAGRAMS.

KEYED NOTES: #

- 2 1/2" HHW RISERS FROM BASEMENT TO FIFTH FLOOR.
- 3" HHW RISERS FROM BASEMENT TO FIFTH FLOOR.
- CONNECT PTHP TO EXISTING BRANCH PIPING. PROVIDE VALVES AS SHOWN IN DETAIL A2/M-501 FOR FIRST, SECOND, THIRD, AND FOURTH FLOOR (NORTH) PTHPS. PROVIDE VALVES AS SHOWN IN DETAIL A4/M-502 FOR FOURTH FLOOR (SOUTH) PTHPS.
- CONNECT TO CUH TO EXISTING BRANCH PIPING. PROVIDE VALVES AS SHOWN IN DETAIL A2/M-501.
- CONNECT PTHP WITH NEW HHWS/R PIPING. PROVIDE VALVES AS SHOWN IN DETAIL A2/M-501.
- PROVIDE NEW PIPING ENCLOSURES. ENCLOSURES ARE TO BE 16 GAUGE STEEL AND SHALL BE FACTORY PAINTED WHITE. INSTALL SS/HP (OU) ON SUPPORT FRAME. SEE DETAIL B4/M-501. INSTALL WITH MANUFACTURER REQUIRED CLEARANCES. REFRIGERANT PIPING SHALL BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE SS/HP (IU) WITH AUXILIARY DRAIN PAN IN ACCORDANCE WITH IMC 2012 SECTION 307.2.3. DRAIN SHALL BE CONSTRUCTED OF 24 GAUGE GALVANIZED STEEL.



PLAN NORTH
FIRST FLOOR HVAC PIPING PLAN - NEW WORK
 SCALE: 1/8" = 1'-0"



PLAN NORTH
SECOND, THIRD AND FOURTH FLOOR HVAC PIPING PLANS - NEW WORK
 SCALE: 1/8" = 1'-0"



FILE NAME: C:\Revit_Projects\87997-NGS\678\Mod\1\MEP\67897.M_cvsouthall(Rev.000) rvt
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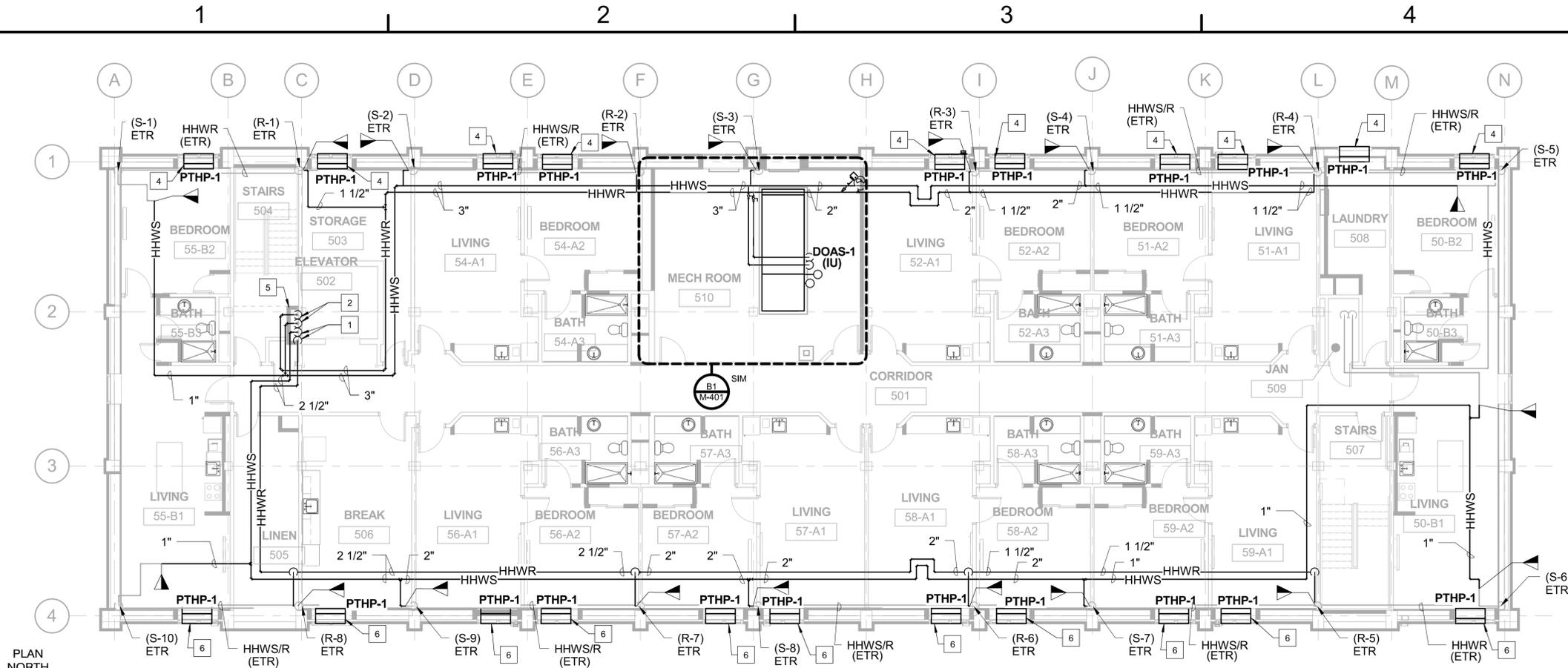
DATE	APP'R
DESCRIPTION	
1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320	
APPROVED	A/E INFO
FOR COMMANDER NAVFAC	
ACTIVITY	
PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHIBRANCH HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI	
SATISFACTORY TO DATE	4/23/16
DES	CWS
DRW	JL
CHK	CG
PM / DM	MLW/EJL
BRANCH MANAGER	
CHIEF ENGINEER	DWG
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
NORTH LIFT	NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
NAVAL STATION NEWPORT	NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678 FIRST, SECOND, THIRD AND FOURTH FLOOR PIPING PLANS - NEW WORK	
SCALE	AS NOTED
EPROJCT NO.	1382693
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12722095
SHEET	109 OF 177
MP101	
DRAWFORM REVISION: 10 MAY 2014	

GENERAL NOTES:

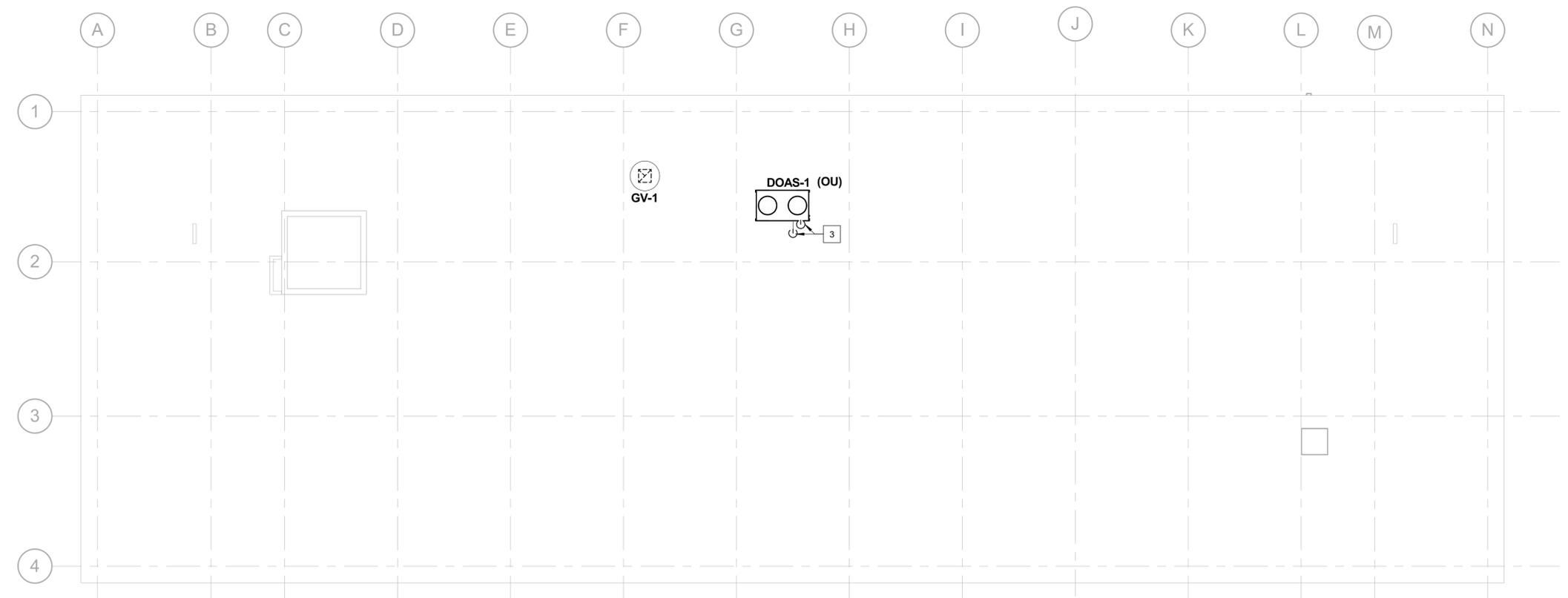
1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
2. SEE M-801 FOR HEATING HOT WATER RISER DIAGRAMS.

KEYED NOTES: #

1. 2 1/2" HHW RISERS DOWN TO BASEMENT.
2. 3" HHW RISERS DOWN TO BASEMENT.
3. REFRIGERANT PIPING DOWN TO MECH ROOM.
4. CONNECT PTHP TO EXISTING BRANCH PIPING. PROVIDE VALVES AS SHOWN IN DETAIL A2/M-501. LOCATE PIPING IN RATED ASSEMBLY. SEE ARCHITECTURAL FOR DETAIL.
5. LOCATE PIPING IN RATED ASSEMBLY. SEE ARCHITECTURAL FOR DETAIL.
6. CONNECT PTHP TO EXISTING BRANCH PIPING. PROVIDE VALVES AS SHOWN IN DETAIL A4/M-502.



FIFTH FLOOR HVAC PIPING PLAN - NEW WORK
SCALE: 1/8" = 1'-0"



MECH PIPING ROOF PLAN
SCALE: 1/8" = 1'-0"



DATE	APPROVED
DESCRIPTION	FOR COMMANDER NAVFAC
SWN	ACTIVITY
	PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI
	SATISFACTORY TO DATE 4/23/16
	DES CWS DRW JL CHK CG
	PM/DM MLW/LEJ
	BRANCH MANAGER
	CHIEF ENGINEER DWG
	FIRE PROTECTION
	DEPARTMENT OF THE NAVY
	NAVAL FACILITIES ENGINEERING COMMAND
	NORTH LIFT
	NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
	NAVAL STATION NEWPORT
	NEWPORT, RHODE ISLAND
	NEWPORT, RHODE ISLAND
	RENOVATION OF BUILDING 678
	FIFTH FLOOR PIPING AND ROOF PLANS
	SCALE: AS NOTED
	EPROJECT NO. 1382693
	CONSTR. CONTR. NO.
	NAVFAC DRAWING NO. 12722096
	SHEET 110 OF 177
	MP102
	DRAWING REVISION: 10 MAY 2014

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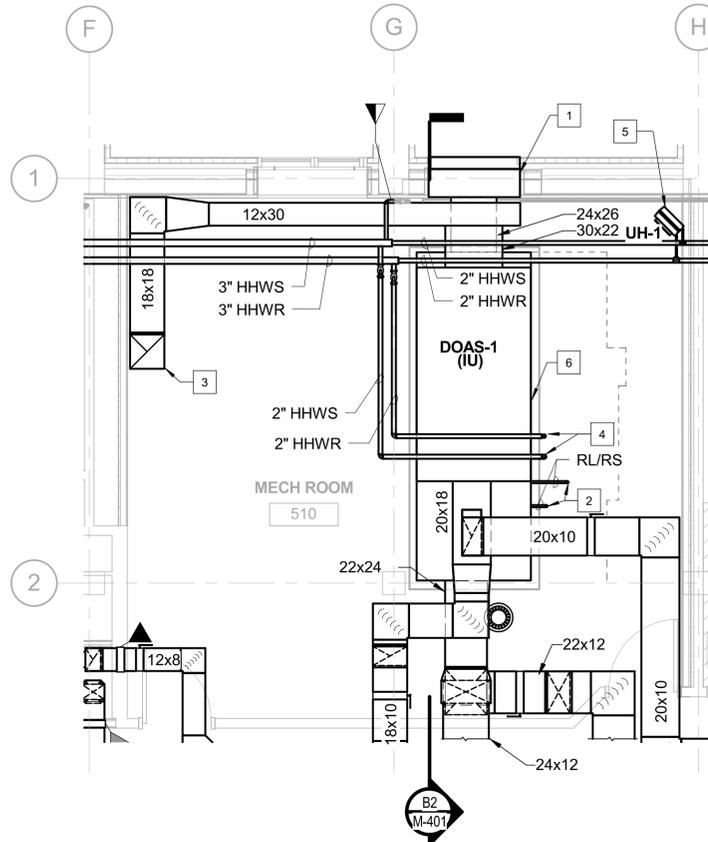
GENERAL NOTES:

- 1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

KEYED NOTES: #

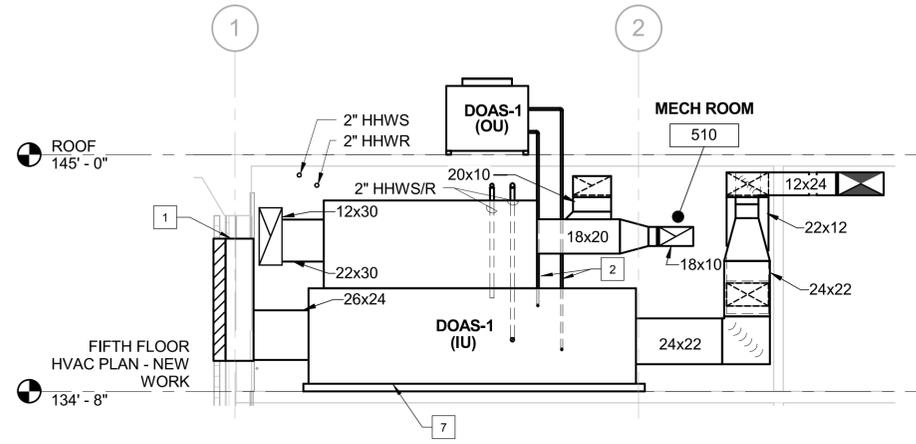
- 1. 48x36 PLENUM. PLENUM SHALL BE ATTACHED TO LOUVER (SEE ARCH). LOUVER IS SIZED TO ALLOW DOAS-1 (IU) TO BE REPLACED THROUGH THE LOUVER OPENING. PROVIDE LARGER PLENUM AND LOUVER AS REQUIRED IF DOAS IS LARGER THAN BASIS OF DESIGN.
- 2. REFRIGERANT PIPING CONNECTING DOAS-1(IU) AND DOAS-1(OU). PIPING SHALL BE SIZED AND ROUTED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. RELIEF DUCT UP TO GV-1 ON ROOF ABOVE.
- 3. SEE C4/M-502 FOR DOAS HHW COIL CONNECTION DETAIL.
- 4. SEE C2/M-502 FOR HOT WATER UNIT HEATER PIPING DETAIL. PROVIDE CONDENSATE TRAP AND ROUTE CONDENSATE TO FLOOR DRAIN. SEE DETAIL C1/M-501.
- 5. DOAS SHALL BE MOUNTED ON HOUSEKEEPING SLAB. SEE STRUCTURAL FOR SLAB DETAIL.

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B1 ENLARGED MECH ROOM HVAC PLAN - NEW WORK

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



B2 FIFTH FLOOR HVAC MECH ROOM - SECTION

SCALE: NOT TO SCALE

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BURNS MEDONNELL
1305 EXECUTIVE BLVD.
SUITE 160
CHESAPEAKE, VA 23320

APPROVED FOR COMMANDER NAVFAC

ACTIVITY PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI

SATISFACTORY TO DATE 4/23/16

DES CWS DRW JL CHK CG

PM / DM MLW/LEJ

BRANCH MANAGER

CHIEF ENGINEER DWG

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678
ENLARGED MECH ROOM HVAC PLANS

SCALE: AS NOTED

PROJECT NO. 1382693

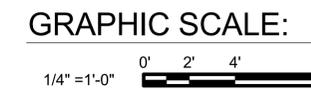
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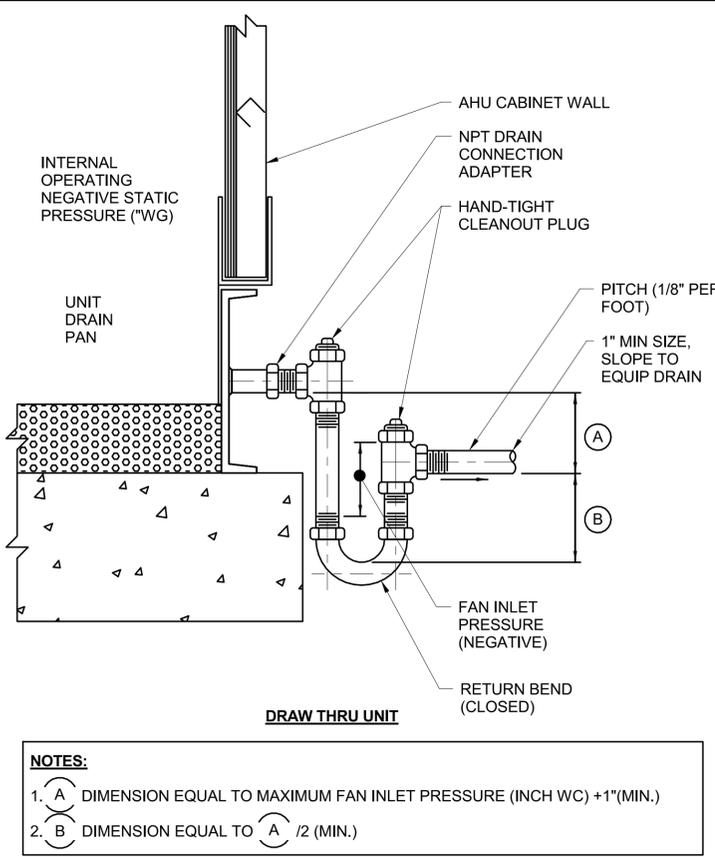
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SHEET 111 OF 177

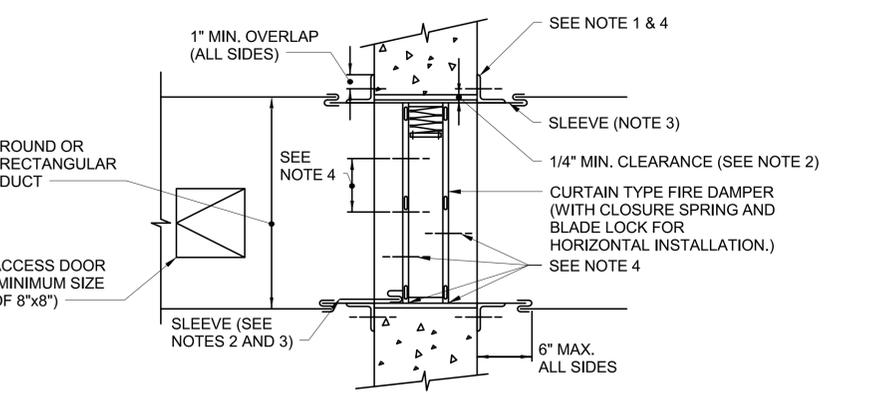
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DRAWING REVISION: 10 MAY 2014

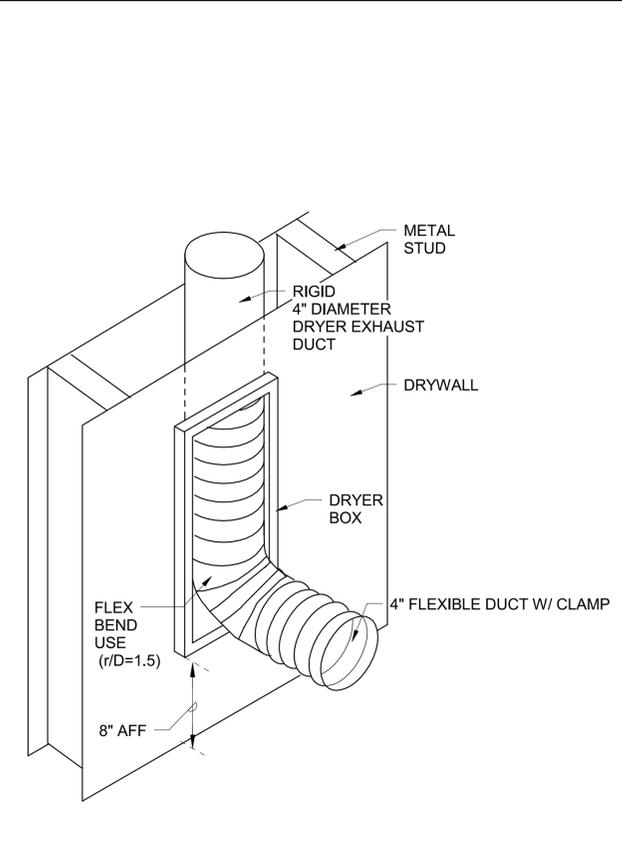




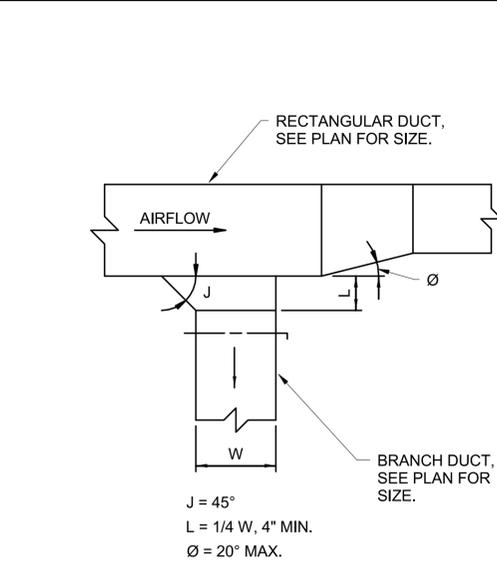
C1 DOAS CONDENSATE TRAP DRAIN
SCALE: NOT TO SCALE



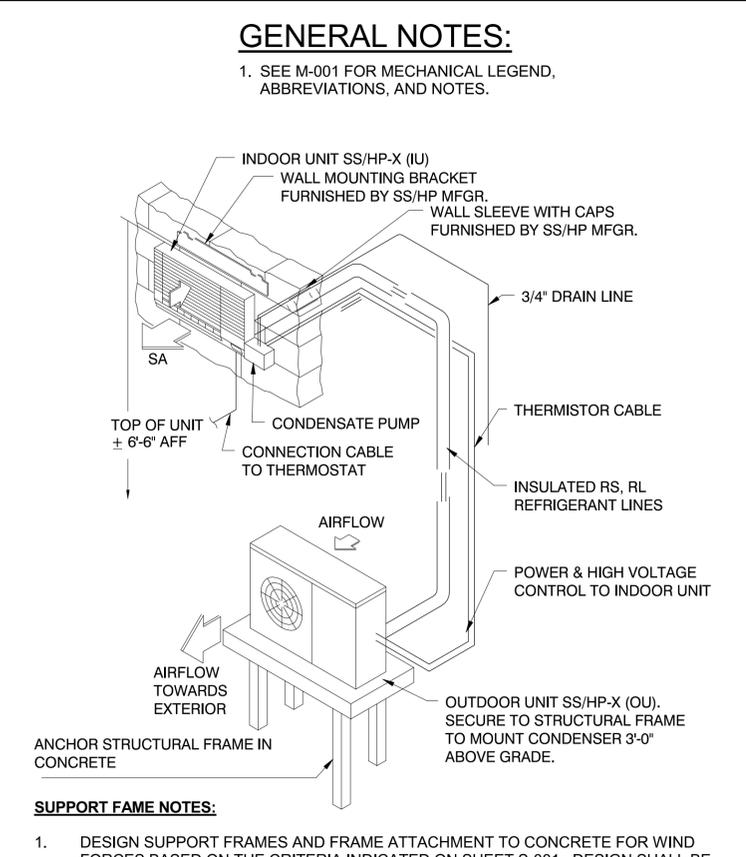
A1 FIRE DAMPER W/ACCESS DOOR
SCALE: NOT TO SCALE



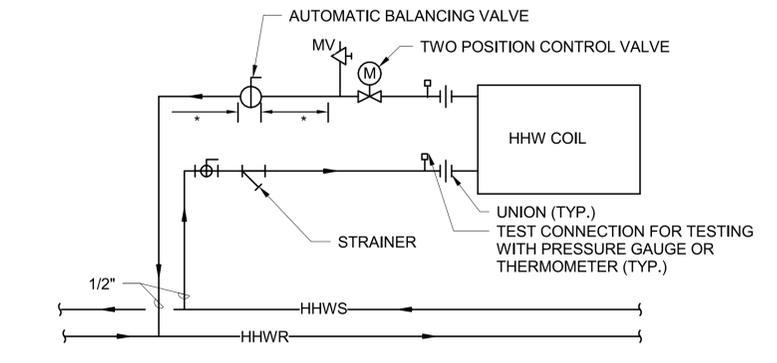
C2 DRYER DUCT CONNECTION DETAIL
SCALE: NOT TO SCALE



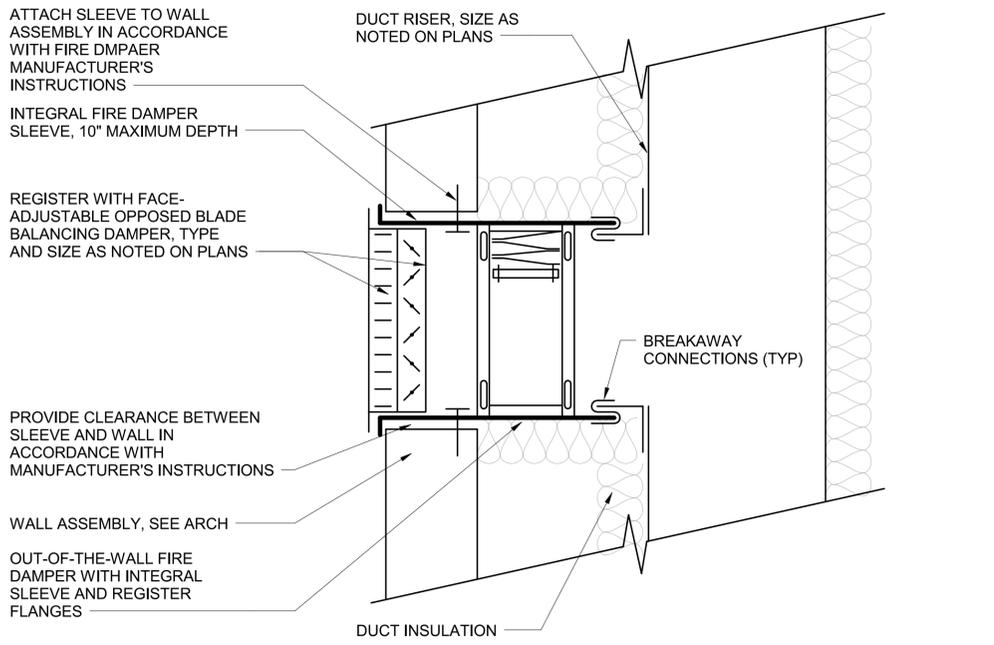
C3 BRANCH DUCT TAKE-OFF
SCALE: NOT TO SCALE



B4 DUCTLESS SPLIT AC-WALL MOUNT
SCALE: NOT TO SCALE



A2 PTHP/CUH HTG COIL PIPING (2-WAY VALVE)
SCALE: NOT TO SCALE



A4 FIRE DAMPER IN WALL TERMINATING W/ WALL REGISTER
SCALE: NOT TO SCALE

GENERAL NOTES:

1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

NOTES:

1. TAKEOFF ON BOTH SIDES OR SINGLE SIDE AS REQUIRED BY PLANS.
2. SEE SMACNA MANUAL FOR TAP-IN DETAILS.
3. WHEN FITTING HAS ONLY ONE SIDE SLOPED FOR A SINGLE SIDE TAKE-OFF, THE TAP-IN SHALL BE INSTALLED IN SLOPED SIDE.
4. CLINCH LOCK CONNECTION TO DUCT SHALL HAVE CORNER SEALS. (SEE SMACNA MANUAL). EXTRACTORS, SCOOPS, DEFLECTORS OR DAMPERS THAT PROTRUDE INTO THE MAIN DUCT SHALL NOT BE USED. BALANCING DAMPERS SHALL BE LOCATED TO PREVENT PROTRUSION INTO THE MAIN DUCT AND TO PROVIDE STABLE AIR FLOW AND MINIMAL NOISE WHEN ADJUSTED.

SUPPORT FAME NOTES:

1. DESIGN SUPPORT FRAMES AND FRAME ATTACHMENT TO CONCRETE FOR WIND FORCES BASED ON THE CRITERIA INDICATED ON SHEET S-001. DESIGN SHALL BE APPROVED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
2. SPACE SUPPORT FRAMES AND SIZE CONCRETE/CAST IRON PADS TO LIMIT THE BEARING PRESSURE UNDER THE PADS TO 60 PSF. WHEN SIZING THE FRAME AND CONCRETE ANCHOR USE THE NOMINAL DESIGN WIND SPEED WITH A SLIDING AND UPLIFT RESISTANCE FACTOR OF SAFETY OF 1.5.
3. MEMBERS SHALL BE HOT-DIPPED GALVANIZED STEEL.
4. ALTERNATIVES TO SUPPORT FRAME SHOWN ARE ACCEPTABLE IF SUPPORT MEETS REQUIREMENTS OF NOTE 1 ABOVE.

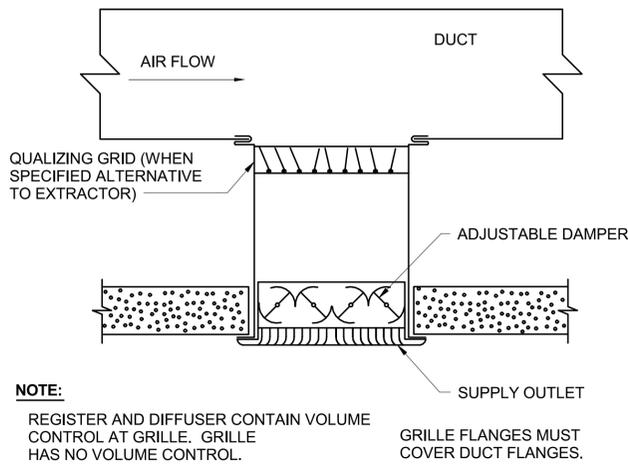
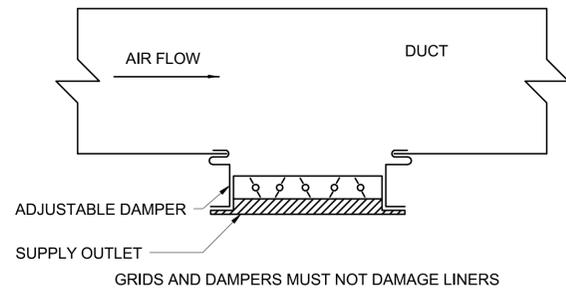
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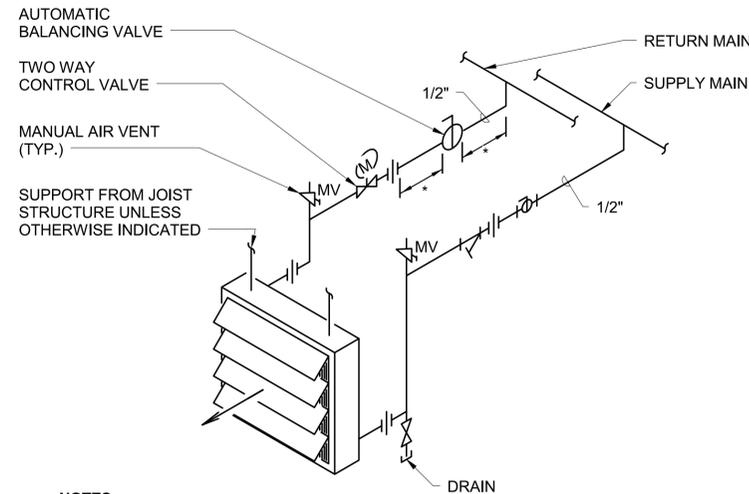
DATE	APPROVED
DESCRIPTION	FOR COMMANDER NAVFAC
SW	ACTIVITY
	PER SAT TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI
	SATISFACTORY TO DATE 4/23/16
	DES: CWS DRW: JL CHK: CG
	PM/DM: MLW/LEJ
	BRANCH MANAGER
	CHIEF ENGINEER: DWG
	FIRE PROTECTION
	NAVAL FACILITIES ENGINEERING COMMAND
	NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND
	NEWPORT, RHODE ISLAND
	NEWPORT, RHODE ISLAND
	RENOVATION OF BUILDING 678
	MECHANICAL DETAILS
	SCALE: AS NOTED
	EPROJCT NO. 1382693
	CONSTR. CONTR. NO.
	NAVFAC DRAWING NO. 12722098
	SHEET 112 OF 177
	M-501
	DRAWING REVISION: 10 MAY 2014

GENERAL NOTES:

1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

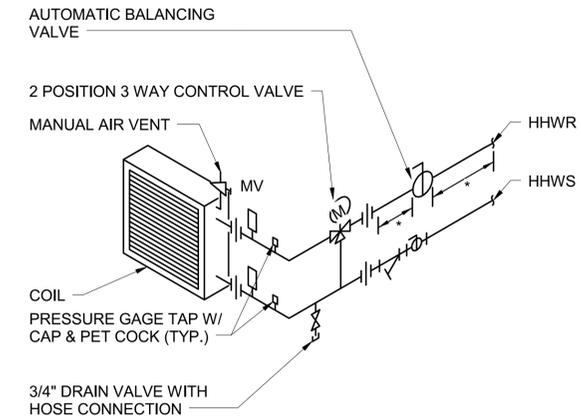


C1 DIFFUSER, GRILLE, & REGISTER CONNECTIONS
SCALE: NOT TO SCALE



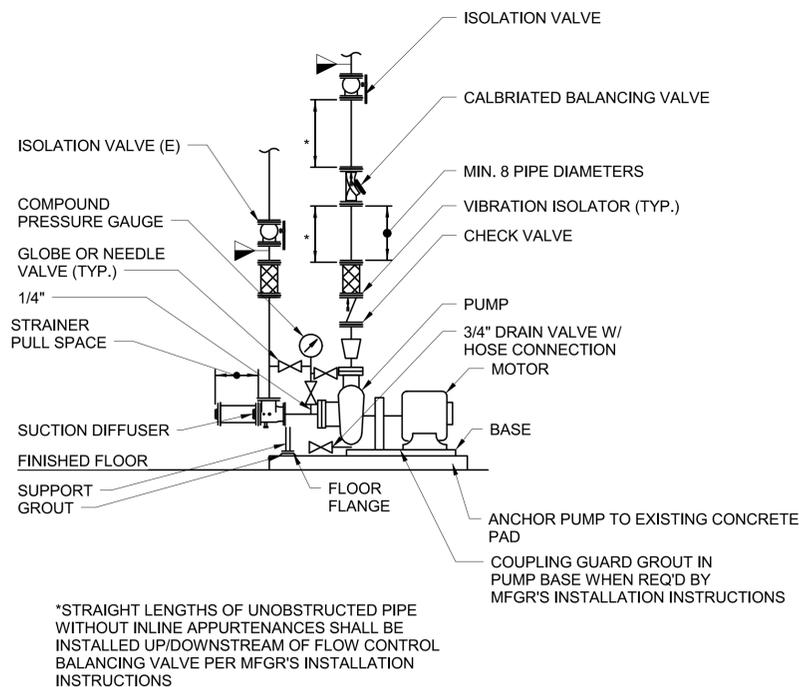
NOTES:
1. AUTOMATIC BALANCING VALVE SHALL FUNCTION AS A SERVICE VALVE WHEN IN FULLY CLOSED POSITION.
*THE AUTOMATIC BALANCING VALVE SHALL BE INSTALLED BY THE CONTRACTOR IN CONFORMANCE WITH VALVE MFGR'S RECOMMENDED SPACING UP/DOWNSTREAM FROM PIPE CHANGES IN DIRECTION AND/OR OTHER VALVES/COMPONENTS IN THE PIPING.

C2 HOT WATER UNIT HEATER PIPING
SCALE: NOT TO SCALE

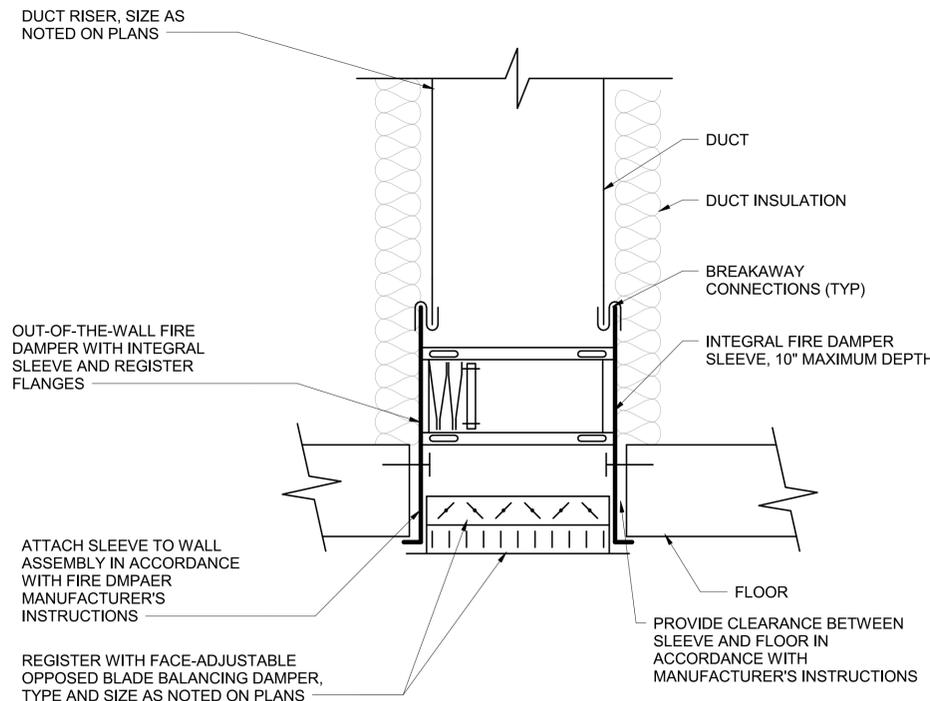


NOTES:
1. AUTOMATIC BALANCING VALVE SHALL FUNCTION AS A SERVICE VALVE WHEN IN FULLY CLOSED POSITION.
* STRAIGHT LENGTHS OF UNOBSTRUCTED PIPE WITHOUT INLINE APPURTENANCES SHALL BE INSTALLED UP AND DOWNSTREAM OF AUTOMATIC BALANCING VALVES PER MFGR. INSTALLATION INSTRUCTIONS.

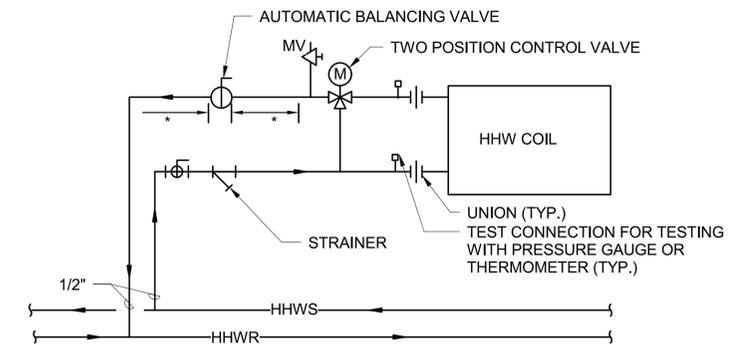
C4 DOAS HHW COIL CONNECTION
SCALE: NOT TO SCALE



A1 CLOSE COUPLED PUMP- (END SUCTION)
SCALE: NOT TO SCALE



A2 FIRE DAMPER IN FLOOR TERMINATING W/ SUPPLY REGISTER
SCALE: NOT TO SCALE



NOTES:
1. AUTOMATIC BALANCING VALVE SHALL FUNCTION AS A SERVICE VALVE WHEN IN FULLY CLOSED POSITION.
*THE AUTOMATIC BALANCING VALVE SHALL BE INSTALLED BY THE CONTRACTOR IN CONFORMANCE WITH VALVE MFGR'S RECOMMENDED SPACING UP/DOWNSTREAM FROM PIPE CHANGES IN DIRECTION AND/OR OTHER VALVES/COMPONENTS IN THE PIPING.

A4 PTHP/CUH HTG COIL PIPING (3-WAY VALVE)
SCALE: NOT TO SCALE

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REV DATE: 5/20/16 3:42:16 PM

DATE	DESCRIPTION	BY
1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320		
APPROVED		
FOR COMMANDER NAVFAC		
ACTIVITY		
PER SA-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI		
SATISFACTORY TO DATE		
DES	DRW	CHK
CWS	CWS	CHK
PM / DM	MLW/LEJ	
BRANCH MANAGER		
CHIEF ENGINEER		
DWG		
FIRE PROTECTION		
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND NORTH LIFT NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND RENOVATION OF BUILDING 678 MECHANICAL DETAILS		
SCALE: AS NOTED		
PROJECT NO. 1382693		
CONSTR. CONTR. NO.		
NAVFAC DRAWING NO. 12722099		
SHEET 113 OF 177		
M-502		

GENERAL NOTES:

- 1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

HVAC PUMP SCHEDULE

MARK	TYPE	SERVICE	CAPACITY (GPM)	HEAD (FT WC)	MOTOR RPM	MOTOR HP	MOTOR TYPE	ELECTRICAL			NOTES
								VOLTS	PH	HZ	
HHWP-1	CLOSE COUPLED	HHW - EAST	84.8	46	1760	3	ODP	208	3	60	1,2
HHWP-2	CLOSE COUPLED	HHW - EAST	84.8	46	1760	3	ODP	208	3	60	1,2
HHWP-3	CLOSE COUPLED	HHW - WEST	57.8	48	1760	2	ODP	208	3	60	1,3
HHWP-4	CLOSE COUPLED	HHW - WEST	57.8	48	1760	2	ODP	208	3	60	1,3

NOTES:
 1. PROVIDE PUMPS WITH VARIABLE FREQUENCY DRIVES.
 2. PUMP SHALL BE ABLE TO OPERATE TO MINIMUM FLOW OF 25 GPM AND MINIMUM HEAD OF 20 FT WG.
 3. PUMP SHALL BE ABLE TO OPERATE TO MINIMUM FLOW OF 22 GPM AND MINIMUM HEAD OF 18 FT WG.

CABINET UNIT HEATER SCHEDULE

MARK	QTY	NOM. CFM	POWER	CAPACITY (MBH)	EAT (°F)	EWT (°F)	FLOW (GPM)	WPD (FT WC)
CUH-1	3	140	60 W	14.4	55	200	1.4	2.6

UNIT HEATER SCHEDULE

MARK	QTY	NOM. CFM	POWER	CAPACITY (MBH)	EAT (°F)	EWT (°F)	FLOW (GPM)	MAX WPD (FT WC)	NOTES
UH-1	1	245	16 W	7.2	55	200	0.8	0.80	MOUNT 6'-6" AFF

PACKAGED TERMINAL HEAT PUMP SCHEDULE

MARK	QTY	LOCATION	UNIT CFM	DX COOLING COIL @ 95F AMBIENT			HEAT PUMP @ 47F AMBIENT				HOT WATER HEATING COIL				ELECTRICAL				
				TOTAL (MBH)	DB	WB	EER	TOTAL (MBH)	DB	WB	COP	CAPACITY (MBH)	EAT (°F)	GPM	EWT (°F)	MAX WPD (IN WC)	VOLTS	PHASE	FLA
PTHP-1	110	WALL MOUNTED	340	7.6	80	67	12.0	6.8	70	60	3.3	14.9	70	1.0	200	0.90	208V	1PH	3.9
PTHP-2	1	WALL MOUNTED	340	12.0	80	67	11.0	11.3	70	60	3.1	16.9	70	1.0	200	0.90	208V	1PH	5.8

MINI-SPLIT SYSTEM AIR CONDITIONER SCHEDULE

MARK	INDOOR UNIT			OUTDOOR UNIT							REFRIGERANT TYPE
	FAN SPEEDS / AIRFLOWS	ELECTRICAL V/PH/HZ	FAN FLA	TAG	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	POWER (W)	MCA	VOLTS	PH	
SS/HP-1	120-380	208/1/60	0.67	SS/HP-1 (IU)	9.0	10.9	1500	11	208	1	R-410A
SS/HP-2	200-410	208/1/60	0.67	SS/HP-2 (IU)	15.0	18.0	3000	15	208	1	R-410A

GRAVITY RELIEF VENT SCHEDULE

MARK	CFM	SIZE (LENGTH x DEPTH)	DUCT CONNECTION SIZE	ESP	DAMPER (BY VENT MFGR.)				
					TYPE	SIZE	MAX APD (IN W.G.)	VOLTS	PHASE
GV-1	1660	24x24	18x18	0.10	PARALLEL	18x18	0.05	120	1

DIFFUSER, REGISTER, & GRILLE SCHEDULE (DRG)

MARK	DESCRIPTION	MOUNTING	FACE SIZE	NECK SIZE	LOAD PRESS DROP (IN WC)
ER-1	EXHAUST REGISTER	SURFACE	8x8	8x8	0.05
SR-1	SUPPLY REGISTER	SURFACE	6x6	6x6	0.10
SR-2	SUPPLY REGISTER	SURFACE	8x8	8x8	0.10

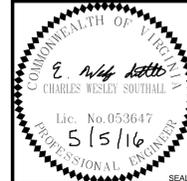
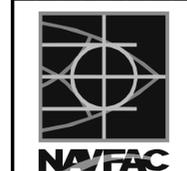
- NOTES:
 1. MOUNT SIDEWALL MOUNTED ER-1 AT 7'-0" AFF. 2. MOUNT SIDEWALL MOUNTED SR-1 AT 7'-3" AFF.

FAN SCHEDULE

MARK	AREA SERVED	FAN TYPE	AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN. W.G.)	MIN. MOTOR HP	OPERATING BHP	MOTOR TYPE	VOLTS	PHASE	DRIVE TYPE
SF-1	BASEMENT	INLINE CENTRIFUGAL	1200	0.25	0.33	0.23	ODP	120	1	DIRECT

NOTES:
 1. PROVIDE FAN WITH ECM MOTOR AND VARIABLE VOLUME CAPABILITY TO ALLOW LOW SPEED AIRFLOW OF 300 CFM.

DATE	APP'R



BURNS MEDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23320

APPROVED	A/E INFO
FOR COMMANDER NAVFAC	
ACTIVITY	PER SA-10 DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI
SATISFACTORY TO DATE	4/23/16
DES	CWS
DRW	JL
CHK	CG
PM / DM	MLW/EJL
BRANCH MANAGER	
CHIEF ENGINEER	DWG
TIRE PROTECTION	

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND
 NORTH LPT
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678
 MECHANICAL SCHEDULES

SCALE	AS NOTED
EPROJCT NO.	1382693
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12722100
SHEET	114 OF 177
M-601	

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GENERAL NOTES:

- 1. SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.

DEDICATED OUTDOOR AIR UNIT SCHEDULE 1 OF 2

MARK	SUPPLY FAN				EXHAUST FAN				DX COOLING COIL			DX HEAT PUMP COIL		HOT WATER HEATING COIL DATA					
	CFM	ESP (IN WC)	TSP (IN WC)	MIN. MOTOR HP	CFM	ESP (IN WC)	TSP (IN WC)	MIN. MOTOR HP	EAT (°F DB/WB)	SENSIBLE CAPACITY (MBH)	TOTAL CAPACITY (MBH)	EAT (°F)	CAPACITY (MBH)	BTUH	EAT (°F)	EWT (°F)	GPM	MAX WPD (FT WC)	MAX. COIL FV (FPM)
DOAS-1	3885	1.3	4.2	8	1660	0.9	2.1	1.3	78.0 / 72.6	104.6	264.2	40.0	64.1	256,410	10.0	200	25.6	2.0	500

NOTES:

- UNIT SHALL BE PROVIDED WITH UNIT MOUNTED DISCONNECT SWITCHES.
- COOLING COIL CAPACITIES ARE NET AND DO NOT NOT CONTAIN UNIT HEAT GAIN.
- CONDENSER PERFORMANCE IS BASED ON OUTSIDE AMBIENT TEMPERATURE OF 92°.
- PROVIDE UNIT WITH FACTORY VFD AND UNIT CONTROL PANEL. SEE M1701 FOR REQUIRED FACTORY INSTALLED AND TESTED SENSORS AND DEVICES.
- UNIT SHALL HAVE MERV 8 PRE-FILTER SECTIONS.
- UNIT SHALL HAVE MERV 13 FINAL FILTER SECTION ON OUTSIDE AIR.
- PROVIDE UNIT WITH ASSOCIATED DX CONDENSING UNIT.
- PROVIDE UNIT WITH HOT GAS REHEAT CAPABILITY FOR HUMIDITY CONTROL.
- PROVIDE INDOOR UNIT WITH SINGLE POINT ELECTRICAL CONNECTION.

DEDICATED OUTDOOR AIR UNIT SCHEDULE 2 OF 2

MARK	ENERGY WHEEL - SUMMER CONDITIONS						ENERGY WHEEL - WINTER CONDITIONS						ELECTRICAL (INDOOR/CONDENSING UNIT)			
	OUTSIDE AIR CFM	OUTSIDE AIR EAT (°F DB/WB)	OUTSIDE AIR LAT (°F DB/WB)	OUTSIDE AIR APD (IN WC)	ENTERING EXHAUST CFM	ENTERING EXHAUST AIR EAT (°F DB/WB)	EXHAUST AIR APD (IN WC)	OUTSIDE AIR CFM	OUTSIDE AIR EAT (°F DB/WB)	OUTSIDE AIR LAT (°F DB/WB)	OUTSIDE AIR APD (IN WC)	ENTERING EXHAUST CFM	ENTERING EXHAUST AIR EAT (°F DB/WB)	EXHAUST APD (IN WC)	V/HZ/PH	FLA
DOAS-1	3855	78.0/74.0	78.0/72.6	1.0	1660	78.0/63.4	1.0	3885	10.0/8.0	21.2/19.6	1.0	1660	70.0/58.0	1.0	208/3/60	22 / 66

DUCT CONSTRUCTION SCHEDULE

SYSTEM	LOCATION	DESCRIPTION	PRESSURE CLASS (IN WC)	LEAKAGE CLASS (CFM /100 SF)		SEAL CLASS	DALT
				ROUND	RECTANGULAR		
OUTSIDE AIR	CONCEALED	SINGLE WALL FIELD INSULATED	2.0	3	6	A	YES
EXHAUST AIR	CONCEALED	SINGLE WALL FIELD INSULATED	2.0	3	6	A	YES
DRYER EXHAUST	CONCEALED	SINGLE WALL NOT INSULATED	1.0	3	6	A	NO

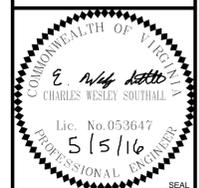
RANGE HOOD SCHEDULE

MARK	CFM	SIZE (INCHES) [LENGTH x DEPTH]	DUCT CONNECTION SIZE	ESP (IN WC)	FAN	ELECTRICAL			NOTES
					MINIMUM HP	VOLTS	PH	FLA	
HD-1	100	30x17.5	5Ø	0.10	1/5	120	3	2	
HD-2	100	30x17.5	5Ø	0.10	1/5	120	3	2	1

NOTES:

- HOOD SHALL HAVE REMOTE SWITCH FOR ADA SUITE. INSTALL SWITCH IN ACCORDANCE WITH SECTIONS 308 AND 309 OF ADA GUIDELINES. SWITCH SHALL BE MOUNTED AT 3'-4" ABOVE FLOOR AND AS LOCATED ON THE DRAWINGS.

DATE	DESCRIPTION	BY



BURNS MEDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23320

APPROVED FOR COMMANDER NAVFAC

ACTIVITY PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI

SATISFACTORY TO DATE 4/23/16

DES	CWS	DRW	CWS	CHK	CG
PM / DM					MLW/LEJ

BRANCH MANAGER
 CHIEF ENGINEER
 FIRE PROTECTION

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NORTH IFT
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND
 NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678
 MECHANICAL SCHEDULES

SCALE: AS NOTED
 EPROJCT NO. 1382693
 CONSTR. CONTR. NO.
 NAVFAC DRAWING NO. 12722101
 SHEET 115 OF 177
M-602

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CONTROL SCHEMATIC SYMBOLS

	COIL, COOLING		PRESSURE GAGE
	COIL, COOLING, DIRECT-EXPANSION		TEMPERATURE GAGE
	COIL, HEATING		SMOKE DETECTOR, DUCT-MOUNTED
	HOT GAS REHEAT		FLOW METER
	THERMOWELL IN PIPE		TEMPERATURE SENSOR
	VALVE, BALANCING		SPACE THERMOSTAT WITH SPECIFIED IO FUNCTIONS
	PUMP		SPACE HUMIDITY SENSOR WITH SPECIFIED IO FUNCTIONS
	DAMPER, PARALLEL BLADE NORMALLY OPEN OR CLOSED AS SHOWN		TEMPERATURE AVERAGING SENSOR
	DAMPER, OPPOSED BLADE NORMALLY OPEN OR CLOSED AS SHOWN		TEMPERATURE LOW LIMIT / FREEZESTAT
	CONTROL VALVE, TWO WAY, DDC NORMALLY OPEN OR CLOSED AS SHOWN		DUCT STATIC PRESSURE SENSOR
	PRESSURE SENSOR, DIFFERENTIAL		DIFFERENTIAL PRESSURE SENSOR
	FAN		FLOAT SWITCH
	FAN WITH AIR FLOW MEASURING STATION		AIR FLOW MEASURING STATION
	RELAY		EMERGENCY HVAC SHUTDOWN
	STARTER		BINARY INPUT
	VARIABLE FREQUENCY DRIVE		BINARY OUTPUT
	DISCONNECT		ANALOG INPUT
	FILTER		ANALOG OUTPUT
	WINDOW SWITCH		

ABBREVIATIONS AND ACRONYMS

2P TWO-POSITION (CONTROL SIGNAL)	M&C MONITORING & CONTROL (SOFTWARE)
ADJ ADJUSTABLE	MA MIXED AIR
AFMA AIRFLOW MEASUREMENT ARRAY	MINOA MINIMUM OUTSIDE AIR
AI ANALOG INPUT	MS MOTOR STARTER
ALM ALARM	MUA MAKE UP AIR
AMS AIRFLOW MEASUREMENT STATION	N/A NOT APPLICABLE
AO ANALOG OUTPUT	NC NORMALLY CLOSED
BA BYPASS AIR	NIC NETWORK CONFIGURATION INPUT
BD BAROMETRIC BACK-DRAFT DAMPER	NO NORMALLY OPEN
BLDG BUILDING	OA OUTSIDE AIR
C COMMAND (MODULATING CONTROL SIGNAL)	OAT OUTSIDE AIR TEMPERATURE
CLG COOLING	OCC OCCUPIED
COM COMMON	ODT ON DELAY TIMER
COMP COMPARATOR	OWS OPERATOR WORKSTATION
CP CONFIGURATION PROPERTY	P PRESSURE
CT CURRENT TRANSFORMER/SWITCH	PC PRE-COOLING
D DAMPER	PH PREHEAT
DA DISCHARGE AIR	PMP PUMP
DB DEADBAND	PP POSITIVE POSITIONER
DDC DIRECT DIGITAL CONTROLLER	R RELAY
DI DIGITAL INPUT	RA RETURN AIR
DO DIGITAL OUTPUT	REV REVERSE (CONTROL ACTION)
DIFF DIFFERENCE	RF RETURN FAN
DIR DIRECT (CONTROL ACTION)	RH RELATIVE HUMIDITY
DIS DISABLE	RL REFRIGERANT LIQUID
DISP DISPLAY	RLA RELIEF AIR
DX DIRECT EXPANSION (UNIT)	RM ROOM
EA EXHAUST AIR	RS REFRIGERANT SUCTION
ECO ECONOMIZER	RST RESET
EF EXHAUST FAN	RT RATE
ECM ELECTRONICALLY COMMUTATED MOTOR	RTU ROOF TOP UNIT
ENA ENABLE	S STATUS
EP ELECTRIC TO PNEUMATIC TRANSDUCER	SA SUPPLY AIR
EPS ELECTRIC TO PNEUMATIC SWITCH	SEC SECONDARY
ESS EMERGENCY SHUTDOWN SWITCH	SF SUPPLY FAN
F FLOW	SMK SMOKE
FACP FIRE ALARM CONTROL PANEL	SNVT STANDARD NETWORK VARIABLE TYPE
FLT FILTER	SOO SEQUENCE OF OPERATION
FS FREEZE STAT	SP SETPOINT
GUI GRAPHICAL USER INTERFACE	SS START/STOP COMMAND
HG HOT GAS BYPASS	STAT THERMOSTAT
HHWR HEATING HOT WATER RETURN	SYS SYSTEM
HHWS HEATING HOT WATER SUPPLY	SCHD SCHEDULER
HL HIGH LIMIT	T TEMPERATURE
HTG HEATING	TAP TAP, PRESSURE
HUM HUMIDIFIER	UNOCC UNOCCUPIED
HX HEAT EXCHANGER	V VALVE
I/O INPUT/OUTPUT	VAV VARIABLE AIR VOLUME
LAT LEAVING AIR TEMPERATURE	VFD VARIABLE FREQUENCY DRIVE
LDP LOCAL DISPLAY PANEL	WB WET BULB (TEMPERATURE)
LL LOW LIMIT	ZN ZONE

BUILDING CONTROLS SYSTEM GENERAL SEQUENCE OF OPERATION:

THE HEATING VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS SHALL BE CONTROLLED LOCALLY BY UNIT LEVEL CONTROLS. THE DOAS AND HEATING HOT WATER PLANT SHALL BE BACNET CAPABLE.

NOTES:

- INSTALL ALL CONTROLS WIRING AND CABLES IN CONDUIT PER SPECIFICATION SECTION 26 23 00.
- SEE FIRE PROTECTION DRAWINGS FOR ELEVATOR HOISTWAY DAMPER CONTROL.

CONTROL SYSTEM GENERAL NOTES

SCALE: NOT TO SCALE

APPROVED	DATE
FOR COMMANDER NAVFAC	DESCRIPTION
ACTIVITY	DATE
PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI	DATE
SATISFACTORY TO DATE	DATE
DES CWS DRW CWS CHK CG	DATE
PM / DM MLWLEJ	DATE
BRANCH MANAGER	DATE
CHIEF ENGINEER DWG	DATE
FIRE PROTECTION	DATE
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
NORTH LIFT	NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
NAVAL STATION NEWPORT	NEWPORT, RHODE ISLAND
RENOVATION OF BUILDING 678	NEWPORT, RHODE ISLAND
CONTROLS LEGEND AND ABBREVIATIONS	
SCALE: AS NOTED	
EPROJCT NO. 1382693	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12722102	
SHEET 116 OF 177	
MI700	

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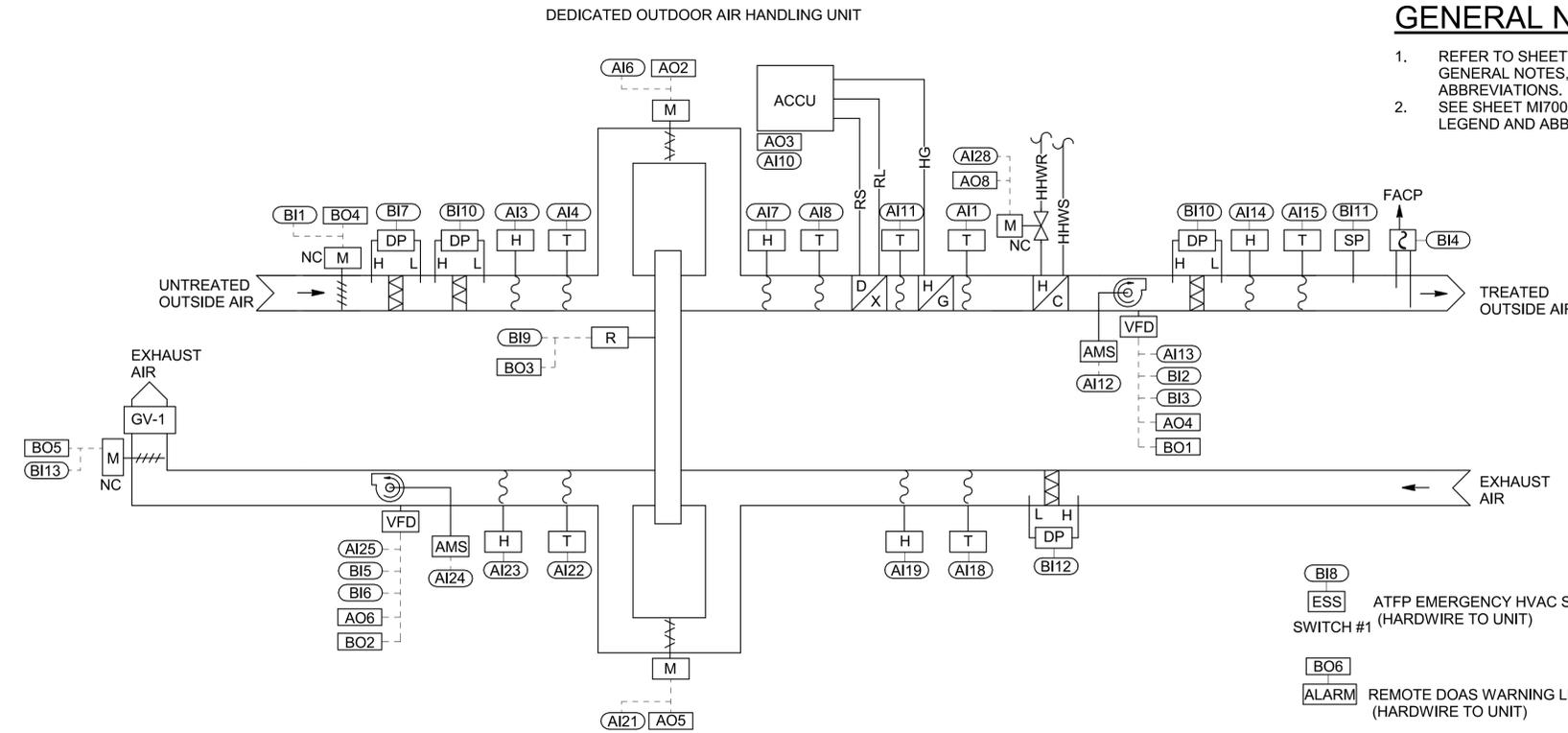
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MI700

GENERAL NOTES:

- 1. REFER TO SHEET M-001 FOR MECHANICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
- 2. SEE SHEET M1700 FOR CONTROLS LEGEND AND ABBREVIATIONS.



SEQUENCE OF OPERATION - DOAS-1

GENERAL DESCRIPTION:

DOAS-1 SHALL BE CONTROLLED BY FACTORY UNIT MOUNTED CONTROLLER. CONTROLLER SHALL HAVE CAPABILITY AND PRE-PROGRAMED SEQUENCES TO EXECUTE ALL FUNCTIONS SHOWN BELOW.

DOAS-1 SHALL BE ENABLED BY THE UNIT MOUNTED CONTROLLER. DOAS-1 IS EXPECTED TO OPERATE CONTINUOUSLY, 24 HOURS PER DAY, 365 DAYS PER YEAR, DURING WHICH IT WILL OPERATE IN THE OCCUPIED MODE.

THE DOAS SHALL HAVE A VARIABLE SPEED SUPPLY FAN, VARIABLE SPEED EXHAUST FAN, ENERGY WHEEL, DX COOLING COIL, HOT GAS BYPASS, AIR COOLED CONDENSER, HEATING HOT WATER COIL WITH MODULATING CONTROL VALVE, CONTROLLER, AND REQUIRED DAMPERS AND SENSORS.

OCCUPIED MODE:

WHEN THE UNIT IS IN THE OCCUPIED MODE THE OUTSIDE AIR AND EXHAUST DAMPERS SHALL OPEN. WHEN THE DAMPER POSITIONS ARE PROVEN OPEN THE SUPPLY AND EXHAUST FAN SHALL BE ENERGIZED. THE UNIT CONTROLS SHALL MODULATE THE SUPPLY FAN TO MAINTAIN CONSTANT OA FLOWRATE. THE EXHAUST FAN SHALL MODULATE TO MAINTAIN A CONSTANT EXHAUST FLOWRATE.

TEMPERATURE CONTROL:

UNIT CONTROLLER SHALL MODULATE WHEEL BYPASS DAMPERS, ENERGIZE AND DE-ENERGIZE ENERGY WHEEL, PROVIDE VARIABLE DX COILING CAPACITY, AND MODULATE HHW VALVE TO MAINTAIN UNIT DISCHARGE HUMIDITY SETPOINT AND SPACE TEMPERATURE SETPOINT. BYPASS DAMPERS SHALL BE USED TO BYPASS ENERGY WHEEL IN ECONOMIZER MODE. ECONOMIZER MODE SHALL BE DEFINED AS THE TEMPERATURE AND ENTHALPHY RANGE WHERE OPERATION OF THE ENERGY WHEEL WILL CONSUME MORE ENERGY THAN IT WILL SAVE. BYPASS DAMPERS SHALL BE MODULATED TO THE ENERGY WHEEL DOES NOT DEVELOP FROST.

SETPOINTS:

- DISCHARGE AIR TEMPERATURE SHALL BE RESET PER THE DISCHARGE AIR RESET SCHEDULE BELOW. DISCHARGE AIR TEMPERATURE SHALL BE LINEARLY OFFSET WHEN OAT IS BETWEEN 35°F AND 70°F
- MAXIMUM UNIT DISCHARGE DEW POINT TEMPERATURE OF 55°F (CALCULATED).

DISCHARGE AIR TEMPERATURE RESET SCHEDULE:

OAT	LAT
T<35°F	70°F (ADJUSTABLE)
T>80°F	55°F (ADJUSTABLE)

ATFP SHUTDOWN (EMERGENCY SHUTDOWN SWITCH #1):

UPON RECEIVING A SHUTDOWN SIGNAL FROM ATFP ESS (EMERGENCY SHUTDOWN SWITCH #1), DOAS SHALL BE DISABLED. AFTER THE DOAS IS OFF, THE OUTSIDE AND DISCHARGE AIR DAMPERS SHALL CLOSE.

SAFETY SHUTDOWN:

- UPON DETECTING SMOKE BY THE DUCT SMOKE DETECTOR(S), THE FAN SHALL SHUT DOWN AND ALL DAMPERS SHALL CLOSE. THE DUCT SMOKE DETECTOR SHALL SEND AN ALARM TO THE FACP INSTALLED AND WIRED BY DIVISION 26.
- IF THE DISCHARGE AIR TEMPERATURE FALLS BELOW 50°F (ADJUSTABLE) THE FAN SHALL BE DE-ENERGIZED, THE DAMPERS SHALL CLOSE.
- IF THE DUCT STATIC PRESSURE SENSOR DETECTS A STATIC PRESSURE HIGHER THAN 30% ABOVE FINAL TAB DUCT STATIC SETPOINT(ADJ.) BUT LESS THAN IN 2.0 H20, THE FAN SHALL STOP, THE DAMPERS SHALL CLOSE. AFTER A 5 MINUTE PERIOD (ADJ.) THE SYSTEM SHALL RESTART.

ALARMS:

AN ALARM SHALL BE DISPLAYED ON UNIT MOUNTED DDC CONTROL PANEL AND SHALL GENERATE A RED LIGHT AT THE ALARM LOCATED IN FIRST FLOOR LOBBY FOR THE FOLLOWING CONDITIONS:

- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT STATUS IS ON
- EXHAUST FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF
- EXHAUST FAN IN HAND: COMMANDED OFF, BUT STATUS IS ON
- DAMPER COMMAND FAILURE
- DISCHARGE AIR TEMPERATURE, +/- 3°F (ADJUSTABLE) FROM SETPOINT
- HIGH DISCHARGE DEW POINT TEMPERATURE + 5°F ABOVE SETPOINT
- HIGH STATIC PRESSURE
- DIRTY FILTERS
- WHEEL FAILURE
- FIRE ALARM

DEDICATED OUTDOOR AIR HANDLING UNIT - DDC POINTS SCHEDULE			
INPUTS		OUTPUTS	
AI1	HOT GAS REHEAT COIL LVG TEMPERATURE**	AO1	NOT USED
AI2	NOT USED	AO2	OA ENERGY WHEEL BYPASS DAMPER**
AI3	INTAKE AIR RELATIVE HUMIDITY**	AO3	COMPRESSOR MODULATION**
AI4	INTAKE AIR TEMPERATURE**	AO4	SUPPLY FAN VFD SPEED CONTROL**
AI5	NOT USED	AO5	EA ENERGY WHEEL BYPASS DAMPER**
AI6	OA ENERGY BYPASS DAMPER (FEEDBACK)**	AO6	EXHAUST FAN VFD SPEED CONTROL**
AI7	OA ENERGY WHEEL LVG RELATIVE HUMIDITY**	AO7	NOT USED
AI8	OA ENERGY WHEEL LVG TEMPERATURE**	AO8	HHW VALVE POSITION
AI9	NOT USED	AO9	NOT USED
AI10	COMPRESSOR SPEED FEEDBACK**		
AI11	DX COIL LVG TEMPERATURE**		
AI12	OA FLOWRATE**		
AI13	SUPPLY FAN VFD SPEED FEEDBACK**		
AI14	DISCHARGE AIR RELATIVE HUMIDITY**		
AI15	DISCHARGE AIR TEMPERATURE**		
AI16	NOT USED		
AI17	NOT USED		
AI18	EA TEMPERATURE**		
AI19	EA RELATIVE HUMIDITY**		
AI20	NOT USED		
AI21	EA WHEEL BYPASS DAMPER (FEEDBACK)**		
AI22	EA WHEEL LVG TEMPERATURE**		
AI23	EA WHEEL LVG RELATIVE HUMIDITY**		
AI24	EA FLOWRATE**		
AI25	EXHAUST FAN VFD SPEED FEEDBACK**		
AI26	NOT USED		
AI27	NOT USED		
AI28	HHW VALVE POSITION (FEEDBACK)		
BI1	OUTSIDE AIR INTAKE DAMPER END SWITCH**	BO1	SUPPLY FAN START/STOP**
BI2	SUPPLY FAN STATUS**	BO2	EXHAUST FAN START/STOP**
BI3	SUPPLY FAN INTERNAL VFD ALARM**	BO3	ENERGY WHEEL START/STOP**
BI4	SA DUCT SMOKE DETECTOR*	BO4	OUTSIDE AIR DAMPER**
BI5	EXHAUST FAN STATUS**	BO5	GV-1 RELIEF DAMPER
BI6	EXHAUST FAN INTERNAL VFD ALARM**	BO6	REMOTE ALARM INDICATOR LIGHT
BI7	OUTSIDE AIR DIRTY PREFILTER SWITCH**		
BI8	ATFP EMERGENCY SHUTDOWN SWITCH #1		
BI9	ENERGY WHEEL STATUS**		
BI10	OUTSIDE AIR DIRTY FILTER SWITCH**		
BI11	HIGH STATIC PRESSURE SWITCH**		
BI12	EXHAUST AIR DIRTY FILTER SWITCH**		
BI13	GV-1 RELIEF DAMPER END SWITCH		

* PROVIDE REDUNDANT SIGNAL IN SEPARATE CONDUIT TO FIRE ALARM PANEL
 **SENSORS/DEVICES SHALL BE MANUFACTURER'S STANDARD AND SHALL BE FACTORY INSTALLED AND TESTED.

A1 DOAS-1 - AIR HANDLING UNIT CONTROL SOO, DIAGRAM & POINT SCHEDULE
 SCALE: NOT TO SCALE

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DATE: _____

DESCRIPTION: _____

SW: _____

BURNS MEDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23320

APPROVED: _____

FOR COMMANDER NAVAC

ACTIVITY: PER SAIT DOCUMENT FROM GERARD MONTANI (PHARMACEUTICALS) WITH HEADQUARTERS AT NAVAL STATION NEWPORT-NEWPORT, RI

SATISFACTORY TO DATE: 4/23/16

DES: CWS | DRW: CWS | CHK: CG

PM / DM: MLW/JEL

BRANCH MANAGER: _____

CHIEF ENGINEER: _____

FIRE PROTECTION: _____

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND
 NORTH LIFT
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND

RENOVATION OF BUILDING 678

HVAC CONTROLS AND SOO - DOAS-1

SCALE: AS NOTED

PROJECT NO. 1382693

CONSTR. CONTR. NO. _____

NAVAC DRAWING NO. 12722103

SHEET 117 OF 177

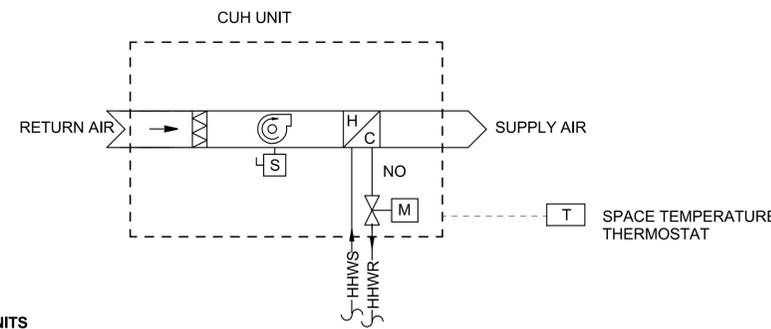
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DRAWING REVISION: 10 MAY 2014

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GENERAL NOTES:

- 1. REFER TO SHEET M-001 FOR MECHANICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
- 2. SEE SHEET M1700 FOR CONTROLS LEGEND AND ABBREVIATIONS.



CUH UNITS

GENERAL DESCRIPTION:
CUH UNITS SHALL HAVE STAND-ALONE CONTROLS FURNISHED BY THE UNIT MANUFACTURER. SYSTEM WILL CONTROL TO MANUFACTURER PROVIDED THERMOSTAT.

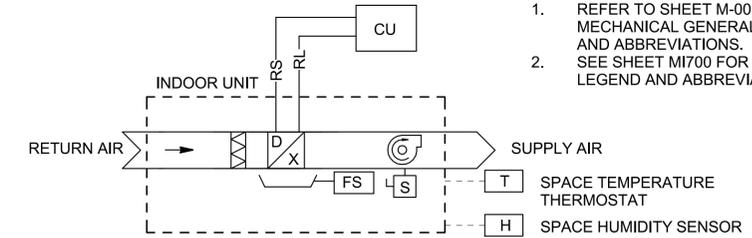
CONTRACTOR SHALL SET LOW TEMPERATURE LIMITS TO 55°F.

FAN:
THE UNIT INDOOR FAN SHALL OPERATE CONTINUOUSLY WHEN THE UNIT IS IN HEATING MODE. THE FAN SHALL BE DE-ENERGIZED WHEN THE SPACE TEMPERATURE IS SATISFIED.

HEATING:
WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT, THE UNIT SHALL BE ENERGIZED AND THE HEATING HOT WATER VALVE SHALL OPEN TO PROVIDE HEAT. ONCE THE SPACE TEMPERATURE REACHES SETPOINT, THE HEATING VALVE SHALL CLOSE AND THE UNIT SHALL BE DE-ENERGIZED.

DISABLE:
• UNIT FAILURE

SETPOINT:
HEATING SETPOINT IS 55°F (ADJ).



DUCTLESS SS/HP UNITS

GENERAL DESCRIPTION:
DUCTLESS SS/HP UNITS SHALL HAVE STAND-ALONE CONTROLS FURNISHED BY THE UNIT MANUFACTURER. SYSTEM WILL CONTROL TO MANUFACTURER PROVIDED THERMOSTAT.

COOLING:
THE UNIT SHALL BE ABLE TO PROVIDE COOLING FOR TEMPERATURE AND HUMIDITY CONTROL.

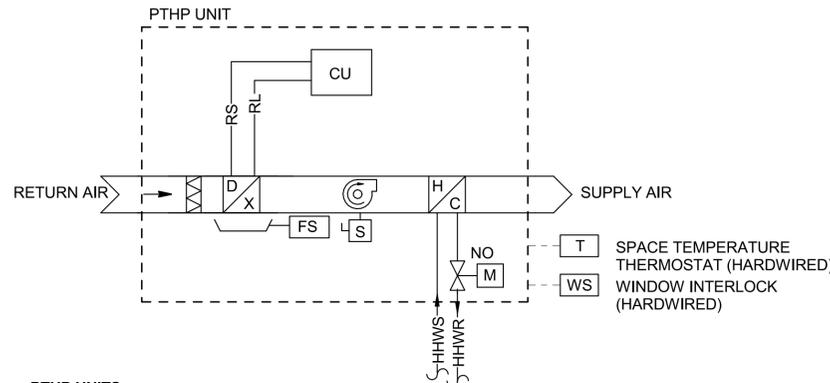
WHEN THE SPACE TEMPERATURE EXCEEDS THE SPACE TEMPERATURE SETPOINT, THE UNIT SHALL BE ENERGIZED AND PROVIDE COOLING UNTIL THE TEMPERATURE REACHES THE COOLING SETPOINT. WHEN THE TEMPERATURE REACHES COOLING SETPOINT, THE UNIT SHALL BE DISABLED.

WHEN THE SPACE HUMIDITY EXCEEDS THE SPACE HUMIDITY SETPOINT, THE UNIT SHALL BE ENERGIZED AND PROVIDE COOLING UNTIL THE HUMIDITY REACHES SETPOINT. WHEN THE HUMIDITY REACHES SETPOINT, THE UNIT SHALL BE DISABLED.

HEATING:
WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT, THE UNIT SHALL BE ENERGIZED AND PROVIDE HEAT UNTIL THE TEMPERATURE REACHES THE HEATING SETPOINT. WHEN THE TEMPERATURE REACHES HEATING SETPOINT, THE UNIT SHALL BE DISABLED.

DISABLE:
• DISABLE UNIT IF HIGH CONDENSATE LEVEL IS SENSED BY OVERFLOW SWITCH.
• UNIT FAILURE

SETPOINT:
COOLING TEMPERATURE SETPOINTS ARE 90°F (ADJ).
HIGH HUMIDITY SETPOINT IS 60% RH (ADJ).
HEATING SETPOINTS IS 50°F (ADJ).



PTHP UNITS

GENERAL DESCRIPTION:
PTHP UNITS SHALL HAVE STAND-ALONE CONTROLS FURNISHED BY THE UNIT MANUFACTURER.

COMPRESSOR SAFETIES AND TIME DELAYS SHALL BE PROVIDED BY UNIT MANUFACTURER. COMPRESSOR SHALL BE LOCKED OUT WHEN OUTDOOR AIR TEMPERATURE DROPS BELOW 35°F.

CONTRACTOR SHALL SET LOW AND HIGH TEMPERATURES LIMITS TO A RANGE OF 65°F - 78°F.

WINDOW INTERLOCK:
WHEN THE WINDOW INTERLOCK SWITCH INDICATES THE OPERABLE WINDOW IS OPEN, THE UNIT SHALL BE DISABLED.

FAN:
THE UNIT INDOOR FAN SHALL OPERATE CONTINUOUSLY WHEN THE UNIT IS IN COOLING OR HEATING MODE. THE FAN SHALL BE DE-ENERGIZED WHEN THE ROOM TEMPERATURE IS SATISFIED.

COOLING:
WHEN THE SPACE TEMPERATURE EXCEEDS THE SPACE TEMPERATURE SETPOINT, THE PTHP SHALL BE ENERGIZED AND PROVIDE COOLING UNTIL THE TEMPERATURE REACHES THE COOLING SETPOINT.

HEATING:
WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT, THE PTHP SHALL BE ENERGIZED AND PROVIDE HEAT UNTIL THE TEMPERATURE REACHES THE HEATING SETPOINT.

STAGE 1: PTHP SHALL OPERATE IN HEAT PUMP MODE AND SHALL ENABLED THE COMPRESSOR TO PROVIDE HEATING. COMPRESSOR SHALL BE DISABLED WHEN TEMPERATURE REACHES SETPOINT. STAGE 1 SHALL BE ACTIVATED AS LONG AS SPACE TEMPERATURE IS WITHIN 10°F OF INITIAL HEATING SETPOINT AND AMBIENT TEMPERATURE IS ABOVE 35°F (COMPRESSOR LOCKOUT).

STAGE 2: PTHP SHALL OPERATE IN HOT WATER HEATING MODE TO PROVIDE HEATING, WHEN HEAT IS REQUIRED AND STAGE 1 IS NOT AVAILABLE. THE CONTROL VALVE SHALL OPEN TO PROVIDE HEATING. VALVE SHALL CLOSE WHEN TEMPERATURE REACHES SETPOINT.

DISABLE:
• DISABLE UNIT IF HIGH CONDENSATE LEVEL IS SENSED BY OVERFLOW SWITCH.
• UNIT FAILURE

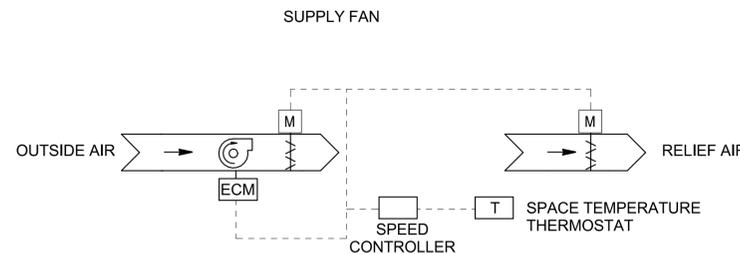
SETPOINT:
COOLING SETPOINT IS 75°F (ADJ).
HEATING SETPOINT IS 70°F (ADJ).

A1 PTHP CONTROLS

SCALE: NOT TO SCALE

C2 CUH CONTROLS

SCALE: NOT TO SCALE



SUPPLY FAN

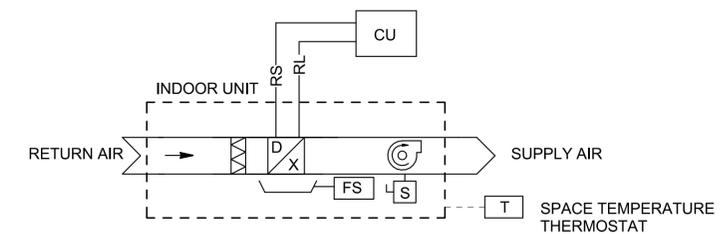
GENERAL DESCRIPTION:
SUPPLY FAN SHALL HAVE STAND-ALONE CONTROLS. FAN SHALL OPERATE CONTINUOUSLY.

FAN:
OA AND EA DAMPERS SHALL OPEN. ONCE DAMPER POSITIONS ARE PROVEN OPEN, FAN START AND OPERATE CONTINUOUSLY UNTIL FAN IS DISABLED. FAN SPEED SHALL NORMALLY BE IN LOW SPEED MODE. WHEN SPACE TEMPERATURE RISES ABOVE 102°F (ADJ.) FAN SHALL BE PUT INTO HIGH SPEED MODE. WHEN SPACE TEMPERATURE FALLS BELOW 102°F (ADJ.) FAN SHALL RETURN TO LOW SPEED MODE. WHEN FAN IS DISABLED, DAMPERS SHALL CLOSE.

DISABLE:
• FAN FAILURE
• DAMPER FAILURE

A2 SUPPLY FAN CONTROLS

SCALE: NOT TO SCALE



DUCTLESS SS/HP UNITS

GENERAL DESCRIPTION:
DUCTLESS SS/HP UNITS SHALL HAVE STAND-ALONE CONTROLS FURNISHED BY THE UNIT MANUFACTURER. SYSTEM WILL CONTROL TO MANUFACTURER PROVIDED THERMOSTAT.

COOLING:
WHEN THE SPACE TEMPERATURE EXCEEDS THE SPACE TEMPERATURE SETPOINT, THE UNIT SHALL BE ENERGIZED AND PROVIDE COOLING UNTIL THE TEMPERATURE REACHES THE COOLING SETPOINT. WHEN THE TEMPERATURE REACHES COOLING SETPOINT, THE UNIT SHALL BE DISABLED.

HEATING:
WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT, THE UNIT SHALL BE ENERGIZED AND PROVIDE HEAT UNTIL THE TEMPERATURE REACHES THE HEATING SETPOINT. WHEN THE TEMPERATURE REACHES HEATING SETPOINT, THE UNIT SHALL BE DISABLED.

DISABLE:
• DISABLE UNIT IF HIGH CONDENSATE LEVEL IS SENSED BY OVERFLOW SWITCH.
• UNIT FAILURE

SETPOINT:
COOLING SETPOINTS ARE 78°F (ADJ) - LOBBY AND 75°F (ADJ) - TELECOM.
HEATING SETPOINTS IS 68°F (ADJ) - LOBBY AND 70°F (ADJ) - TELECOM.

A4 DUCTLESS SS/HP UNITS W/O HUMIDITY CONTROL

SCALE: NOT TO SCALE

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FILE NAME: C:\Revit\Projects\87997-NGS\678\Mod\678\MEP\678\997_M_Livesouthall\Rev\678.rvt

DATE	APPROVED
DESCRIPTION	
SWN	
1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320	
APPROVED FOR COMMANDER NAVFAC	
ACTIVITY PER SAT-TO DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI	
SATISFACTORY TO DATE 4/23/16	
DES	CWS
DRW	CWS
CHK	CG
PM / DM	MLW/LEJ
BRANCH MANAGER CHIEF ENGINEER DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NORTH LIFT NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND	
RENOVATION OF BUILDING 678	
HVAC CONTROLS AND SOO - MSC	
SCALE: AS NOTED	
EPROJECT NO. 1382693	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 1272104	
SHEET 118 OF 177	
M1702	
DRAWING REVISION: 10 MAY 2014	

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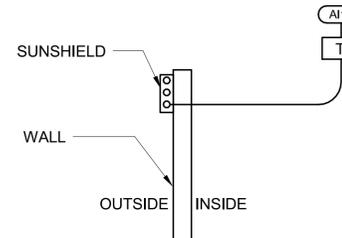
HEATING HOT WATER SYSTEM CONTROL DIAGRAM

GENERAL NOTES:

- REFER TO SHEET M-001 FOR MECHANICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
- SEE SHEET M1700 FOR CONTROLS LEGEND AND ABBREVIATIONS.

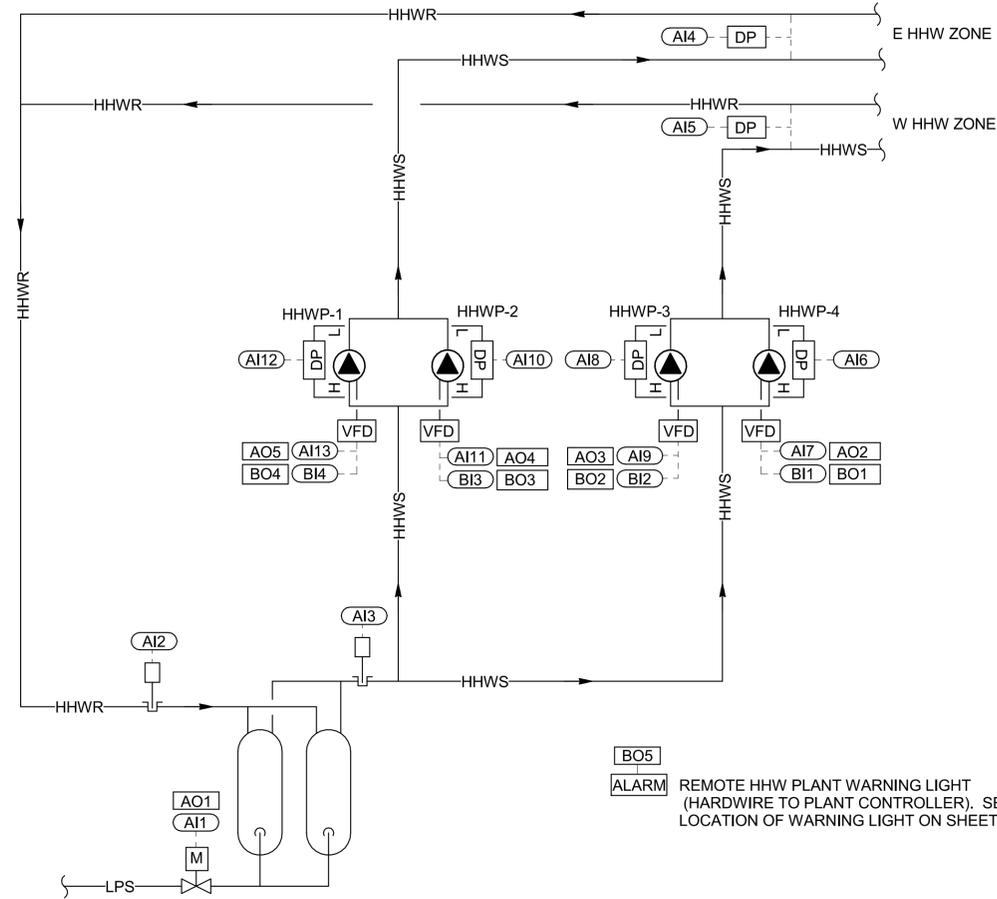
HEATING HOT WATER PLANT - DDC POINTS SCHEDULE			
INPUTS		OUTPUTS	
AI1	STEAM CONTROL VALVE POSITION (FEEDBACK)	AO1	STEAM CONTROL VALVE POSITION
AI2	HHWR TEMPERATURE	AO2	HHWP-4 VFD SPEED CONTROL
AI3	HHWS TEMPERATURE	AO3	HHWP-3 VFD SPEED CONTROL
AI4	EAST HHW ZONE DIFFERENTIAL PRESSURE	AO4	HHWP-2 VFD SPEED CONTROL
AI5	WEST HHW ZONE DIFFERENTIAL PRESSURE	AO5	HHWP-1 VFD SPEED CONTROL
AI6	HHWP-4 DIFFERENTIAL PRESSURE		
AI7	HHWP-4 VFD SPEED (FEEDBACK)		
AI8	HHWP-3 DIFFERENTIAL PRESSURE		
AI9	HHWP-3 VFD SPEED (FEEDBACK)		
AI10	HHWP-2 DIFFERENTIAL PRESSURE		
AI11	HHWP-2 VFD SPEED (FEEDBACK)		
AI12	HHWP-1 DIFFERENTIAL PRESSURE		
AI13	HHWP-1 VFD SPEED (FEEDBACK)		
AI14	OA TEMPERATURE		
BI1	HHWP-4 STATUS	BO1	HHWP-4 START/STOP
BI2	HHWP-3 STATUS	BO2	HHWP-3 START/STOP
BI3	HHWP-2 STATUS	BO3	HHWP-2 START/STOP
BI4	HHWP-1 STATUS	BO4	HHWP-1 START/STOP
		BO5	HHW PLANT ALARM LIGHT

*ALL POINTS IN POINTS LIST ARE NEW



NOTES:

- LOCATE ON NORTH WALL OF FACILITY.
- DO NOT INSTALL THE ASSEMBLY ON FACADE WITH HIGH SOLAR ABSORPTION CAPACITY. ADDITIONAL HEAT THERMAL LAYER MAY CAUSE INACCURATE TEMPERATURE READINGS.



GENERAL DESCRIPTION:

THE HEATING HOT WATER SYSTEM CONSISTS OF (2) EXISTING STEAM TO HOT WATER CONVERTORS. HEATING HOT WATER IS CIRCULATED BY ZONE CIRCULATING PUMPS. (4) NEW HEATING HOT WATER PUMPS (HHWPS) ARE TO DISTRIBUTE WATER TO THE EAST AND WEST HEATING ZONES. 3-WAY 2 POSITION CONTROL VALVES AT TERMINAL EQUIPMENT WILL PROVIDE MINIMUM FLOW FOR EACH HEATING ZONE. NEW DIFFERENTIAL PRESSURE SENSORS SHALL BE LOCATED ON BOTH THE EAST AND WEST ZONES TO CONTROL PUMP SPEED.

HEATING PLANT ENABLE/DISABLE:

THE HEATING PLANT SHALL BE MANUALLY ENABLED WHEN STEAM SERVICE IS ANNUALLY RESTORED.

WHEN THE HEATING PLANT IS DISABLED, ALL HHW PUMPS SHALL BE COMMANDED OFF. ALL ISOLATION VALVES SHALL CLOSE.

NORMAL OPERATION:

THE STEAM CONTROL VALVE SHALL ALWAYS BE ENABLED, THE VALVE SHALL MODULATE TO MAINTAIN HHWS SETPOINT, SEE HHW RESET SCHEDULE BELOW. THE HHWS TEMPERATURE SHALL VARY LINEARLY WHEN OA TEMP IS BETWEEN 15°F AND 55°F.

THE NEW HEATING HOT WATER DISTRIBUTION PUMPS ARE TO BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 45°F AND WHEN THE STEAM IS AVAILABLE. THE EAST AND WEST HEATING HOT WATER PUMP SPEED SHALL BE VARIED TO CONTROL ITS DIFFERENTIAL PRESSURE SETPOINT (TO BE DETERMINED DURING TESTING AND BALANCING).

LEAD/LAG:

EVERY 120 HOURS OF RUN TIME LEAD HHW ZONE PUMP SHALL ROTATE. IN THE EVENT OF PUMP FAILURE, REDUNDANT PUMP SHALL BE ENABLED AND BECOME NEW LEAD PUMP.

HHW RESET SCHEDULE:

HHWS TEMP	OA TEMP
200°F	15°F
140°F	55°F

SYSTEM MONITORING AND ALARMS:

IF ANY PIECE OF EQUIPMENT FAILS TO PROVE STATUS AFTER IT IS COMMANDED, WITH A 20 SEC. (ADJ) TIME DELAY, AN ALARM SHALL BE TRIGGERED. THIS INCLUDES THE FOLLOWING:

- STEAM CONTROL VALVE
- HHWPS
- ISOLATION VALVES

IF THE HHWS TEMPERATURE FALLS 3°F (ADJ) ABOVE SETPOINT FOR 10 MINUTES (ADJ).

UPON EQUIPMENT ALARM OR LOW HHWS TEMPERATURE AS INDICATED ABOVE, HHW PLANT ALARM LIGHT SHALL BE TURNED ON. ALARM LIGHT SHALL ONLY BE ABLE TO BE DISABLED AT THE HHW PLANT CONTROLLER.

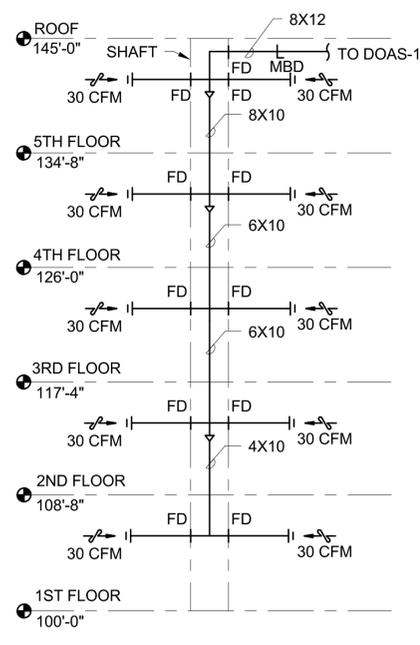
A1 HHWP CONTROLS
SCALE: NOT TO SCALE

DATE	
DESCRIPTION	
SW	
1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320	
APPROVED	A/E INFO
FOR COMMANDER NAVAC	
ACTIVITY	
PER SAIT DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI	
SATISFACTORY TO DATE	4/23/16
DES	CWS
DRW	CWS
CHK	CG
PM / DM	MLW/JEL
BRANCH MANAGER	
CHIEF ENGINEER	
DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT NEWPORT, RHODE ISLAND NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND RENOVATION OF BUILDING 678 HVAC CONTROLS AND SOO - HEATING PLANT	
SCALE	AS NOTED
EPROJECT NO.	1382693
CONSTR. CONTR. NO.	
NAVAC DRAWING NO.	12722105
SHEET	119 OF 177
M1703	
DRAWFORM REVISION: 10 MAY 2014	

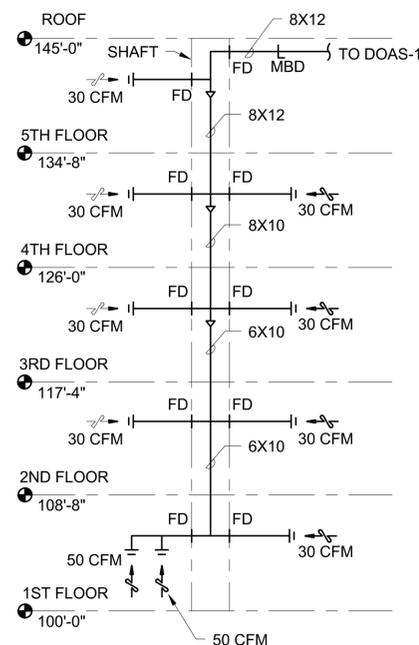
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GENERAL NOTES:

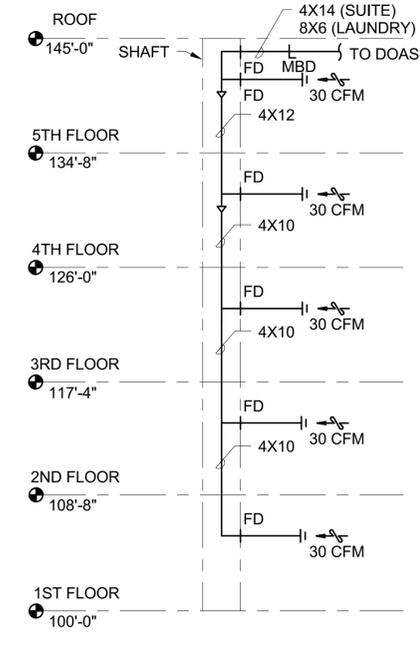
- SEE M-001 FOR MECHANICAL LEGEND, ABBREVIATIONS, AND NOTES.
- FIRST FLOOR ELEVATION OF 100'-0" IS ESTABLISHED FOR INTERNAL BUILDING ELEVATIONS ONLY. REFER TO CIVIL DRAWINGS FOR ACTUAL GRADING ELEVATIONS.



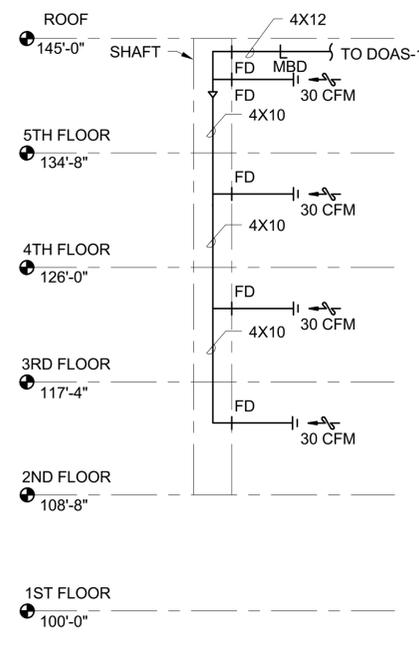
E1 EXHAUST DUCT RISER
SCALE: NOT TO SCALE



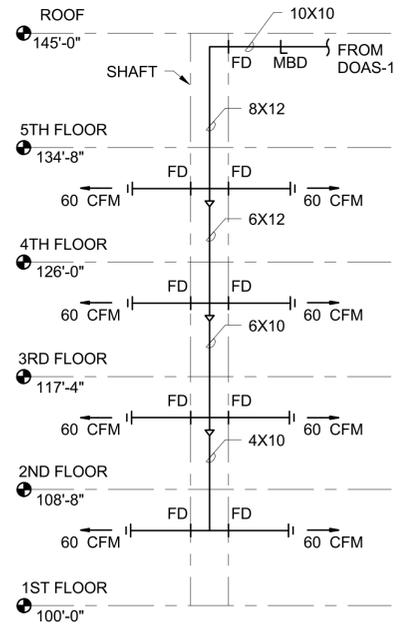
E2 EXHAUST DUCT RISER
SCALE: NOT TO SCALE



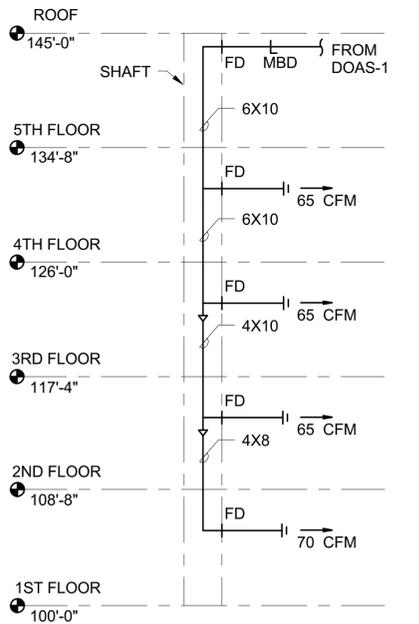
E3 EXHAUST DUCT RISER
SCALE: NOT TO SCALE



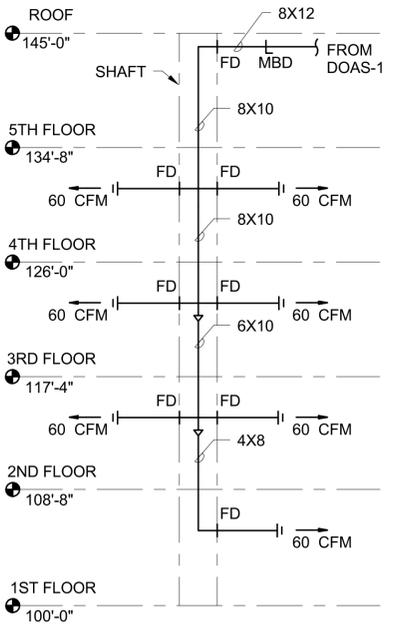
E4 EXHAUST DUCT RISER
SCALE: NOT TO SCALE



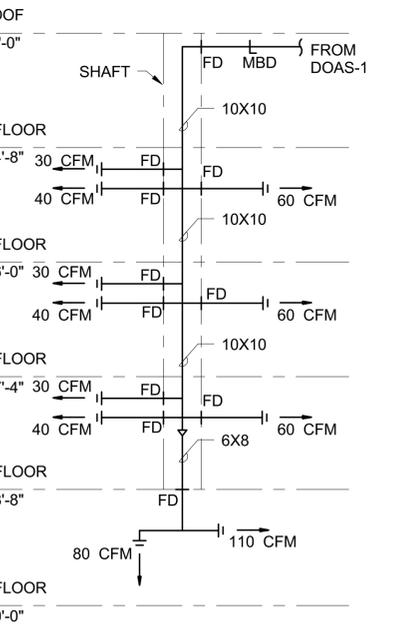
S1 SUPPLY DUCT RISER
SCALE: NOT TO SCALE



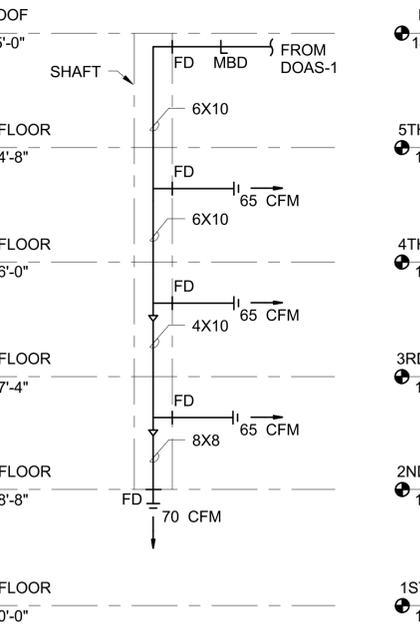
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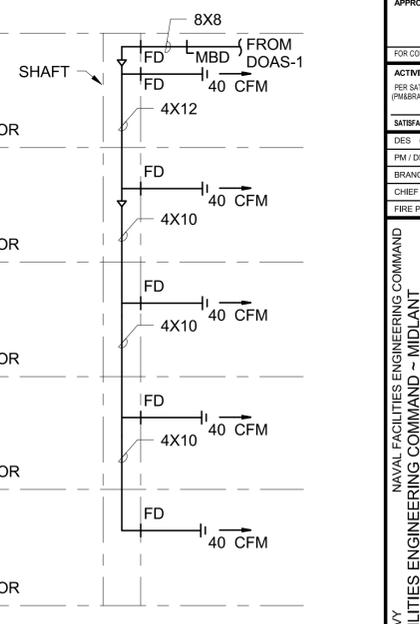
S3 SUPPLY DUCT RISER
SCALE: NOT TO SCALE



S4 SUPPLY DUCT RISER
SCALE: NOT TO SCALE



S5 SUPPLY DUCT RISER
SCALE: NOT TO SCALE



S6 SUPPLY DUCT RISER
SCALE: NOT TO SCALE

HVAC DUCTWORK RISERS DIAGRAM
SCALE: NOT TO SCALE

DATE	APP'R
DESCRIPTION	
SWR	
 	
 1305 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23320	
APPROVED	
FOR COMMANDER NAVFAC	
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PER SAIT-D DOCUMENT FROM GERARD MONTANI (PHARMACON HEAD) WITH HEAD AT NAVAL STATION NEWPORT-NEWPORT, RI	
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DWG	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND NORTH LIFT NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND RENOVATION OF BUILDING 678 HVAC DUCTWORK RISERS DIAGRAM	
SCALE: AS NOTED	
EPROJCT NO. 1382693	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12722107	
SHEET 121 OF 177	
M-802	

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