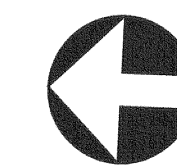
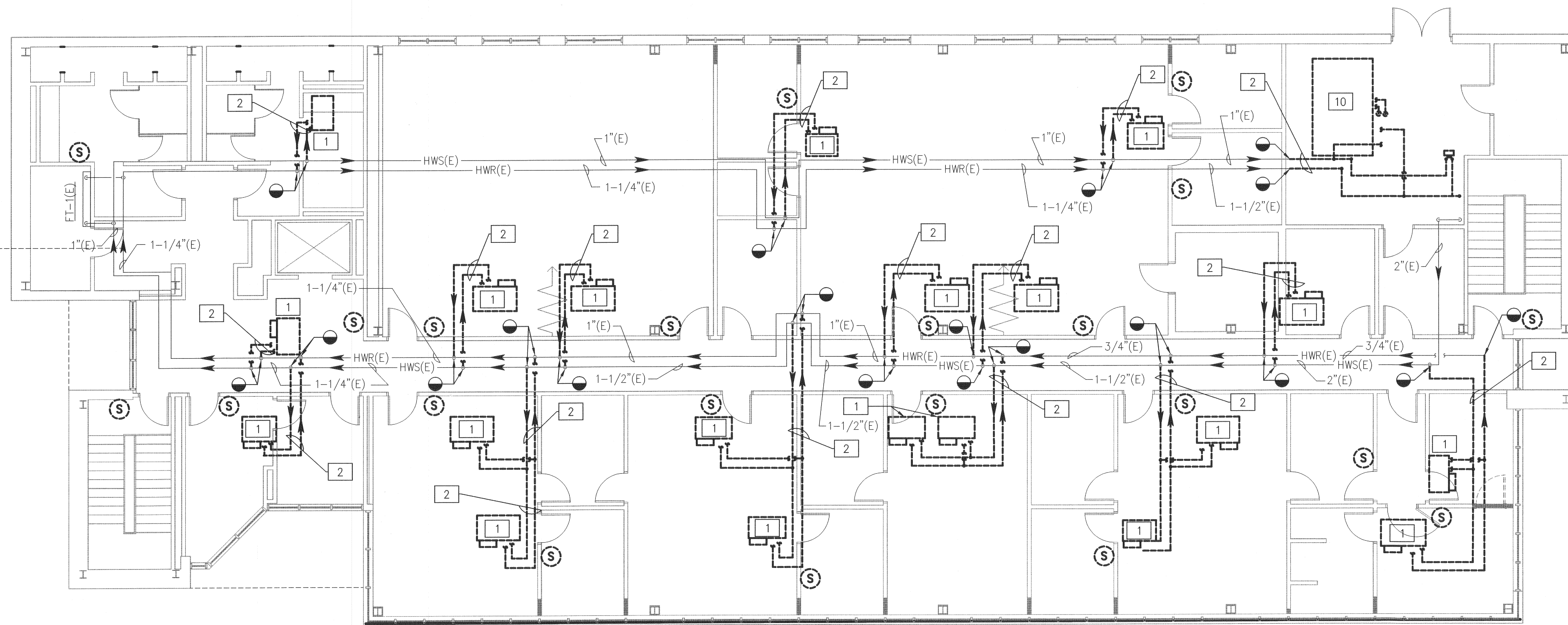


MECHANICAL FIRST FLOOR DEMOLITION PLAN - PIPING

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



MECHANICAL SECOND FLOOR DEMOLITION PLAN - PIPING

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

SEE CHILLER ENCLOSURE AND MECHANICAL ROOM DEMOLITION DETAIL THIS SHEET

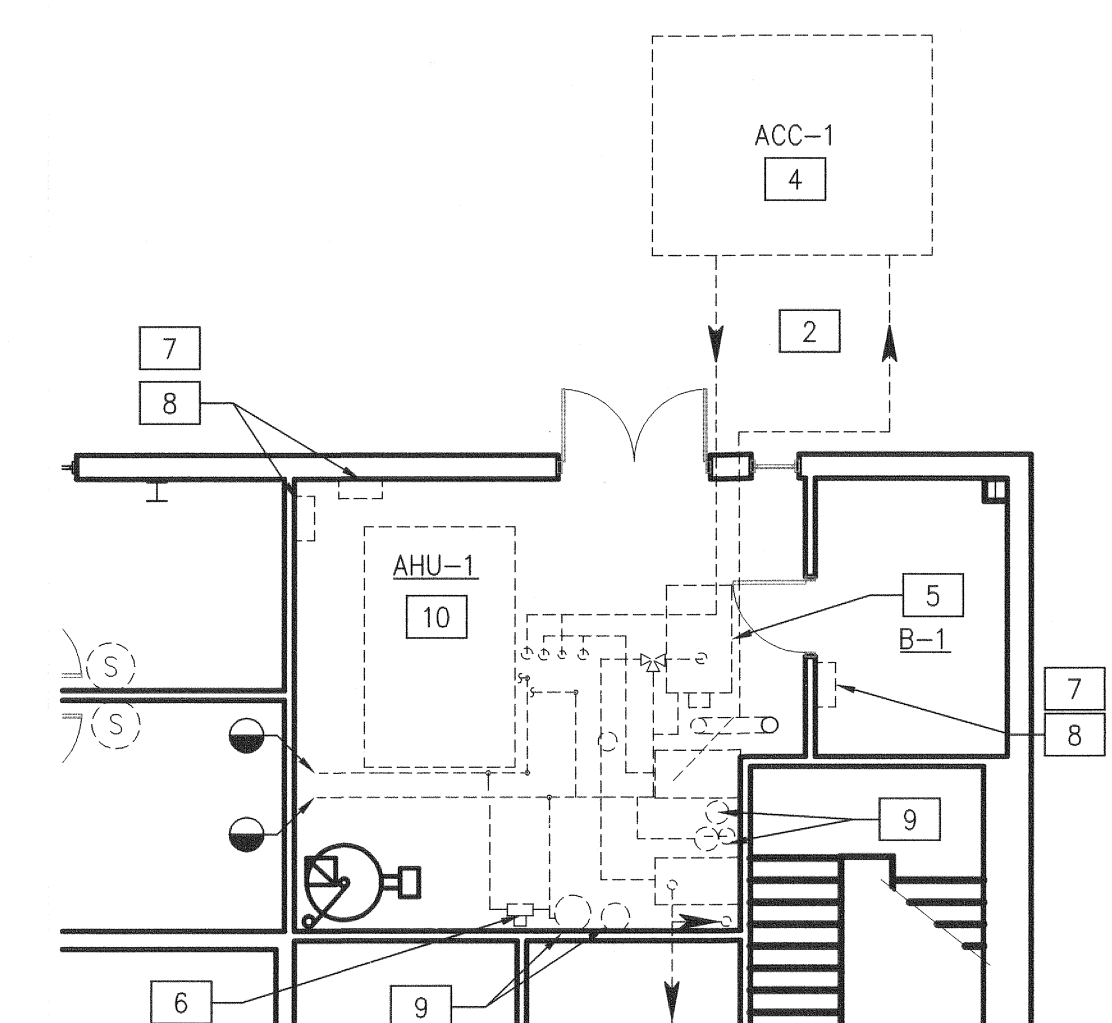
INFORMATION CONTAINED ON THIS DRAWING WAS OBTAINED FROM SITE VISITS AND ARCHIVED DRAWINGS. NOT ALL DUCTWORK, PIPING AND EQUIPMENT MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO EXECUTION OF WORK. MODIFICATIONS SHALL BE MADE ONLY AFTER APPROVAL BY THE ENGINEER.

GENERAL DEMOLITION NOTES

- UNLESS OTHERWISE NOTED, REMOVE ALL EXISTING AIR-HANDLING UNITS, HEATING AND VENTILATING EQUIPMENT, AIR-COOLED CHILLERS, EXHAUST FANS, AND ALL ASSOCIATED DUCTWORK, AIR DEVICES, DAMPERS, DUCTWORK AND PIPING HANGERS, CHILLED WATER PIPING, HOT WATER PIPING, AND ALL OTHER APPURTENANCES.
- EVACUATE AND RECYCLE REFRIGERANT FOR ALL EXISTING AIR-COOLED CHILLER AND ALL DIRECT EXPANSION HVAC EQUIPMENT BEING REMOVED. RECYCLE IN ACCORDANCE WITH FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE SUBMITTAL TO CONTRACTING OFFICER INDICATING AMOUNT OF REFRIGERANT THAT HAS BEEN RECYCLED.
- PATCH AND REPAIR EXISTING BUILDING WALL AND ROOF SURFACES TO MATCH EXISTING CONSTRUCTION AND FINISH AT COMPLETION OF DEMOLITION AND NEW WORK.
- UNLESS OTHERWISE NOTED, EXISTING PIPING RUNOUTS TO BE REMOVED ARE 3/4".

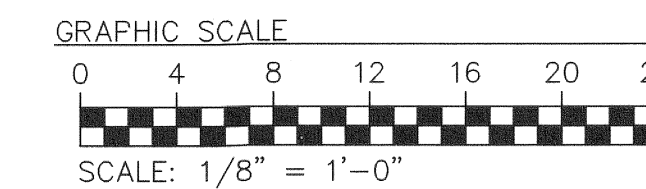
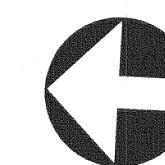
MECHANICAL DEMOLITION NOTES

- REMOVE ALL ASSOCIATED PIPING, PIPING HANGERS, CONTROLS AND ALL OTHER APPURTENANCES ASSOCIATED WITH THE TERMINAL BOXES INDICATED ON SHEET MD-101.
- REMOVE EXISTING HVAC PIPING, VALVES, PIPING SPECIALTIES, PIPE HANGERS AND ALL OTHER APPURTENANCES.
- REMOVE ALL REFRIGERANT PIPING, CONDENSATE PIPING, PIPE SUPPORTS, CONTROLS AND ALL OTHER APPURTENANCES ASSOCIATED WITH THE HEAT PUMP INDICATED ON SHEET MD-101.
- DISCONNECT FROM ELECTRICAL SERVICE AND REMOVE EXISTING AIR-COOLED CHILLER. REMOVE ALL ASSOCIATED HVAC PIPING, CONTROLS, CONCRETE EQUIPMENT PAD AND ALL OTHER APPURTENANCES.
- DISCONNECT FROM ELECTRICAL SERVICE AND REMOVE BOILER, PUMP, ASSOCIATED HVAC PIPING, CONTROLS COMPONENTS, HANGERS AND ALL OTHER APPURTENANCES.
- DISCONNECT FROM ELECTRICAL SERVICE AND REMOVE EXISTING HOT WATER UNIT HEATER, PIPING, CONTROLS, HANGERS AND ALL OTHER APPURTENANCES.
- REMOVE EXISTING DDC CONTROLS PANEL AND ASSOCIATED DDC CONTROL WIRING WITHIN CONDUIT. EXISTING CONDUIT MAY BE RE-USED FOR NEW DDC CONTROLS IF FOUND TO BE IN GOOD CONDITION.
- EXISTING JOHNSON CONTROLS EMCS (ENERGY MANAGEMENT CONTROL SYSTEM) PANEL TO REMAIN AND BE REUSED FOR NEW DDC CONTROLS SYSTEM.
- REMOVE EXISTING AIR SEPARATOR, HANGERS, PIPING AND ALL OTHER APPURTENANCES. REMOVE NEARBY EXPANSION TANK AND CHEMICAL POT FEEDER.
- DISCONNECT FROM ELECTRICAL SERVICE AND REMOVE EXISTING AIR HANDLING UNIT, ASSOCIATED PIPING, DUCTWORK, CONTROL COMPONENTS, HANGERS AND ALL OTHER APPURTENANCES.

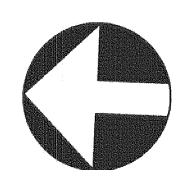
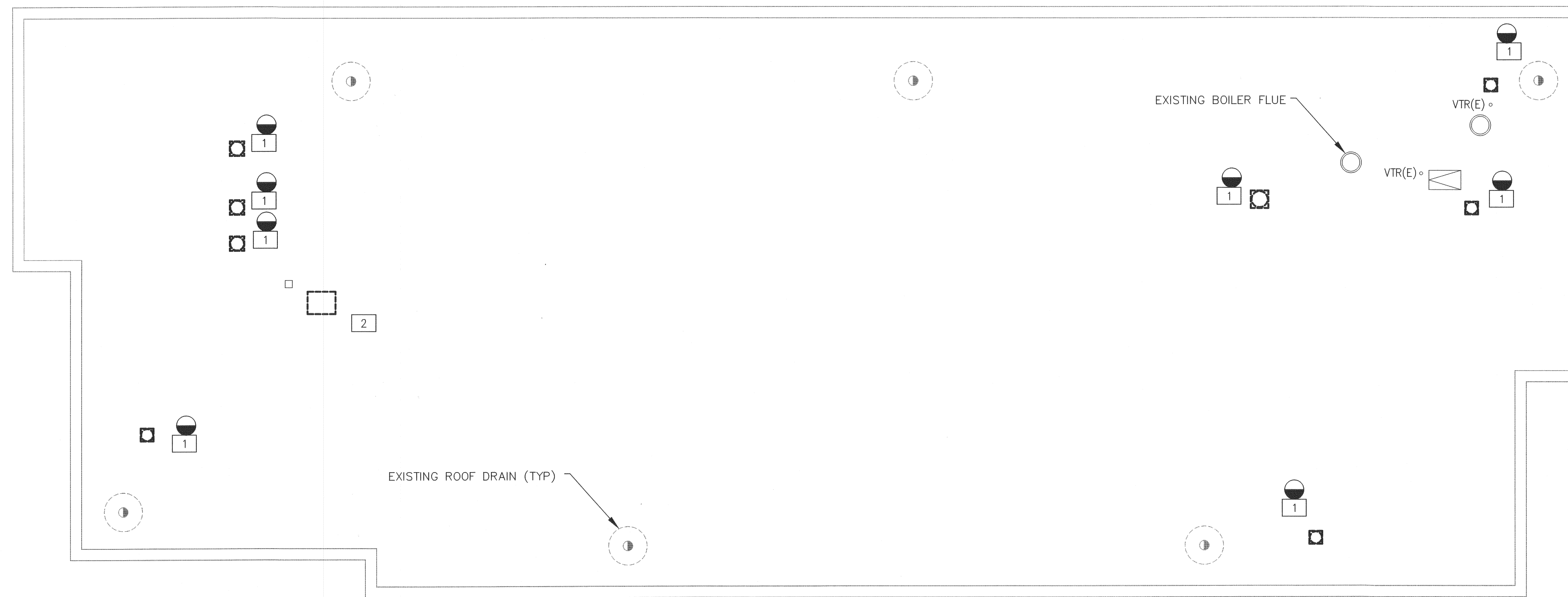


MER 126 AND CHILLER ENCLOSURE DEMOLITION PLAN - PIPING

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

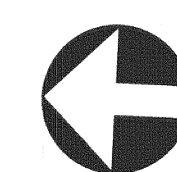
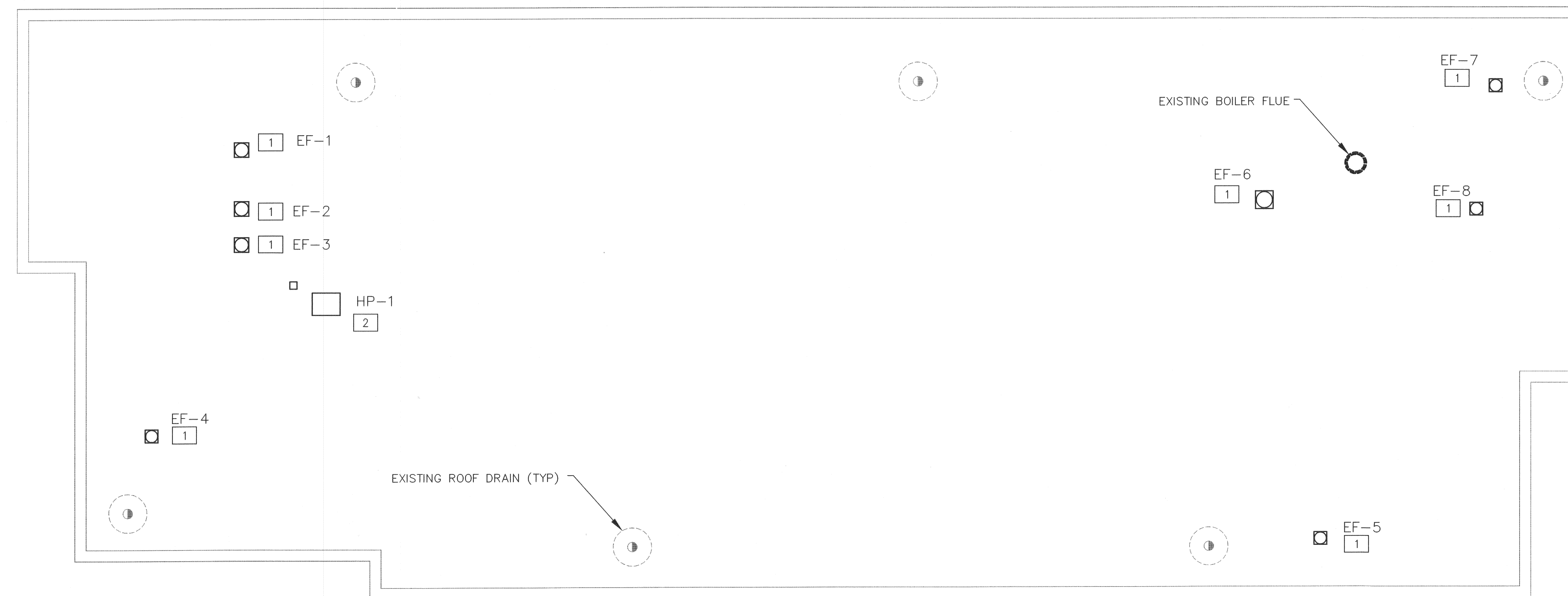


DATE	08.14.2012
DESCRIPTION	MECHANICAL-DEMOLITION PLAN-PIPING
DESIGNED & ENGINEERED BY	DJG INC.
APPROVED	STEVEN S. CARTER, Lic. No. 047527, 8/14/12
ACTIVITY	SATISFACTORY TO
DATE APPROVED	
FOR EFD FOR COMMANDER NAVAC	
DATE	08.14.2012
A/E	DESIGN XXX
SSC	DRAWN XXX
SSC	REVIEW XXX
KS	OC XXX
OC	CHEF ARCH/ENGR. XXX
PROJECT MANAGER	XXX
FIRE PROTECTION	XXX
BRANCH MANAGER	XXX
DESIGN DIRECTOR	XXX
NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL-DEMOLITION PLAN-PIPING	
CODE NO.	80091
SIZE	D
SCALE	AS SHOWN
FED. NO.	WR6059391
STA. PROJ. NO.	CP12004M
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVAC DRAWING NO.	12629051
SHEET	22 OF 40
MD-201	



MECHANICAL ROOF DEMOLITION PLAN

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



MECHANICAL ROOF NEW WORK PLAN

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

GENERAL DEMOLITION NOTES

- UNLESS OTHERWISE NOTED, REMOVE ALL EXISTING EXHAUST FANS AND CONDENSING UNITS, AND ALL ASSOCIATED PIPING APPURTENANCES.
- EVACUATE AND RECYCLE REFRIGERANT FOR ALL EXISTING AIR-COOLED CONDENSING UNITS BEING REMOVED. RECYCLE IN ACCORDANCE WITH FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE SUBMITTAL TO CONTRACTING OFFICER INDICATING AMOUNT OF REFRIGERANT THAT HAS BEEN RECYCLED.
- PATCH AND REPAIR EXISTING ROOF SURFACES TO MATCH EXISTING CONSTRUCTION AND FINISH AT COMPLETION OF DEMOLITION AND NEW WORK.

MECHANICAL DEMOLITION NOTES

- DISCONNECT FROM ELECTRICAL SERVICE AND REMOVE EXISTING ROOF-MOUNTED EXHAUST FAN, CONTROLS AND ALL OTHER APPURTENANCES.
- DISCONNECT FROM ELECTRICAL SERVICE AND REMOVE EXISTING OUTDOOR REFRIGERATION UNIT. REMOVE ALL ASSOCIATED REFRIGERANT PIPING, PIPING HANGERS, CONTROLS AND ALL OTHER APPURTENANCES.

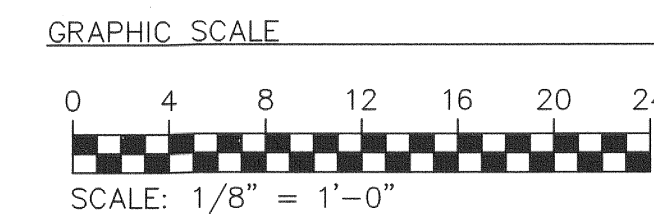
GENERAL NEW WORK NOTES

- CONTRACTOR SHALL PROVIDE ALL DUCT TRANSITIONS AS REQUIRED FOR ALL EXHAUST FANS.
- PROVIDE FLEXIBLE CONNECTIONS TO ALL EF DUCT CONNECTION LOCATIONS.

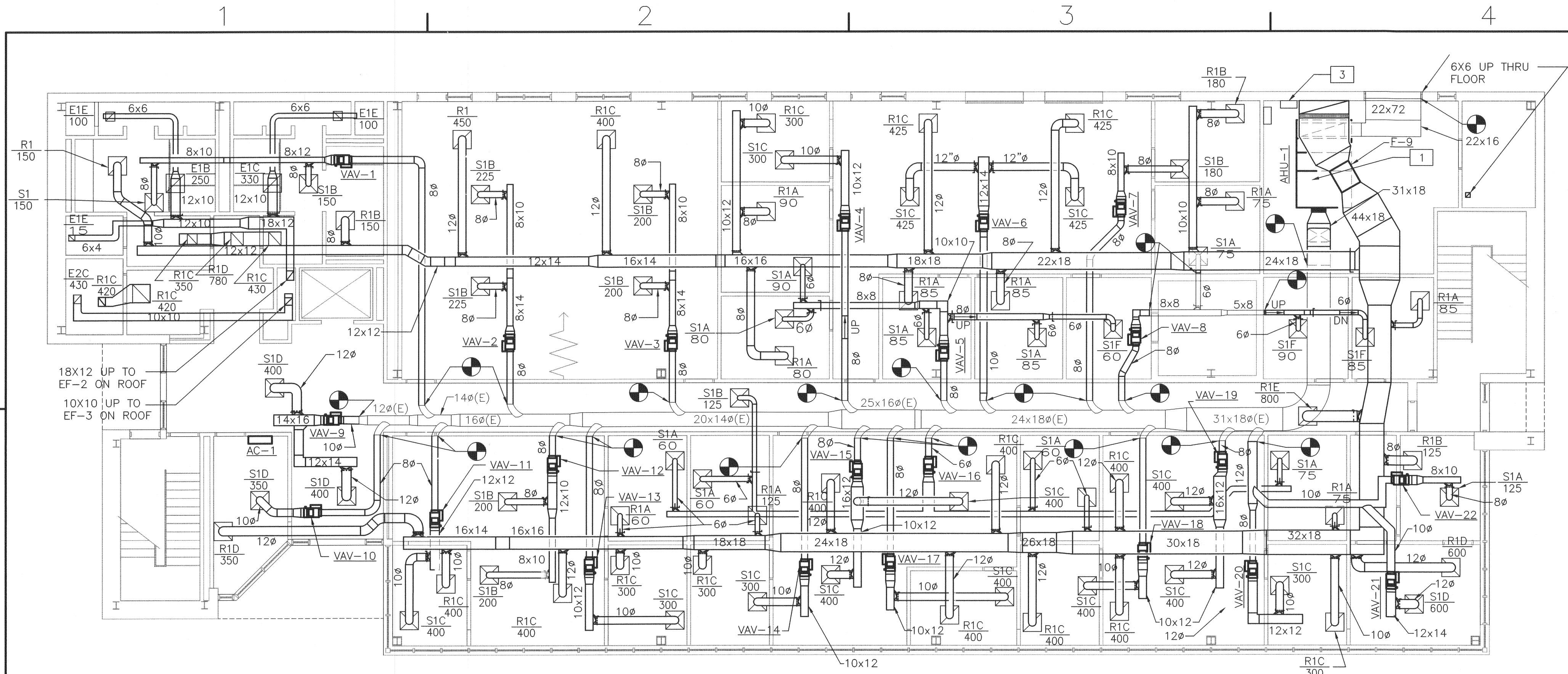
MECHANICAL NEW WORK NOTES

- MOUNT EXHAUST FAN AT LOCATION OF EXISTING OPENING. REUSE EXISTING CURB WHERE POSSIBLE.
- MOUNT OUTDOOR HEAT PUMP UNIT TO NEW ROOF CURB. REFER TO ARCHITECTURAL DRAWINGS FOR CURB DETAIL.

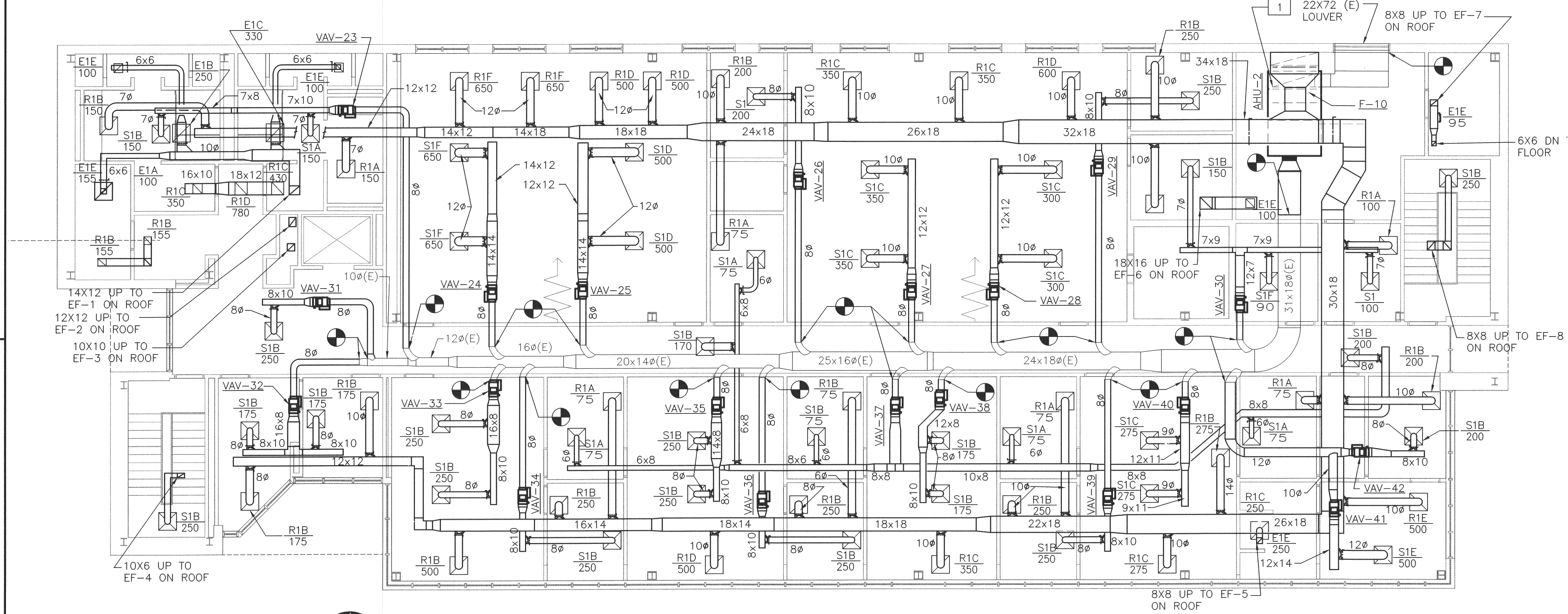
INFORMATION CONTAINED ON THIS DRAWING WAS OBTAINED FROM SITE VISITS AND ARCHIVED DRAWINGS. NOT ALL DUCTWORK, PIPING AND EQUIPMENT MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO EXECUTION OF WORK. MODIFICATIONS SHALL BE MADE ONLY AFTER APPROVAL BY THE ENGINEER.



APPROVED	DATE	DESCRIPTION	SYMBOL
DESIGNED & ENGINEERED BY:			
ENGINEERS ARCHITECTS PLANNERS 448 WILSONS CIRCLE WASHINGTON, VA 22061 (703) 242-8822 VOICEMAIL (703) 242-8214 FAX www.djginco.com			
APPROVED	DATE	ACTIVITY - SATISFACTORY TO	
APPROVED	DATE	FOR EFD FOR COMMANDER NAVFAC	
DATE	08.14.2012	A/E	EFD
SSC	DESIGN	XXX	XXX
SSC	DRAWN	XXX	XXX
KS	REVIEW	XXX	XXX
	OC	XXX	XXX
	CHIEF ARCH/ ENGR.		
	PROJECT MANAGER	XXX	XXX
	FIRE PROTECTION	XXX	XXX
	BRANCH MANAGER	XXX	XXX
	DESIGN DIRECTOR	XXX	XXX
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL-DEMOLITION AND NEW WORK-ROOF PLAN			
CODE ID. NO.	80091	SIZE	D
SCALE:	AS SHOWN		
FED. NO.	WR6059391		
STA. PROJ. NO.	CP12004M		
SPEC. NO.			
CONSTR. CONTR. NO.			
NAVFAC DRAWING NO.	12629052		
SHEET	23	OF	40
MD-301			
DRAWING REVISION JULY 2003			



MECHANICAL FIRST FLOOR NEW WORK PLAN - DUCTWORK
SCALE: 1/8" = 1'-0"



MECHANICAL SECOND FLOOR NEW WORK PLAN - DUCTWORK
SCALE: 1/8" = 1'-0"

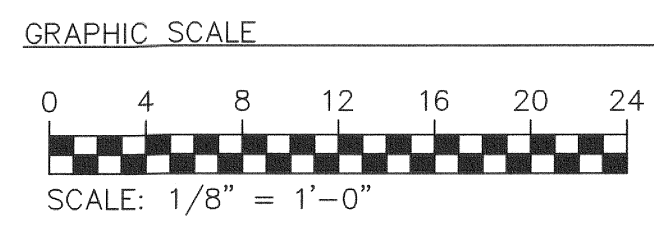
INFORMATION CONTAINED ON THIS DRAWING WAS OBTAINED FROM SITE VISITS AND ARCHIVED DRAWINGS. NOT ALL DUCTWORK, PIPING AND EQUIPMENT MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO EXECUTION OF WORK. MODIFICATIONS SHALL BE MADE ONLY AFTER APPROVAL BY THE ENGINEER.


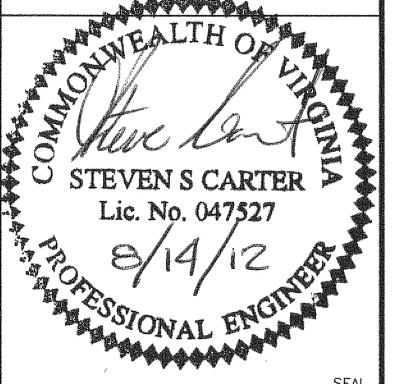
GENERAL NEW WORK NOTES

- COORDINATE DUCTWORK AND PIPING INSTALLATION WITH ALL TRADES. COORDINATE ROUTING OF DUCTWORK AND PIPING WITH EXISTING BUILDING STRUCTURE. PROVIDE ADDITIONAL OFFSETS TO AVOID INTERFERENCES.
- FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0".
- CONTRACTOR SHALL PROVIDE ALL DUCT TRANSITIONS AS REQUIRED FOR ALL VAV BOXES AND EXHAUST FANS.
- ALL INDIVIDUAL LOW PRESSURE SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR DUCTWORK RUNOUTS AND CONNECTIONS TO DUCT MAINS SHALL BE PROVIDED WITH MANUAL VOLUME DAMPERS FOR BALANCING. MANUAL VOLUME DAMPERS SHALL BE LOCKING QUADRANT TYPE.
- PROVIDE FLEXIBLE CONNECTIONS TO ALL AHU AND EF DUCT CONNECTION LOCATIONS.
- ALL CONTROL VALVES FOR CHILLED WATER AND HOT WATER COILS SHALL BE TWO-WAY UNLESS OTHERWISE NOTED ON THE PLANS.
- PROVIDE ACCESS DOORS IN NON-ACCESSIBLE CEILINGS WHERE REQUIRED FOR PROPER ACCESS TO ALL PIPING COMPONENTS AND SPECIALTIES.
- REFER TO DUCTWORK CONSTRUCTION DETAILS ON SHEET M-501.

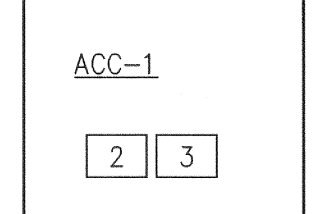
MECHANICAL NEW WORK NOTES

- PROVIDE NEW AIR-HANDLING UNIT. MAINTAIN MANUFACTURER'S REQUIRED EQUIPMENT CLEARANCE.
- PROVIDE NEW CONCRETE EQUIPMENT PAD FOR NEW EQUIPMENT. CONCRETE PAD SHALL EXTEND 6" IN LENGTH ON ALL SIDES FROM EDGE OF EQUIPMENT.
- EXISTING DDC CONTROL PANEL LOCATION.
- LOCATION FOR HVAC EMERGENCY SHUT-OFF SWITCH. MOUNT AT 68" AFF FROM THE BOTTOM.



DATE	APPR
DESCRIPTION	
DESIGNED & ENGINEERED BY:	
	
ENGINEERS ARCHITECTS PLANNERS <small>444 WALNUT CIRCLE WASHINGTON, DC 20001 (703) 261-5174 www.djginc.com</small>	
	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE APPROVED	
FOR ETO FOR COMMANDER NAVFAC	
DATE	08.14.2012
A/E	EDD
SSC	DESIGN
SSC	DRAWN
KS	REVIEW
OC	XXX
CHEF	ARCH./ ENGR.
PROJECT MANAGER	XXX
FIRE PROTECTION	XXX
BRANCH MANAGER	XXX
DESIGN DIRECTOR	XXX
DEPARTMENT OF THE NAVY MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL-NEW WORK PLAN-DUCTWORK	
CODE ID. NO.	80091
SIZE	D
SCALE:	AS SHOWN
FED. NO.	WR6059391
STA. PROJ. NO.	CP12004M
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12629053
SHEET	24 OF 40
M-101	
<small>DRAWING REVISION JULY 2003</small>	

REFER TO ENLARGED MECHANICAL ROOM PLAN ON SHEET M-401 FOR MORE INFORMATION



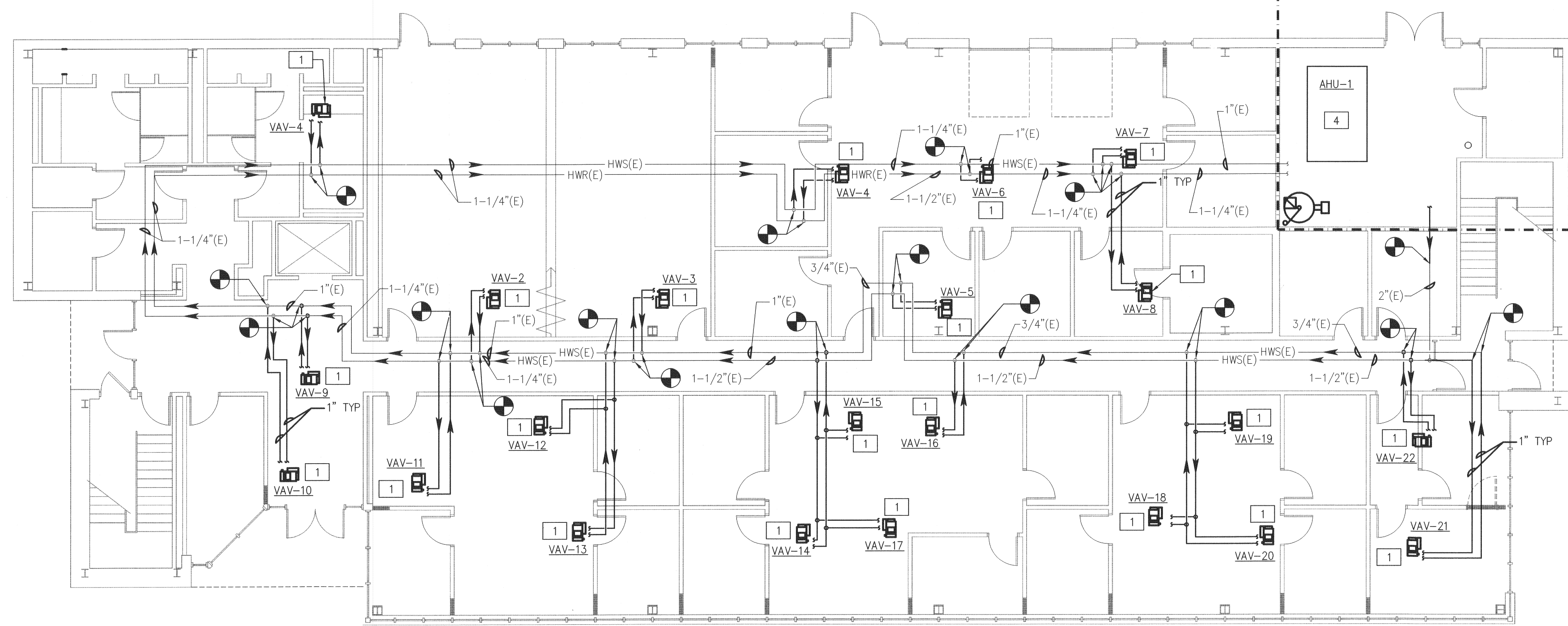
INFORMATION CONTAINED ON THIS DRAWING WAS OBTAINED FROM SITE VISITS AND ARCHIVED DRAWINGS. NOT ALL DUCTWORK, PIPING AND EQUIPMENT MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO EXECUTION OF WORK. MODIFICATIONS SHALL BE MADE ONLY AFTER APPROVAL BY THE ENGINEER.

GENERAL NEW WORK NOTES

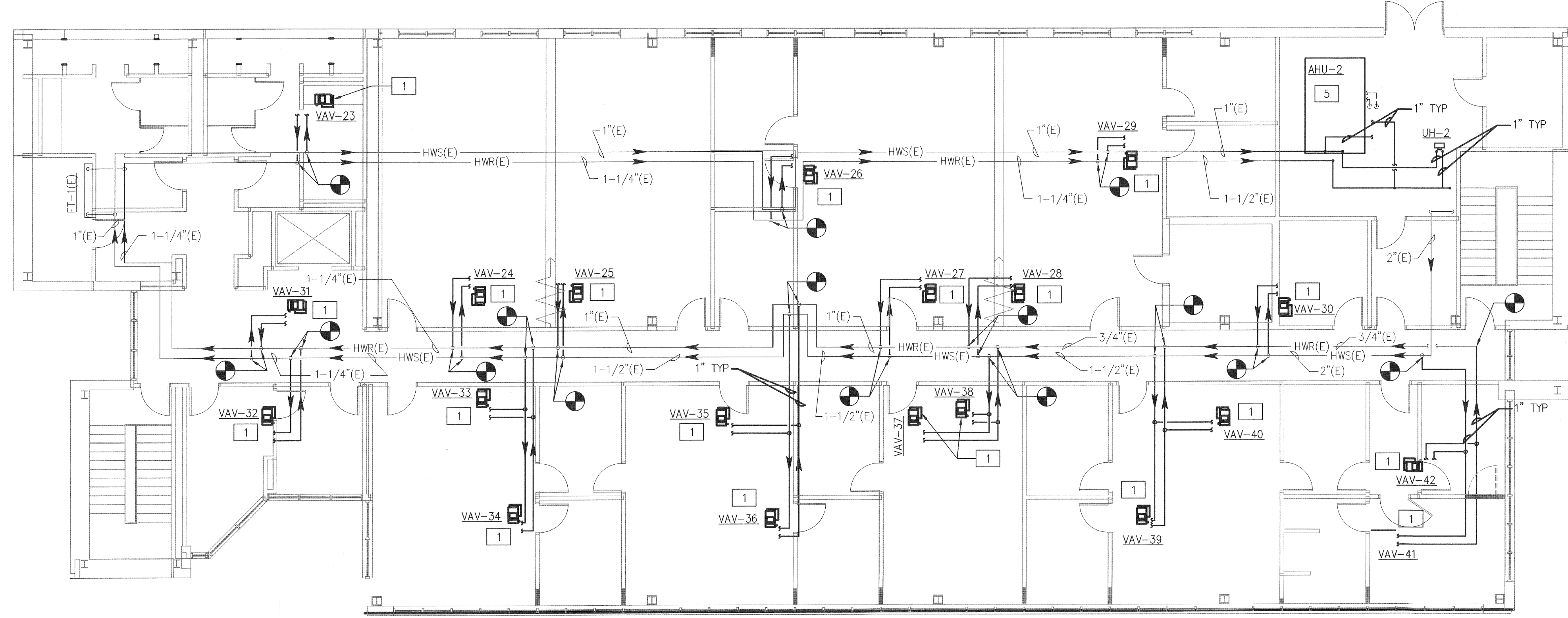
1. COORDINATE DUCTWORK AND PIPING INSTALLATION WITH ALL TRADES. COORDINATE ROUTING OF DUCTWORK AND PIPING WITH EXISTING BUILDING STRUCTURE. PROVIDE ADDITIONAL OFFSETS TO AVOID INTERFERENCES.
2. ALL CONTROL VALVES FOR CHILLED WATER AND HOT WATER COILS SHALL BE TWO-WAY UNLESS OTHERWISE NOTED ON THE PLANS.
3. PROVIDE ACCESS DOORS IN NON-ACCESSIBLE CEILINGS WHERE REQUIRED FOR PROPER ACCESS TO ALL PIPING COMPONENTS AND SPECIALTIES.
4. PROVIDE AUTOMATIC AIR VENTS AT ALL HIGH PIPING LOCATIONS.
5. UNLESS OTHERWISE NOTED, ALL PIPING RUNOUTS SHALL BE 3/4".

MECHANICAL NEW WORK NOTES

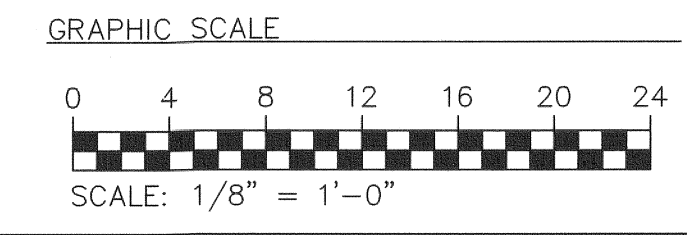
- 1 PROVIDE NEW VARIABLE AIR VOLUME TERMINAL UNIT.
- 2 PROVIDE NEW CHILLER.
- 3 PROVIDE NEW CONCRETE EQUIPMENT PAD FOR NEW EQUIPMENT. CONCRETE PAD SHALL EXTEND 6" IN LENGTH ON ALL SIDES FROM EDGE OF EQUIPMENT. REFER TO DETAIL ON SHEET M-504 FOR MORE INFORMATION.
- 4 PROVIDE NEW AIR HANDLING UNIT



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



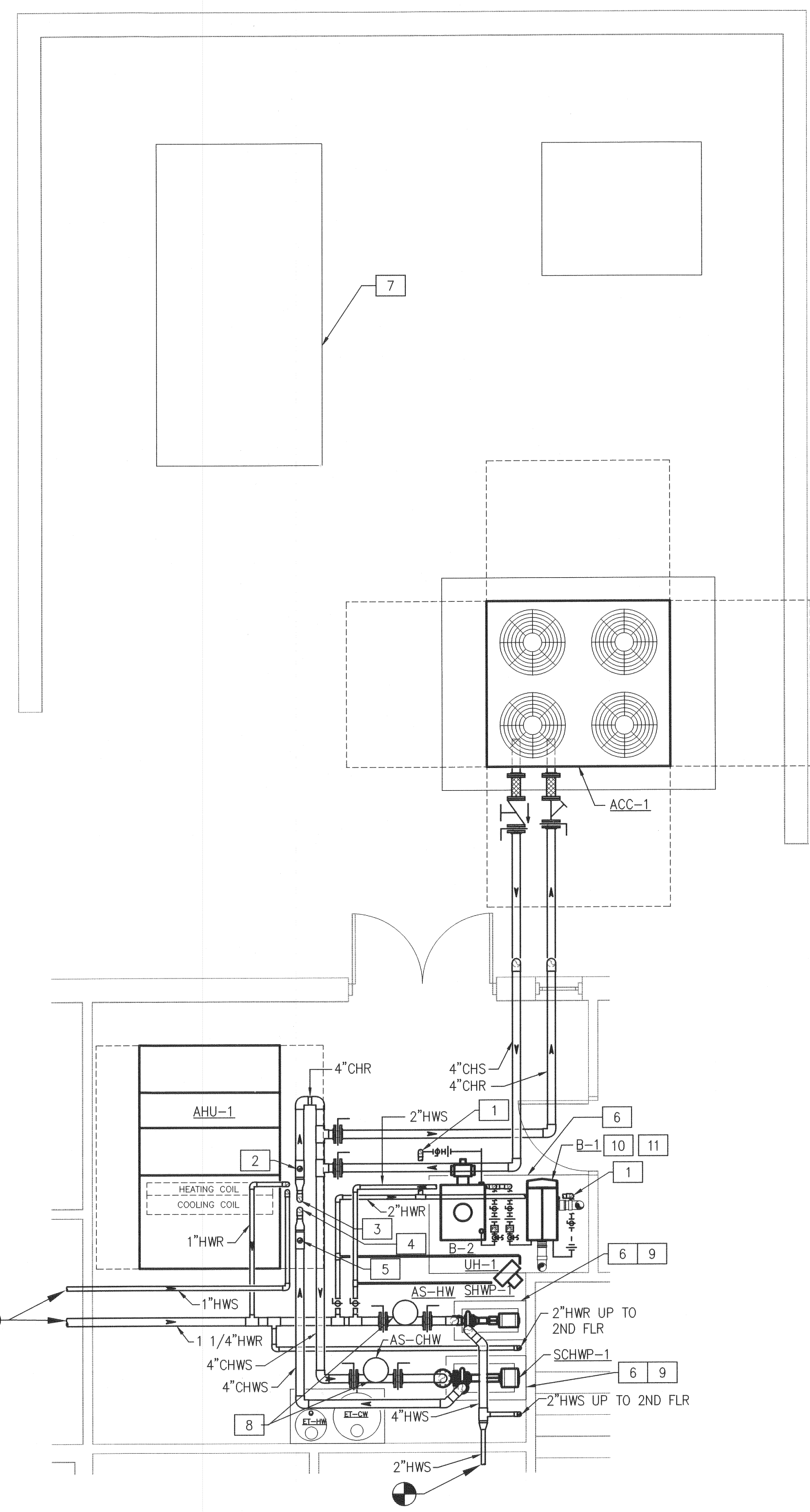
MECHANICAL SECOND FLOOR NEW WORK PLAN - PIPING
SCALE: 1/8" = 1'-0"



DATE	APPR
DESCRIPTION	
SIN	
DESIGNED & ENGINEERED BY:	
ENGINEERS ARCHITECTS PLANNERS 445 WALLACE CIRCLE WASHINGTON, VA 22031 (703) 555-8212 FAX (703) 555-8218 www.djginc.com	
APPROVED	SEAL
ACTIVITY - SATISFACTORY TO	
DATE	APPROVED
FOR ETD FOR COMMANDER NAVFAC	
DATE	08.14.2012
A/E	EFD
SSC	DESIGN
SSC	DRAWN
KS	REVIEW
	QC
	CHEF ARCH/ ENGR.
	PROJECT MANAGER
	FIRE PROTECTION
	BRANCH MANAGER
	DESIGN DIRECTOR
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL-NEW WORK PLAN-PIPING	
CODE ID. NO.	80091
SCALE:	AS SHOWN
FED. NO.	WR6059391
STA. PROJ. NO.	CP12004M
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12629054
SHEET	25 OF 40
M-201 <small>DRAWING REVISION JULY 2003</small>	

1 2 3 4 5

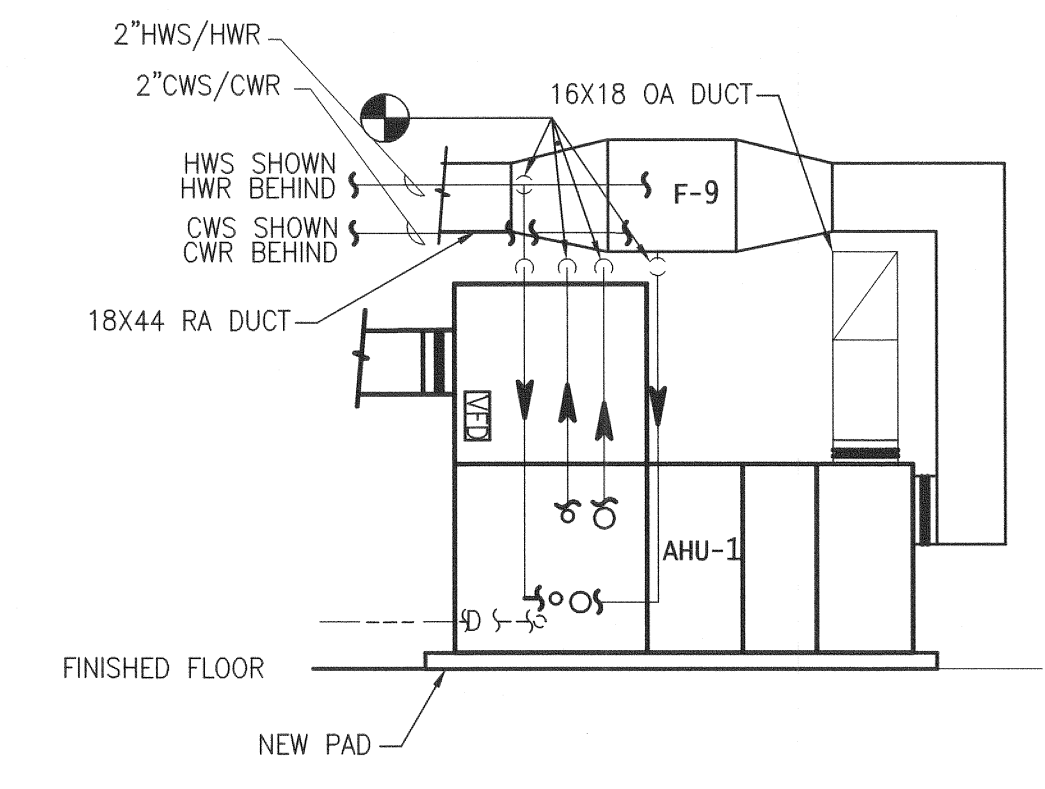
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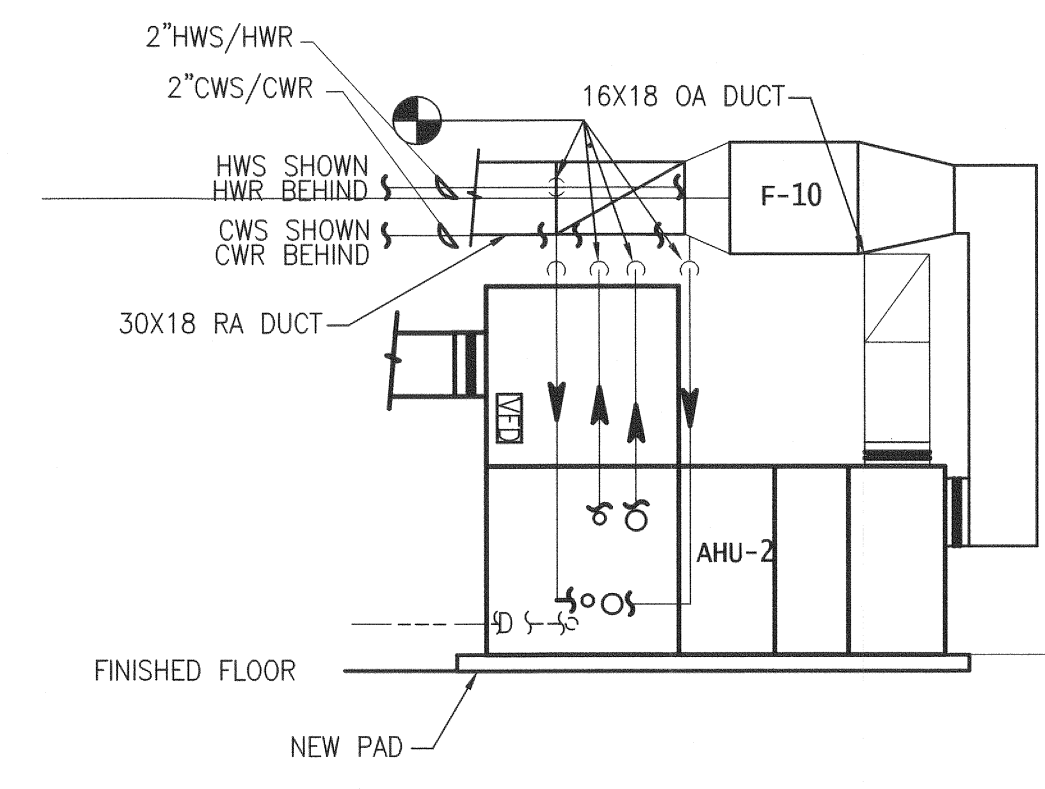
ENLARGED MECHANICAL ROOM - NEW WORK PIPING
SCALE: 1/4" = 1'-0"

MECHANICAL NEW WORK NOTES

- 1 STRAINER, CHECK VALVE, AND PRIMARY HOT WATER PUMP PHWP IN RISER.
- 2 2 1/2" CHWR UP TO 2ND FLOOR.
- 3 2 1/2" CHWR.
- 4 2 1/2" CHWS.
- 5 2 1/2" CHWS UP TO 2ND FLOOR.
- 6 PROVIDE NEW CONCRETE EQUIPMENT PAD.
- 7 EXISTING FUEL OIL TANK TO REMAIN.
- 8 REFER TO AIR SEPARATOR/ EXPANSION DETAILS ON SHEET M-502
- 9 REFER TO END SUCTION PUMP DETAIL ON SHEET M-502
- 10 REFER TO BOILER CONNECTION DIAGRAM FOR DETAILS ON SHEET M-501
- 11 BOILER VENT TO BE TIED INTO EXISTING PER INTERNATIONAL FUEL GAS CODE. COMBUSTION AIR DUCT TO BE TRAVERSE LATERAL TO EXISTING COMBUSTION AIR INTAKE LOUVER ADJACENT DOOR



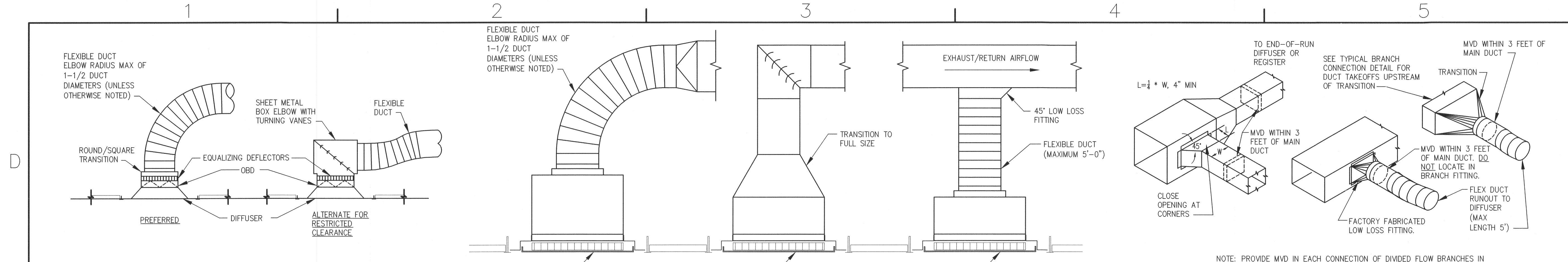
**ENLARGED FIRST FLOOR MER 126
NEW WORK DUCTWORK**
SCALE: 1/4" = 1'-0"



**ENLARGED SECOND FLOOR MER 223
NEW WORK DUCTWORK**
SCALE: 1/4" = 1'-0"

1 2 3 4 5

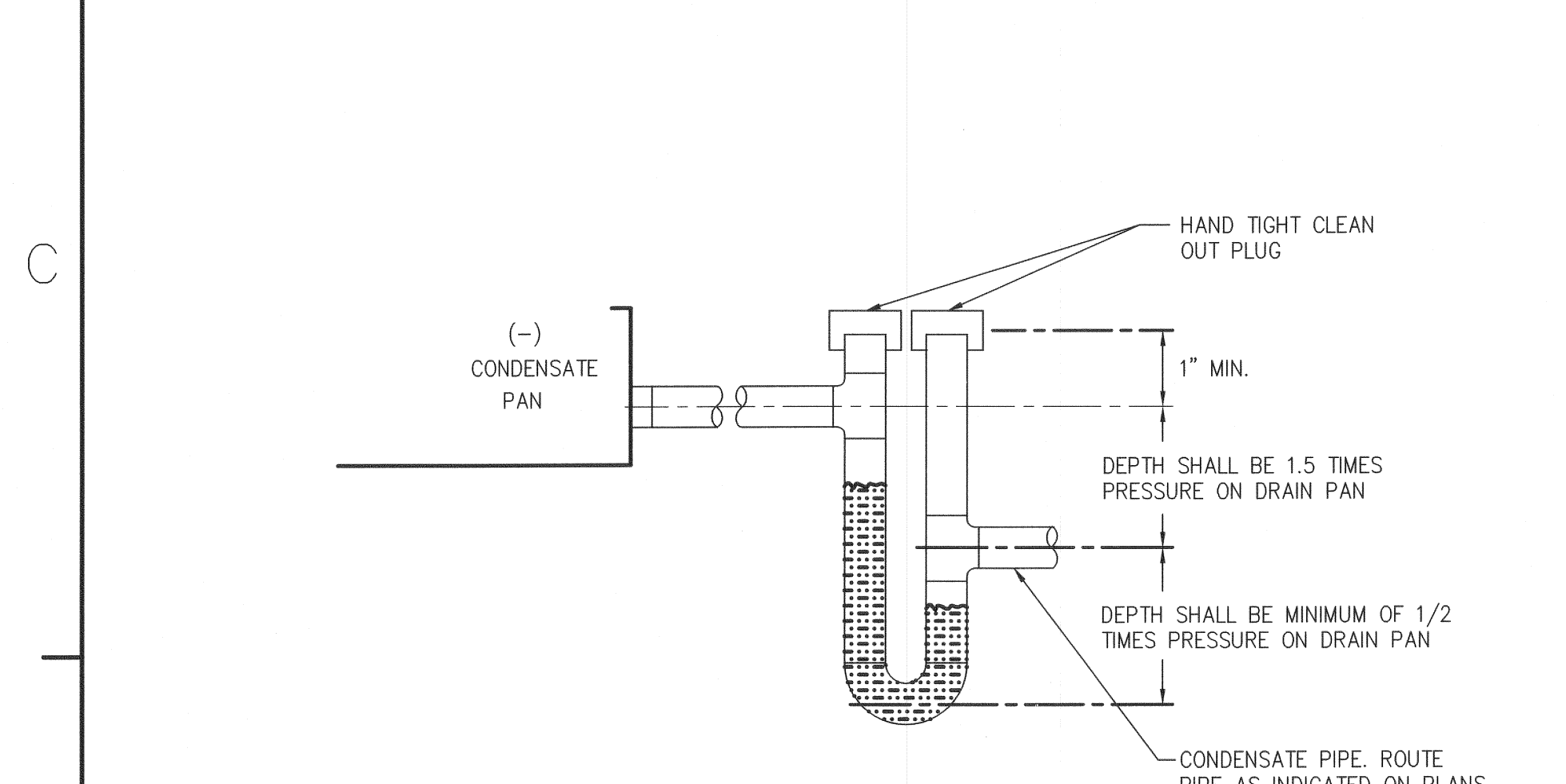
DATE	APPR
DESCRIPTION	
SUM	
DESIGNED & ENGINEERED BY:	
ENGINEERS ARCHITECTS PLANNERS 444 WELLS CIRCLE WELLSBORO, VA 22191 (703) 525-0013 WWW.DJGINC.COM	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	
FOR EFD FOR COMMANDER NAVFAC	
DATE 08.14.2012	
A/E	EFD
SSC	DESIGN XXX
PGB	DRAWN XXX
KMS	REVIEW XXX
QC	XXX
CHIEF ARCH./ ENGR.	XXX
PROJECT MANAGER	XXX
FIRE PROTECTION	XXX
BRANCH MANAGER	XXX
DESIGN DIRECTOR	XXX
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL ENLARGED PLANS	
CODE ID. NO. 80091	SIZE D
SCALE: AS SHOWN	
FED. NO. WR6059391	
STA. PROJ. NO. CP12004M	
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12629055	
SHEET 26 OF 40	
M-401	
<small>DRAWING REVISION JULY 2003</small>	



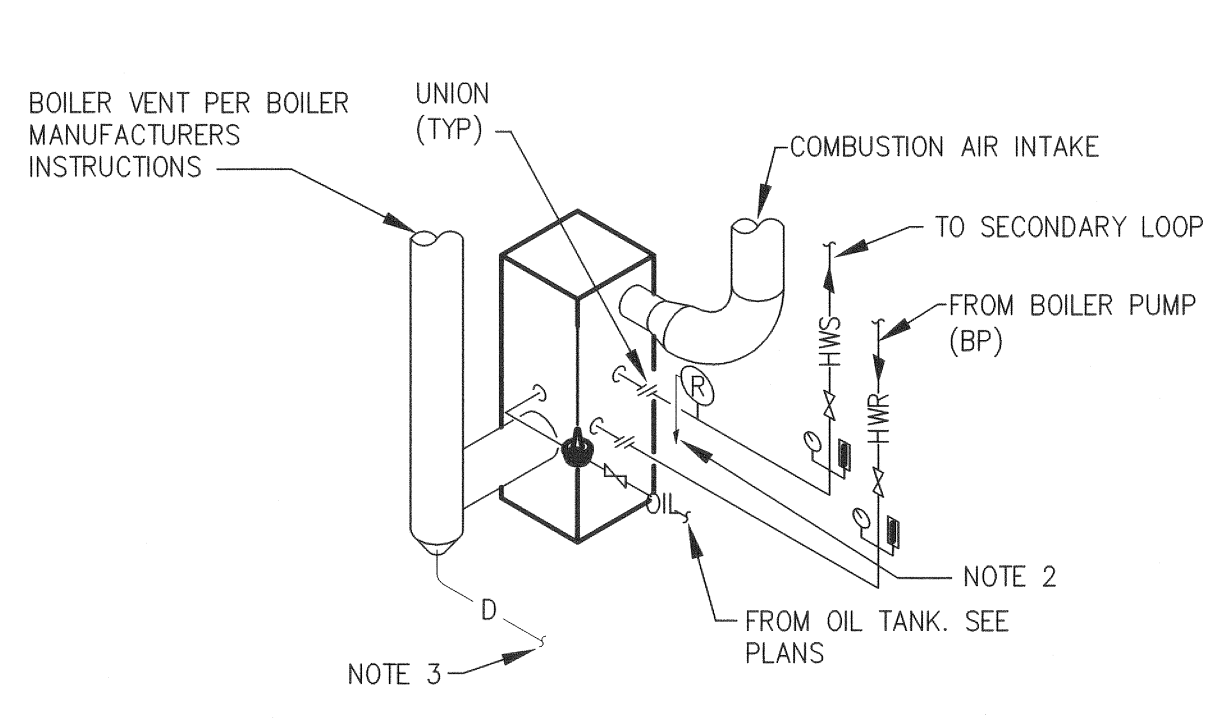
SUPPLY AIR DIFFUSER MOUNTING DETAIL
NOT TO SCALE

RETURN AIR / EXHAUST AIR GRILLE/REGISTER MOUNTING DETAIL
NOT TO SCALE

BRANCH CONNECTIONS DETAIL FOR SUPPLY, RETURN & EXHAUST DUCTS
NOT TO SCALE

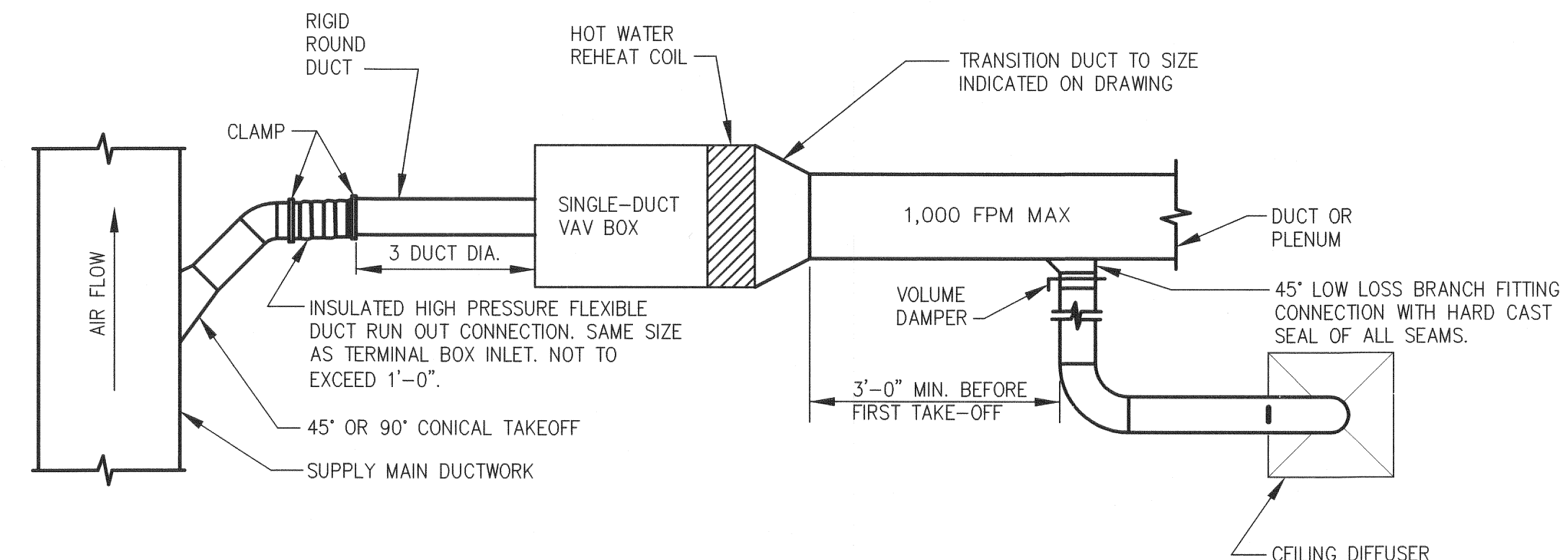


DRAW THROUGH CONDENSATE DRAIN DETAIL
NOT TO SCALE



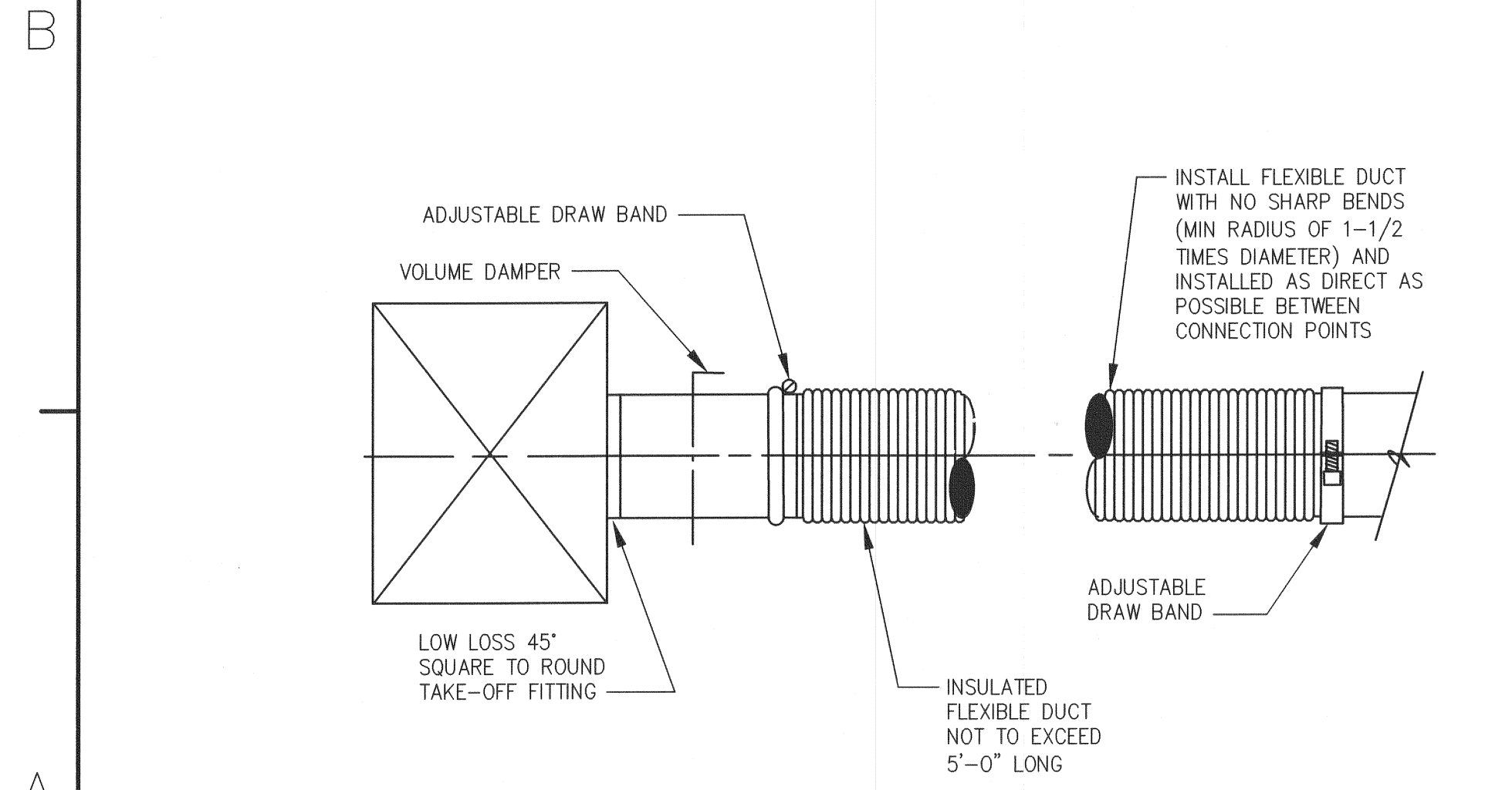
- NOTES:**
- GAS TRAIN PROVIDED BY BOILER MANUFACTURER AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - EXTEND RELIEF VALVE DISCHARGE TO OUTDOORS.
 - CONDENSATE DRAIN LINE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, EXTEND TO FLOOR DRAIN.

BOILER CONNECTIONS DETAIL
NOT TO SCALE



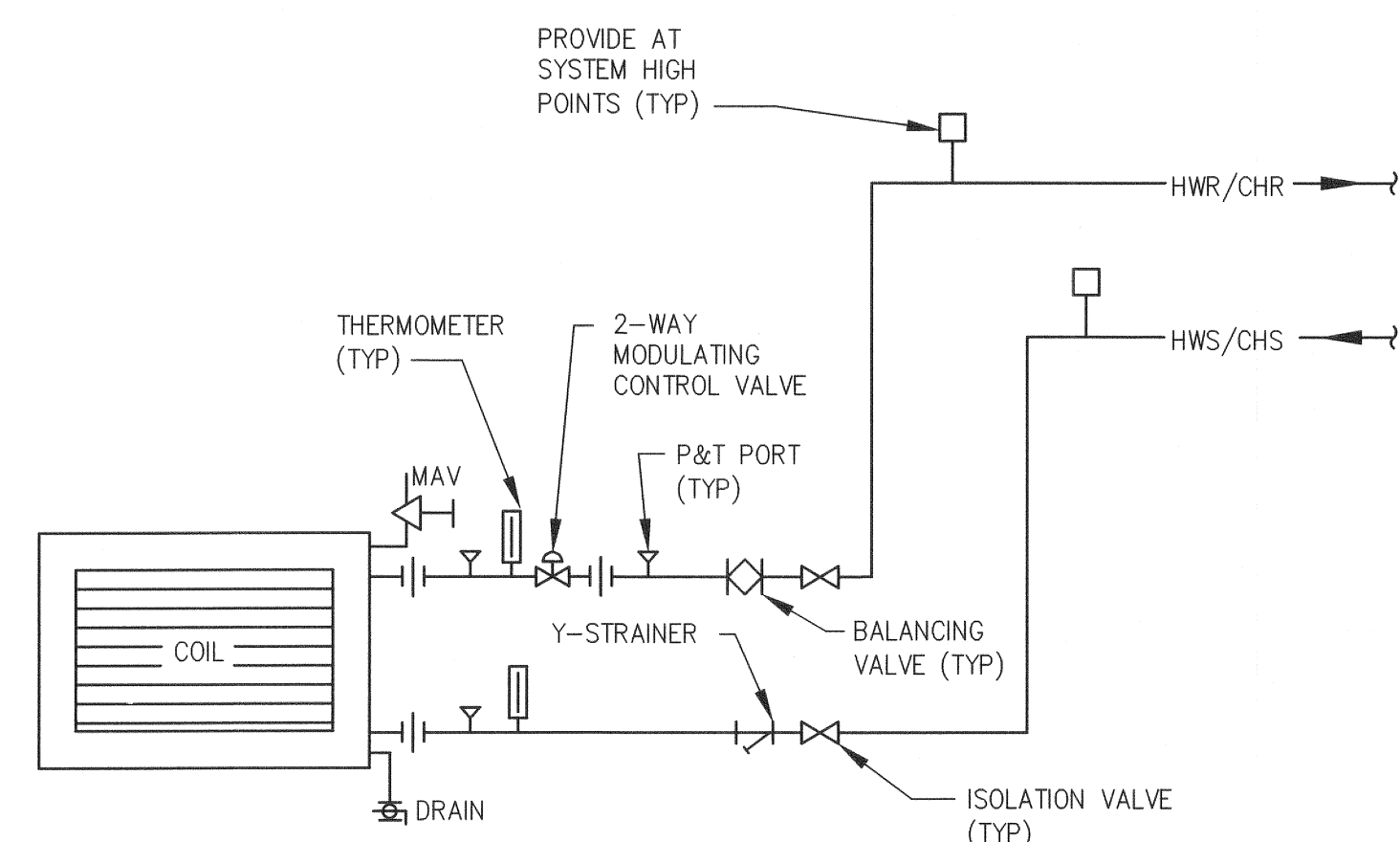
- NOTES:**
- EXTERNALLY INSULATE ALL TAKE-OFF FITTINGS.
 - ALL DUCTWORK UPSTREAM OF VV BOX TO BE SMACNA HIGH PRESSURE RATED FOR 3 INCH W.G. S.P..
 - ALL DUCTWORK DOWNSTREAM OF VV BOX TO BE LOW PRESSURE RATED FOR 2 INCH W.G. S.P.
 - INSTALL 3x3 DIA. OF STRAIGHT DUCT ON INLET SIDE OF TERMINAL BOX OR AIR STRAIGHTENER IF THERE ARE SPACE LIMITATIONS.
 - SECURE FLEX DUCT WITH SHEETMETAL SCREWS (2 EA.) AND DRAW BANDS FOR HIGH PRESSURE AND LOW PRESSURE CONNECTIONS.
 - RETURN AIR GRILLES SHOULD BE NO CLOSER THAN 5'-0" TO SUPPLY AIR DEVICES.
 - MAINTAIN MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES AROUND ENTIRE VV BOX.

TYPICAL VV BOX AND DUCTWORK INSTALLATION DETAIL
NOT TO SCALE



NOTE: FLEXIBLE DUCTS SHALL ONLY BE USED WHERE INDICATED ON PLANS AND MAY NOT BE USED TO REPLACE SHEET METAL DUCTS OR FITTINGS INDICATED ON PLANS

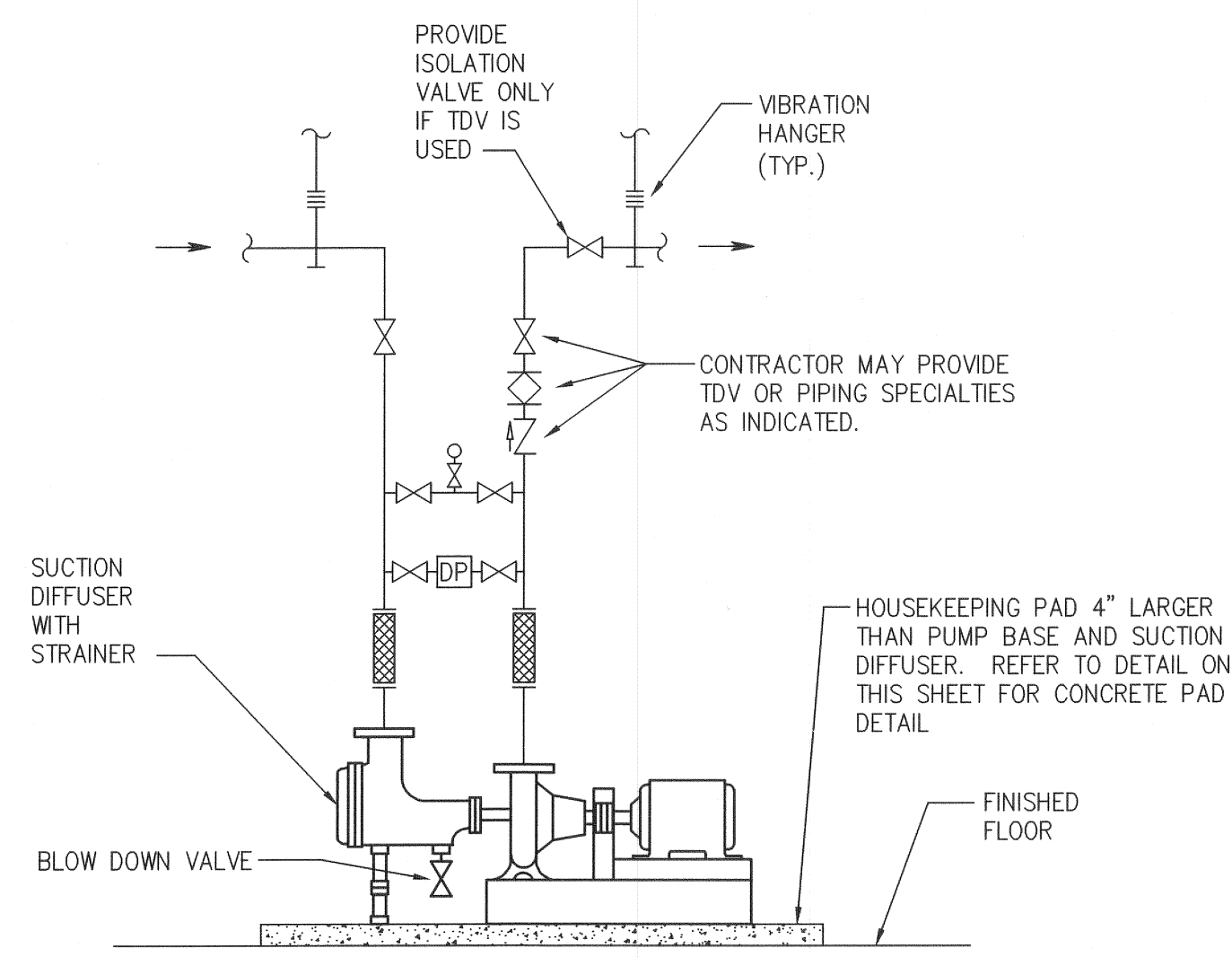
FLEXIBLE DUCT DETAIL
NOT TO SCALE



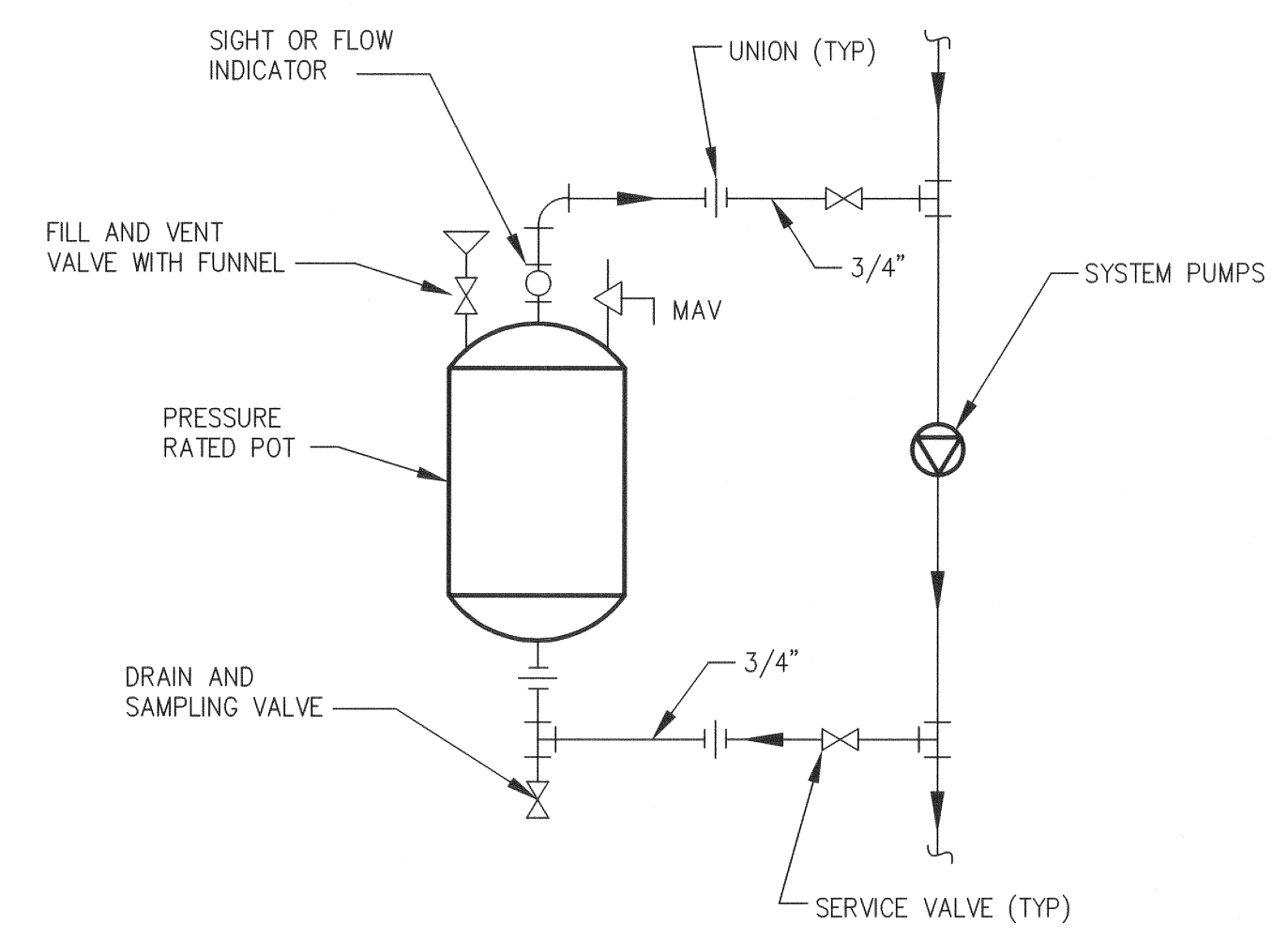
- NOTE:**
- ARRANGE ALL PIPING TO PERMIT REMOVAL OF COIL. THE BALANCING VALVES SHALL BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH VALVE MFR'S RECOMMENDED SPACING UP/DOWNSTREAM FROM PIPE CHANGES IN DIRECTION AND/OR OTHER VALVES/COMPONENTS IN THE PIPING.
 - INSULATE ALL FITTINGS, VALVES, AND COIL BENDS.
 - REFER TO PLANS FOR PIPE SIZES.

VAV BOX, AHU HOT WATER AND AHU CHILLED WATER 2 WAY COIL PIPING DETAIL
SCALE: NONE

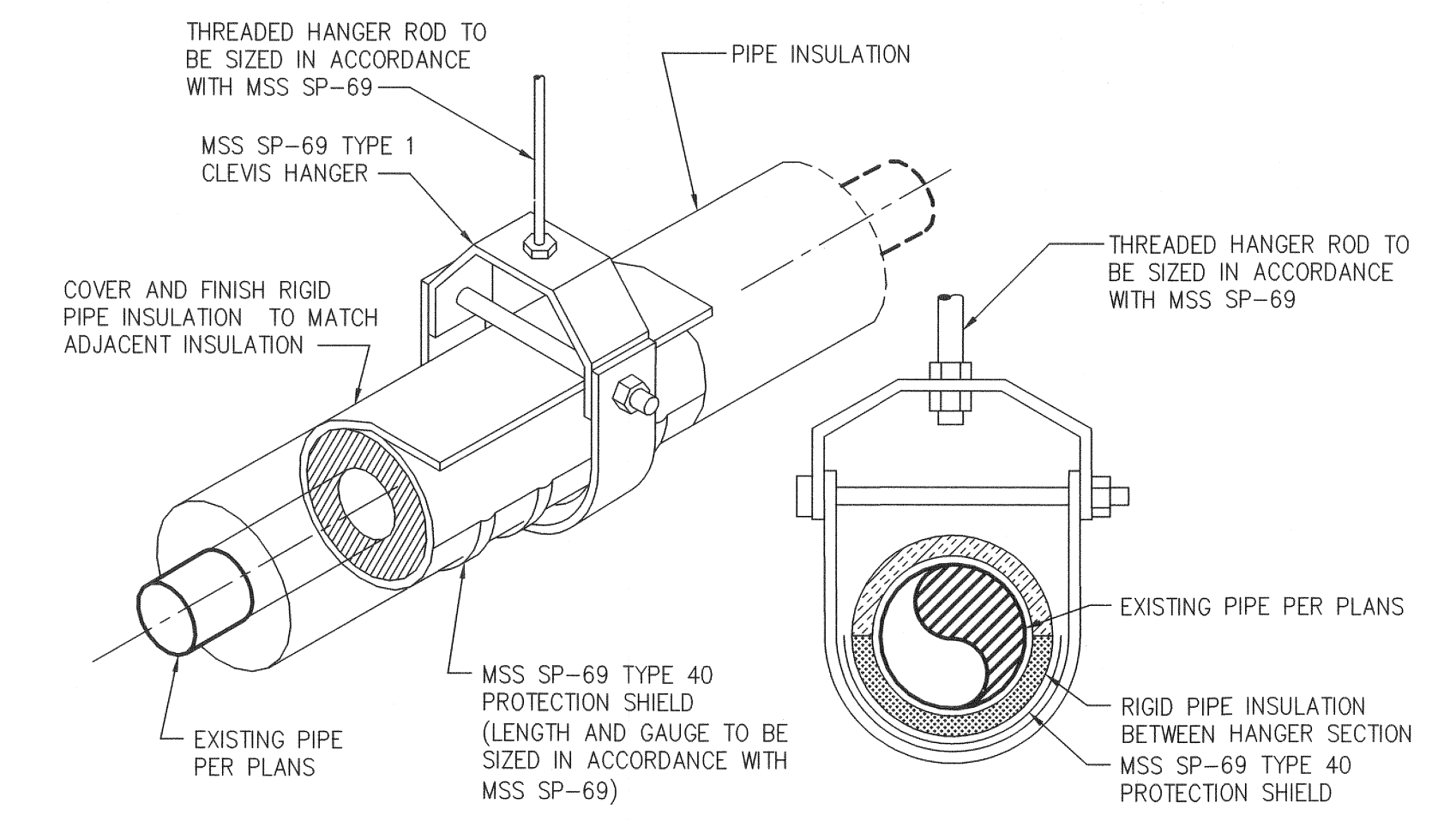
DATE	SYMBOL	DESCRIPTION	APPROVED
DESIGNED & ENGINEERED BY:			
ENGINEERS ARCHITECTS PLANNERS			
APPROVED			
ACTIVITY - SATISFACTORY TO			
DATE APPROVED			
FOR EPD FOR COMMANDER NAVFAC			
DATE 08.14.2012			
A/E	DESIGN	XXX	EPD
SSC	DRAWN	XXX	
KS	REVIEW	XXX	
	OC	XXX	
	CHEF ARCH/ENGR		
	PROJECT MANAGER	XXX	
	FIRE PROTECTION	XXX	
	BRANCH MANAGER	XXX	
	DESIGN DIRECTOR	XXX	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL DETAILS			
CODE ID. NO. 80091		SIZE D	
SCALE: AS SHOWN			
FED. NO. WR6059391			
STA. PROJ. NO. CP12004M			
SPEC. NO.			
CONSTR. CONTR. NO.			
NAVFAC DRAWING NO. 12629056			
SHEET 27 OF 40			
M-501			
DRAWING REVISION JULY 2003			



END SUCTION PUMP DETAIL
NOT TO SCALE



CHEMICAL POT FEEDER DETAIL
NOT TO SCALE

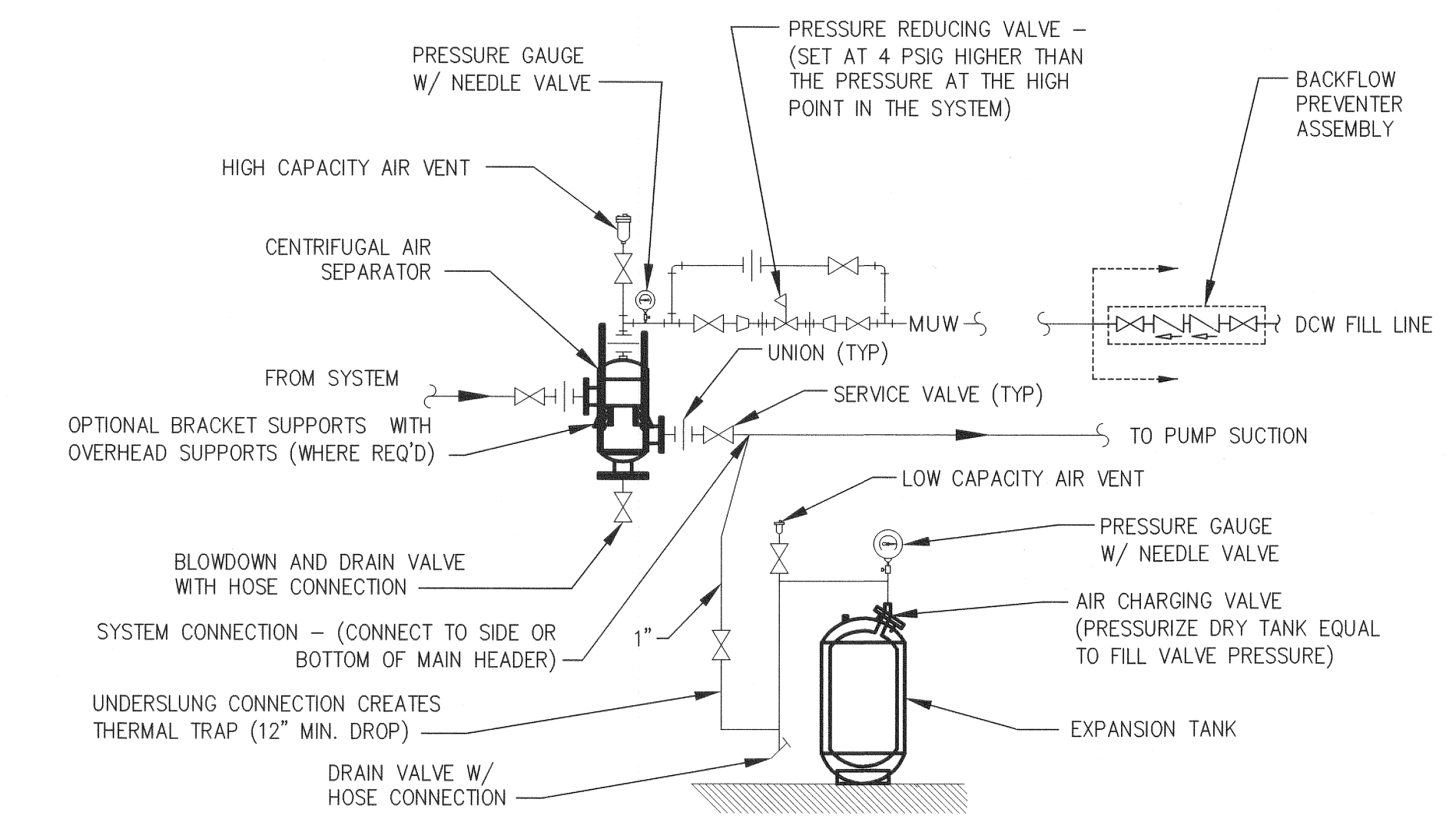


INSULATED PIPE ON CLEVIS HANGER DETAIL
NOT TO SCALE

DUCTWORK CONSTRUCTION DETAIL		
DESCRIPTION	DUCTWORK AS SHOWN ON THE PLANS	
	DOUBLE LINE DRAWING	DETAILED CONSTRUCTION REQUIRED
DUCT TAKEOFF FROM LOW PRESSURE MAIN		
ELBOW AND SPLIT (LOW PRESSURE DUCTWORK ONLY)		
SQUARE OR RECTANGULAR ELBOW		
SQUARE OR RECTANGULAR RADIUS ELBOW		
ROUND OR FLAT OVAL DUCT TAKEOFF FROM HIGH PRESSURE ROUND OR FLAT OVAL DUCTS		
ELBOWS FOR HIGH PRESSURE ROUND OR FLAT OVAL DUCTS		
RECTANGULAR DUCT TAKEOFF FROM HIGH PRESSURE RECTANGULAR MAIN		

NOTES:

- FITTINGS SHOWN ON THE DRAWINGS FOR HIGH PRESSURE DUCTWORK OTHER THAN THOSE SHOWN ABOVE SHALL BE EQUAL TO STANDARD UNITED MCGILL FITTINGS FOR HIGH PRESSURE ROUND AND FLAT OVAL DUCTWORK. FIRE DAMPERS TO BE PROVIDED TO MEET THE REQUIREMENTS OF NFPA 101 AND SMACNA STANDARDS.
- INSTALLATIONS TO INCLUDE BREAKAWAY CONNECTIONS AND ACCESS PANELS.



AIR SEPARATOR/EXPANSION TANK DETAIL
NOT TO SCALE

DUCTWORK CONSTRUCTION AND LEAKAGE TESTING SCHEDULE															
SYSTEM	DESCRIPTION	DUCT PRESSURE CLASS				SUPPLY				RETURN / EXHAUST / OUTSIDE AIR				DUCT TEST PRESSURE: IN H2O	NOTES
		IN H2O				ROUND/OVAL		RECTANGULAR		ROUND		RECTANGULAR			
		SUPPLY DUCT	RETURN DUCT	EXHAUST DUCT	OUTSIDE AIR DUCT	DUCT SEAL CLASS	DUCT LEAK CLASS	DUCT SEAL CLASS	DUCT LEAK CLASS	DUCT SEAL CLASS	DUCT LEAK CLASS	DUCT SEAL CLASS	DUCT LEAK CLASS		
VAV UNITS	SUPPLY FROM VAV TO DIFFUSER	2	-	-	-	A	12	A	12	-	-	-	-	2	1
AHU	SUPPLY FROM AHU TO DIFFUSER	2	-	-	-	A	12	A	12	-	6	B	12	2	1
	RETURN TO AHU	-	-2	-	-	-	-	-	-	B	6	B	12	2	1
EXHAUST FANS	EXHAUST FROM DIFFUSER TO FAN	-	-	-1	-	-	-	-	-	B	12	B	24	1	1
	EXHAUST FROM FAN TO VENT	-	-	1	-	-	-	-	-	B	12	B	24	1	2
OUTSIDE AIR	OUTSIDE AIR FROM VENT TO AHU	-	-	-	-1	-	-	-	-	A	6	A	12	1	2

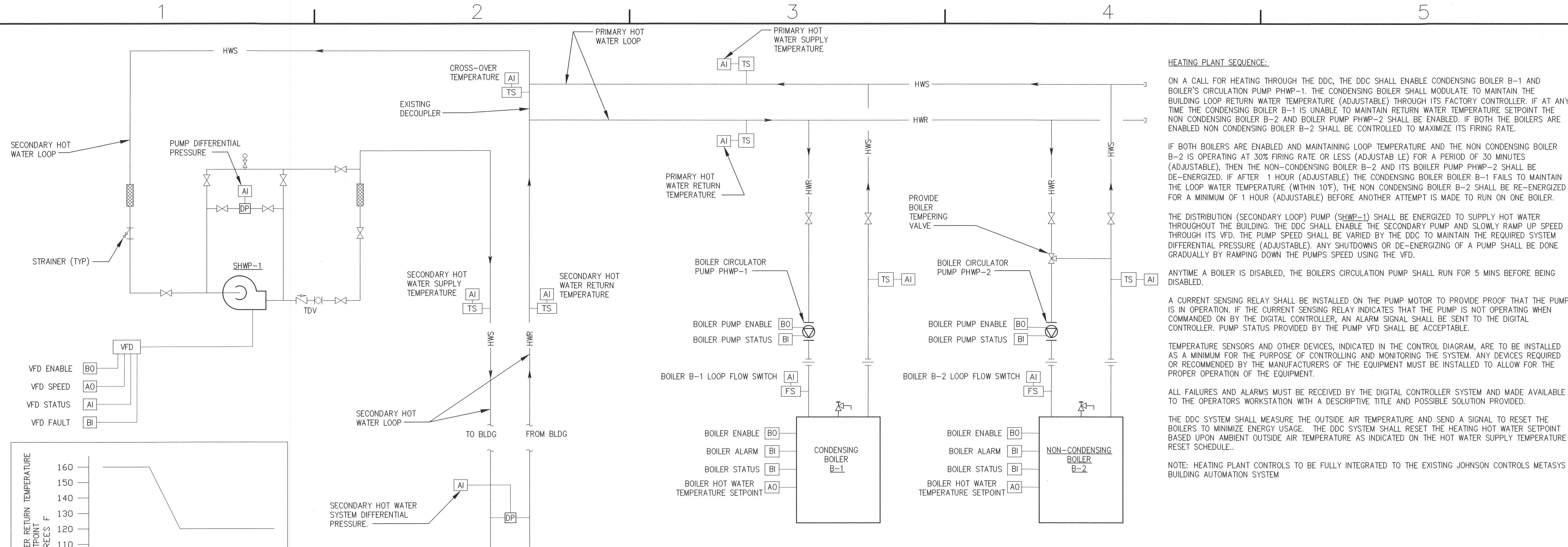
NOTES:

- TEST IN ACCORDANCE WITH SPECIFICATION SECTION 23 05 93, TESTING, ADJUSTING AND BALANCING FOR HVAC AND THE PROCEDURES IN SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
- NO TEST REQUIRED.

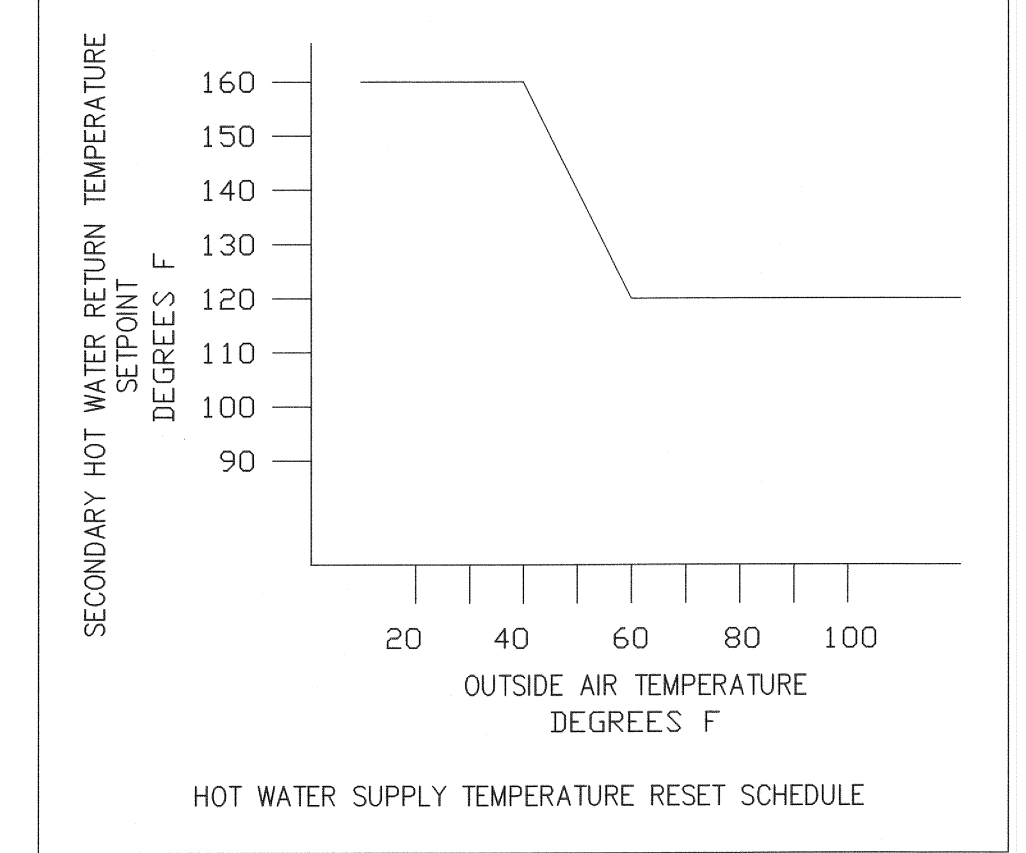
DATE: 08.14.2012
 APPROVED: [Signature]
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 DATE APPROVED: 8/14/12
 FOR EFD FOR COMMANDER NAVFAC
 DATE: 08.14.2012
 A/E DESIGN: XXX
 SSC DRAWN: XXX
 KS REVIEW: XXX
 OC: XXX
 CHIEF ARCH/ENGR: XXX
 PROJECT MANAGER: XXX
 FIRE PROTECTION: XXX
 BRANCH MANAGER: XXX
 DESIGN DIRECTOR: XXX

NAVAL FACILITIES ENGINEERING COMMAND
 MARINE CORPS AIR STATION, CHERRY POINT, N.C.
 FACILITY ENERGY REPAIRS,
 BUILDING 4401
 MECHANICAL DETAILS

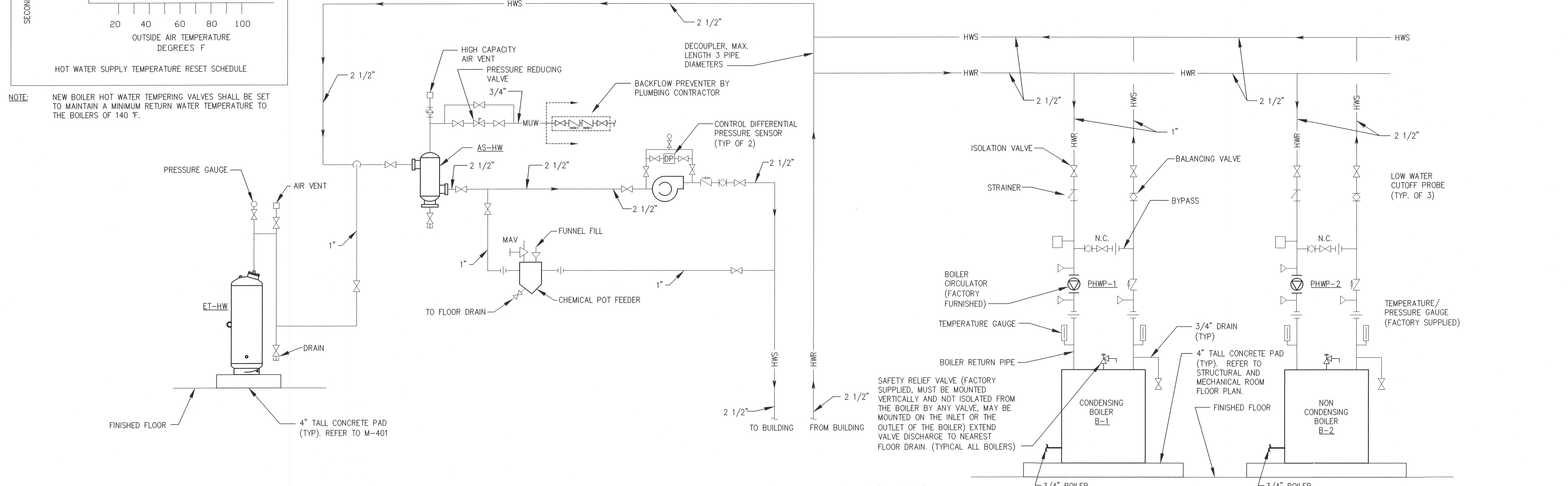
CODE ID: NO. 80091 | SIZE: D
 SCALE: AS SHOWN
 FED. NO. WR6059391
 STA. PROJ. NO. CP12004M
 SPEC. NO.
 CONSTR. CONTR. NO.
 NAVFAC DRAWING NO. 12629057
 SHEET 28 OF 40
M-502
 DRAWING REVISION: JULY 2003



HEATING PLANT CONTROL DIAGRAM
NOT TO SCALE



NOTE: NEW BOILER HOT WATER TEMPERING VALVES SHALL BE SET TO MAINTAIN A MINIMUM RETURN WATER TEMPERATURE TO THE BOILERS OF 140 F.



HEATING HOT WATER SYSTEM DIAGRAM
NOT TO SCALE

HEATING PLANT SEQUENCE:

ON A CALL FOR HEATING THROUGH THE DDC, THE DDC SHALL ENABLE CONDENSING BOILER B-1 AND BOILER'S CIRCULATION PUMP PHWP-1. THE CONDENSING BOILER SHALL MODULATE TO MAINTAIN THE BUILDING LOOP RETURN WATER TEMPERATURE (ADJUSTABLE) THROUGH ITS FACTORY CONTROLLER. IF AT ANY TIME THE CONDENSING BOILER B-1 IS UNABLE TO MAINTAIN RETURN WATER TEMPERATURE SETPOINT THE NON CONDENSING BOILER B-2 AND BOILER PUMP PHWP-2 SHALL BE ENABLED. IF BOTH THE BOILERS ARE ENABLED NON CONDENSING BOILER B-2 SHALL BE CONTROLLED TO MAXIMIZE ITS FIRING RATE.

IF BOTH BOILERS ARE ENABLED AND MAINTAINING LOOP TEMPERATURE AND THE NON CONDENSING BOILER B-2 IS OPERATING AT 30% FIRING RATE OR LESS (ADJUSTABLE) FOR A PERIOD OF 30 MINUTES (ADJUSTABLE), THEN THE NON-CONDENSING BOILER B-2 AND ITS BOILER PUMP PHWP-2 SHALL BE DE-ENERGIZED. IF AFTER 1 HOUR (ADJUSTABLE) THE CONDENSING BOILER B-1 FAILS TO MAINTAIN THE LOOP WATER TEMPERATURE (WITHIN 10F), THE NON CONDENSING BOILER B-2 SHALL BE RE-ENERGIZED FOR A MINIMUM OF 1 HOUR (ADJUSTABLE) BEFORE ANOTHER ATTEMPT IS MADE TO RUN ON ONE BOILER.

THE DISTRIBUTION (SECONDARY LOOP) PUMP (SHWP-1) SHALL BE ENERGIZED TO SUPPLY HOT WATER THROUGHOUT THE BUILDING. THE DDC SHALL ENABLE THE SECONDARY PUMP AND SLOWLY RAMP UP SPEED THROUGH ITS VFD. THE PUMP SPEED SHALL BE VARIED BY THE DDC TO MAINTAIN THE REQUIRED SYSTEM DIFFERENTIAL PRESSURE (ADJUSTABLE). ANY SHUTDOWNS OR DE-ENERGIZING OF A PUMP SHALL BE DONE GRADUALLY BY RAMPING DOWN THE PUMPS SPEED USING THE VFD.

ANYTIME A BOILER IS DISABLED, THE BOILERS CIRCULATION PUMP SHALL RUN FOR 5 MINS BEFORE BEING DISABLED.

A CURRENT SENSING RELAY SHALL BE INSTALLED ON THE PUMP MOTOR TO PROVIDE PROOF THAT THE PUMP IS IN OPERATION. IF THE CURRENT SENSING RELAY INDICATES THAT THE PUMP IS NOT OPERATING WHEN COMMANDED ON BY THE DIGITAL CONTROLLER, AN ALARM SIGNAL SHALL BE SENT TO THE DIGITAL CONTROLLER. PUMP STATUS PROVIDED BY THE PUMP VFD SHALL BE ACCEPTABLE.

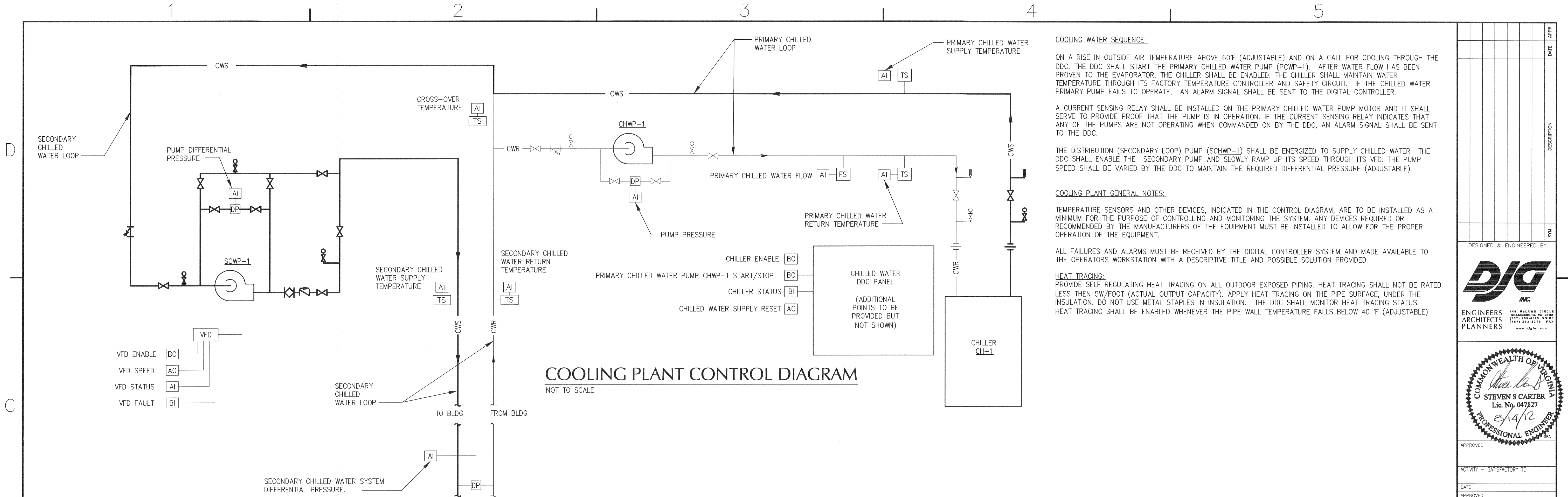
TEMPERATURE SENSORS AND OTHER DEVICES, INDICATED IN THE CONTROL DIAGRAM, ARE TO BE INSTALLED AS A MINIMUM FOR THE PURPOSE OF CONTROLLING AND MONITORING THE SYSTEM. ANY DEVICES REQUIRED OR RECOMMENDED BY THE MANUFACTURERS OF THE EQUIPMENT MUST BE INSTALLED TO ALLOW FOR THE PROPER OPERATION OF THE EQUIPMENT.

ALL FAILURES AND ALARMS MUST BE RECEIVED BY THE DIGITAL CONTROLLER SYSTEM AND MADE AVAILABLE TO THE OPERATORS WORKSTATION WITH A DESCRIPTIVE TITLE AND POSSIBLE SOLUTION PROVIDED.

THE DDC SYSTEM SHALL MEASURE THE OUTSIDE AIR TEMPERATURE AND SEND A SIGNAL TO RESET THE BOILERS TO MINIMIZE ENERGY USAGE. THE DDC SYSTEM SHALL RESET THE HEATING HOT WATER SETPOINT BASED UPON AMBIENT OUTSIDE AIR TEMPERATURE AS INDICATED ON THE HOT WATER SUPPLY TEMPERATURE RESET SCHEDULE.

NOTE: HEATING PLANT CONTROLS TO BE FULLY INTEGRATED TO THE EXISTING JOHNSON CONTROLS METASYS BUILDING AUTOMATION SYSTEM

DATE	APPRO
DESCRIPTION	
SIN	
DESIGNED & ENGINEERED BY:	
ENGINEERS ARCHITECTS PLANNERS 443 WALLACE CIRCLE WASHINGTON, VA 22191 (703) 441-2100 www.djginc.com	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	APPROVED
FOR EFD FOR COMMANDER NAVFAC	
DATE	08.14.2012
A/E	SSC
DESIGN	XXX
SSC	XXX
DRAWN	XXX
REVIEW	XXX
QC	XXX
CHEF ARCH/ ENGR.	XXX
PROJECT MANAGER	XXX
FIRE PROTECTION	XXX
BRANCH MANAGER	XXX
DESIGN DIRECTOR	XXX
DEPARTMENT OF THE NAVY MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 MECHANICAL-CONTROLS	
CODE ID. NO.	80091
SCALE:	AS SHOWN
FED. NO.	WR6059391
STA. PROJ. NO.	CP12004M
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12629060
SHEET	31 OF 40
M-701 <small>DRAWING REVISION - JULY 2003</small>	



COOLING WATER SEQUENCE:
 ON A RISE IN OUTSIDE AIR TEMPERATURE ABOVE 60°F (ADJUSTABLE) AND ON A CALL FOR COOLING THROUGH THE DDC, THE DDC SHALL START THE PRIMARY CHILLED WATER PUMP (PCWP-1). AFTER WATER FLOW HAS BEEN PROVEN TO THE EVAPORATOR, THE CHILLER SHALL BE ENABLED. THE CHILLER SHALL MAINTAIN WATER TEMPERATURE THROUGH ITS FACTORY TEMPERATURE CONTROLLER AND SAFETY CIRCUIT. IF THE CHILLED WATER PRIMARY PUMP FAILS TO OPERATE, AN ALARM SIGNAL SHALL BE SENT TO THE DIGITAL CONTROLLER.

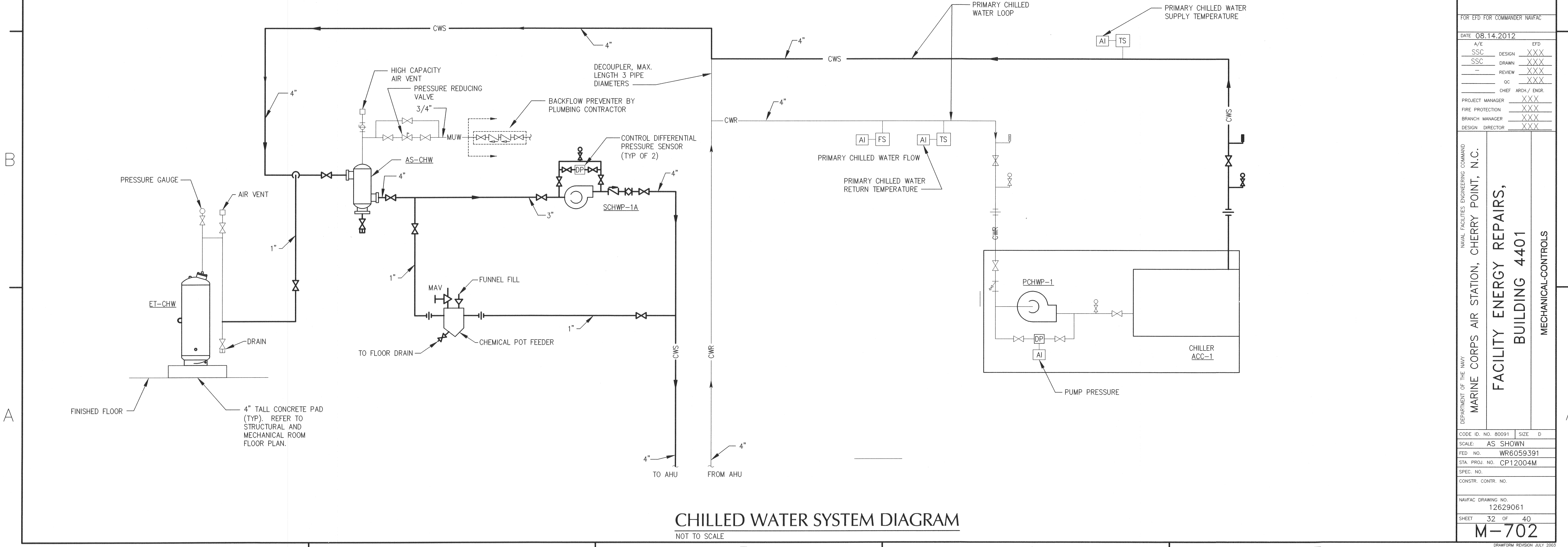
A CURRENT SENSING RELAY SHALL BE INSTALLED ON THE PRIMARY CHILLED WATER PUMP MOTOR AND IT SHALL SERVE TO PROVIDE PROOF THAT THE PUMP IS IN OPERATION. IF THE CURRENT SENSING RELAY INDICATES THAT ANY OF THE PUMPS ARE NOT OPERATING WHEN COMMANDED ON BY THE DDC, AN ALARM SIGNAL SHALL BE SENT TO THE DDC.

COOLING PLANT GENERAL NOTES:
 TEMPERATURE SENSORS AND OTHER DEVICES, INDICATED IN THE CONTROL DIAGRAM, ARE TO BE INSTALLED AS A MINIMUM FOR THE PURPOSE OF CONTROLLING AND MONITORING THE SYSTEM. ANY DEVICES REQUIRED OR RECOMMENDED BY THE MANUFACTURERS OF THE EQUIPMENT MUST BE INSTALLED TO ALLOW FOR THE PROPER OPERATION OF THE EQUIPMENT.

ALL FAILURES AND ALARMS MUST BE RECEIVED BY THE DIGITAL CONTROLLER SYSTEM AND MADE AVAILABLE TO THE OPERATORS WORKSTATION WITH A DESCRIPTIVE TITLE AND POSSIBLE SOLUTION PROVIDED.

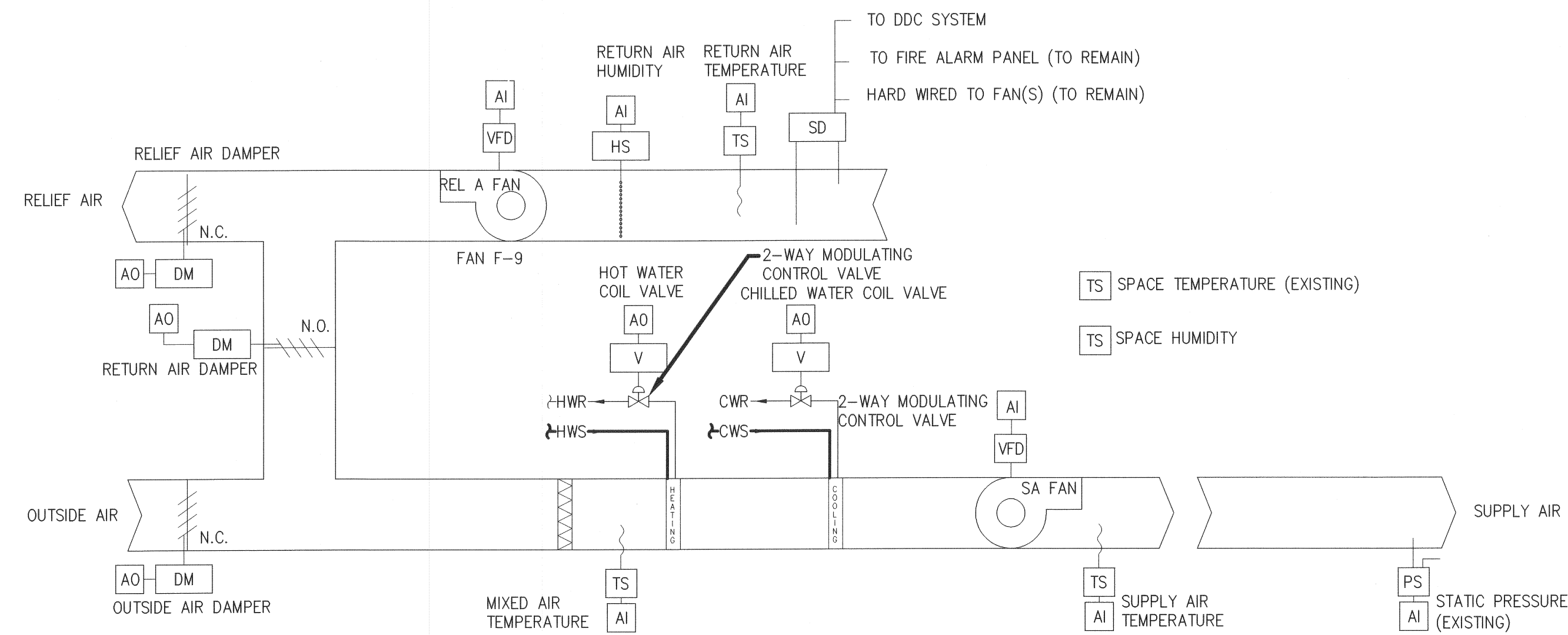
HEAT TRACING:
 PROVIDE SELF REGULATING HEAT TRACING ON ALL OUTDOOR EXPOSED PIPING. HEAT TRACING SHALL NOT BE RATED LESS THEN 5W/FOOT (ACTUAL OUTPUT CAPACITY). APPLY HEAT TRACING ON THE PIPE SURFACE, UNDER THE INSULATION. DO NOT USE METAL STAPLES IN INSULATION. THE DDC SHALL MONITOR HEAT TRACING STATUS. HEAT TRACING SHALL BE ENABLED WHENEVER THE PIPE WALL TEMPERATURE FALLS BELOW 40°F (ADJUSTABLE).

COOLING PLANT CONTROL DIAGRAM
 NOT TO SCALE



CHILLED WATER SYSTEM DIAGRAM
 NOT TO SCALE

DATE	APPR
DESCRIPTION	
SYN	
DESIGNED & ENGINEERED BY:	
ENGINEERS ARCHITECTS PLANNERS <small>445 WILKINS CIRCLE WASHINGTON, DC 20007 (703) 552-0777 VOICE (703) 552-0778 FAX www.djginc.com</small>	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	APPROVED
FOR EFD FOR COMMANDER NAVFAC	
DATE	08.14.2012
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SSC	DESIGN XXXX
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-	REVIEW XXXX
-	QC XXXX
-	CHEF ARCH/ENGR XXXX
-	PROJECT MANAGER XXXX
-	FIRE PROTECTION XXXX
-	BRANCH MANAGER XXXX
-	DESIGN DIRECTOR XXXX
DEPARTMENT OF THE NAVY MARINE CORPS AIR STATION, CHERRY POINT, N.C.	
FACILITY ENERGY REPAIRS, BUILDING 4401	
MECHANICAL-CONTROLS	
CODE ID. NO.	80091 SIZE D
SCALE:	AS SHOWN
FED. NO.	WR6059391
STA. PROJ. NO.	CP12004M
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12629061	
SHEET	32 OF 40
M-702	
<small>DRAWFORM REVISION JULY 2005</small>	



NOTES:

- COORDINATE CONTROL POINTS WITH EXISTING SENSORS AND AHU CONTROLS. EXISTING SENSORS, IF IN GOOD CONDITION, AND EXISTING POINTS MAY BE REUSED IF COMPATIBLE WITH NEW DDC CONTROLS SYSTEM. REPLACE OR RE-CALIBRATE EXISTING SENSORS AS REQUIRED.
- FIELD VERIFY EXISTING AHU LOGIC. MATCH EXISTING CONTROLS LOGIC IN NEW CONTROLS. NOTIFY ENGINEER IF DIFFERENT THAN INDICATED.

AIR HANDLING UNIT 1 CONTROL DIAGRAM

TYPICAL-AIR HANDLING UNIT 2
NOT TO SCALE

VARIABLE AIR VOLUME TERMINAL BOXES CONTROL SEQUENCE:

UNOCCUPIED MODE:

THE DDC SHALL INDEX THE TERMINAL BOX TO ITS MINIMUM OPEN POSITION DECREASING THE AMOUNT OF PRIMARY AIR. THE HOT WATER VALVE WILL BE CLOSED TO THE HEATING COIL.

ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT(65F ADJUSTABLE) THE DDC WILL CONTROL TO MODULATE THE HOT WATER VALVE TOWARDS ITS FULL OPEN POSITION TO PROVIDE AN INCREASED AMOUNT OF HOT WATER TO THE HEATING COIL. ON A RISE IN ROOM TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

ON A RISE IN ROOM TEMPERATURE ABOVE THE SETPOINT(85F ADJUSTABLE), THE DDC WILL CONTROL OPEN THE TERMINAL BOX TO PROVIDE AN INCREASED AMOUNT OF PRIMARY AIR. ON A FALL IN ROOM TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

WARMUP MODE:

AT A PRE-DETERMINED TIME THE DDC SHALL INDEX THE TERMINAL BOX TO ITS MINIMUM OPEN POSITION DECREASING THE AMOUNT OF PRIMARY AIR.

ON A FALL IN SPACE TEMPERATURE BELOW THE OCCUPIED HEATING SETPOINT(68F ADJUSTABLE) THE DDC WILL CONTROL TO MODULATE THE HOT WATER VALVE TOWARDS ITS FULL OPEN POSITION TO PROVIDE AN INCREASED AMOUNT OF HOT WATER TO THE HEATING COIL. ON A RISE IN SPACE TEMPERATURE ABOVE THE OCCUPIED HEATING SETPOINT (68F ADJUSTABLE), THE DDC WILL CONTROL TO INDEX THE SYSTEM TO THE OCCUPIED MODE OF OPERATION.

THE SYSTEM IS PREVENTED FROM ENTERING THE WARM UP MODE MORE THAN ONCE A DAY.

COOL DOWN MODE

AT A PRE-DETERMINED TIME THE DDC SHALL INDEX THE TERMINAL BOX TO ITS FULL OPEN POSITION INCREASING THE AMOUNT OF PRIMARY AIR.

ON A FALL IN SPACE TEMPERATURE BELOW THE OCCUPIED COOLING SETPOINT (75F ADJUSTABLE), THE DDC WILL CONTROL TO INDEX THE SYSTEM TO THE OCCUPIED MODE OF OPERATION.

THE SYSTEM IS PREVENTED FROM ENTERING THE COOL DOWN MODE MORE THAN ONCE A DAY.

OCCUPIED MODE:

THE SUPPLY AIR TEMPERATURE SETPOINT (ADJUSTABLE) IS RESET BASED ON ROOM TEMPERATURE SETPOINT (ADJUSTABLE).

COOLING MODE:

ON RISE IN SPACE TEMPERATURE ABOVE SETPOINT (78F ADJUSTABLE), THE DDC SHALL MODULATE THE TERMINAL BOX TOWARDS ITS FULL OPEN POSITION TO PROVIDE AN INCREASED AMOUNT OF PRIMARY AIR. ON A FALL IN SPACE TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

HEATING MODE:

THE DDC SHALL INDEX THE TERMINAL BOX TO ITS MINIMUM OPEN POSITION DECREASING THE AMOUNT OF PRIMARY AIR. THE HOT WATER VALVE WILL BE CLOSED TO THE HEATING COIL.

ON FALL IN SPACE TEMPERATURE BELOW SETPOINT (68F ADJUSTABLE), THE DDC SHALL MODULATE THE HOT WATER VALVE TOWARDS ITS FULL OPEN POSITION TO PROVIDE AN INCREASED AMOUNT OF HOT WATER TO THE HEATING COIL. ON A RISE IN SPACE TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

UNLESS NOTED OTHERWISE, ALL CONTROLS TO BE PROVIDED BY THE CONTROLS CONTRACTOR.

AIR-HANDLING UNIT 1 CONTROL SEQUENCE:

UNOCCUPIED MODE:

THE DDC SHALL CLOSE THE OUTSIDE AIR DAMPER, RELIEF AIR DAMPER AND OPEN THE RETURN AIR DAMPER. THE SUPPLY AND RETURN FANS ARE OFF. THE CHILLED WATER VALVE SHALL BE CLOSED.

ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT (65 DEG F ADJUSTABLE) THE DDC WILL CONTROL TO START THE SUPPLY FAN. ON A RISE IN ROOM TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

ON A RISE IN ROOM TEMPERATURE ABOVE THE SETPOINT (85 DEG F ADJUSTABLE) AND THE ECONOMIZER MODE IS ENABLED, THE DDC WILL CONTROL TO START THE SUPPLY FAN AND MODULATE THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER TOWARDS THEIR FULL OPEN POSITION AND PROPORTIONATELY CLOSE THE RETURN AIR DAMPER. ON A FALL IN TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

ON A RISE IN ROOM TEMPERATURE ABOVE THE SETPOINT(85F ADJUSTABLE) AND THE ECONOMIZER MODE IS DISABLED, THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER WILL REMAIN CLOSED AND THE RETURN AIR DAMPER OPENED TO ITS MAXIMUM POSITION. THE DDC WILL CONTROL TO START THE SUPPLY FAN AND THE CHILLED WATER VALVE WILL MODULATE TOWARDS ITS FULL OPEN POSITION TO PROVIDE AN INCREASED AMOUNT OF CHILLED WATER TO THE COOLING COIL. ON A FALL IN ROOM TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

WARMUP MODE:

AT A PRE-DETERMINED TIME THE DDC SHALL ENABLE THE SUPPLY AIR FAN. THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL REMAIN CLOSED AND THE RETURN AIR DAMPER WILL BE FULLY OPEN. THE CHILLED WATER VALVE WILL BE FULLY CLOSED. THE RETURN FAN WILL BE OFF. IF TIME REACHES THE LATEST START TIME DURING THE WARM UP MODE, THE OUTDOOR DAMPER AND RELIEF AIR DAMPER WILL OPEN TO THEIR MINIMUM OPEN POSITION AND RETURN AIR DAMPER CLOSE PROPORTIONATELY. THE SYSTEM IS PREVENTED FROM ENTERING THE WARM UP MODE MORE THAN ONCE A DAY.

COOL DOWN MODE

AT A PRE-DETERMINED TIME THE DDC SHALL ENABLE THE AIR-HANDLING UNIT FAN. IF OUTSIDE ENTHALPY IS BELOW THE INDOOR ENTHALPY, THE ECONOMIZER MODE WILL BE ENABLED TO MAINTAIN OCCUPIED SETPOINT (ADJUSTABLE).

IF ECONOMIZER MODE IS DISABLED, THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL REMAIN CLOSED. THE RETURN AIR DAMPER WILL BE FULLY OPEN. THE RETURN FAN WILL BE OFF. THE SUPPLY FAN WILL START AND CHILLED WATER VALVE SHALL BE MODULATED TO PROVIDE AN INCREASED AMOUNT OF CHILLED WATER TO THE COOLING COIL AND PROPORTIONATELY BYPASS LESS AS REQUIRED TO MAINTAIN OCCUPIED SETPOINT (ADJUSTABLE). IF TIME REACHES THE LATEST START TIME DURING THE COOL DOWN MODE, THE OUTDOOR DAMPER AND RELIEF AIR DAMPER WILL OPEN TO THEIR MINIMUM OPEN POSITION AND RETURN AIR DAMPER CLOSE PROPORTIONATELY. THE SYSTEM IS PREVENTED FROM ENTERING THE COOL DOWN MODE MORE THAN ONCE A DAY.

OCCUPIED MODE:

THE SUPPLY AIR TEMPERATURE SETPOINT (ADJUSTABLE) IS RESET BASED ON ROOM TEMPERATURE SETPOINT (ADJUSTABLE).

THE SUPPLY AIR FAN AND RETURN AIR FAN WILL START AND RUN CONTINUOUS.

COOLING MODE:

WHEN THE OUTSIDE AIR ENTHALPY IS BELOW THE INDOOR ENTHALPY, THE ECONOMIZER MODE WILL BE ENABLED.

THE CHILLED WATER VALVE WILL BE CLOSED. ON RISE IN SUPPLY AIR TEMPERATURE ABOVE SETPOINT (55F ADJUSTABLE), THE DDC WILL CONTROL TO MODULATE THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER TO THEIR FULL OPEN POSITION AND PROPORTIONATELY CLOSE THE RETURN AIR DAMPER. ON A FALL IN SUPPLY AIR TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

WHEN THE OUTSIDE AIR ENTHALPY IS ABOVE THE INDOOR ENTHALPY, THE ECONOMIZER MODE WILL BE DISABLED. THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER WILL BE POSITIONED TO THEIR MINIMUM OPEN POSITION AND THE RETURN AIR DAMPER WILL BE PROPORTIONATELY CLOSED.

ON A CONTINUED RISE IN SUPPLY AIR TEMPERATURE, THE DDC WILL CONTROL TO MODULATE THE CHILLED WATER VALVE TOWARDS ITS FULL OPEN POSITION TO PROVIDE INCREASED AMOUNT OF CHILLED WATER TO THE COOLING COIL. ON A FALL IN SUPPLY AIR TEMPERATURE, THE REVERSE OPERATION WILL OCCUR.

ON A FALL IN MIXED AIR TEMPERATURE BELOW THE LOW LIMIT SETPOINT (48 DEG F ADJUSTABLE), THE DDC WILL CONTROL TO INDEX THE OUTSIDE AIR AND RELIEF AIR DAMPERS TOWARDS THEIR MINIMUM OPEN POSITION AND PROPORTIONATELY OPEN THE RETURN AIR DAMPER.

SUPPLY AND RETURN AIR FAN CONTROL:

ON A FALL IN DOWN DUCT STATIC PRESSURE BELOW SETPOINT (1" H2O ADJUSTABLE), THE DDC WILL CONTROL TO THE VARIABLE FREQUENCY DRIVE TO INCREASE THE SPEED OF THE SUPPLY FAN. ON A RISE IN DOWN DUCT STATIC PRESSURE, THE REVERSE OPERATION WILL OCCUR.

ON AN INCREASE IN SPEED OF THE SUPPLY FAN, THE DDC WILL CONTROL TO TRACK THE RETURN FAN PROPORTIONATELY TO MAINTAIN BUILDING PRESSURIZATION. ON A DECREASE IN SPEED OF THE SUPPLY FAN, THE REVERSE OPERATION WILL OCCUR

SAFETIES:

UPON DETECTION OF PRODUCTS OF COMBUSTION, THE SMOKE DETECTOR SHALL SHUT DOWN THE SUPPLY AND RETURN FAN. THE SMOKE DETECTOR SHALL ALARM THE EXISTING BUILDING FIRE ALARM SYSTEM AND SEND AN ALARM TO THE DDC SYSTEM.

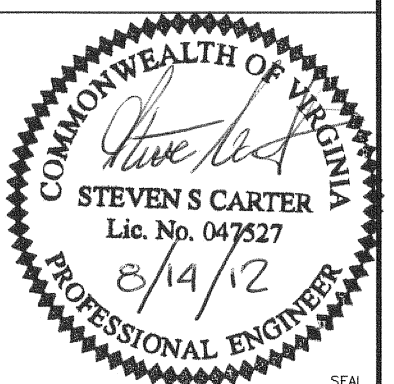
ON A FALL IN HEATING COIL DISCHARGE TEMPERATURE BELOW SETPOINT(38F ADJUSTABLE), THE LOW LIMIT THERMOSTAT WILL DE-ENERGIZE THE SUPPLY AIR FAN AND RELIEF AIR FAN.

UNLESS NOTED OTHERWISE, ALL CONTROLS TO BE PROVIDED BY THE CONTROLS CONTRACTOR.

DESIGNED & ENGINEERED BY:



440 WILSON DRIVE
WILMINGTON, VA 23691
(757) 263-9275
WWW.DJGINC.COM



APPROVED

ACTIVITY - SATISFACTORY TO

DATE

APPROVED

FOR ETD FOR COMMANDER NAVFAC

DATE 08.14.2012

A/E	DESIGN	XXX	EFD
SSC	DRAWN	XXX	
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	QC	XXX	
	CHEF ARCH./ ENGR.	XXX	
	PROJECT MANAGER	XXX	
	FIRE PROTECTION	XXX	
	BRANCH MANAGER	XXX	
	DESIGN DIRECTOR	XXX	

DEPARTMENT OF THE NAVY
MARINE CORPS AIR STATION, CHERRY POINT, N.C.
FACILITY ENERGY REPAIRS,
BUILDING 4401
MECHANICAL-CONTROLS

CODE ID NO. 80091 | SIZE D
SCALE: AS SHOWN
EED NO. WR6059391
STA. PROJ. NO. CP12004M
SPEC. NO.
CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12629062

SHEET 33 OF 40

M-703

DRAWFORM REVISION JULY 2003

ELECTRICAL LEGEND

	2x4 RECESSED FLUORESCENT LIGHTING FIXTURE
	2x4 RECESSED FLUORESCENT LIGHTING FIXTURE WITH EMERGENCY BATTERY BACKUP. CONNECT EMERGENCY BATTERY AHEAD OF LOCAL SWITCHING
	1x4 FLUORESCENT LIGHTING FIXTURE
	RECESSED DOWN LIGHTING FIXTURE
	CEILING MOUNTED ILLUMINATED EXIT SIGN. QUADRANTS OF CIRCLE DARKENED INDICATE FACES OF SIGN USED. PROVIDE DIRECTIONAL ARROWS AS SHOWN
	WALL MOUNTED ILLUMINATED EXIT SIGN. QUADRANTS OF CIRCLE DARKENED INDICATE FACES OF SIGN USED. PROVIDE DIRECTIONAL ARROWS AS SHOWN
	EMERGENCY LIGHTING FIXTURE. CONNECT AHEAD OF LOCAL SWITCHING
	POLE MOUNTED, EXTERIOR LED LIGHTING FIXTURE
	BUILDING MOUNTED, EXTERIOR LED LIGHTING FIXTURE
	LIGHTING FIXTURE TYPE SYMBOL, SEE LIGHTING FIXTURE DETAILS ON SHEET E-111
S	SINGLE-POLE SWITCH. MOUNT 48" AFF UON
S3	THREE-WAY SWITCH. MOUNT 48" AFF UON
Sos	DUAL TECHNOLOGY WALL SWITCH OCCUPANCY SENSOR. MOUNT 48" AFF UON
CS	DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR. SEE POWER PACK WIRING DETAIL ON SHEET E-401
SM	MANUAL MOTOR RATED SWITCH. MOUNT 48" AFF UON
	DISCONNECT SWITCH IN NEMA-1 ENCLOSURE UON; 3P=No. OF POLES, 60=SWITCH RATING, 40=FUSE RATING; 3R INDICATES NEMA-3R ENCLOSURE; SN INDICATES SOLID NEUTRAL BAR; 4X INDICATES NEMA 4X STAINLESS STEEL ENCLOSURES; NF INDICATES NON-FUSIBLE; PROVIDE HEAVY-DUTY TYPE.
	COMBINATION MAGNETIC MOTOR STARTER/FUSED DISCONNECT SWITCH, NEMA STARTER SIZE AS INDICATED, 600V, IN NEMA-1 ENCLOSURE UON; 3P=No. OF POLES, 60=SWITCH RATING, 40=FUSE RATING
	BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT, NO TICK MARKS INDICATE 2#12 CONDUCTORS AND 1#12 GROUND IN 3/4" CONDUIT UON. TICK MARKS, WHEN SHOWN, INDICATE NUMBER OF #12 CONDUCTORS IF OTHER THAN THREE; (1) INDICATES GROUND. CONDUIT LARGER THAN 3/4" AND WIRE LARGER THAN #12, SHALL BE AS INDICATED. SYSTEMS FURNITURE BRANCH CIRCUITS SHALL HAVE TWO GROUND CONDUCTORS.
	HOMERUNS TO PANEL. PANEL AND CIRCUIT DESIGNATIONS AS INDICATED
	20A, 120VAC SINGLE RECEPTACLE. MOUNT 18" AFF
	EXISTING SURFACE MOUNTED PANELBOARD, VOLTAGE AND AMPERE RATING AS INDICATED
	EXHAUST FAN CONNECTION WITH INTEGRAL DISCONNECT SWITCH, HORSEPOWER AS INDICATED
	ELECTRICAL EQUIPMENT CONNECTION
	PUMP CONNECTION, HORSEPOWER AS INDICATED
	VARIABLE FREQUENCY DRIVE WITH INTEGRAL, FUSED DISCONNECTING MEANS
	ELECTRICAL DEMOLITION NOTE
	ELECTRICAL CONSTRUCTION NOTE

ABBREVIATIONS

A	AMPERE	KAIC	ONE-THOUSAND AMPERE INTERRUPTING CAPACITY SYMMETRICAL AT CIRCUIT BREAKER OPERATING VOLTAGE
AFF	ABOVE FINISHED FLOOR TO CENTERLINE OF DEVICE UON	KVA	ONE-THOUSAND VOLT-AMPERES
AFG	ABOVE FINISHED GRADE TO CENTERLINE OF DEVICE UON	LTS	LIGHTS
AHU	AIR HANDLING UNIT	NEC	NATIONAL ELECTRICAL CODE
BFG	BELOW FINISHED GRADE	PVC	POLYVINYL CHLORIDE PIPE RECEPTACLE(S)
C	CONDUIT	RMC	RIGID METAL CONDUIT
CB	MOLDED-CASE CIRCUIT BREAKER	SN	SOLID NEUTRAL
CFL	COMPACT FLUORESCENT LAMP	TYP	TYPICAL
DDC	DIRECT DIGITAL CONTROL	UON	UNLESS OTHERWISE NOTED
EMT	ELECTRICAL METALLIC TUBING	V	VOLTAGE, VOLTS
EC	EMPTY CONDUIT WITH PULL WIRE OR TAPE	VFD	VARIABLE FREQUENCY DRIVE
EF	EXHAUST FAN	W	WIRE OR WATTS
GND	GROUND	W/	WITH
HP	HORSEPOWER	XFMR	TRANSFORMER
IMC	INTERMEDIATE METAL CONDUIT		
Ø	PHASE		

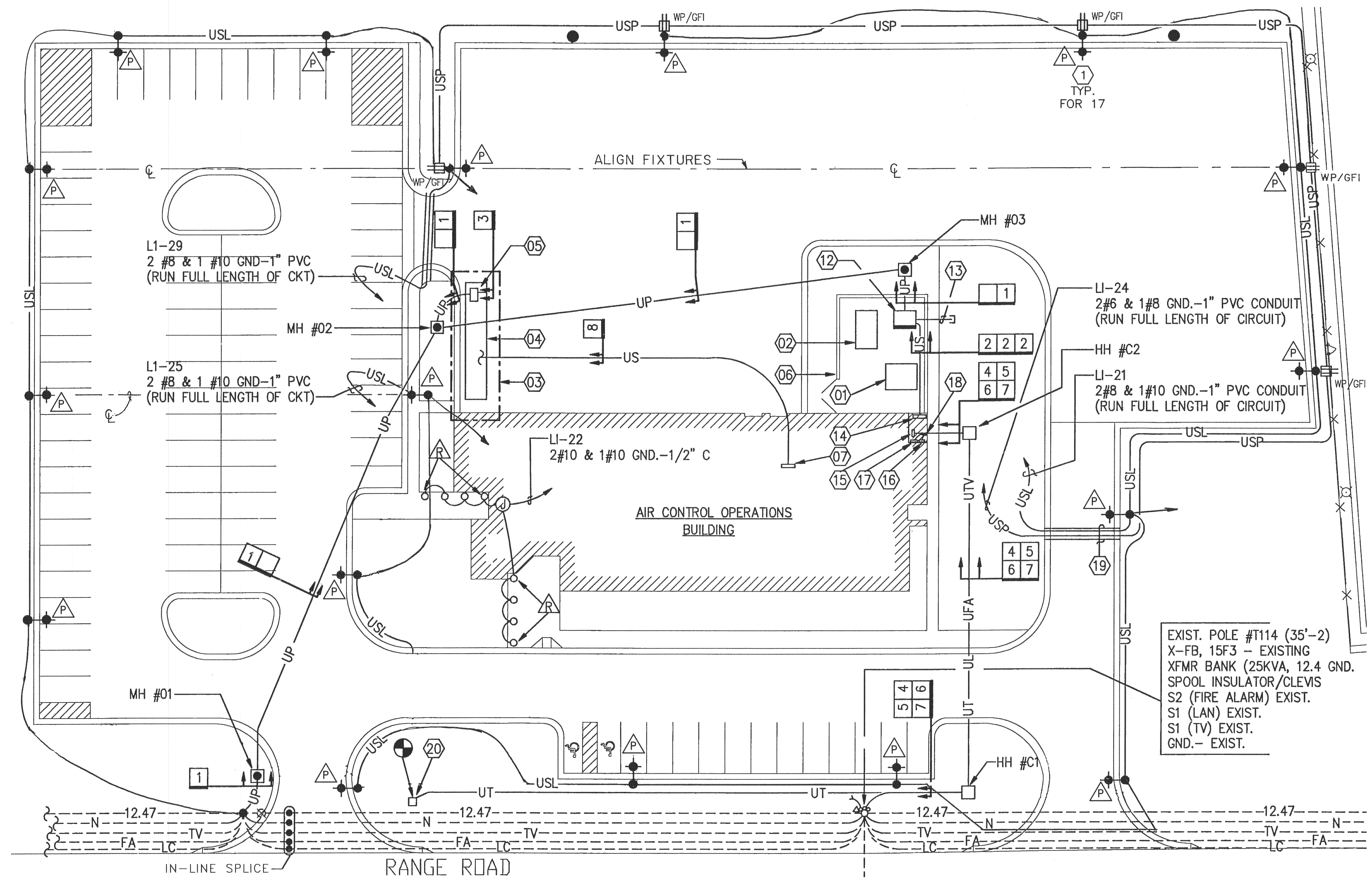
LEGEND NOTES

- LIGHTER LINE WEIGHTS INDICATE EXISTING ITEMS, HEAVIER LINE WEIGHTS INDICATE NEW ITEMS, DASHED LINE WEIGHTS INDICATE ITEMS TO BE DEMOLISHED UNDER THIS CONTRACT.

GENERAL NOTES

- COORDINATE ALL ELECTRICAL WORK WITH OTHER TRADES IN FIELD PRIOR TO BEGINNING ANY ROUGH-IN WORK. COORDINATE ALL ELECTRICAL WORK, WITH MECHANICAL, ARCHITECTURAL, AND CIVIL DRAWINGS PRIOR TO ROUGH IN.

DATE	APPR.
DESCRIPTION	
DESIGNED & ENGINEERED BY:	
ENGINEERS ARCHITECTS PLANNERS <small>448 WELLS CIRCLE WILMINGTON, NC 28403 (757) 553-9273 VOICEMAIL (757) 553-2114 FAX www.djgin.com</small>	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	
FOR EFD FOR COMMANDER NAVFAC	
DATE 08.14.2012	
A/E	EFD
RRB DESIGN	XXX
RRB DRAWN	XXX
JAM REVIEW	XXX
	OC XXX
	CHEF ARCH/ ENGR. XXX
	PROJECT MANAGER XXX
	FIRE PROTECTION XXX
	BRANCH MANAGER XXX
	DESIGN DIRECTOR XXX
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 ELECTRICAL LEGEND AND NOTES	
CODE ID. NO. 80091	SIZE D
SCALE: AS SHOWN	
FED. NO. WR6059391	
STA. PROJ. NO. CP12004M	
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12629063	
SHEET 34 OF 40	
E-001	
<small>DRAWFORM REVISION JULY 2003</small>	



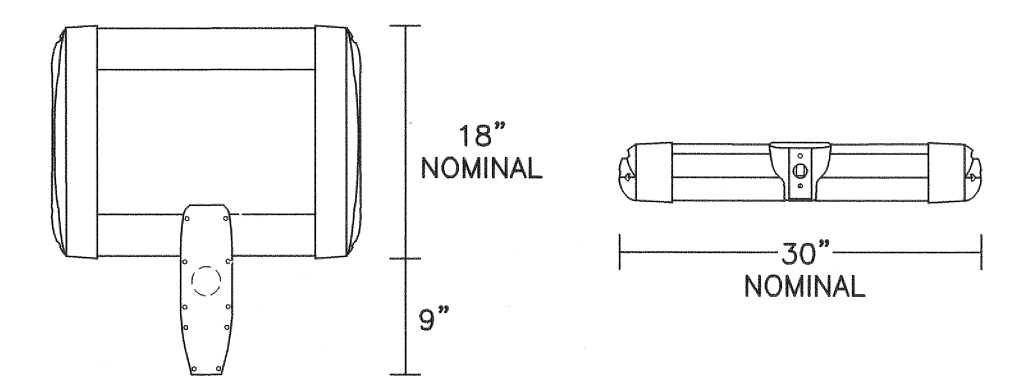
EXISTING ELECTRICAL SITE PLAN
NOT TO SCALE

GENERAL NOTES

1. SITE PLAN SHOWN IS FROM ORIGINAL BUILDING RECORD DRAWINGS. ELECTRICAL SITE SCOPE OF WORK ONLY INCLUDES REMOVAL AND REPLACEMENT OF EXISTING POLE MOUNTED SITE LIGHTING FIXTURES.
2. CONTRACTOR SHALL COORDINATE WITH LUMINAIRE MANUFACTURER AND EXISTING CONCRETE POLES TO ENSURE PROPER MOUNTING OF LUMINAIRES PRIOR TO BID. CONTRACTOR SHALL PROVIDE ALL MATERIALS NECESSARY FOR MOUNTING OF NEW LUMINAIRES TO EXISTING CONCRETE POLES.

ELECTRICAL CONSTRUCTION NOTES (THIS SHEET ONLY)

1. DISCONNECT AND REMOVE EXISTING POLE MOUNTED AREA LIGHTING TYPE LUMINAIRE. PROVIDE NEW TYPE LUMINAIRE IN PLACE OF EXISTING LUMINAIRE. MOUNT TO EXISTING 30' CONCRETE POLE AND CONNECT TO EXISTING 208V, 1Ø CIRCUIT AS AT PRESENT. REUSE EXISTING BOXES, CONDUIT AND WIRE WHERE POSSIBLE. PROVIDE ADDITIONAL BOXES, CONDUIT, FITTINGS AND WIRE AS NECESSARY.

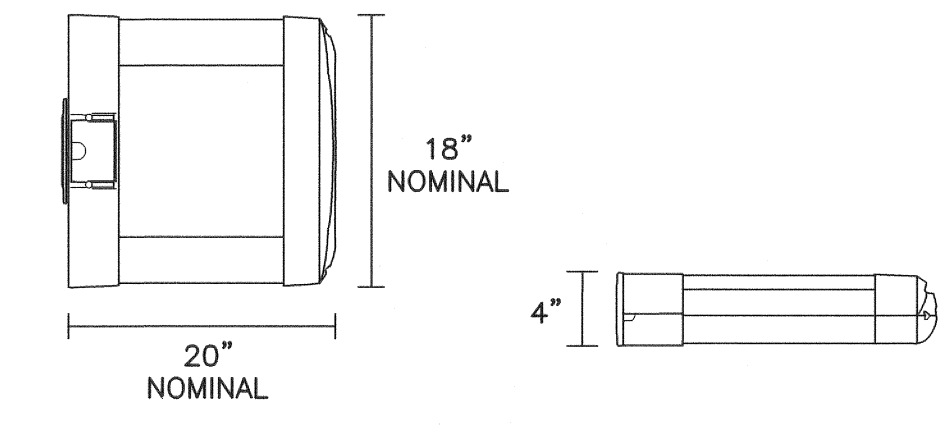


LUMINAIRE REQUIREMENTS:

1. HOUSING - DIE-CAST ALUMINUM WITH INTEGRAL, WEATHER-TIGHT DRIVER COMPARTMENTS AND HIGH PERFORMANCE ALUMINUM HEATSINKS.
2. FINISH - EPOXY PRIMER WITH POWDER COAT FINISH, COLOR - SILVER.
3. LAMPS - HIGH POWER, WHITE, 6000K LONG LIFE LED SOURCES.
4. NUMBER OF LED'S - 220
5. LED DRIVER - CLASS 1, HIGH POWER FACTOR (> 90%) AND THD < 20% AT FULL LOAD. INTEGRAL 10KV SURGE SUPPRESSION PROTECTION.
6. DRIVE CURRENT - 350mA
7. TOTAL SYSTEM WATTAGE - 256W
8. MOUNTING - MOUNT TO EXISTING 30' CONCRETE POLE

UL LISTED AND LABELED			
TYPE	LAMP #	LAMP TYPE	VOLTS
	-	INTEGRAL LED	120-277

LED POLE MOUNTED SITE



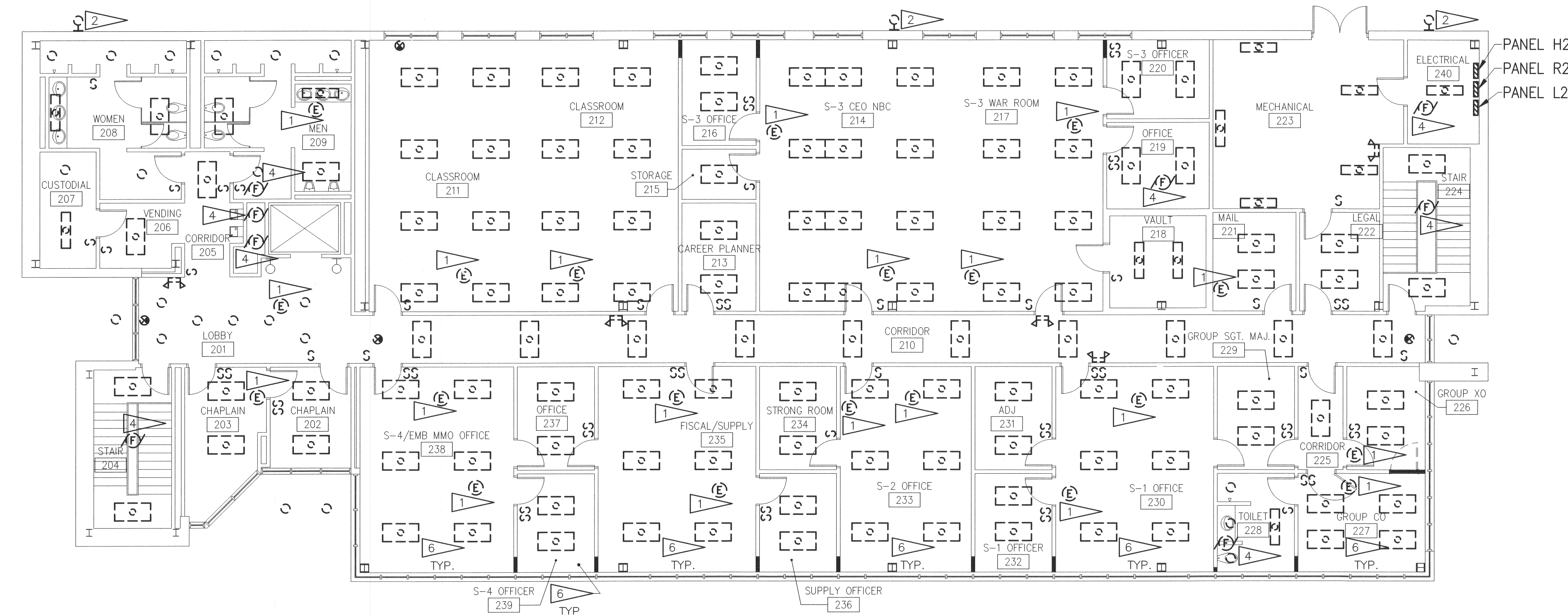
LUMINAIRE REQUIREMENTS:

1. HOUSING - DIE-CAST ALUMINUM WITH INTEGRAL, WEATHER-TIGHT DRIVER COMPARTMENTS AND HIGH PERFORMANCE ALUMINUM HEATSINKS.
2. FINISH - EPOXY PRIMER WITH POWDER COAT FINISH, COLOR - SILVER.
3. LAMPS - HIGH POWER, WHITE, 5700K LONG LIFE LED SOURCES.
4. NUMBER OF LED'S - 120
5. LED DRIVER - CLASS 1, HIGH POWER FACTOR (> 90%) AND THD < 20% AT FULL LOAD. INTEGRAL 10KV SURGE SUPPRESSION PROTECTION.
6. DRIVE CURRENT - 350mA
7. TOTAL SYSTEM WATTAGE - 132W
8. MOUNTING - INTEGRAL, WEATHER-TIGHT JUNCTION BOX FOR WALL MOUNTING.

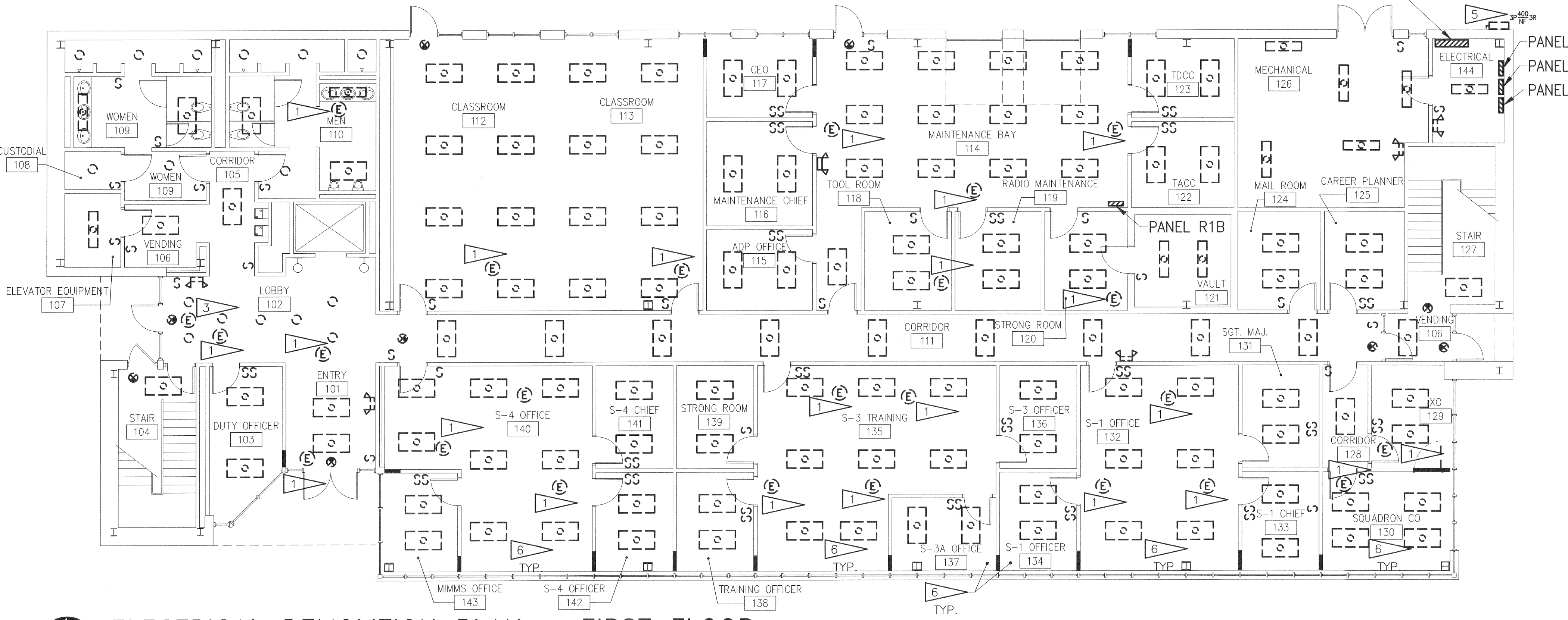
UL LISTED AND LABELED			
TYPE	LAMP #	LAMP TYPE	VOLTS
	-	INTEGRAL LED	120-277

LED WALL MOUNTED SITE

DATE	APPROVED	DESCRIPTION
DESIGNED & ENGINEERED BY:		
ENGINEERS ARCHITECTS PLANNERS	440 WALLACE CIRCLE WILMINGTON, NC 28403 (771) 783-9079 WWW.DJGINC.COM	
	COMMONWEALTH OF VIRGINIA ROBERT R. BOLLER Lic. No. 042388 8-14-2012 PROFESSIONAL ENGINEER	
APPROVED		
ACTIVITY - SATISFACTORY TO		
DATE		
APPROVED		
FOR ETD FOR COMMANDER NAVFAC		
DATE	08.14.2012	
A/E	DESIGN	XXX
CSH	DRAWN	XXX
JAM	REVIEW	XXX
OC		XXX
CHEF ARCH./ ENGR.		XXX
PROJECT MANAGER		XXX
FIRE PROTECTION		XXX
BRANCH MANAGER		XXX
DESIGN DIRECTOR		XXX
NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS AIR STATION, CHERRY POINT, N.C. FACILITY ENERGY REPAIRS, BUILDING 4401 ELECTRICAL SITE PLAN		
CODE ID. NO. 80091	SIZE	D
SCALE:	AS SHOWN	
FED. NO.	WR6059391	
STA. PROJ. NO.	CP12004M	
SPEC. NO.		
CONSTR. CONTR. NO.		
NAVFAC DRAWING NO.	12629064	
SHEET	35 OF 40	
ES-101		
DRAWING REVISION JULY 2003		



ELECTRICAL DEMOLITION PLAN - SECOND FLOOR
 SCALE: 1/8" = 1'-0"



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

ELECTRICAL DEMOLITION LEGEND

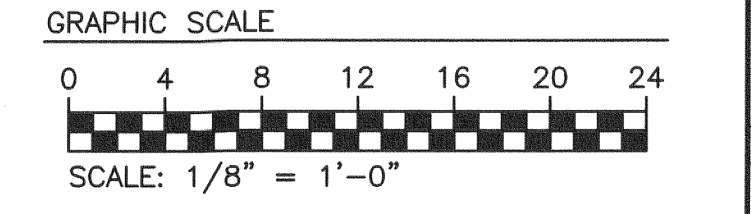
- [] 2x4 RECESSED FLUORESCENT LIGHTING FIXTURE
- [] 1x4 OR LINEAR FLUORESCENT LIGHTING FIXTURE
- RECESSED DOWN LIGHTING FIXTURE
- ⊥ WALL MOUNTED LIGHTING FIXTURE
- ⊥ SURFACE MOUNTED ILLUMINATED EXIT SIGN
- ⊥ EMERGENCY LIGHTING FIXTURE
- S SINGLE-POLE SWITCH

GENERAL NOTES

1. DISCONNECT AND REMOVE ALL INTERIOR AND EXTERIOR LIGHTING FIXTURES AS INDICATED. EXISTING BOXES, CONDUIT AND WIRE SHALL REMAIN AS AT PRESENT FOR CONNECTION TO NEW LIGHTING FIXTURES. SEE SHEET E-101.

ELECTRICAL DEMOLITION NOTES
 (THIS SHEET ONLY)

- 1 DISCONNECT AND REMOVE EXISTING MECHANICAL EQUIPMENT CONNECTION INCLUDING DISCONNECT SWITCH AND WIRING BACK TO SOURCE. BOXES AND CONDUIT MAY REMAIN AS AT PRESENT TO SERVE NEW EQUIPMENT. CIRCUIT BREAKER SERVING EQUIPMENT SHALL REMAIN AS AT PRESENT UON.
- 2 DISCONNECT AND REMOVE EXISTING EXTERIOR BUILDING MOUNTED LUMINAIRE. BOXES, CONDUIT AND WIRE SHALL REMAIN AS AT PRESENT UON.
- 3 DISCONNECT AND REMOVE EXISTING MECHANICAL EQUIPMENT CONNECTION INCLUDING DISCONNECT SWITCH. AT THE CONTRACTOR'S OPTION, WIRE, CONDUIT AND BOXES SERVING DEMOLISHED MECHANICAL EQUIPMENT MAY BE REUSED. CIRCUIT BREAKER SERVING EQUIPMENT SHALL REMAIN AS AT PRESENT UON.
- 4 DISCONNECT AND REMOVE EXISTING ROOF-MOUNTED EXHAUST FAN ELECTRICAL CONNECTION WITH DISCONNECT SWITCH, STARTER, BOXES, CONDUIT AND WIRE BACK TO SOURCE. AT THE CONTRACTOR'S OPTION, WIRE, CONDUIT AND BOXES IN GOOD CONDITION MAY BE REUSED.
- 5 DISCONNECT AND REMOVE EXISTING 208V, 3Ø ELECTRICAL CONNECTION, 400A SAFEST SWITCH INCLUDING BOXES, CONDUIT AND WIRE.
- 6 DISCONNECT AND REMOVE INTERIOR COMBINATION POWER/COMMUNICATIONS RECEPTACLES WITH WIRE AND CONDUIT ON WEST WALL OF BUILDING TO FACILITATE WEST CURTAIN WALL REMOVAL AND REPLACEMENT. RELOCATE RECEPTACLES AND WIRE TO TEMPORARY WALL IN SAME ROOM AND GENERAL LOCATION DURING CONSTRUCTION OF NEW CURTAIN WALL. UPON COMPLETION OF CONSTRUCTION OF NEW CURTAIN WALL, RELOCATE RECEPTACLES AND WIRING TO ORIGINAL LOCATION AS AT PRESENT. REUSE EXISTING BOXES, CONDUIT AND WIRE WHERE POSSIBLE. PROVIDE NEW BOXES, FITTINGS, CONDUIT AND WIRE AS NECESSARY. COORDINATE WORK WITH ALL TRADES IN FIELD PRIOR TO DEMOLITION AND ROUGH IN.



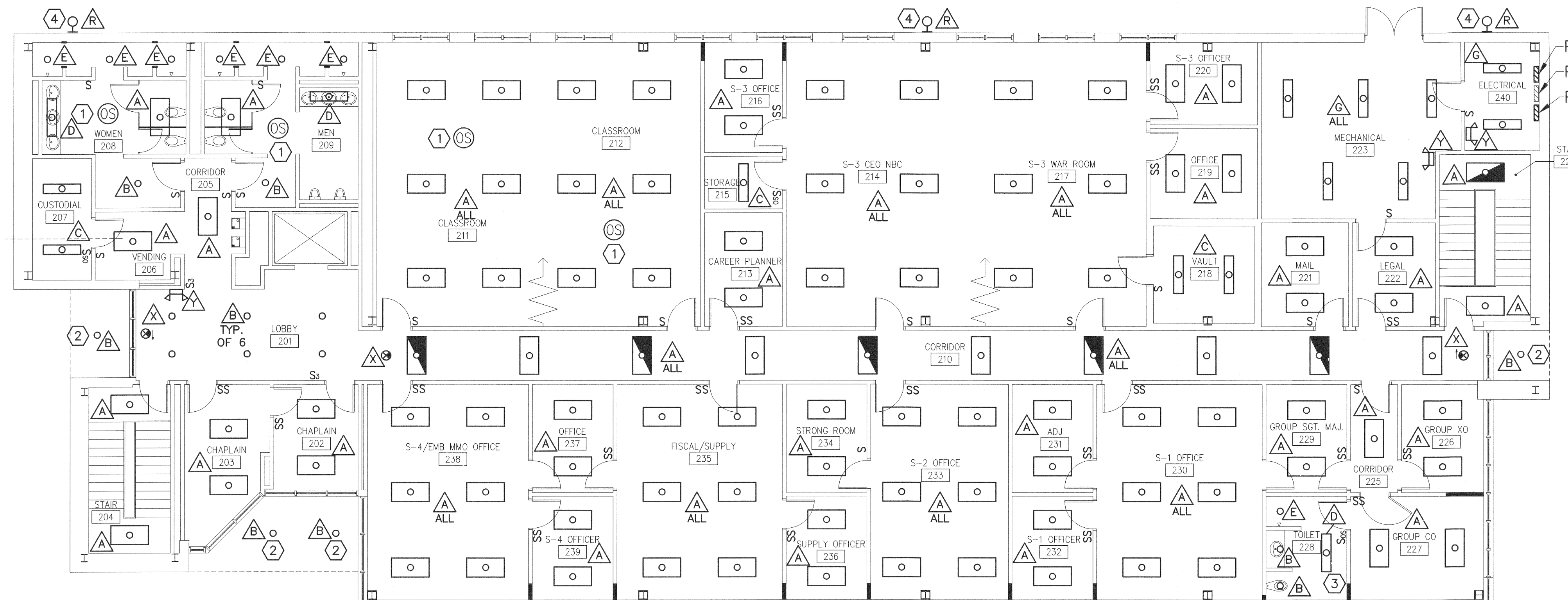
DATE	APPRO	DESCRIPTION		
DESIGNED & ENGINEERED BY:				
ENGINEERS ARCHITECTS PLANNERS	444 WILSON CIRCLE WASHINGTON, VA 22104 (703) 552-8272 VOICE (703) 552-8276 FAX www.djginc.com			
APPROVED				
ACTIVITY - SATISFACTORY TO				
DATE APPROVED				
FOR EFD FOR COMMANDER NAVFAC				
DATE	08.14.2012			
A/E	RRB	DESIGN	XXX	EFD
RRB		DRAWN	XXX	
JAM		REVIEW	XXX	
		OC	XXX	
		CHEF ARCH./ENGR.	XXX	
		PROJECT MANAGER	XXX	
		FIRE PROTECTION	XXX	
		BRANCH MANAGER	XXX	
		DESIGN DIRECTOR	XXX	
DEPARTMENT OF THE NAVY	FACILITY ENERGY REPAIRS, BUILDING 4401 ELECTRICAL DEMOLITION PLANS			
NAVAL FACILITIES ENGINEERING COMMAND	MARINE CORPS AIR STATION, CHERRY POINT, N.C.			
CODE ID. NO. 80091	SIZE	D		
SCALE:	AS SHOWN			
FED. NO.	WR6059391			
STA. PROJ. NO.	CP12004M			
SPEC. NO.				
CONSTR. CONTR. NO.				
NAVFAC DRAWING NO.	12629065			
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ED-101				
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GENERAL NOTES

- EXISTING WIRE, CONDUIT, BOXES AND CIRCUIT BREAKERS SERVING DEMOLISHED LIGHTING SHALL REMAIN AS AT PRESENT FOR CONNECTION TO NEW LIGHTING FIXTURES. REUSE EXISTING WIRE, CONDUIT AND BOXES WHERE POSSIBLE. PROVIDE ADDITIONAL WIRE, CONDUIT, FITTINGS AND BOXES AS NECESSARY. SERVE LIGHTING FIXTURES FROM EXISTING CIRCUITS AS AT PRESENT.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY WIRING FOR NEW LIGHTING TO PROVIDE SAME SWITCHING FUNCTIONS AS AT PRESENT. DUAL SWITCHES IN INDIVIDUAL SPACES INDICATE BI-LEVEL SWITCHING WITH EACH SWITCH CONTROLLING THE SAME LAMP IN ALL FIXTURES.

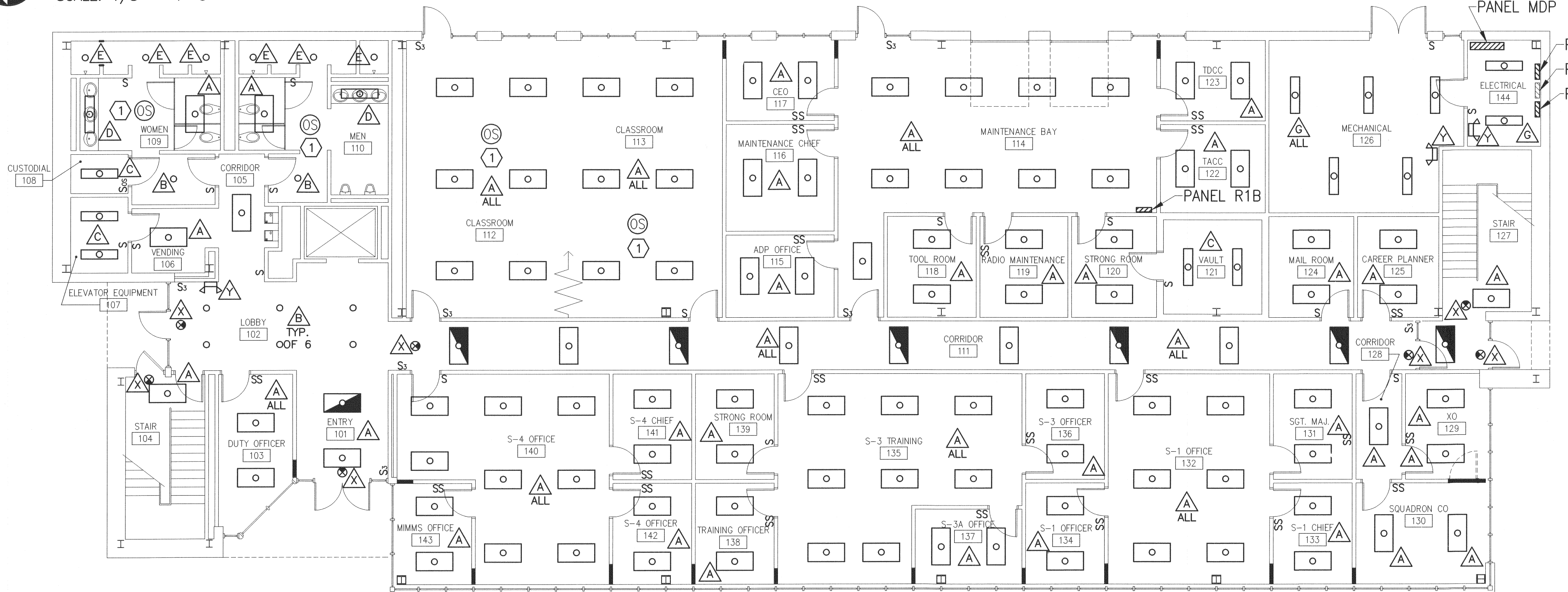
CONSTRUCTION NOTES (THIS SHEET ONLY)

- FOR CEILING MOUNTED OCCUPANCY SENSOR POWER PACK DETAILS, SEE SHEET E-401.
- PROVIDE NECESSARY MOUNTING HARDWARE FOR NEW LIGHTING FIXTURE IN EXISTING OUTDOOR CEILING MOUNTED LOCATION. PROVIDE LIGHTING FIXTURE WITH COLD WEATHER RATED BALLAST.
- INTERLOCK EXHAUST FAN SERVING SPACE WITH LIGHT SWITCH. SEE SHEETS E-102 AND E-401.
- PROVIDE NEW EXTERIOR BUILDING MOUNTED LIGHTING FIXTURE IN SAME LOCATION AS AT PRESENT. REUSE EXISTING BOXES, CONDUIT AND WIRE WHERE POSSIBLE. PROVIDE ADDITIONAL BOXES, CONDUIT, FITTINGS AND WIRE AS NECESSARY. SERVE LIGHTING FIXTURES FROM EXISTING CIRCUIT AS AT PRESENT.



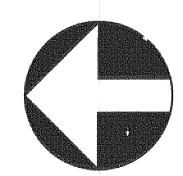
ELECTRICAL LIGHTING PLAN – SECOND FLOOR

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

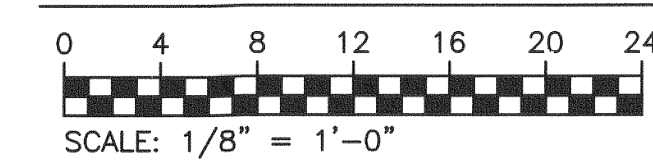


ELECTRICAL LIGHTING PLAN – FIRST FLOOR

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

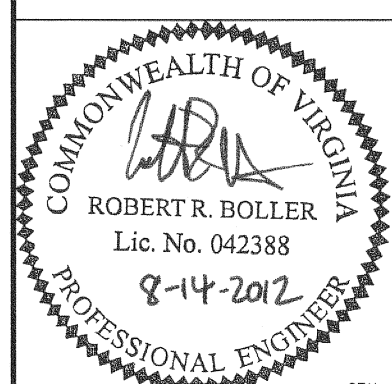


GRAPHIC SCALE



APPROVED	DATE	DESCRIPTION

DESIGNED & ENGINEERED BY:



APPROVED

ACTIVITY – SATISFACTORY TO

DATE APPROVED

FOR EFD FOR COMMANDER NAVFAC

DATE: 08.14.2012

	A/E	EFD
CSH DESIGN	XXX	
CSH DRAWN	XXX	
JAM REVIEW	XXX	
OC	XXX	
CHIEF ARCH/ ENGR	XXX	
PROJECT MANAGER	XXX	
FIRE PROTECTION	XXX	
BRANCH MANAGER	XXX	
DESIGN DIRECTOR	XXX	

NAVAL FACILITIES ENGINEERING COMMAND
 MARINE CORPS AIR STATION, CHERRY POINT, N.C.
FACILITY ENERGY REPAIRS, BUILDING 4401
 ELECTRICAL LIGHTING PLAN

CODE ID. NO.	SIZE	D
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STA. PROJ. NO.:	CP12004M	
SPEC. NO.:		
CONSTR. CONTR. NO.:		

NAVFAC DRAWING NO.
 12629066

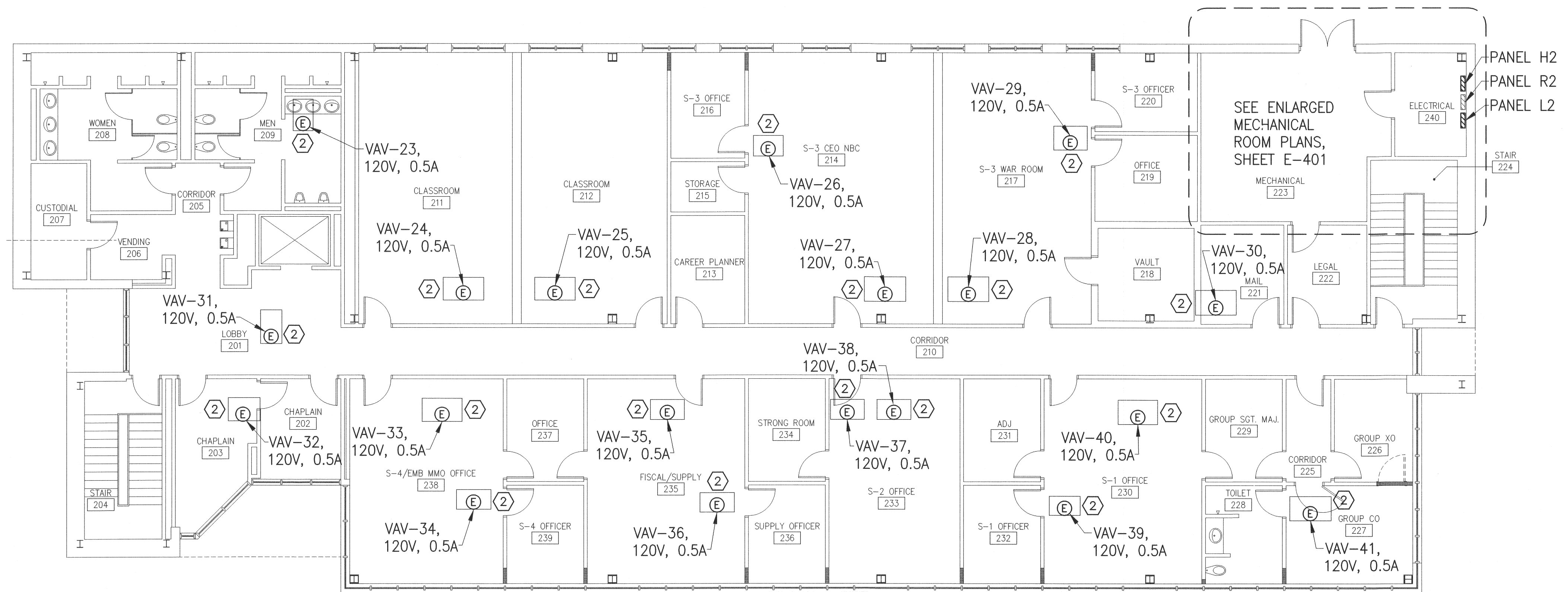
SHEET 37 OF 40

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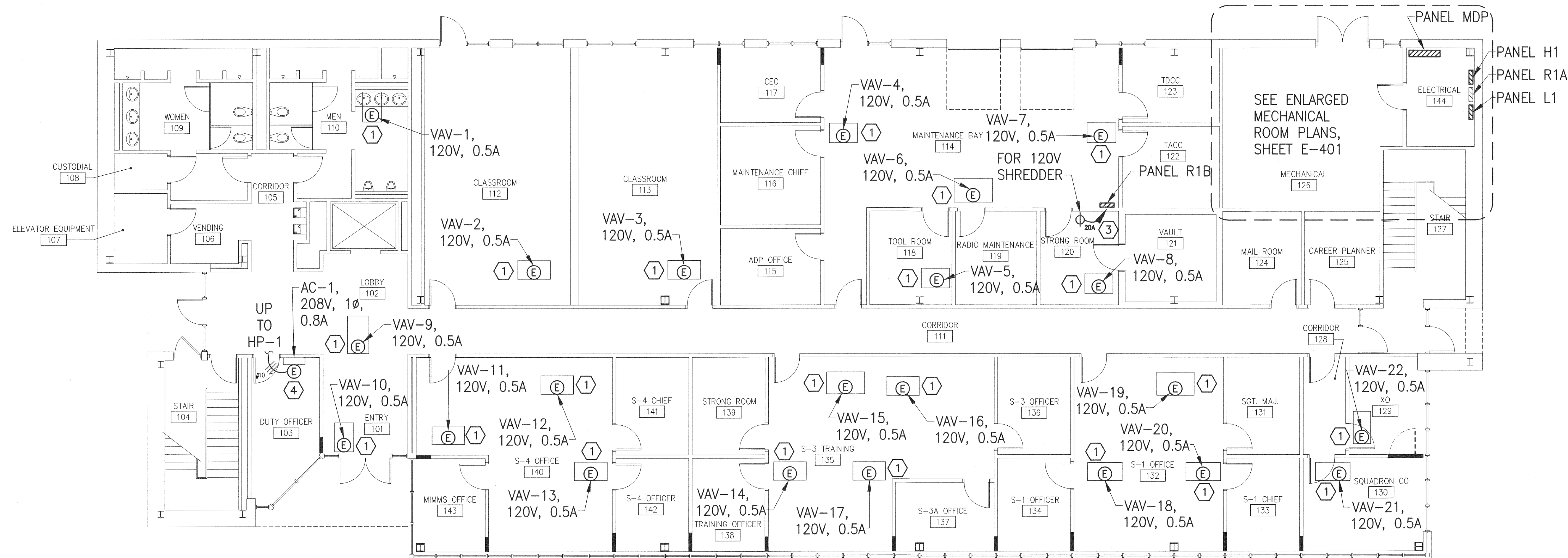
DRAWING REVISION JULY 2003

CONSTRUCTION NOTES (THIS SHEET ONLY)

- ① PROVIDE 2#12 AND 1#12 GND FOR NEW VAV UNIT. SERVE FROM EXISTING 20A, SINGLE POLE CIRCUIT BREAKER IN PANEL H1 AS AT PRESENT. REUSE EXISTING CONDUIT AND BOXES WHERE POSSIBLE. PROVIDE NEW CONDUIT, FITTINGS AND BOXES AS NECESSARY.
- ② PROVIDE 2#12 AND 1#12 GND FOR NEW VAV UNIT. SERVE FROM EXISTING 20A, SINGLE POLE CIRCUIT BREAKER IN PANEL H2 AS AT PRESENT. REUSE EXISTING CONDUIT AND BOXES WHERE POSSIBLE. PROVIDE NEW CONDUIT, FITTINGS AND BOXES AS NECESSARY.
- ③ ADDITIVE BID ITEM: PROVIDE 20A, NEMA 5-20R RECEPTACLE FOR SHREDDER. SERVE RECEPTACLE FROM MOST CONVENIENT, EXISTING SPARE 20A, SINGLE POLE CIRCUIT BREAKER IN EXISTING PANEL R1B.
- ④ AC-1 IS SERVED BY HP-1 ON ROOF.



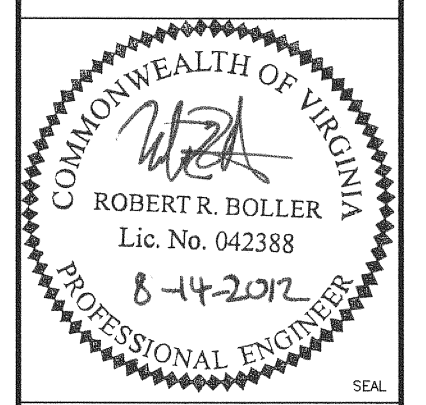
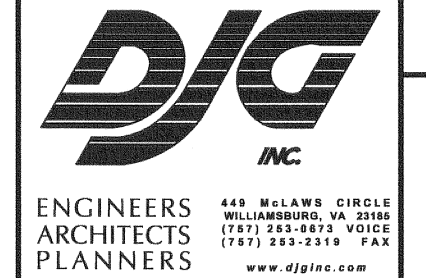
ELECTRICAL POWER PLAN – SECOND FLOOR
SCALE: 1/8" = 1'-0"



ELECTRICAL POWER PLAN – FIRST FLOOR
SCALE: 1/8" = 1'-0"

NO.	DATE	DESCRIPTION

DESIGNED & ENGINEERED BY:



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ACTIVITY – SATISFACTORY TO

DATE APPROVED

FOR EFD FOR COMMANDER NAVFAC

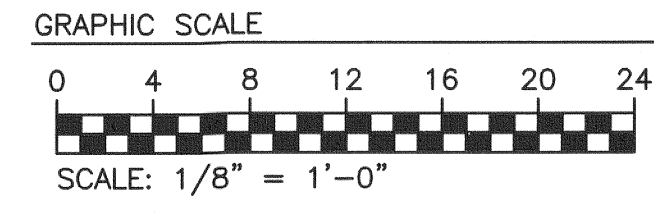
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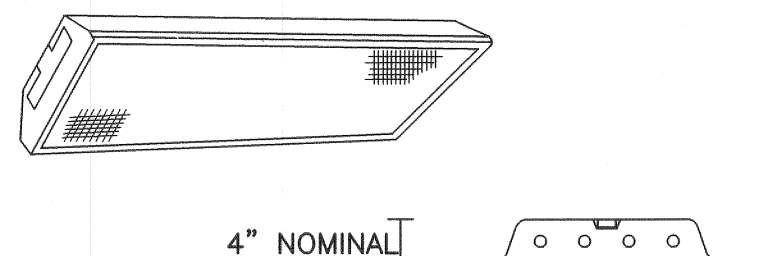
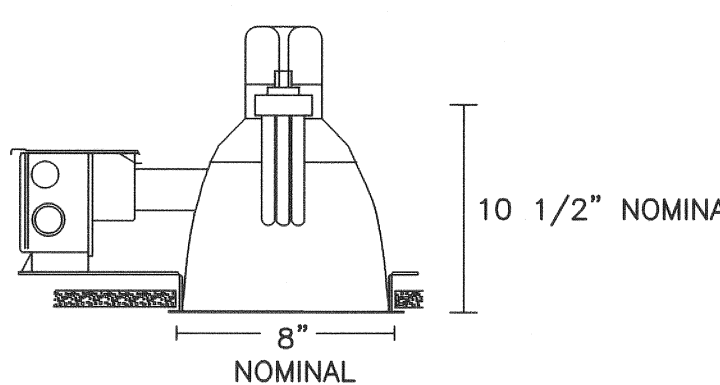
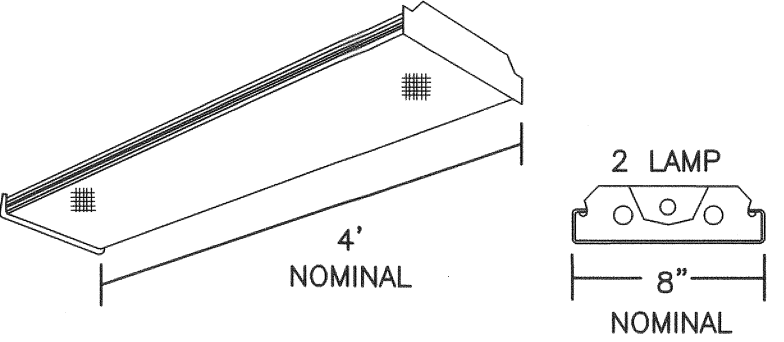
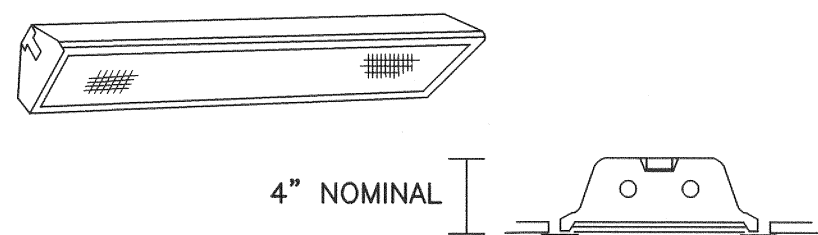
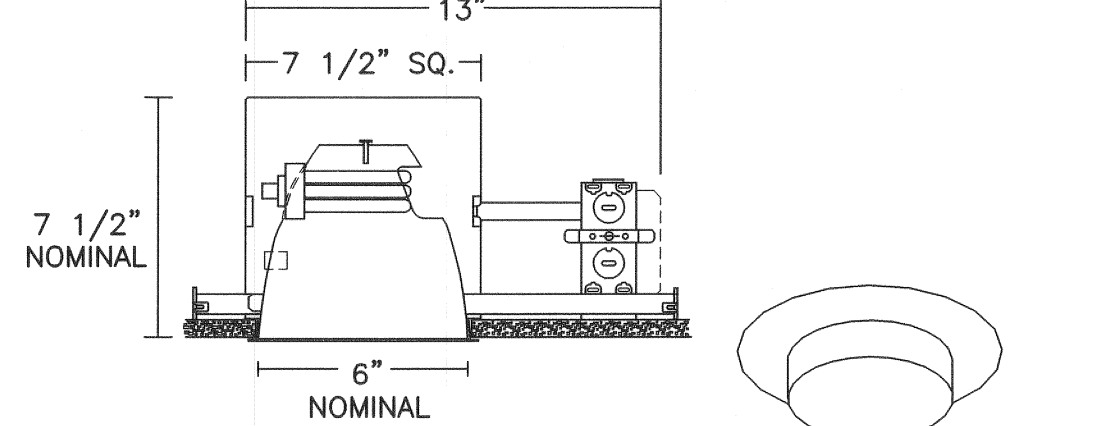
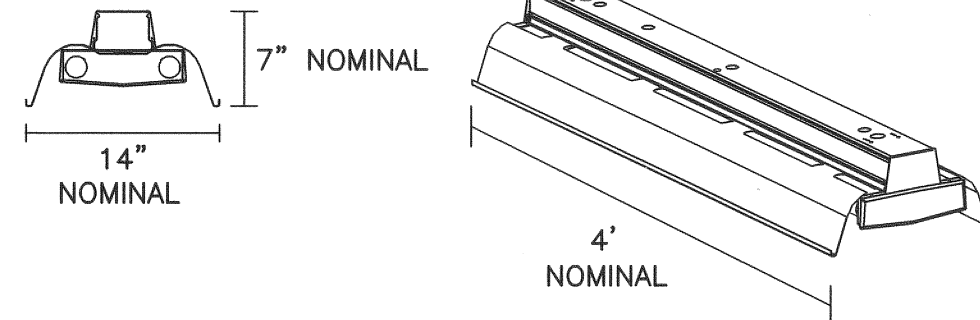
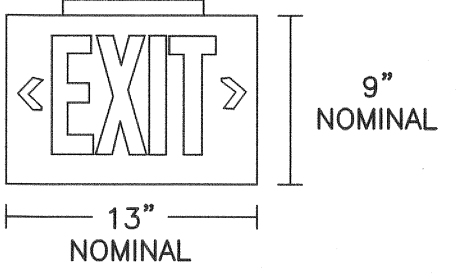
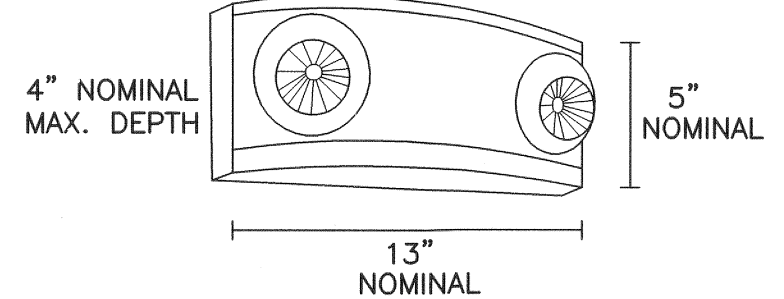
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RRB	DESIGN
RRB	DRAWN
JAM	REVIEW
	OC
	CHIEF ARCH/ENGR
	PROJECT MANAGER
	FIRE PROTECTION
	BRANCH MANAGER
	DESIGN DIRECTOR

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS AIR STATION, CHERRY POINT, N.C.
**FACILITY ENERGY REPAIRS,
BUILDING 4401**
ELECTRICAL POWER PLAN


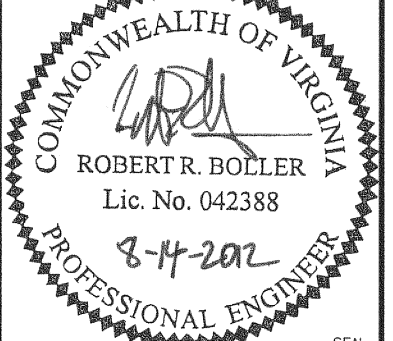
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SPEC. NO.	
CONSTR. CONTR. NO.	

NAVFAC DRAWING NO. 12629067
SHEET 38 OF 40
E-102



 <p>LUMINAIRE REQUIREMENTS:</p> <ol style="list-style-type: none"> HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER. DEPTH AS INDICATED. FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH. LENS - 100% ACRYLIC, CLEAR PRISMATIC, PATTERN #19 WITH MINIMUM 0.15" THICKNESS. LAMPS - LINEAR FLUORESCENT T8 WITH WATTAGES AS INDICATED. BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR (≥ .98), ELECTRONIC INSTANT START TYPE WITH SOUND RATING A. HOUSING PAINTED AFTER FABRICATION. PHOTOMETRICS - MINIMUM VALUE OF COEFFICIENT OF UTILIZATION (CU) AND EFFICIENCY, GIVEN INTERIOR CAVITY REFLECTANCES OF 80-50-20: <table border="1" data-bbox="621 604 745 715"> <thead> <tr> <th>RCR</th> <th>CU</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>90</td> </tr> <tr> <td>2</td> <td>79</td> </tr> <tr> <td>3</td> <td>71</td> </tr> <tr> <td>4</td> <td>63</td> </tr> </tbody> </table> <p>EFFICIENCY - 86%</p> <table border="1" data-bbox="574 756 1118 816"> <thead> <tr> <th>TYPE</th> <th>LAMP #</th> <th>LAMP TYPE</th> <th>VOLTS</th> <th>MOUNTING</th> </tr> </thead> <tbody> <tr> <td>△</td> <td>2</td> <td>28W T8</td> <td>120</td> <td>RECESS CEILING</td> </tr> </tbody> </table>	RCR	CU	1	90	2	79	3	71	4	63	TYPE	LAMP #	LAMP TYPE	VOLTS	MOUNTING	△	2	28W T8	120	RECESS CEILING	 <p>LUMINAIRE REQUIREMENTS:</p> <ol style="list-style-type: none"> HOUSING - ONE-PIECE, DIE-STAMPED, COLD ROLLED STEEL OR ACRYLIC-ENAMELED ALUMINUM. PROVIDE WITH PRE-WIRED JUNCTION BOX HAVING SNAP-ON ACCESS COVER. ACCESS TO JUNCTION BOX FROM BELOW CEILING SHALL BE PROVIDED THROUGH FIXTURE AFTER REMOVAL OF REFLECTOR. REFLECTOR AND TRIM - ONE-PIECE, CLEAR, SPUN ALUMINUM, IRIDESCENCE-SUPPRESSED, WITH SELF TRIM. BALLAST - CLASS P, MULTI-VOLT (120V-277V INPUT), HIGH POWER FACTOR (≥ .95), PROGRAMMED RAPID START ELECTRONIC TYPE WITH ≤ 10% TOTAL HARMONIC DISTORTION. BALLAST SHALL BE CAPABLE OF UNIVERSALLY OPERATING 26W, 32W, OR 42 WATT LAMPS. LAMPS - MULTI-TUBE, COMPACT FLUORESCENT WITH 4-PIN BASE. PROVIDE WITH WATTAGES AS INDICATED. FIXTURE TYPE - 8" NOMINAL APERTURE REFLECTOR TYPE - DIRECT DOWNLIGHT; SEMI-SPECULAR. REFLECTOR COLOR - CLEAR ALZAK. <table border="1" data-bbox="1149 756 1678 816"> <thead> <tr> <th>TYPE</th> <th>LAMP #</th> <th>LAMP TYPE</th> <th>VOLTS</th> <th>MOUNTING</th> </tr> </thead> <tbody> <tr> <td>△</td> <td>1</td> <td>32W CFL</td> <td>120</td> <td>RECESS CEILING</td> </tr> </tbody> </table>	TYPE	LAMP #	LAMP TYPE	VOLTS	MOUNTING	△	1	32W CFL	120	RECESS CEILING	 <p>LUMINAIRE REQUIREMENTS:</p> <ol style="list-style-type: none"> HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SHALL BE SAME MATERIAL AS HOUSING, SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER. FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH. LENS - 100% ACRYLIC, CLEAR PRISMATIC, LINEAR SIDE PRISMS AND PYRAMIDAL BOTTOM PRISMS FOR BRIGHTNESS CONTROL AND MINIMAL LAMP IMAGING, RESPECTFULLY. LENS SHALL BE CAPABLE OF BEING HINGED FROM EITHER SIDE. LAMPS - LINEAR FLUORESCENT T8 WITH WATTAGES AS INDICATED. BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR (≥ .98), ELECTRONIC INSTANT START TYPE WITH SOUND RATING A. HOUSING PAINTED AFTER FABRICATION. 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<p>LENSED RECESSED 2' X 4' TROFFER *</p>	<p>RECESSED CFL DOWNLIGHT</p>	<p>FLUORESCENT WRAPAROUND</p>	<p>LENSED RECESSED 1' X 4' TROFFER</p>																																																																						
 <p>SHOWER TRIM WITH DROP OPAL GLASS DIFFUSER</p> <p>LUMINAIRE REQUIREMENTS:</p> <ol style="list-style-type: none"> HOUSING - ONE-PIECE, DIE-STAMPED, COLD ROLLED STEEL. PROVIDE WITH PRE-WIRED JUNCTION BOX HAVING SNAP-ON ACCESS COVER. ACCESS TO JUNCTION BOX FROM BELOW CEILING SHALL BE PROVIDED THROUGH FIXTURE AFTER REMOVAL OF REFLECTOR. REFLECTOR AND TRIM - SHOWER TRIM WITH DROP OPAL GLASS DIFFUSER AND UPPER CLEAR ALZAK REFLECTOR. BALLAST - CLASS P, MULTI-VOLT (120V-277V INPUT), HIGH POWER FACTOR (≥ .95), PROGRAMMED RAPID START ELECTRONIC TYPE WITH ≤ 10% TOTAL HARMONIC DISTORTION. BALLAST SHALL BE CAPABLE OF UNIVERSALLY OPERATING 26W, 32W, OR 42 WATT LAMPS. LAMPS - MULTI-TUBE, COMPACT FLUORESCENT WITH 4-PIN BASE. 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COLD START BALLASTS FOR USE UNCONDITIONED SPACES. MOUNTING - STAINLESS STEEL CHAIN HANGING KIT HOUSING PAINTED AFTER FABRICATION. PHOTOMETRICS - MINIMUM VALUE OF COEFFICIENT OF UTILIZATION (CU) AND EFFICIENCY, GIVEN INTERIOR CAVITY REFLECTANCES OF 80-50-20: <table border="1" data-bbox="1554 1421 1662 1542"> <thead> <tr> <th>RCR</th> <th>CU</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>92</td> </tr> <tr> <td>2</td> <td>81</td> </tr> <tr> <td>3</td> <td>71</td> </tr> <tr> <td>4</td> <td>63</td> </tr> </tbody> </table> <table border="1" data-bbox="1149 1582 1678 1643"> <thead> <tr> <th>TYPE</th> <th>LAMP #</th> <th>LAMP TYPE</th> <th>VOLTS</th> <th>MOUNTING</th> </tr> </thead> <tbody> <tr> <td>△</td> <td>2</td> <td>28W T8</td> <td>120</td> <td>CHAIN HANG 8'-0" AFF</td> </tr> </tbody> </table>	RCR	CU	1	92	2	81	3	71	4	63	TYPE	LAMP #	LAMP TYPE	VOLTS	MOUNTING	△	2	28W T8	120	CHAIN HANG 8'-0" AFF	 <p>LUMINAIRE REQUIREMENTS:</p> <ol style="list-style-type: none"> HOUSING - DIE-CAST ALUMINUM OR HIGH-IMPACT, UV-STABILIZED, INJECTION-MOLDED THERMOPLASTIC. SINGLE-FACED. FINISH (ON CAST ALUMINUM HOUSING ONLY) - TEXTURED POWDER COAT FINISH, COLOR - WHITE. LETTERS/CHEVRONS - MINIMUM 6" HIGH WITH 3/4" STROKE. PROVIDE GREEN LED'S FOR GREEN LETTERS. PROVIDE CHEVRONS AS INDICATED, EITHER LEFT, RIGHT OR BOTH DIRECTIONS. CHEVRONS PUNCHED OUT THROUGH HOUSING AS REQUIRED. EMERGENCY PACK - SOLID-STATE, CONSTANT-CURRENT TYPE BATTERY CHARGER WITH MAINTENANCE-FREE, NICKEL-CADMIUM BATTERY, AC-ON INDICATOR LAMP, TEST SWITCH, AND SELF DIAGNOSTICS. MOUNTING - UNIVERSAL MOUNTING KIT FOR CEILING, WALL OR END OF FIXTURE MOUNTING. ILLUMINATION - PROVIDED BY GREEN HIGH-OUTPUT LED'S INSIDE OF FIXTURE HOUSING. PROVIDE POLYSTYRENE DIFFUSER IN COLOR INDICATED WITH FREQUENCY-MATCHED SILKSCREEN COATING FOR MAXIMUM LED LIGHT OUTPUT. <table border="1" data-bbox="1724 1582 2253 1643"> <thead> <tr> <th>TYPE</th> <th>LAMP #</th> <th>LAMP TYPE</th> <th>VOLTS</th> <th>MOUNTING</th> </tr> </thead> <tbody> <tr> <td>△</td> <td>-</td> <td>INTEGRAL LED</td> <td>120</td> <td>CEILING OR WALL MOUNT ABOVE DOOR</td> </tr> </tbody> </table>	TYPE	LAMP #	LAMP TYPE	VOLTS	MOUNTING	△	-	INTEGRAL LED	120	CEILING OR WALL MOUNT ABOVE DOOR	 <p>LUMINAIRE REQUIREMENTS:</p> <ol style="list-style-type: none"> HOUSING - UV STABLE, FLAME-RATED, HIGH-IMPACT THERMOPLASTIC IN WHITE TEXTURED FINISH. INTERNAL COMPONENTS - FULLY AUTOMATIC, SOLID STATE, CONSTANT VOLTAGE, CURRENT-LIMITED BATTERY CHARGER; MAINTENANCE-FREE LEAD-ACID BATTERY; AND BUILT-IN OVERLOAD AND LOW-VOLTAGE BATTERY PROTECTION. EXTERIOR HOUSING INDICATORS - LED AC-ON INDICATOR AND INTEGRAL TEST SWITCH. LAMP HEADS - UV STABLE, FLAME RATED POLYCARBONATE THERMOPLASTIC. MR16 HALOGEN LAMPS SHALL BE 5 WATTS, HIGH-OUTPUT. MOUNTING - DIRECTLY TO 4" OCTAGONAL OR SQUARE OUTLET BOX. CERTIFICATION - COMPLIES WITH UL 924 AND NFPA 101 REQUIREMENTS. OPTIONS - SELF-DIAGNOSTIC/TESTING ELECTRONICS AND WIRE GUARD. <table border="1" data-bbox="2284 1582 2828 1643"> <thead> <tr> <th>TYPE</th> <th>LAMP #</th> <th>LAMP TYPE</th> <th>VOLTS</th> <th>MOUNTING</th> </tr> </thead> <tbody> <tr> <td>△</td> <td>2</td> <td>5W-MR16 HALOGEN</td> <td>120</td> <td>WALL MOUNT 7'-6" AFF</td> </tr> </tbody> </table>	TYPE	LAMP #	LAMP TYPE	VOLTS	MOUNTING	△	2	5W-MR16 HALOGEN	120	WALL MOUNT 7'-6" AFF																				
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<p>RECESSED CFL SHOWER LIGHT</p>	<p>FLUORESCENT INDUSTRIAL</p>	<p>LED EXIT SIGN</p>	<p>EMERGENCY LIGHTING UNIT</p>																																																																						

* WHERE INDICATED, PROVIDE BALLAST WITH EMERGENCY BATTERY BACKUP. CONNECT BATTERY AHEAD OF LOCAL SWITCHING.

DATE	APPROVED
DESCRIPTION	
DESIGNED & ENGINEERED BY:	
	
ENGINEERS ARCHITECTS PLANNERS	
442 WILSON CIRCLE MILLERSBORO, VA 22641 (703) 283-0077 VOICE (703) 283-0176 FAX www.djg.com	
	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE APPROVED	
FOR EFD FOR COMMANDER NAVFAC	
DATE 08.14.2012	
A/E DESIGN	XXX
CSH DRAWN	XXX
JAM REVIEW	XXX
QC	XXX
CHEF ARCH/ENGR	XXX
PROJECT MANAGER	XXX
FIRE PROTECTION	XXX
BRANCH MANAGER	XXX
DESIGN DIRECTOR	XXX
NAVAL FACILITIES ENGINEERING COMMAND	
MARINE CORPS AIR STATION, CHERRY POINT, N.C.	
FACILITY ENERGY REPAIRS, BUILDING 4401	
ELECTRICAL LIGHTING DETAILS	
DEPARTMENT OF THE NAVY	
CODE ID. NO. 80091	SIZE D
SCALE: AS SHOWN	
FED. NO. WR6059391	
STA. PROJ. NO. CP12004M	
SPEC. NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 12629068	
SHEET 39 OF 40	
E-111	
DRAWING REVISION JULY 2003	

1

2

3

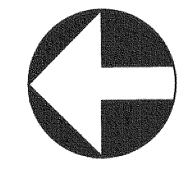
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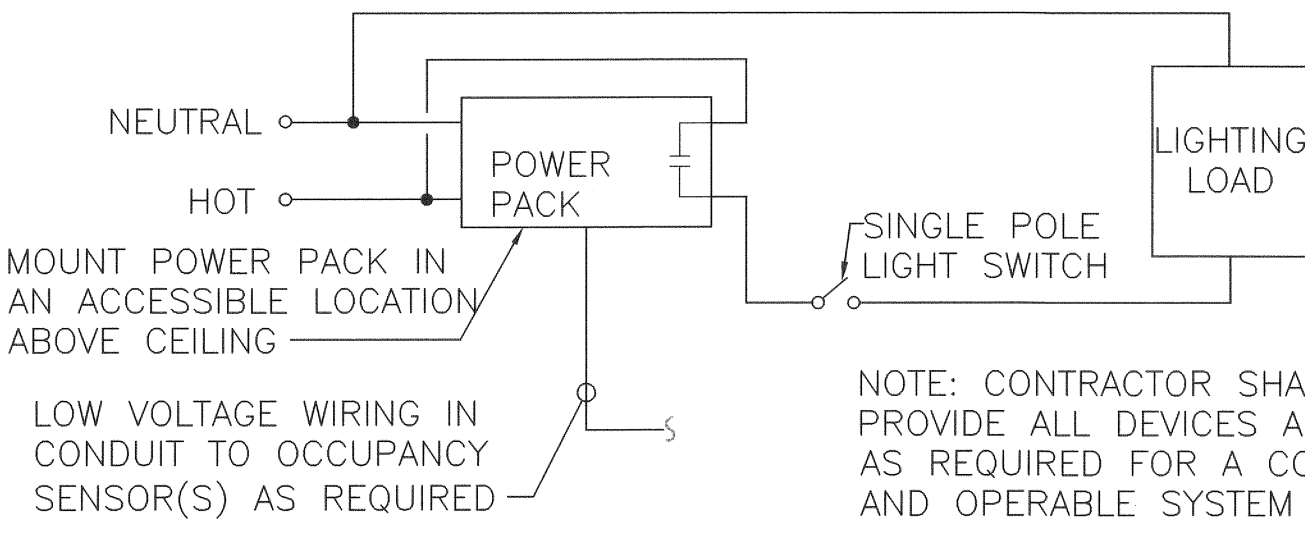
CONSTRUCTION NOTES (THIS SHEET ONLY)

- ① PROVIDE 2#12 AND 1#12 GND IN 3/4" C TO COMBINATION STARTER IN MECHANICAL ROOM 223 FOR EXHAUST FAN.
- ② INTERLOCK EXHAUST FAN WITH LIGHT SWITCH IN ROOM 228. SEE SHEET E-101.
- ③ SERVE NEW MECHANICAL EQUIPMENT FROM EXISTING CIRCUIT BREAKER IN PANEL H1 AS AT PRESENT.
- ④ ACC-1 SHALL UTILIZE EXISTING CHILLER WIRING AND CONDUIT WHERE POSSIBLE. PROVIDE NEW BOXES, FITTING, CONDUIT AND WIRE AS NECESSARY. CONNECT TO EXISTING CHILLER CIRCUIT AS AT PRESENT.
- ⑤ DISCONNECT AND REMOVE EXISTING 25A, 3-POLE CIRCUIT BREAKER SERVING DEMOLISHED AHU FROM PANEL AND RETURN TO GOVERNMENT. PROVIDE 60A, 3-POLE CIRCUIT BREAKER TO MATCH EXISTING BREAKER KAIC RATING TO SERVE NEW AHU FROM CIRCUIT AS INDICATED.
- ⑥ CONNECT TO EXISTING 20A, 3-POLE CIRCUIT BREAKER SERVING DEMOLISHED EXHAUST FAN.
- ⑦ SERVE HP-1 ON ROOF FROM EXISTING 30A, 2-POLE CIRCUIT BREAKER IN PANEL H1 AS INDICATED. REUSE EXISTING WIRE, CONDUIT AND BOXES WHERE POSSIBLE. PROVIDE NEW WIRE, CONDUIT, FITTINGS AND BOXES AS NECESSARY.
- ⑧ SERVE B-2 FROM MOST CONVENIENT EXISTING SPARE 20A, SINGLE POLE CIRCUIT BREAKER IN PANEL L1.
- ⑨ SERVE UH-1 FROM MOST CONVENIENT EXISTING SPARE 20A, SINGLE POLE CIRCUIT BREAKER IN PANEL L1. COORDINATE WORK WITH MECHANICAL CONTRACTOR IN FIELD PRIOR TO ROUGH IN.
- ⑩ PROVIDE 20A, SINGLE POLE CIRCUIT BREAKER IN EXISTING SPACE TO SERVE UH-2 IN PANEL H2 AS INDICATED. MATCH KAIC RATING FOR NEW CIRCUIT BREAKER WITH THAT OF PANEL H2.
- ⑪ PROVIDE 20A, 3-POLE CIRCUIT BREAKER TO SERVE PHWP-2 IN PANEL L1 AS INDICATED. MATCH KAIC RATING FOR NEW CIRCUIT BREAKER WITH THAT OF PANEL L1.



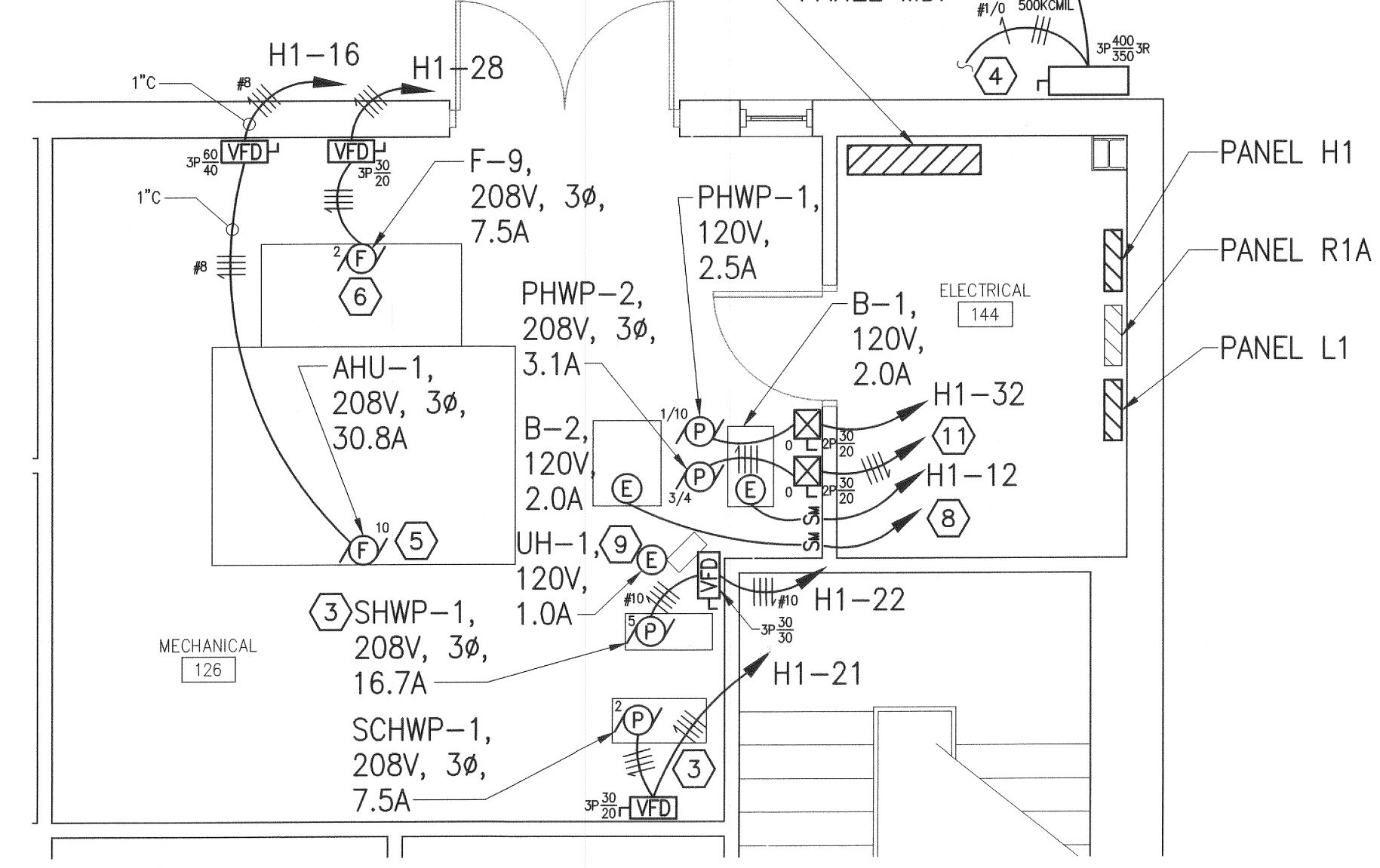
ELECTRICAL ROOF PLAN

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



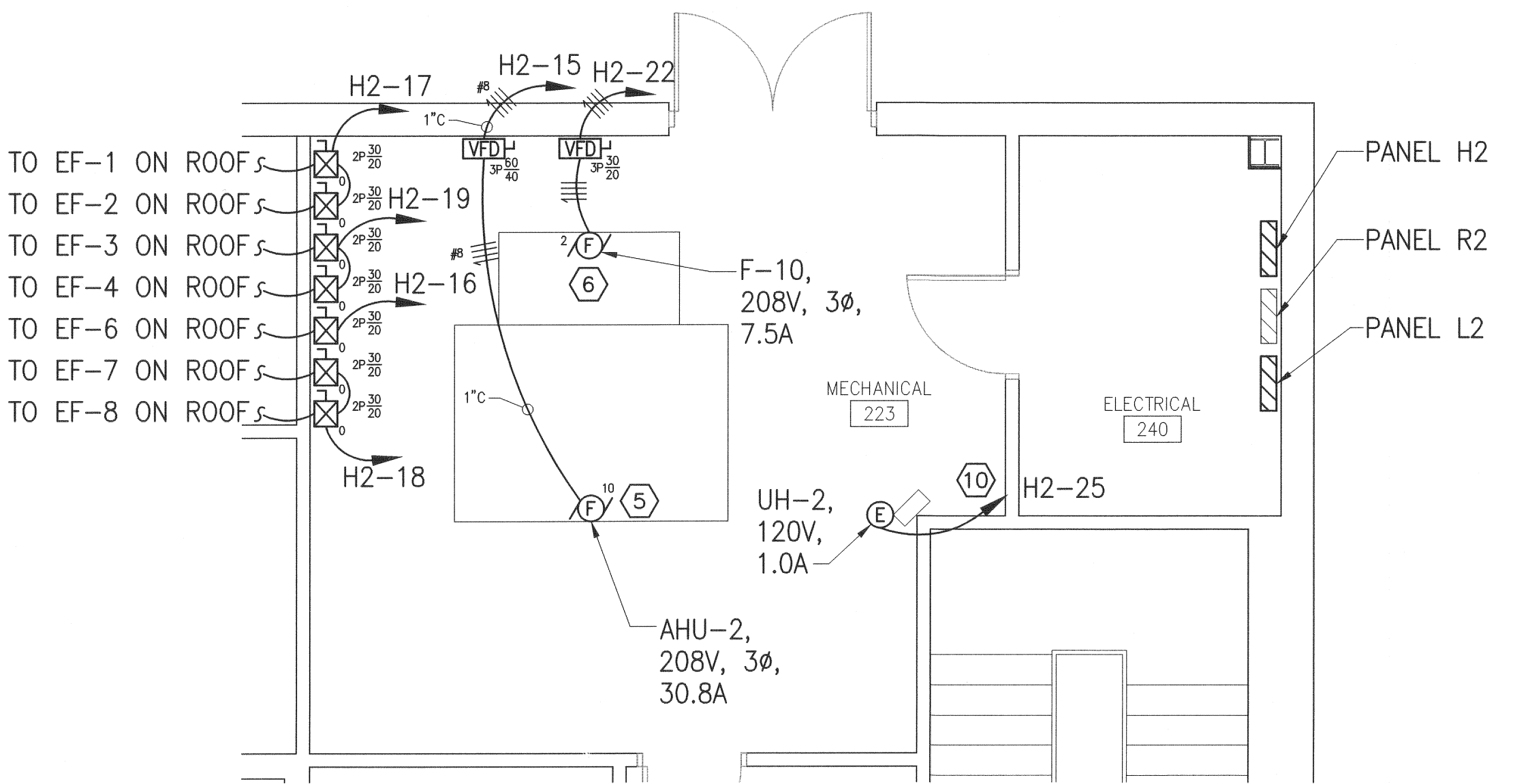
POWER PACK WIRING DETAIL-SINGLE SWITCH

NOT TO SCALE



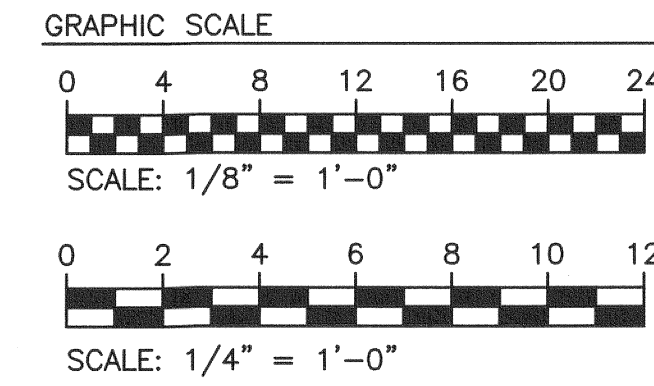
ENLARGED FIRST FLOOR MECHANICAL ROOM PLAN

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



ENLARGED SECOND FLOOR MECHANICAL ROOM PLAN

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



DATE	APPROVED
DESCRIPTION	
SIGNATURE	
DESIGNED & ENGINEERED BY:	
ENGINEERS ARCHITECTS PLANNERS 442 WALLACE CIRCLE WASHINGTON, VA 22204 (703) 442-2178 FAX www.djginc.com	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	
FOR EFD FOR COMMANDER NAVFAC	
DATE	08.14.2012
A/E	RRB DESIGN XXXX
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E-401 <small>DRAWN REVISION - JULY 2003</small>	