

FILE NAME: I:\NAVFAC\81390\CAD\MECH\81390-1173\81390-1173-P001.DWG LAYOUT NAME: P001 PLOTTED: Monday, December 21, 2015 - 4:38pm USER: cparra

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PIPE LINE ACCESSORIES

- 3 - WAY VALVE
- ANGLE VALVE
- BLIND FLANGE
- BALL VALVE
- BALANCING VALVE
- CHECK VALVE
- FC FLOW CONTROLLER FIXTURE
- INSULATING FLANGE
- PLUG VALVE
- PRESSURE GAUGE
- THERMOMETER
- RELIEF, SAFETY OR THERMAL RELIEF VALVE
- REMOVABLE CAP
- REMOVABLE PLUG
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- UNION
- VALVE
- WELD CAP
- Y-TYPE STRAINER

PLUMBING LEGEND

- SK-1 SINK - SPEC. TYPE
- SH-1 SHOWER - SPEC. TYPE
- MB-1 MOP BASIN - SPEC. TYPE
- WH-1 WATER HEATER - SPEC. TYPE
- PRESSURE/TEMPERATURE RELIEF VALVE
- WC-1 WATER CLOSET - SPEC. TYPE
- U-1 URINAL - SPEC. TYPE
- LAV-1 LAVATORY (COUNTER TOP) - SPEC. TYPE
- LAV-1 LAVATORY (WALL HUNG) - SPEC. TYPE
- FD FLOOR DRAIN - SIZE - SPEC. TYPE
- SD SHOWER DRAIN - SIZE - SPEC. TYPE
- EES EMERGENCY EYE WASH AND DRENCH SHOWER
- EWC-1 ELECTRIC WATER COOLER
- SOV SHUT OFF VALVE

PLUMBING ABBREVIATIONS

- AG AIR GAP
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AC AIR COCK
- ARV AIR RELEASE VALVE
- BOP BOTTOM OF PIPE
- CAT COMPRESSED AIR TANK
- CO CLEAN OUT
- CPVC CHLORINATED POLYVINYLCHLORIDE
- CONC CONCENTRIC
- DCWS DOMESTIC COLD WATER SUPPLY
- DHWR DOMESTIC HOT WATER RETURN
- DHWS DOMESTIC HOT WATER SUPPLY
- DN DOWN
- D DRAIN
- DI DUCTILE IRON
- EES EMERGENCY EYE WASH AND DRENCH SHOWER
- ELL ELBOW
- ET EXPANSION TANK
- EXIST EXISTING
- FLGD FLANGED
- FCO FLOOR CLEAN OUT
- FOB FLAT ON BOTTOM
- FOT FLAT ON TOP
- FD FLOOR DRAIN
- FI FLOW INDICATOR
- FM FLOW METER
- GC GAS COCK
- GFCI GOVERNMENT FURNISHED CONTRACTOR INSTALLED
- GSM GAS SUB METER
- HB HOSE BIBB
- HWC HOSE BIB
- IF HOT WATER CIRCULATOR
- INV. EL. INSULATED FLANGE
- LC INVERT ELEVATION
- LO LOCK CLOSED
- LR LOCK OPEN
- MED LONG RADIUS
- MWS MEDICAL
- NPCW MAKE-UP WATER SUPPLY
- NRS NON POTABLE COLD WATER
- OE NON-RISING STEM
- OF ORAL EVACUATION
- PSIA OVERFLOW STORM DRAIN
- PSIG POUNDS PER SQUARE INCH ABSOLUTE
- PVC POUNDS PER SQUARE INCH GAUGE
- RED POLYVINYLCHLORIDE
- REF REDUCER-REDUCING
- RPZD REFRIGERATOR
- SCH REDUCED PRESSURE ZONE DISCHARGE
- SCRD SCHEDULE
- SD SCREWED
- SPD SHOWER DRAIN
- SR STAND PIPE DRAIN
- ST SHORT RADIUS
- TMV STORM DRAIN PIPE
- TOC THERMOSTATIC MIXING VALVE
- TOP TOP OF CONCRETE
- TOS TOP OF PIPE
- TP TOP OF STEEL
- TW TRAP PRIMER
- VTR TRAP PRIMER WATER
- VCP VENT THROUGH ROOF
- WCO VITRIFIED CLAY PIPE
- WH WALL CLEANOUT
- WH WATER HYDRANT

PIPE LINE DESIGNATIONS

- 2" CA COMPRESSED AIR PIPING
- 2" V VENT
- 2" DA DENTAL AIR PIPING (85-100 PSIG)
- 2" DCWS DOMESTIC COLD WATER (DCWS)
- 2" DHWS DOMESTIC HOT WATER (DHWS)
- 2" DHWR DOMESTIC HOT WATER RECIRCULATION (DHWR)
- 2" LA LAB AIR (30 PSIG)
- 2" LV LAB VACUUM (19" Hg)
- 2" MWS MAKE-UP COLD WATER SUPPLY(MCWS)
- 2" MA MEDICAL AIR PIPING (50 PSIG)
- 2" MV MEDICAL VACUUM PIPING (19" Hg)
- 2" NG NATURAL GAS
- 2" N NITROGEN GAS PIPING
- 2" NO NITROUS OXIDE PIPING
- 2" O OXYGEN PIPING (50 PSIG)
- 2" OE ORAL EVACUATION (8" Hg)
- 2" OF OVERFLOW STORM DRAIN PIPE (ABOVE GRADE)
- 2" SAN SANITARY SEWER (ABOVE GRADE)
- 2" SAN SANITARY SEWER (BELOW GRADE)
- 2" ST STORM DRAIN PIPE (ABOVE GRADE)
- 2" ST STORM DRAIN PIPE (BELOW GRADE)
- 2" TW TRAP PRIMER WATER
- BP BACKFLOW PREVENTION ASSEMBLY
- CO CLEANOUT IN CEILING
- FCO CLEANOUT IN FLOOR
- WH WALL HYDRANT
- HB HOSE BIBB
- AC AIR COCK
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW

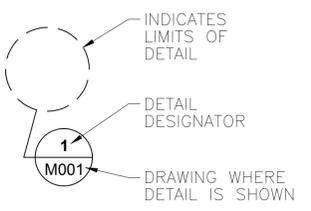
RISER DIAGRAM SYMBOLS

- CO CLEANOUT (CO) IN RISER
- FCO CLEANOUT (FCO) IN FLOOR
- WCO CLEAN OUT (WCO) IN WALL
- CO CLEAN OUT (CO) IN VERTICAL VENT
- DS DOWN SPOUT
- FLOOR OR WALL PENETRATION
- FLOW CONTROL FITTING
- PLUMBING FIXTURE TRAP
- FLOOR DRAIN/EQUIPMENT DRAIN
- PRESSURE GAUGE
- VENT THRU ROOF (VTR)
- WHA WATER HAMMER ARRESTOR

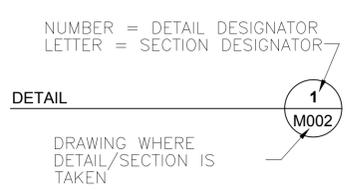
GENERAL LEGEND



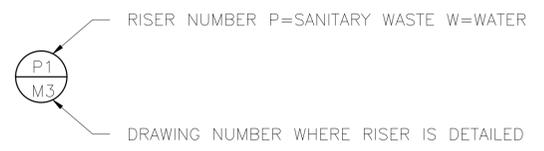
DETAIL CALLOUT SYMBOL



DETAIL CALLOUT SYMBOL



PLUMBING RISER IDENTIFICATION



EQUIPMENT IDENTIFICATION



DATE	APPR
DESCRIPTION	SYN
1306 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23321 757-548-2056	
APPROVED	A/E: INF3
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO	DATE
DES: CQ	DRW: CP
CHK: RJ	
FM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND NEWPORT, RHODE ISLAND NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS PLUMBING LEGEND, SYMBOLS AND ABBREVIATIONS	
SCALE:	AS NOTED
PROJECT NO.:	1365179
CONSTR. CONTR. NO.:	N40085-14-D-5227-0005
NAVSTA DRAWING NO.:	43177-399
NAVFAC DRAWING NO.:	12711802
SHEET	2 OF 12
P-001	
<small>DRAWING REVISION: 10 MAY 2014</small>	

FILE NAME: I:\NAVFAC\81390\CAD\MECH\81390-1173-P101.dwg LAYOUT NAME: P101 PLOTTED: Monday, December 21, 2015 - 4:38pm USER: cparra

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1

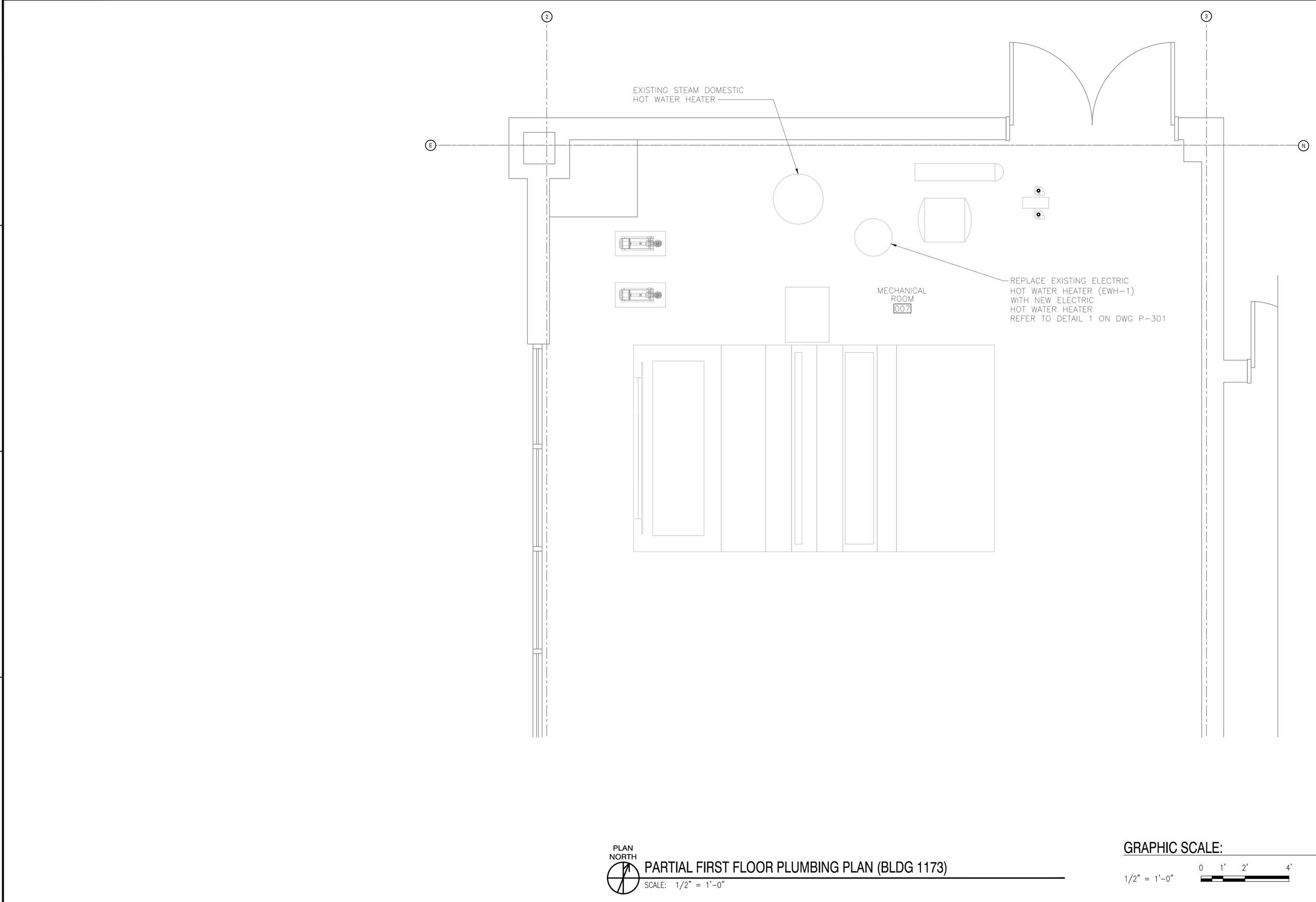
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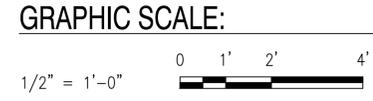
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5

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PLAN NORTH
PARTIAL FIRST FLOOR PLUMBING PLAN (BLDG 1173)
 SCALE: 1/2" = 1'-0"



DATE	APPR
SYN	DESCRIPTION
1306 EXECUTIVE BLVD. SUITE 160 CHESAPEAKE, VA 23321 757-548-2056	
APPROVED	A/E INFO
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO	DATE
DES CQ	DRW CP
CHK RJ	
FM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND ~ MIDLANT NEWPORT, RHODE ISLAND NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS PARTIAL PLUMBING FLOOR PLAN	
SCALE:	AS NOTED
PROJECT NO.:	1365179
CONSTR. CONTR. NO.	N40085-14-D-5227-0005
NAVSTA DRAWING NO.	43178-399
NAVFAC DRAWING NO.	12711803
SHEET	3 OF 12
P-101	
DRAWING REVISION: 10 MAY 2014	

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1

2

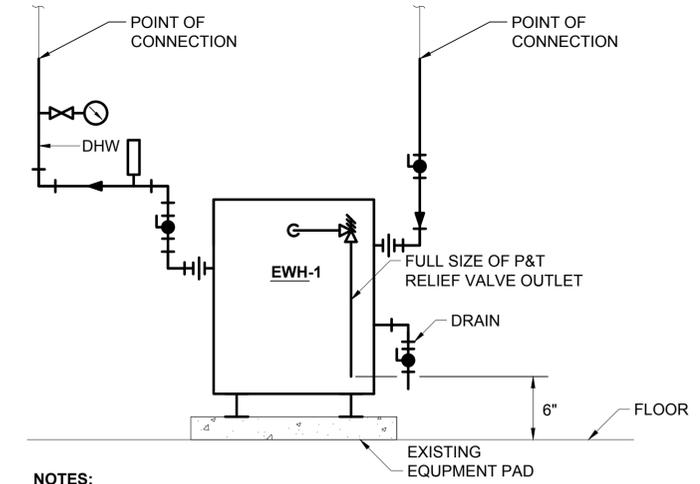
3

4

5

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FILE NAME: I:\NAVFAC\81390\CAD\MECH\81390-1173\81390-1173-P301.dwg LAYOUT NAME: P301 PLOTTED: Monday, December 21, 2015 - 4:39pm USER: cparra
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NOTES:

1. FOR PIPE SIZES SEE FLOOR PLAN.
2. FOR HEATER SELECTION SEE SCHEDULE AND SPECIFICATIONS.
3. HOT WATER PIPED TO NORMALLY CLOSED PORT OF MIXING VALVE
4. VALVE TO OPEN TO COLD WATER FLOW ON THERMOSTAT FAILURE.

ELECTRIC WATER HEATER PIPING W/ MIXING VALVE

SCALE: NO SCALE

1

ELECTRIC WATER HEATER SCHEDULE - BUILDING 1173	
NO.	EWH-1
SERVICE	DOMESTIC HW
POWER - KW	24
TURN ON - GPM	123
RECOVERY - GAL/HR @ 80° F RISE	30
HOT WATER TEMP. SETTING - F	120
ELEC. - V/PH/Hz	480/3/60
MANUFACTURER	STATE WATER HEATERS
MODEL NO.	SSE
REMARKS	1
ROOM	MECHANICAL ROOM (007)
NOTES:	
1. PROVIDE WITH DISCONNECT SWITCH AND TEMPERATURE RELIEF VALVE.	

SYN	DESCRIPTION	DATE	APPR



BURNS & MCDONNELL
 1306 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23321
 757-548-2056

APPROVED: _____
 FOR COMMANDER NAVFAC: _____
 ACTIVITY: _____
 SATISFACTORY TO: _____ DATE: _____
 DES: CQ DRW CP CHK RJ
 FM: _____
 BRANCH MANAGER: _____
 CHIEF ENG/ARCH: _____

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 FT-NEWPORT
 NAVAL FACILITIES ENGINEERING COMMAND ~ MIDLAND
 NEWPORT, RHODE ISLAND
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND
B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS
 PLUMBING DETAILS

SCALE: **AS NOTED**
 EPROJECT NO.: **1365179**
 CONSTR. CONTR. NO.: **N40085-14-D-5227-0005**
 NAVSTA DRAWING NO.: **43179-399**
 NAVFAC DRAWING NO.: **12711804**
 SHEET **4** OF **12**
P-301

GENERAL MECHANICAL NOTES - PIPING

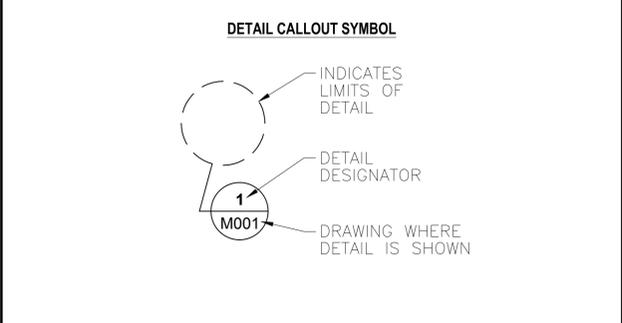
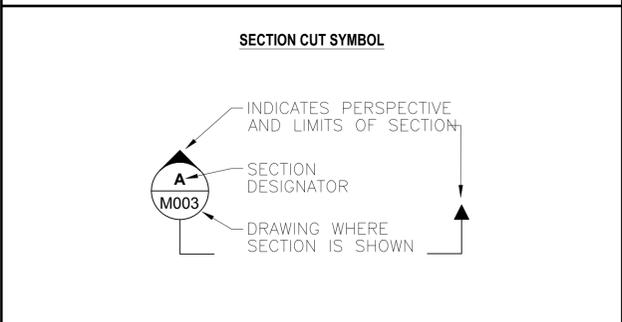
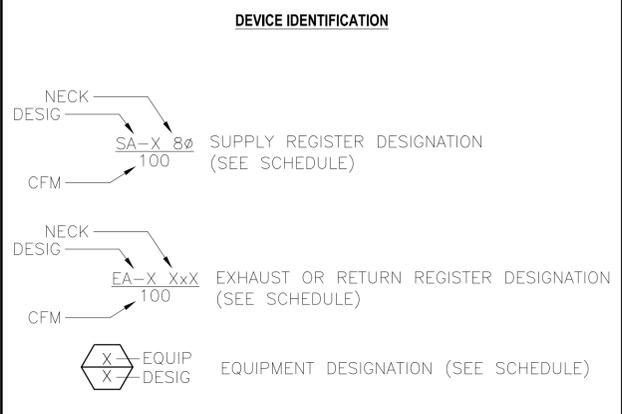
1. COORDINATE ALL PENETRATIONS WITH STRUCTURAL AND ARCHITECTURAL PLANS.

GENERAL MECHANICAL NOTES - (MECHANICAL)

1. INSTALL TEMPERATURE CONTROLS AT ELEVATION BETWEEN 5'-0" AND 6'-0" ABOVE FINISHED FLOOR. COORDINATE WITH ALL WALL FINISHES.

2. COORDINATE ALL PENETRATIONS WITH STRUCTURAL AND ARCHITECTURAL PLANS.

3. SUPPORT FOR ANY SUSPENDED EQUIPMENT HEAVIER THAN 30 LBS SHALL BE ABLE TO WITHSTAND FORCES 1.5 TIMES THE WEIGHT OF THE EQUIPMENT IN DOWNWARD DIRECTION AND 0.5 IN LATERAL DIRECTIONS. REFER TO MECHANICAL SPECIFICATION.



MECHANICAL ABBREVIATIONS

24x12	RECTANGULAR DUCT DIMENSION (INCHES)
24x12 OV	OVAL DUCT DIMENSION (INCHES)
12ø	ROUND DUCT DIMENSION (INCHES)
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ARV	AIR RELEASE VALVE
B	BOILER
BCS	BAGGAGE COMPARTMENT SUPPLY AIR
BE	BEVEL END
BLE	BEVELED LARGE END
BLVD	BEVELED
BOD	BOTTOM OF DUCT
BP	BOILER PUMP
BW	BUTT WELD
CUH	CABINET UNIT HEATER
CONC	CONCENTRIC
CORP	CORPORATION
STOP	STOP
DN	DOWN
ELL	ELBOW
EA	EXHAUST AIR
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EXIST	EXISTING
F	FAN
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FUD	FUNNEL DRAIN
FW	FIELD WELD
FF	FLAT FACED
FLA	FULL LOAD AMPS
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
INV.	INVERT
EL.	ELEVATION
L	LOUVER
LR	LONG RADIUS
MA	MAKE-UP AIR
MCA	MAXIMUM CURRENT AMPS
MCA	MAXIMUM OVERLOAD PROTECTION
OA	OUTSIDE AIR
OB	OPPOSED BLADE
PB	PARALLEL BLADE
PBE	PLAIN BOTH ENDS
PE	PLAIN END
POE	PLAIN ONE END
PSIG	POUNDS PER SQUARE INCH GAUGE
RED	REDUCER-REDUCING
RMJ	RESTRAINED MECHANICAL JOINT
RA	RETURN AIR
RJ	RING JOINT
SCH	SCHEDULE
SR	SHORT RADIUS
SO	SLIP ON
STM	STEAM
ST	STEAM TRAP
SA	SUPPLY AIR
SRC	SPRING RETURN CLOSED
SR	SUPPLY REGISTER
SW	SOCKET WELD
TD	TRANSFER DUCT
TOC	TOP OF CONCRETE
TOD	TOP OF DUCT
TOG	TOP OF GRATING
TOS	TOP OF STEEL
UH	UNIT HEATER
VAV	VARIABLE AIR VOLUME
V	VENT
VCU	VENTILATING CABINET UNIT
WE	WELD END
WN	WELD NECK



PIPELINE DESIGNATIONS

--- ?" CWS ---	CHILLED WATER SUPPLY (GLYCOL)
--- ?" CWR ---	CHILLED WATER RETURN (GLYCOL)
--- ?" D ---	DRAIN
--- ?" HWS ---	HOT WATER SUPPLY
--- ?" HWR ---	HOT WATER RETURN

PIPELINE ACCESSORIES

⊗	SHUT OFF VALVE
OS&Y	OUTSIDE SCREW & YOKE
⊗	MOTORIZED VALVE
⊗	GLOBE VALVE
⊗	BUTTERFLY VALVE
⊗	ANGLE VALVE
⊗	CHECK VALVE
⊗	3 - WAY VALVE
⊗	BALL VALVE
⊗	BALANCING VALVE
⊗	RELIEF, SAFETY OR THERMAL RELIEF VALVE
⊗	AIR COCK
⊗	AUTOMATIC AIR VENT ASSEMBLY
⊗	FOR APPROPRIATE VALVE TYPE MANUAL AIR VENT - SEE SPECIFICATIONS
⊗	FLEX CONNECTION
*	COMPONENTS TO BE FURNISHED WITH EQUIPMENT
⊗	THERMOMETER
⊗	PRESSURE GAUGE
⊗	WELD CAP
⊗	REMOVABLE CAP
⊗	REMOVABLE PLUG
⊗	REDUCER (CONCENTRIC)
⊗	REDUCER (ECCENTRIC)
⊗	UNION
⊗	BLIND FLANGE
⊗	TEST CONNECTION

VALVE OPERATORS

⊗	CYLINDER
⊗	DIAPHRAGM
⊗	MOTOR
⊗	SOLENOID
⊗	CHAINWHEEL

GENERAL LEGEND

⊗	CONNECT TO EXISTING
---	---------------------

HVAC LEGEND

⊗	CONTROL DAMPER, MOTOR OPERATED
⊗	VOLUME DAMPER, MANUAL OPERATION
⊗	BACKDRAFT DAMPER
⊗	ACCESS DOOR (AD), ACCESS PANEL (AP)
⊗	FLEXIBLE DUCT CONNECTION
⊗	ELBOW W/TURNING VANES
⊗	TEE W/TURNING VANES
⊗	RISE IN RESPECT TO AIR-FLOW
⊗	DROP IN RESPECT TO AIR-FLOW
⊗	SQUARE OR RECTANGULAR TO ROUND TRANSITION
⊗	SUPPLY OR OUTSIDE AIR DUCT SECTION
⊗	RETURN OR EXHAUST AIR DUCT SECTION
⊗	SQUARE OR RECT. DIFFUSER
⊗	THERMOSTAT
⊗	HUMIDISTAT
⊗	36x24L LOUVERS AND SCREEN
⊗	UNIT HEATER, HORIZONTAL
⊗	UNIT HEATER, DOWNBLAST

GENERAL MECHANICAL DEMOLITION NOTES

- ALL REMOVED EQUIPMENT SHALL BE VERIFIED WITH OWNER PRIOR TO BEING "DISCARDED"
- ALL DUCTWORK, PIPING, EQUIPMENT AND FIXTURES "REMOVED AND DISCARDED" SHALL BE DISPOSED OF APPROPRIATELY.
- COORDINATE DEMOLITION OF MECHANICAL EQUIPMENT POWER CONNECTIONS WITH ELECTRICAL DRAWINGS.
- DEMOLITION DRAWING MAY NOT REFLECT ACTUAL FIELD CONDITIONS. CONTRACTOR TO VERIFY THE FIELD CONDITIONS AND BID ACCORDINGLY. UNLESS OTHERWISE INDICATED, THE BID SHALL INCLUDE ALL DEMOLITION WORK INCLUDING ANY EQUIPMENT THAT IS NOT SHOWN IN THE DRAWING.
- ALL AREAS AFFECTED BY DEMOLITION SHALL BE SEALED, PATCHED AND REPAIRED WITH LIKE MATERIALS TO ADJACENT WALL, ROOF, FLOORS ETC. COORDINATE WITH ARCHITECTURAL FINISH PLANS AND SCHEDULE.

APPROVED	DATE
FOR COMMANDER NAVFAC	
ACTIVITY	
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DES	CQ
DRW	CP
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FM	
BRANCH MANAGER	
CHIEF ENG/ARCH	

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

NAVAL FACILITIES ENGINEERING COMMAND ~ MIDLANT
NEWPORT, RHODE ISLAND

B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS

MECHANICAL LEGEND, SYMBOLS AND ABBREVIATIONS

SCALE: AS NOTED
PROJECT NO.: 1365179
CONSTR. CONTR. NO. N40085-14-D-5227-0005
NAVSTA DRAWING NO. 43180-399
NAVFAC DRAWING NO. 12711805
SHEET 5 OF 12
M-001

DRAWN/REVISED: 10 MAY 2014

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KEY NOTES:

- ① REPLACE EXISTING BOILER WITH NEW ELECTRIC BOILER. REMOVED BOILER SHALL BE VERIFIED WITH FACILITY OWNER PRIOR TO BEEN DISCARDED.
- ② EXISTING HOT WATER COIL TO BE REMOVED. REPAIR AND RECONNECT DUCT WORK AFTER DEMOLITION
- ③ REPLACE EXISTING EXPANSION TANK WITH NEW DIAPHRAGM EXPANSION TANK. MODIFY EXISTING SUPPORTS TO ACCOMODATE NEW TANK. DEMOLISH EXISTING PIPING BACK TO AIR SEPARATOR AND INSTALL NEW AUTOMATIC AIR VENT ON SEPARATOR. CONNECT NEW TANK TO EXISTING MAKE-UP WATER FEED. REFER TO DETAIL 1 ON M301

REROUTE EXISTING HOT WATER ABOVE NEW DWH AS REQUIRED TO ACCOMODATE NEW INSTALLATION. REFER TO DRAWING P101.

1 1/2" HWR
1 1/2" HWS

INSTALL NEW HOT WATER REHEAT COIL (RH-2) ABOVE CEILING. REFER TO DETAIL 2 ON M301

PROVIDE 2 24"X24" ACCESS PANEL IN DUCKWORK OF COIL ACCESS

NEW ELECTRIC UNIT HEATER

NEW ELECTRIC UNIT HEATER

MECHANICAL ROOM 007

14A

RH-1 48"x24" HW HEATING COIL

52" x 24"

48" x 30"

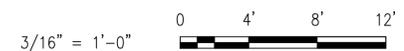
16x14



PARTIAL FIRST FLOOR MECHANICAL PLAN (BLDG 1173)

SCALE: 3/16" = 1'-0"

GRAPHIC SCALE:



APPR	DATE	DESCRIPTION



BURNS & MCDONNELL
1306 EXECUTIVE BLVD.
SUITE 160
CHESAPEAKE, VA 23321
757-548-2056

APPROVED	DATE
FOR COMMANDER NAVFAC	
ACTIVITY	
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DES: CQ	DRW: CP
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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND
NEWPORT, RHODE ISLAND
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS
PARTIAL MECHANICAL FLOOR PLAN

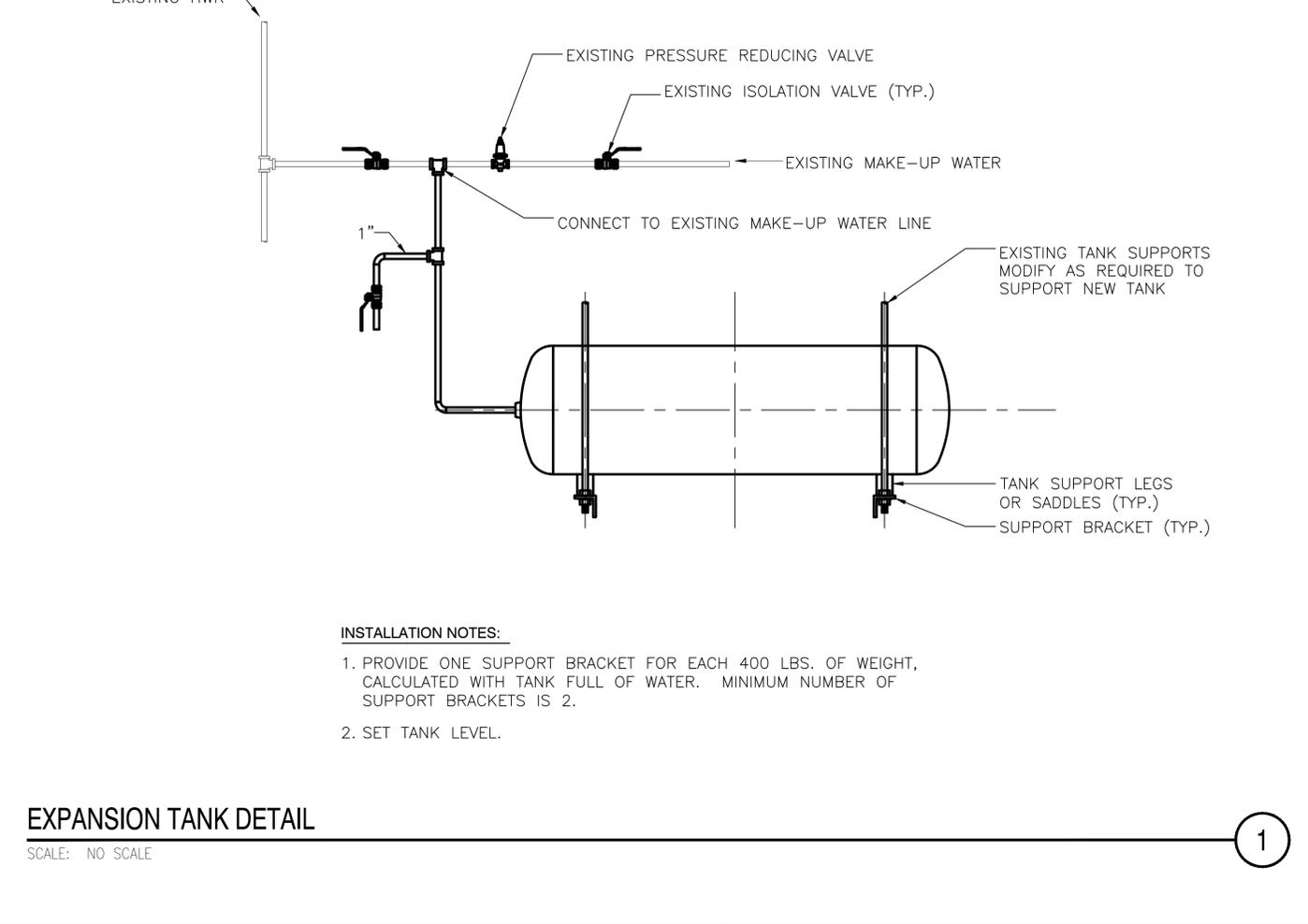
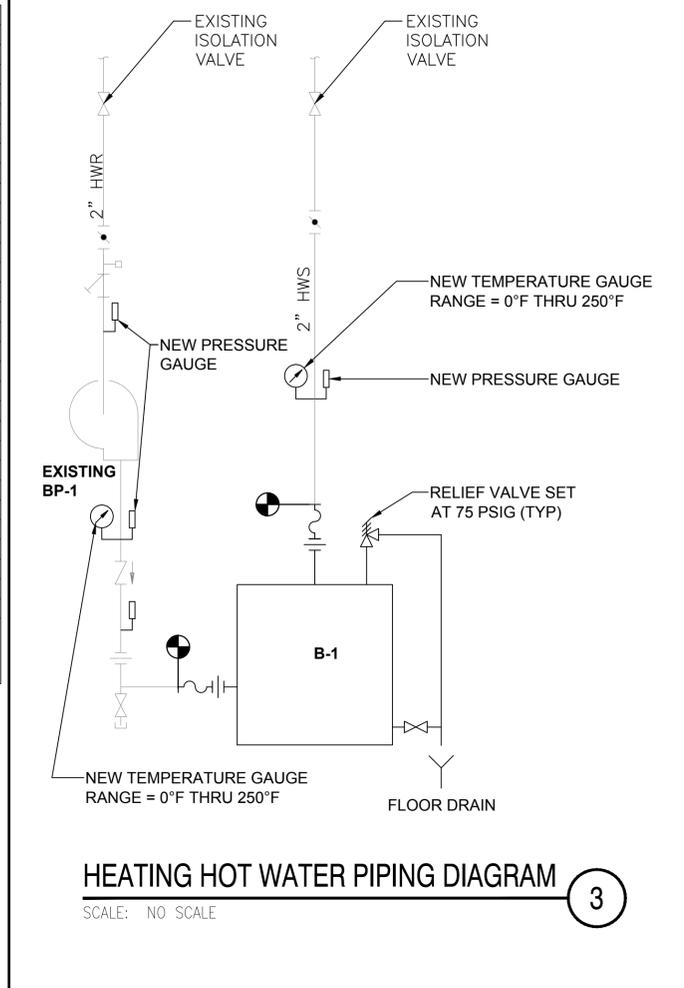
SCALE:	AS NOTED
PROJECT NO.:	1365179
CONSTR. CONTR. NO.	N40085-14-D-5227-0005
NAVSTA DRAWING NO.	43181-399
NAVFAC DRAWING NO.	12711806
SHEET	6 OF 12
M-101	

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FILE NAME: I:\NAVFAC\81390\CAD\MECH\81390-1173\M101.dwg LAYOUT NAME: M101 PLOTTED: Monday, December 21, 2015 4:39pm USER: cparr

AIR COIL SCHEDULE		
NUMBER		RH-2
SERVICE		HEATING
CONSTRUCTION TYPE		COPPER
AIR		
FACE LENGTH	IN	52
FACE HEIGHT	IN	25
FIN SPACING - FINS PER FT	FT	120
ROWS		1
CIRCUIT TYPE		CONTINUOUS
LAYOUT		HORIZONTAL
COATING		E-Polymer
FLOW RATE	CFM	8485
VELOCITY	FPM	979
STATIC PRESSURE DROP	IN	0.31
TOTAL CAPACITY	BTUH	224,000
ENTERING DRY BULB TEMPERATURE	DEG F	58
LEAVING DRY BULB TEMPERATURE	DEG F	82
HOT WATER		
FLOW RATE	GPM	11.5
VELOCITY	FPS	3.16
HEAD LOSS	FT H2O	3.47
ENTERING TEMPERATURE	DEG F	200
LEAVING TEMPERATURE	DEG F	160
ELECTRICAL		
VOLTS		24
PHASES		1
HERTZ		60
BASIS OF DESIGN		
MANUFACTURER		USA COIL
MODEL		HW58
NOTES:		
1. PROVIDE WITH 3-WAY CONTROL VALVE AND DUCT TEMPERATURE SENSOR		

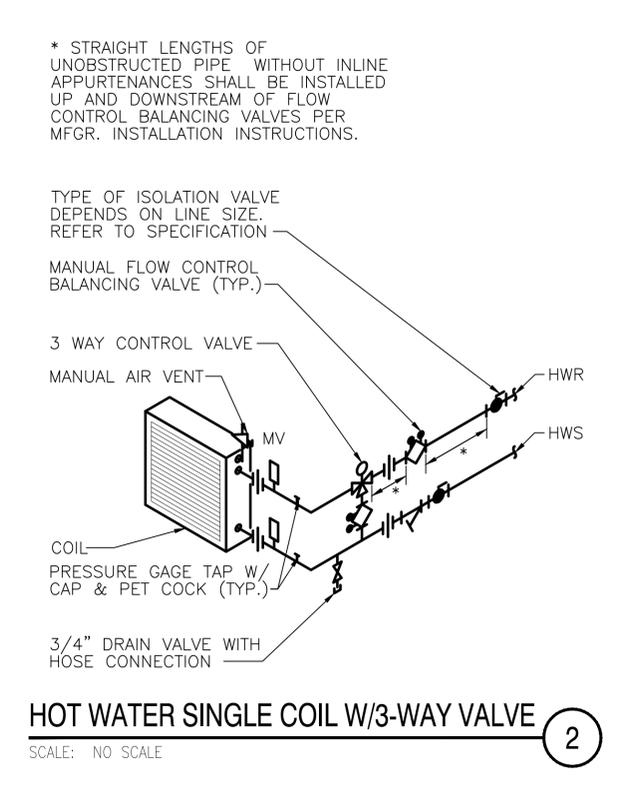


- INSTALLATION NOTES:**
1. PROVIDE ONE SUPPORT BRACKET FOR EACH 400 LBS. OF WEIGHT, CALCULATED WITH TANK FULL OF WATER. MINIMUM NUMBER OF SUPPORT BRACKETS IS 2.
 2. SET TANK LEVEL.

ELECTRIC UNIT HEATER SCHEDULE												
NO.	LOCATION	TYPE	ORIENTATION	HEATING OUTPUT (MBH)	CFM	ELECT.			WEIGHT (LBS)	MANUFACTURER	MODEL NO.	REMARKS
						MAX. AMP. RATING (A)	MIN. CIRCUIT FUSE SIZE (A)	V/PH				
EUH	BATHROOMS	ELEC.	VERTICAL	4 KW	300	19.2		208/1/60	60	QMARK	CDF-RE-548	SEE NOTES

NOTES:
1. PROVIDE WITH DISCONNECT SWITCH
2. PROVIDE WITH TRANSFORMER AND REMOTE THERMOSTAT.

ELECTRIC BOILER SCHEDULE		
NO.	B-1	-
MEDIA	HOT WATER	-
TYPE	ELECTRIC	-
KW	60	-
WORKING PRESS. - PSIG	250	-
FLOW - GPM	10	-
ENT. WATER TEMP. - F	140	-
LVG. WATER TEMP. - F	180	-
ELECT. - V/PH/Hz	480/3/60	-
# OF HEATING ELEMENTS	4	-
HEATING ELEMENT SIZE - KW	15	-
# OF CIRCUITS	2	-
TOTAL AMPS	-	-
STEPS	2	-
OUTLET PIPE SIZE - IN.	3	-
MANUFACTURER	LOCHINVAR	-
MODEL NUMBER	BW1-060C	-
REMARKS	-	-
NOTES:		
1. PROVIDE WITH FUSED DISCONNECT SWITCH AND FLOW SWITCH.		
2. PROVIDE CONTROLLER WITH REMOTE CONTACTS AND INPUTS FOR PUMP CONTROL, HEATING MODULATION AND ALARM MONITORING.		



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APPROVED: [Signature]

FOR COMMANDER NAVFAC

ACTIVITY:

SATISFACTORY TO: [Signature]

DATE:

DES: CQ | DRW: CP | CHK: RJ

BRANCH MANAGER:

CHIEF ENG/ARCH:

NAVAL FACILITIES ENGINEERING COMMAND ~ MIDLANT
NEWPORT, RHODE ISLAND

NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND

B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS

MECHANICAL DETAILS & SCHEDULES

SCALE: AS NOTED

PROJECT NO.: 1365179

CONSTR. CONTR. NO. N40085-14-D-5227-0005

NAVSTA DRAWING NO. 43182-399

NAVFAC DRAWING NO. 12711807

SHEET 7 OF 12

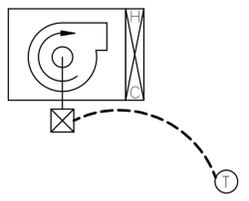
M-301

DATE: 10 MAY 2014

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FILE NAME: I:\NAVFAC\81390\CAD\MECH\81390-1173\81390-1173-M701.dwg PLOTTED: Monday, December 21, 2015 - 4:40pm USER: cparra



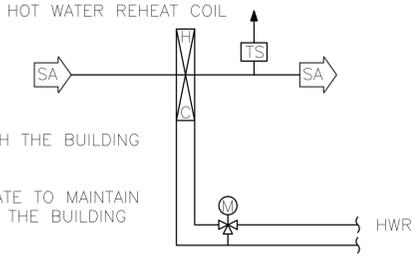
SEQUENCE OF OPERATION

1. CONTROLS SHALL BE LOCAL AND ELECTRICALLY ACTUATED.
2. ON CALL FOR HEAT, SPACE THERMOSTAT SHALL START THE UNIT HEATER. THE ELECTRIC HEATING ENERGIZE AND CYCLE TO MAINTAIN THE SPACE TEMPERATURE SET POINT. A FIVE DEGREE DEAD BAND SHALL ALLOW THE HEATER TO RUN CONTINUOUSLY UNTIL THE ROOM TEMPERATURE IS INCREASED TO FIVE DEGREES ABOVE THE SETPOINT.
3. **SET POINT:**
SPACE TEMPERATURE 70 DEG F (ADJ.)

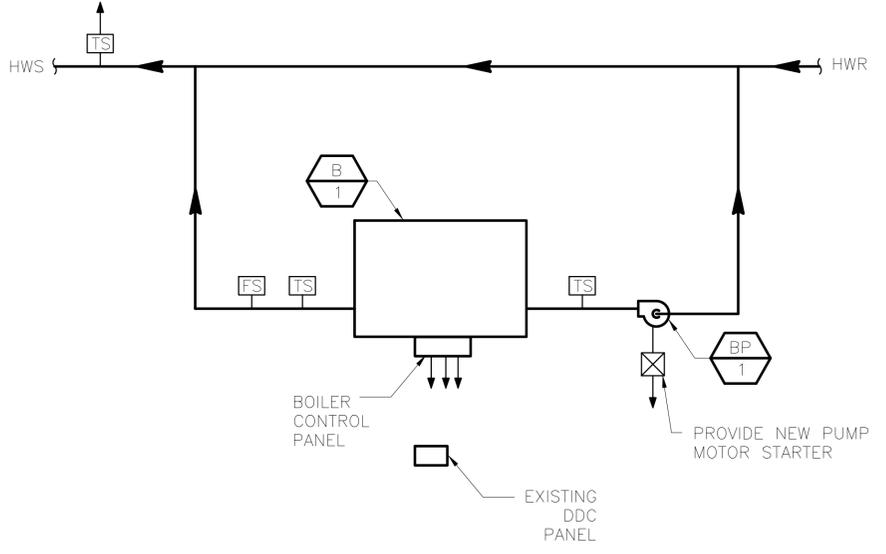
CONTROL DIAGRAM - ELECTRIC UNIT HEATER ③
SCALE: NO SCALE

SEQUENCE OF OPERATION

1. CONTROLS SHALL BE DIGITAL AND FULLY INTEGRATED WITH THE BUILDING DDC SYSTEM.
2. HOT WATER CONTROL VALVE SHALL CONTINUE TO MODULATE TO MAINTAIN THE SUPPLY TEMPERATURE SETPOINT AS DETERMINED BY THE BUILDING DDC SYSTEM SEQUENCE OF OPERATIONS.



HOT WATER REHEAT COIL ①
SCALE: NO SCALE



SEQUENCE OF OPERATIONS - HOT WATER HEATING SYSTEM

1. SYSTEM SHALL BE CONTROLLED BY LOCAL CONTROL PANEL. THE BOILER SHALL BE ENABLED AND DISABLED LOCALLY. ALL LOCAL SENSORS INCLUDING FLOW SWITCH AND TEMPERATURE SENSORS SHALL BE WIRED TO DIRECTLY TO THE BOILER CONTROL PANEL. CONTROLLER SHALL BE PROVIDED WITH A CONTACT TO BE ENABLED BY THE BMS SYSTEM.
2. THE EXISTING DDC PANEL SHALL MONITOR THE SECONDARY LOOP SUPPLY TEMPERATURE AND SHALL SEND AN OUTPUT SIGNAL TO THE BOILER CONTROLLER. THE BOILER CONTROLLER SHALL MODULATE THE HEATER TO MEET THE SUPPLY TEMPERATURE SET POINT.
3. THE DDC SHALL MONITOR BOILER CONTROL PANEL ALARM CONTACT.
4. THE EXISTING BOILER PUMP SHALL BE INTERLOCKED TO OPERATE WITH THE BOILER B-1, WHICH SHALL BE ENABLED BY THE DDC.
5. **SET POINT:**
HWS TEMPERATURE 180 DEG F (ADJ.)

CONTROL DIAGRAM - HOT WATER SYSTEM ②
SCALE: NO SCALE

CONTROL SYMBOLS

- MOTOR STARTER
- HOT WATER HEATING COIL
- CHILLED WATER COOLING COIL
- SUPPLY TEMPERATURE SENSOR/TRANSMITTER
- SPACE THERMOSTAT
- THREE-WAY CONTROL VALVE
- FLOW SWITCH

GENERAL NOTES:

1. FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS, SEE DRAWING M001.

SYMBOL	DESCRIPTION	DATE	APPR



BURNS & MCDONNELL
1306 EXECUTIVE BLVD.
SUITE 160
CHESAPEAKE, VA 23321
757-548-2056

APPROVED	A/E INFO
FOR COMMANDER NAVFAC	ACTIVITY
SATISFACTORY TO	DATE
DES: CQ	DRW: CP
CHK: RJ	
FM	
BRANCH MANAGER	
CHIEF ENG/ARCH	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MIDLAND
NEWPORT, RHODE ISLAND
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS
MECHANICAL CONTROLS DIAGRAMS

SCALE:	AS NOTED
PROJECT NO.:	1365179
CONSTR. CONTR. NO.:	N40085-14-D-5227-0005
NAVSTA DRAWING NO.:	43183-399
NAVFAC DRAWING NO.:	12711808
SHEET	8 OF 12
M-701	

FLOOR PLAN SYMBOLS

GENERAL NOTES:

DEMOLITION CONDITIONS NOTES:

ABBREVIATIONS

- CONDUIT ROUTED EXPOSED.
- - - CONDUIT ROUTED CONCEALED IN WALLS OR ABOVE CEILING.
- - - CONDUIT ROUTED BELOW FLOOR SLAB OR BELOW GRADE.
- INDICATES NEW WORK - UON
- INDICATES EXISTING TO REMAIN - UON
- ////// INDICATES EQUIPMENT TO BE REMOVED.
- ⤴ HOMERUN TO PANELBOARD OR EQUIPMENT INDICATED. NUMBER OF ARROWHEADS EQUALS NUMBER OF CIRCUITS IN CONDUIT.
- 3-#12 AWG [4]
- METRIC DESIGNATOR (MM²)
- US WIRE SIZE
- THREE CONDUCTOR
- CONDUIT TURNING DOWN
- ↗ CONDUIT TURNING UP
- CONDUIT STUB-UP AND CAPPED END
- ⊕ RECESSED DUPLEX, 120V, 20A RECEPTACLE, 2P, 3W, GROUNDING TYPE (NEMA 5-20R). MOUNT RECEPTACLE CENTERLINE AT 24" AFF/AFG OR AS NOTED GFCI = GROUND FAULT CIRCUIT INTERRUPTER (5mA) WP = WEATHERPROOF COVER WPIU = WEATHERPROOF WHILE IN-USE COVER.
- ⊕ SURFACE MOUNTED DUPLEX, 120V, 20A RECEPTACLE, 2P, 3W, GROUNDING TYPE (NEMA 5-20R)
- ⊕ SURFACE MOUNTED RECEPTACLE, VOLTAGE AND AMPERE RATING AS INDICATED. WITH DISCONNECT SWITCH MOUNTED ABOVE (WHERE INDICATED)
- M MOTOR CONNECTION
- J JUNCTION BOX
- S_{M,2P} MANUAL MOTOR STARTER WITH TOGGLE SWITCH THERMAL OVERLOAD AND PILOT LIGHT. 2P INDICATES TWO POLE SWITCH. MOUNT 44" AFF, UON.
- PANELBOARD
- 1 ⊗ MAGNETIC MOTOR STARTER. 1 INDICATES STARTER SIZE.
- NON-FUSIBLE DISCONNECT SWITCH, SURFACE MOUNTED, 600V, 3P, 30A, NEMA 1 ENCLOSURE, UON.
- F FUSIBLE DISCONNECT SWITCH, SURFACE MOUNTED, 600V, 3P, 30A, NEMA 1 ENCLOSURE, UON. FUSE SIZE AS INDICATED
- ±66" ⊗ COMBINATION STARTER/DISCONNECT SWITCH, SURFACE MOUNTED, 600V, 3POLE, SIZE 1, NEMA 1 ENCLOSURE, UON. (FUSE RATING AS INDICATED IF APPLICABLE). ±66" = MOUNTING HEIGHT AFF TO TOP OF ENCLOSURE, TYPICAL.

1. PERFORM ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, OSHA, PERTINENT NFPA CODES, THE RULES AND REGULATIONS OF ALL LOCAL, STATE, AND FEDERAL AUTHORITIES HAVING JURISDICTION, MILITARY CODES AND TECHNICAL LETTERS, AND ALL STANDARDS APPLIED BY NAVFAC.
2. ALL CONDUCTORS SHALL BE RUN IN CONDUIT, AND ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. ALL EXISTING AND NEW SWITCHBOARDS AND PANELBOARDS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARD IN ACCORDANCE WITH NFPA 70 AND 70E.
4. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADE CONTRACTORS REGARDING ELECTRICAL REQUIREMENTS OF ACTUAL EQUIPMENT PROVIDED.
5. ALL SYSTEMS THAT REQUIRE COORDINATION BETWEEN TRADES SHALL BE TO THE SATISFACTION OF NAVFAC. ANY DEFICIENCIES, INCONSISTENCIES, OR POORLY COORDINATED INSTALLATIONS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXTRA COST TO NAVFAC.
6. ALL GROUNDING SHALL COMPLY WITH NFPA 70, ART. 250.
7. PROVIDE A GREEN CONTINUOUS INSULATED EQUIPMENT GROUNDING CONDUCTOR TO ALL ELECTRICAL AND TELECOMMUNICATIONS EQUIPMENT SIZED PER NEC 250.122.
8. PROVIDE NEC CLEARANCE FOR ALL EQUIPMENT, PANELBOARDS AND DISCONNECTS. FIELD VERIFY EXACT LOCATION.
9. CONDUITS LOCATED IN MECHANICAL SPACES, ELECTRICAL ROOMS, ENCASED IN CONCRETE OR AT ANY LOCATIONS SUBJECT TO PHYSICAL DAMAGE, SHALL BE THREADED RIGID GALVANIZED STEEL.
10. USE RIGID GALVANIZED STEEL CONDUIT FOR EMERGENCY POWER CIRCUITS, FIRE ALARM SYSTEM RISER/BACKBONE WIRING, FIRE ALARM WIRING RUN BELOW 8'-0" OF FINISHED FLOOR AND IN AREAS SUBJECT TO PHYSICAL DAMAGE (I.E. MECHANICAL ROOMS, ETC.) AND WHERE REQUIRED BY CODE OR INDICATED ON THE DRAWINGS.
11. ALL CONDUITS PASSING THROUGH FIRE RATED WALL SHALL NOT REDUCE THE FIRE RATING. UTILIZE FIRE SEALS SUCH AS O.Z. SERIES GPS OR APPROVED EQUAL. FITTINGS FOR RIGID CONDUIT, SHALL BE COMPRESSION TYPE OR THE THREADED TYPE. CONCEAL ALL CONDUITS EXCEPT WHERE NOTED "EXPOSED".
12. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATING AND CONNECTION OF ALL CONTRACT WORK ASSOCIATED WITH GFGI EQUIPMENT AND MATERIAL OR WORK UNDER SEPARATE CONTRACTS.
13. MINIMUM CONDUIT SIZE SHALL BE 1/2", UON.

EXISTING CONDITIONS NOTES:

1. THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THESE EXISTING CONDITIONS, AND BY SUBMITTING A BID ACCEPTS CONDITIONS UNDER WHICH HE WILL BE REQUIRED TO PERFORM HIS WORK.
2. UNLESS INDICATED AS EXISTING, ALL MATERIALS AND LABOR SHALL BE CONSIDERED NEW.
3. ALL EXISTING EQUIPMENT AND DEVICES TO REMAIN SHALL STAY INTACT AND OPERATIONAL DURING THE CONSTRUCTION PROCESS. IF A DEVICE REQUIRING POWER IS DISTURBED OR INTERRUPTED, RESTORE THE DEVICE TO ITS ORIGINAL OPERATIONAL STATE. ANY DEMOLITION WORK REQUIRING MODIFICATION OF EXISTING ELECTRICAL SYSTEMS SHALL NOT COMPROMISE THE SYSTEMS TO REMAIN. INSTALL NEW CONDUIT AND WIRING WHERE NECESSARY TO RESTORE POWER PER NEC REQUIREMENTS.
4. ALL ELECTRICAL EQUIPMENT AND DEVICES TO BE REMOVED; COMPLETELY REMOVE ALL CONDUCTORS AND CONDUIT TO THE DEVICE, WHERE CONDUIT REMOVAL IS NOT POSSIBLE, CAP CONDUIT AND MAKE SAFE. WHERE BACKBOXES CAN NOT BE REMOVED, PROVIDE A BLANK COVERPLATE. ALL REMOVED CONDUIT, OLD BOXES, WIRING AND MISCELLANEOUS ELECTRICAL SCRAP SHALL BE REMOVED FROM THE JOB SITE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE ALL INTERIOR/EXTERIOR WALLS, CEILINGS, FLOORS, AND CONCRETE WORK REQUIRING PATCHING, PLASTERING, PAINTING AND ANY OTHER REPAIRS DUE TO ELECTRICAL WORK TO RESTORE THE ORIGINAL FINISH AND APPEARANCE.
6. PROVIDE AMP PROBE READINGS FOR ANY EXISTING PANELBOARD OR SWITCHBOARD AFFECTED BY THIS SCOPE OF WORK PER NEC SECTION 220.87. MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE PERIOD) SHALL BE CONTINUOUSLY RECORDED OVER A MINIMUM 30 DAY PERIOD USING A RECORDING AMMETER OR POWER METER CONNECTED TO THE HIGHEST LOADED PHASE OF THE FEEDER/SERVICE. THE RECORDING SHALL BE TAKEN WHEN THE BUILDING IS OCCUPIED AND SHALL INCLUDE THE LARGER OF THE HEATING OR COOLING EQUIPMENT LOAD AND OTHER LOADS THAT MAY BE PERIODIC IN NATURE DUE TO SEASONAL OR SIMILAR CONDITIONS. PROVIDE ACCURATE AS-BUILT CONDITIONS TO NHCNE AND ARCHITECT/ENGINEER OF EACH PANELBOARD AND SWITCHBOARD INDICATING WHICH CIRCUITS AND ACTIVE AND SPARE.

1. ELECTRICAL DEMOLITION SHOWS EXISTING CONDITIONS THAT HAVE BEEN PREPARED BASED ON FIELD OBSERVATIONS AND ORIGINAL DRAWINGS. ADDITIONAL COMPONENTS AND CONDITIONS THAT ARE NOT SHOWN ON THE DRAWINGS MAY EXIST AND MAY REQUIRE CERTAIN REMODELING OR ADJUSTMENTS THAT ARE NOT NOTED ON THE DRAWINGS. FIELD VERIFY THE LOCATIONS OF ALL EXISTING EQUIPMENT AND DEVICES SHOWN ON THE DRAWINGS PRIOR TO BIDDING.
2. OBTAIN WRITTEN PERMISSION FROM NHCNE FACILITIES DEPARTMENT PRIOR TO SHUTTING OFF SERVICES OR SYSTEMS WHICH MAY AFFECT OTHER AREAS BEYOND THE LIMITS OF WORK AREA.
3. NOT ALL EXISTING UTILITIES AND OR ELECTRICAL SYSTEMS ARE SHOWN ON PLANS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK. COORDINATE WITH THE NHCNE FACILITIES DEPARTMENT PRIOR TO COMMENCING WORK.
4. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, RECEPTACLES, ELECTRICAL EQUIPMENT, ETC., AFFECTED BY THIS CONTRACT'S WORK. THIS WILL INCLUDE REROUTING, OR THE EXTENSION OF, EXISTING CONDUIT AND FEEDERS WHERE NECESSARY TO MAINTAIN THE CONTINUITY OF EQUIPMENT NOT PART OF THE SCOPE OF WORK.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS, EQUIPMENT, ETC. AFFECTED BY EQUIPMENT DEMOLITION. MAINTAINING CONTINUITY SHALL CONSIST OF REROUTING CONDUIT, WIRING, ETC., AS REQUIRED TO MAINTAIN ELECTRICAL OPERATION OF EQUIPMENT NOT PART OF THE SCOPE OF WORK.
6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE REMOVAL AND SALVAGING OF ELECTRICAL EQUIPMENT WITH NHCNE FACILITIES DEPARTMENT. EQUIPMENT THAT IS TO BE TURNED OVER TO NHCNE FACILITIES SHALL BE BOXED AND TAGGED TO IDENTIFY THE SPECIFIC EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE DEMOLISHED EQUIPMENT OFF SITE.
7. IN SOME INSTANCES, IT MAY BE NECESSARY FOR THE ELECTRICAL CONTRACTOR TO TEMPORARILY RELOCATE, REROUTE, ETC., EXISTING ELECTRICAL EQUIPMENT. THIS SHALL BE DONE SO THAT THE SYSTEMS REMAIN OPERABLE DURING CONSTRUCTION.
8. DURING DEMOLITION, ALL CIRCUITS FROM EXISTING PANELS WHICH FEED AREAS OUTSIDE THE SCOPE OF WORK, SHALL BE MAINTAINED.
9. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO RELOCATE AND RECONNECT ALL CIRCUITS ON A TEMPORARY BASIS IF THE PANELS, TERMINAL CABINETS, ETC., CONFLICT WITH THE NEW CONSTRUCTION, AND THEN REMOVED AFTER COMPLETION.
10. ALL ABANDONED OUTLETS FOR LIGHTING, RECEPTACLES, COMMUNICATIONS, TELEPHONE, ETC., SHALL BE COVERED AND PATCHED TO MATCH THE SURROUNDING WALL OR CEILING FINISH TO THE SATISFACTION OF NHCNE FACILITIES DEPARTMENT.
11. EXPOSURE OF EXISTING STUB-UPS DUE TO WALL REMOVALS SHALL BE CUT OFF AND PLUGGED FLUSH WITH FLOOR LEVEL. REMOVE DISCONNECTED CONDUCTORS BACK TO SOURCE.

A	AMPERES
AC	ALTERNATING CURRENT
ACCU	AIR-COOLED CONDENSING UNIT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
C	CONDUIT
CAT 6	EIA/TIA CATEGORY 6
CM	CIRCULAR MIL
COMM	COMMUNICATIONS
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DDC	DIRECT DIGITAL CONTROL
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EIA	ELECTRONIC INDUSTRIES ALLIANCE
EMT	ELECTRICAL METALLIC TUBING
EP OR EXP	EXPLOSION-PROOF
ETM	ELAPSED TIME METER
FMC	FLEXIBLE METAL CONDUIT
G OR GND	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED
GFP	GROUND FAULT PROTECTION
GMP	GUARANTEED MAXIMUM PRICE
GRS	GALVANIZED RIGID STEEL CONDUIT
GTC	GENERATOR TERMINAL CONNECTION BOX
H	PHASE OR HOT CONDUCTOR
HH	HANDHOLE
HP	HORSEPOWER
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HWH	HOT WATER HEATER
IDS	INTRUSION DETECTION SYSTEM
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
Isc	SHORT CIRCUIT CURRENT
K	KILO
LF	LINEAR FEET
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
MAX	MAXIMUM
MD	MOTORIZED DAMPER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MH	MANHOLE, METAL HALIDE
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NAVFAC	NAVAL FACILITIES
NEC	NATIONAL ELECTRICAL CODE
NHCNE	NAVAL HEALTH CLINIC NEW ENGLAND
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD LINE
O/L	OVERLOAD
P	POLE
PC	POWER CONTACTOR
PCU	PREMISE CONTROL UNIT
PVC	POLY-VINYL CHLORIDE
RC	REMOTE CONTROL SWITCH
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
SPD	SURGE PROTECTIVE DEVICE
SWD	SWITCHBOARD
SYM	SYMMETRICAL
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORIES
UPS	UNINTERRUPTIBLE POWER SYSTEM
UTP	UNSHIELDED TWISTED PAIR
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VD	VOLTAGE DROP
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE (OR WATT)
WK	WORKSTATION
XFMR	TRANSFORMER

APPROVED	DATE
FOR COMMANDER NAVFAC	DATE
ACTIVITY	DATE
SATISFACTORY TO	DATE
DES: AAC	DRW: KD
CHK: JMR	
PM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
NAVAL FACILITIES ENGINEERING COMMAND	NEWPORT, RHODE ISLAND
NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT	NEWPORT, RHODE ISLAND
NAVAL STATION NEWPORT	NEWPORT, RHODE ISLAND
B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS	
ELECTRICAL LEGEND, ABBREVIATIONS & NOTES	
SCALE: AS NOTED	
PROJECT NO.: 1365179	
CONSTR. CONTR. NO. N40085-14-D-5227-0005	
NAVSTA DRAWING NO. 43184-399	
NAVFAC DRAWING NO. 12711809	
SHEET 9 OF 12	
E-001	

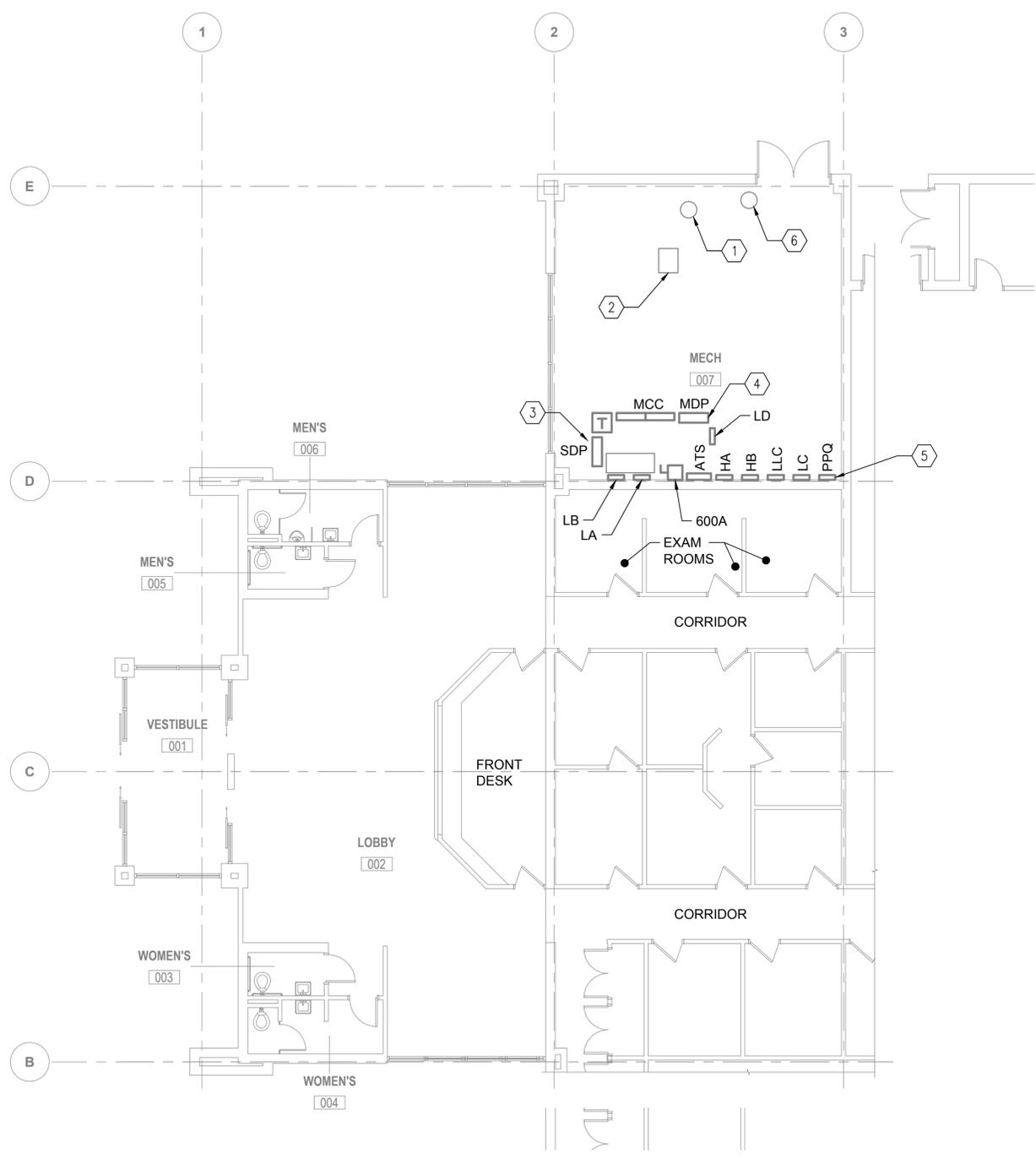
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FILE NAME: I:\NAVFAC\31390\card\elec\ED101-101.dwg LAYOUT NAME: ED101 PLOTTED: Friday, December 18, 2015 - 1:40pm USER: keleaco



- # DEMOLITION NOTES:
1. DISCONNECT AND REMOVE EXISTING HWH, 4500W, 208V, 1Ø, DISCONNECT, CONDUIT, WIRING, AND SUPPORTS BACK TO SOURCE. LABEL CB AS 'SPARE'.
 2. DISCONNECT AND REMOVE EXISTING ELECTRIC BOILER, 20kW, 480V, 3Ø, DISCONNECT, CONDUIT, WIRING, AND SUPPORTS BACK TO SOURCE.
 3. EXISTING DISTRIBUTION PANEL 'SDP', 600A MCB, 208Y/120V, 3Ø, 4W, TO REMAIN.
 4. EXISTING MAIN DISTRIBUTION BOARD 'MDP', 800A MCB, 480Y/277V, 3Ø, 4W, TO REMAIN.
 5. EXISTING PANELBOARD 'PPQ', 100A, MLO, 480Y/277V, 3Ø, 4W, TO REMAIN.
 6. DISCONNECT AND REMOVE EXISTING BOILER PUMP TOGGLE SWITCH.

SYN	DESCRIPTION	DATE	APPR



ANDREA A. CARABILLO
 No. 11335
 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL
 12/23/15

BURNS & MCDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23321
 757-548-2056

APPROVED: _____
 FOR COMMANDER NAVFAC
 ACTIVITY: _____

SATISFACTORY TO: _____ DATE: _____

DES: AAC | DRW: KD | CHK: JMR

FM: _____
 BRANCH MANAGER: _____
 CHIEF ENG/ARCH: _____

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMANDANT
 NAVAL FACILITIES ENGINEERING COMMANDANT - MIDLAND
 NEWPORT, RHODE ISLAND
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND
B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS
 PARTIAL GROUND FLOOR - DEMOLITION PLAN

SCALE: AS NOTED

PROJECT NO.: 1365179

CONSTR. CONTR. NO. N40085-14-D-5227-0005

NAVSTA DRAWING NO. 43185-399

NAVFAC DRAWING NO. 12711810

SHEET 10 OF 12

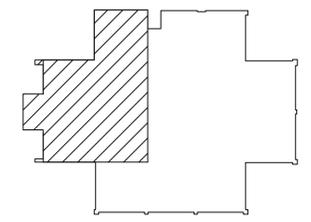
ED101



PARTIAL GROUND FLOOR - DEMOLITION PLAN

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

KEYPLAN



GRAPHIC SCALE:



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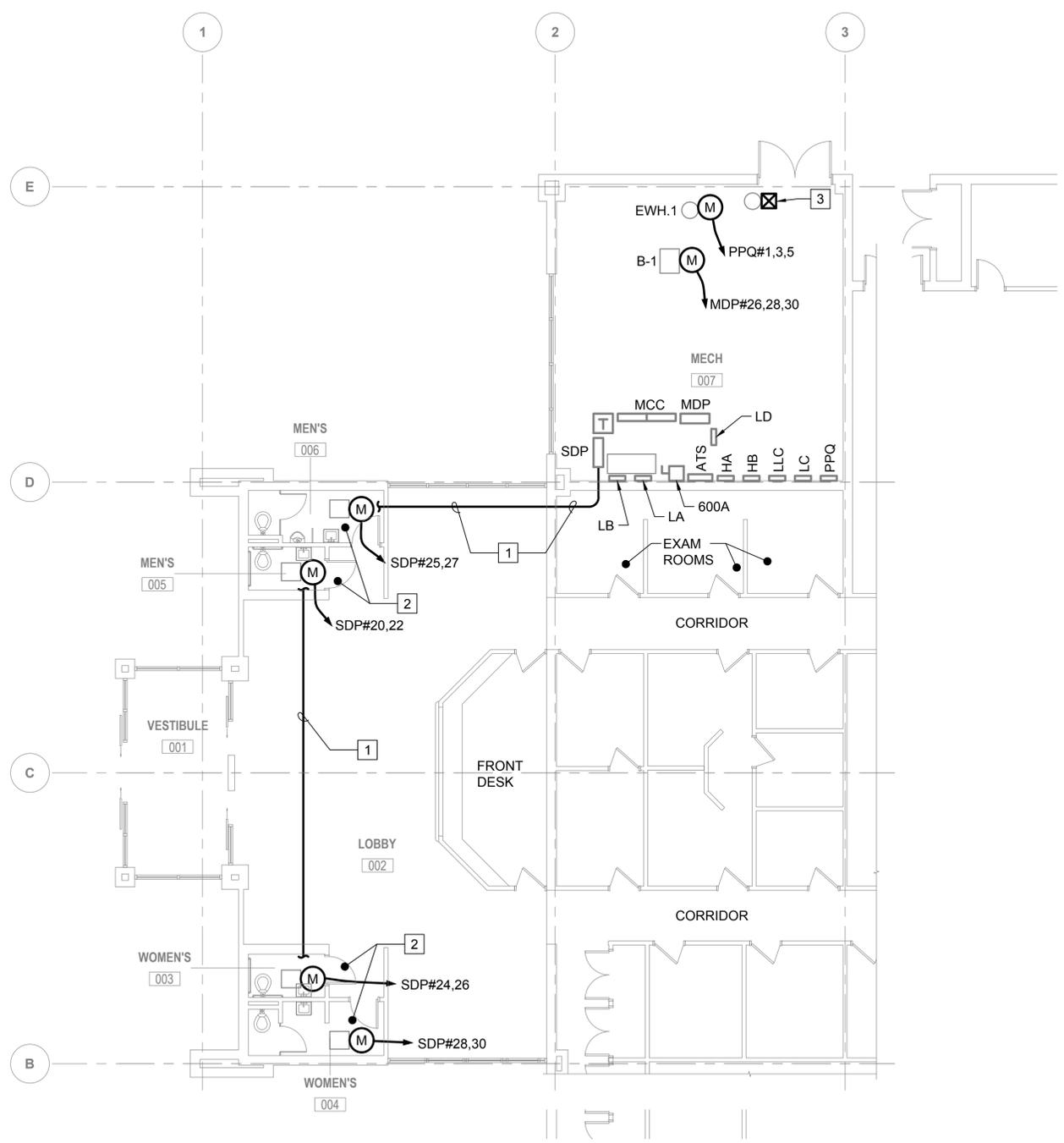
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FILE NAME: I:\NAVFAC\31330\card\elec\BUDG-1365179-173-EP-101.dwg LAYOUT NAME: EP101 PLOTTED: Friday, December 18, 2015 - 1:40pm USER: keleaco



GENERAL NOTES:

- COORDINATE ALL NEW WORK WITH RESPECTIVE TRADES PRIOR TO ROUGH-IN.
- MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH DISCONNECTS, UON.

NEW WORK NOTES:

- APPROXIMATE ROUTING OF NEW FEEDERS FOR CEILING MOUNTED BATHROOM ELECTRIC UNIT HEATERS. EXAM ROOMS AND LOBBY CEILINGS ARE 2'X2' HUNG CEILING. BATHROOM CEILINGS ARE GYPSUM. CONTRACTOR SHALL REMOVE AND REPLACE 2'X2' HUNG CEILING IN CORRIDOR AS REQUIRED TO INSTALL NEW CONDUITS FIRESTOP WALL PENETRATIONS.
- CONTRACTOR SHALL CUT OPEN GYPSUM CEILING IN THE BATHROOMS IN ORDER TO INSTALL CONDUITS FOR NEW ELECTRIC UNIT HEATERS. PROVIDE MINIMUM 24"X24" ACCESS PANEL. PATCH CEILING TO MATCH EXISTING CONDITIONS.
- PROVIDE NEW MANUAL MOTOR STARTER FOR BOILER PUMP. EXTEND BRANCH CIRCUIT AS REQUIRED.

NO.	DATE	DESCRIPTION



ANDREA A. CARABILLO
 No. 11335
 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL
 12/23/15

BURNS & MCDONNELL
 1305 EXECUTIVE BLVD.
 SUITE 160
 CHESAPEAKE, VA 23321
 757-548-2056

APPROVED	DATE
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO	DATE
DES: AAC	DRW: KD
CHK: JMR	
FM	
BRANCH MANAGER	
CHIEF ENG/ARCH	

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING COMMAND - MIDLANT
 NEWPORT, RHODE ISLAND
 NAVAL STATION NEWPORT
 NEWPORT, RHODE ISLAND
B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS
 PARTIAL GROUND FLOOR - POWER PLAN

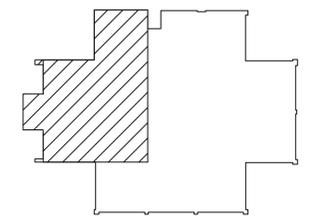
SCALE:	AS NOTED
PROJECT NO.:	1365179
CONSTR. CONTR. NO.:	N40085-14-D-5227-0005
NAVSTA DRAWING NO.:	43186-399
NAVFAC DRAWING NO.:	12711811
SHEET	11 OF 12
EP101	



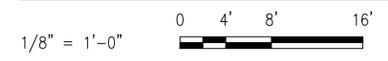
PARTIAL GROUND FLOOR - POWER PLAN

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

KEYPLAN



GRAPHIC SCALE:



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D

EXISTING PANELBOARD 'PPQ' SCHEDULE

100 A. MLO, 480Y/277 V., 3 PHASE, 4 WIRE, 14 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (AMPS)			BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE			CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (AMPS)			LOAD SERVED
	A	B	C				A	B	C				A	B	C	
EWH-1 MECHANICAL ROOM	28.9			40	3#8, 1#10G-3/4"	1	~	~	~	2	100				(E) SPARE	
	28.9					3	~	~	~	4						
		28.9				5	~	~	~	6						
(E) SPARE				20		7	~	~	~	8	100				(E) SPARE	
						9	~	~	~	10						
						11	~	~	~	12						
(E) SPARE				20		13	~	~	~	14	20				(E) HEAT PUMP (P-4) MECHANICAL ROOM	
						15	~	~	~	16						
						17	~	~	~	18						
(E) SPARE				20		19	~	~	~	20	20				(E) HEAT PUMP (P-3) MECHANICAL ROOM	
						21	~	~	~	22						
						23	~	~	~	24						
(E) SPARE				30		25	~	~	~	26	60				(E) SPARE	
						27	~	~	~	28						
						29	~	~	~	30						
TOTAL															TOTAL	
NEW CONNECTED AMPS A: 28.9 B: 28.9 C: 28.9																

- # NEW WORK NOTES:
- REPLACE (1) EXISTING 3P-60A CB WITH (1) NEW 3P-100A CB TO MATCH EXISTING IN TYPE AND AIC RATING.
 - REPLACE ONE (1) SPARE 3P-20A CB WITH NEW 3P-40A CB TO MATCH EXISTING IN TYPE AND AIC RATING.
 - POSITION #9, REPLACE (1) 2P-50A CB WITH (1) NEW 2P-30A CB. POSITIONS #8 & #10, REPLACE (1) 2P-50A CB, (1) SPACE AND (1) 3P-30A CB WITH (3) 2P-30A CBS. ALL NEW CBS SHALL MATCH EXISTING IN TYPE AND AIC RATING.

EXISTING DISRTIBUTION BOARD 'SDP' SCHEDULE

600 A. MCB, 208Y/120 V., 3 PHASE, 4 WIRE, 65 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (AMPS)			BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE			CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (AMPS)			LOAD SERVED
	A	B	C				A	B	C				A	B	C	
(E) PANEL 'PP2'				100		1	~	~	~	2	100				(E) SPACE	
						3	~	~	~	4						
						5	~	~	~	6						
(E) SPARE				60		7	~	~	~	8	100				(E) PANEL LD	
						9	~	~	~	10						
						11	~	~	~	12						
(E) SPARE				60		13	~	~	~	14	60				(E) SPARE	
						15	~	~	~	16						
						17	~	~	~	18						
(E) SPARE				30		19	~	~	~	20	30	16.7			EUH - MEN'S 005	
						21	~	~	~	22		2#10, 1#10G-1/2"	16.7			
						23	~	~	~	24		2#10, 1#10G-1/2"	16.7			
EUH - MEN'S 006	16.7			30	2#10, 1#10G-1/2"	25	~	~	~	26	30	16.7			EUH - WOMEN'S 003	
		16.7				27	~	~	~	28		2#10, 1#10G-1/2"	16.7			
						29	~	~	~	30		2#10, 1#10G-1/2"	16.7			
(E) SPACE				225		31	~	~	~	32	225				(E) SPACE	
						33	~	~	~	34						
						35	~	~	~	36						
(E) PANEL PPC (TO BE VERIFIED)				125		37	~	~	~	38	150				(E) PANEL LA	
						39	~	~	~	40						
						41	~	~	~	42						
(E) PANEL PPP (TO BE VERIFIED)				125		43	~	~	~	44	150				(E) PANEL LB	
						45	~	~	~	46						
						47	~	~	~	48						
TOTAL															TOTAL	
NEW CONNECTED AMPS A: 50.0 B: 50.0 C: 33.4																

EXISTING MAIN DISRTIBUTION BOARD 'MDP' SCHEDULE

800 A. MCB, 480Y/277 V., 3 PHASE, 4 WIRE, 50 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (AMPS)			BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE			CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (AMPS)			LOAD SERVED
	A	B	C				A	B	C				A	B	C	
(E) 150KVA TRANSFORMER				225		1	~	~	~	2	225				(E) PANEL HA	
						3	~	~	~	4						
						5	~	~	~	6						
(E) CHILLER				200		7	~	~	~	8	150				(E) SPARE	
						9	~	~	~	10						
						11	~	~	~	12						
(E) PANEL HB				100		13	~	~	~	14	100				(E) PANEL PPQ	
						15	~	~	~	16						
						17	~	~	~	18						
(E) SPARE				80		19	~	~	~	20	60				(E) SPARE	
						21	~	~	~	22						
						23	~	~	~	24						
(E) SPARE				60		25	~	~	~	26	100	72.2			BOILER 'B-1' MECHANICAL ROOM	
						27	~	~	~	28		3#1, 1#8G-1 1/4"	72.2			
						29	~	~	~	30			72.2			
(E) SPARE				50		31	~	~	~	32	30				(E) AHU VFD	
						33	~	~	~	34						
						35	~	~	~	36						
(E) AHU VFD				30		37	~	~	~	38	30				(E) SPACE	
						39	~	~	~	40						
						41	~	~	~	42						
(E) SPARE				300		43	~	~	~	44	300				(E) MCC	
						45	~	~	~	46						
						47	~	~	~	48						
TOTAL															TOTAL	
NEW CONNECTED AMPS A: 72.2 B: 72.2 C: 72.2																

	
	
APPROVED: _____ DATE: _____ FOR COMMANDER NAVFAC: _____ ACTIVITY: _____ SATISFACTORY TO: _____ DATE: _____ DES: AAC DRW: KD CHK: JMR FM: _____ BRANCH MANAGER: _____ CHIEF ENG/ARCH: _____	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND FT-NEWPORT NAVAL STATION NEWPORT NEWPORT, RHODE ISLAND B1173 NEW BATHROOMS HEATERS AND MECHANICAL ROOM REPAIRS SCHEDULES	
SCALE: AS NOTED PROJECT NO.: 1365179 CONSTR. CONTR. NO.: N40085-14-D-5227-0005 NAVSTA DRAWING NO.: 43187-399 NAVFAC DRAWING NO.: 12711812 SHEET 12 OF 12 EP601 <small>DRAWING REVISION: 10 MAY 2014</small>	

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FILE NAME: I:\NAVFAC\31390\card\elec\EP601-1365179-1173-EP-601.dwg LAYOUT NAME: EP601 PLOTTED: Friday, December 18, 2015 - 1:40pm USER: keleaco