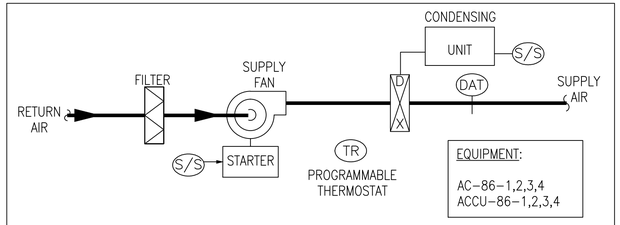


GENERAL

1. THE EQUIPMENT IS STARTED AND STOPPED VIA DCC THERMOSTAT. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER.

OFF

1. SF DEENERGIZED
2. ACCU DEENERGIZED

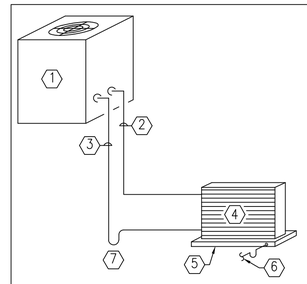
UNOCCUPIED COOLING CONTROL

1. SF ENERGIZED
2. ACCU IS STAGED ON TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 80°F(ADJ).
3. DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL LIMIT SUPPLY AIR TO 53°F MINIMUM.

OCCUPIED COOLING CONTROL

1. SF ENERGIZED
2. ACCU IS STAGED ON TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 75°F(ADJ).
3. DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL LIMIT SUPPLY AIR TO 53°F MINIMUM.

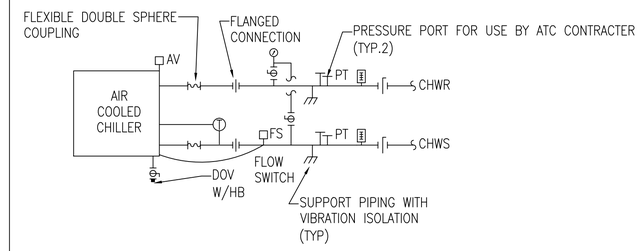
AIR CONDITIONER SEQUENCE OF OPERATION



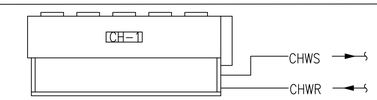
1. CONDENSING UNIT
2. LIQUID LINE
3. INSULATED SUCTION LINE
4. COOLING COIL
5. DRAIN PAN
6. DRAIN LINE-TRAP & ROUTE TO DRAIN OR CONDENSATE PUMP
7. TRAP

NOTE:
1. PIPE SIZES, CONTROL EQUIPMENT AND TRAPS AS REQUIRED BY UNIT MANUFACTURER (SUBMIT IN SHOP DRAWING).

REFRIGERANT PIPING SMALL COMPONENT SCHEMATIC



AIR COOLED CHILLER PIPING DETAIL



GENERAL:

- PACKAGED CHILLER IS MONITORED AND ON/OFF CONTROLLED BY THE NEW NIAGARA BUILDING DDC SYSTEM

OFF MODE:

- PACKAGED CHILLER IS DE-ENERGIZED

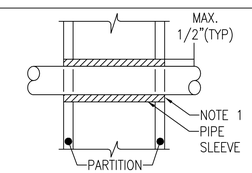
ON MODE:

- CHILLED WATER PUMPS ARE ENERGIZED AND FLOW ESTABLISHED
- PACKAGED CHILLER IS ENERGIZED
- SCROLL COMPRESSORS STAGE ON TO MAINTAIN DISCHARGE WATER TEMPERATURE OF 44°F (ADJ.)

ALARMS:

- PUMP FAILURE SENDS SIGNAL TO DDC FRONT END
- GENERAL FAILURE ALARM FROM CHILLER CONTROL PANEL

PACKAGED CHILLER SEQUENCE OF OPERATION



NOTES:
1. AT FIRE RATED PARTITIONS ADD LAYER OF FIRE SAFING INSULATION AROUND PENETRATIONS SO AS TO FILL CAVITY.
2. PIPE PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.
3. CONTRACTOR REPSONSIBLE FOR DETERMINING REQUIRED HOUR RATING TO MATCH EXISTING WALL ASSEMBLY.

PIPE PENETRATIONS

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC	DRW SV	CHK DM	
PM/DM	PETER STOCKLESS		
BRANCH MANAGER	BRUCE LITALIEN		
FEAD/PM&E	AMIN BAHROUR PM&E		
FIRE PROTECTION	X		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD
FY 16 ENERGY PROJECT
TASK 1-B-R-22
BUILDING 86 HVAC CONTROLS & DETAILS

EPROJECT NO.: 1350913

CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703654

SHEET 201 OF 506

M3.3 | 86-15-935

DRAWFORM REVISION: 10 OCTOBER 2014

AIR-COOLED WATER CHILLER SCHEDULE

TAG	LOCATION	MINIMUM CAPACITY (TONS)	EVAPORATOR					REFRIG. TYPE	COMPRESSOR(S)		AMBIENT (°F)	CONDENSER FAN		ELECTRIC SERVICE					WEIGHT (LBS)	DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
			GPM	% GLYCOL	EWT (°F)	LWT (°F)	P.D.(FT.)		QTY.	POWER (KW)	MAX	QTY.	POWER (KW)	MAX kW	MCA (AMP)	MOP (AMP)	V	PH			
CH-86-1	ROOF	70	168	35	54	44	13.4	R-410A	4	72.5	95	6	7.3	80.1	147.8	175	460	3	5,120.8	TRANE CGAM70	SEE NOTES
CH-86-2	ROOF	70	168	35	54	44	13.4	R-410A	4	72.5	95	6	7.3	80.1	147.8	175	460	3	5,120.8	TRANE CGAM70	SEE NOTES

NOTES: 1. PROVIDE WITH BACNET INTERFACE. 2. PROVIDE UNIT CONTROL PANEL WITH MAIN DISCONNECT. 3. PROVIDE WITH LOW-TEMPERATURE PROCESSING. 4. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 5. PROVIDE WITH SEACOAST RATED COATING FOR CONDENSER COIL.

INDOOR AIR CONDITIONER SCHEDULE

INDOOR UNIT															
TAG NO.	LOCATION	ASSOCIATED OUTDOOR UNIT	TYPE	COOLING DATA				FAN DATA	ELECTRICAL DATA				DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
				TOTAL MBH	INDOOR TEMP.		OUTDOOR TEMP. DB(°F)	CFM	V	PH	Hz	MCA		
					DB(°F)	WB(°F)								
AC-86-1	BUILDING 86	ACCU-86-1	CEILING	24	75	63	85	420-640	208	1	60	1	MITSUBISHI PLA-A24BA6	SEE NOTES
AC-86-2	BUILDING 86	ACCU-86-2	CEILING	24	75	63	85	420-640	208	1	60	1	MITSUBISHI PLA-A24BA6	SEE NOTES
AC-86-3	BUILDING 86	ACCU-86-3	CEILING	24	75	63	85	420-640	208	1	60	1	MITSUBISHI PLA-A24BA6	SEE NOTES
AC-86-4	BUILDING 86	ACCU-86-4	WALL	12	75	63	85	320-425	208	1	60	1	MITSUBISHI PKA-A12HA6	SEE NOTES

NOTES: 1. PROVIDE WITH CONDENSATE PUMP. 2. PROVIDE WITH BACNET INTERFACE. 3. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.

AIR COOLED CONDENSING UNIT SCHEDULE

TAG	SERVES	DESIGN BASED ON MANUFACTURER	DESIGN BASED ON MODEL No.	COOLING DATA	ELECTRIC DATA						NOTES
				COOLING (MBH)	V	HZ	PHASE	FLA	MCA	MOCP	
ACCU-86-1	BLDG-86	MITSUBISHI	PUY-A24NHA6-BS	24	208	60	1	0.51	18	30	SEE NOTES
ACCU-86-2	BLDG-86	MITSUBISHI	PUY-A24NHA6-BS	24	208	60	1	0.51	18	30	SEE NOTES
ACCU-86-3	BLDG-86	MITSUBISHI	PUY-A24NHA6-BS	24	208	60	1	0.51	18	30	SEE NOTES
ACCU-86-4	BLDG-86	MITSUBISHI	PUY-A12NHA6-BS	12	208	60	1	0.35	13	20	SEE NOTES

NOTES: 1. PROVIDE WITH BACNET INTERFACE. 2. PROVIDE UNIT CONTROL PANEL WITH MAIN DISCONNECT. 3. PROVIDE WITH SEACOAST MODEL. 4. PROVIDE WITH LOW AMBIENT COOLING. 5. PROVIDE WITH WIND BAFFLE. 6. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.

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2	90% SUBMISSION	06/04/2015	DM
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SEAL

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CONTRACT NO. N40085-10-D-1100 TASK NO. 2011-0138 DRAWING NO. M4.0

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APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC	DRW SV	CHK DM	
PM/DM	PETER STOCKLESS		
BRANCH MANAGER	BRUCE LITALIEN		
FEAD/PM&E	AMIN BAHROUR PM&E		
FIRE PROTECTION	X		

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NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD
FY 16 ENERGY PROJECT
TASK 1-B-R-22
BUILDING 86 HVAC SCHEDULES

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703655

SHEET 202 OF 506

M4.0 | 86-15-936

DRAWFORM REVISION: 10 OCTOBER 2014

WARNING

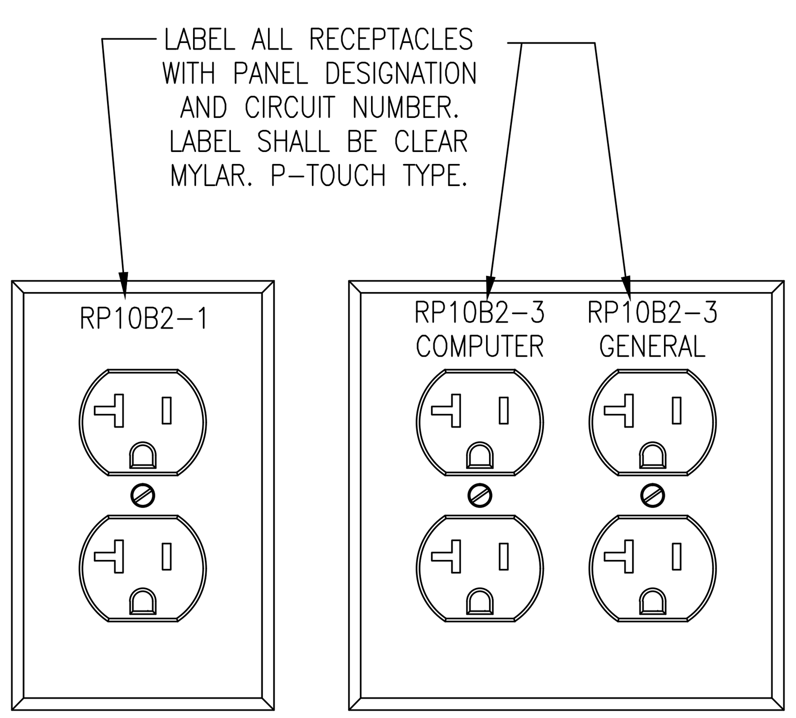
ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

EQUIPMENT TYPE:	
GROUNDING:	Y/N GROUNDED
WORK DISTANCE:	INCHES
AVAILABLE 3ϕ BOLTED CURRENT:	kA
FLASH PROTECTION BOUNDARY:	INCHES
INCIDENT ENERGY AT 23 INCHES:	cal/cm²
PPE LEVEL:	4
DATE:	xx/xx/xxxx

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

TYPICAL FLASH PROTECTION WARNING LABEL



RECEPTACLE LABEL REQUIREMENTS

3"

1"

PANEL PP1
225A 208Y/120V
FED FROM MDP

NOTES:

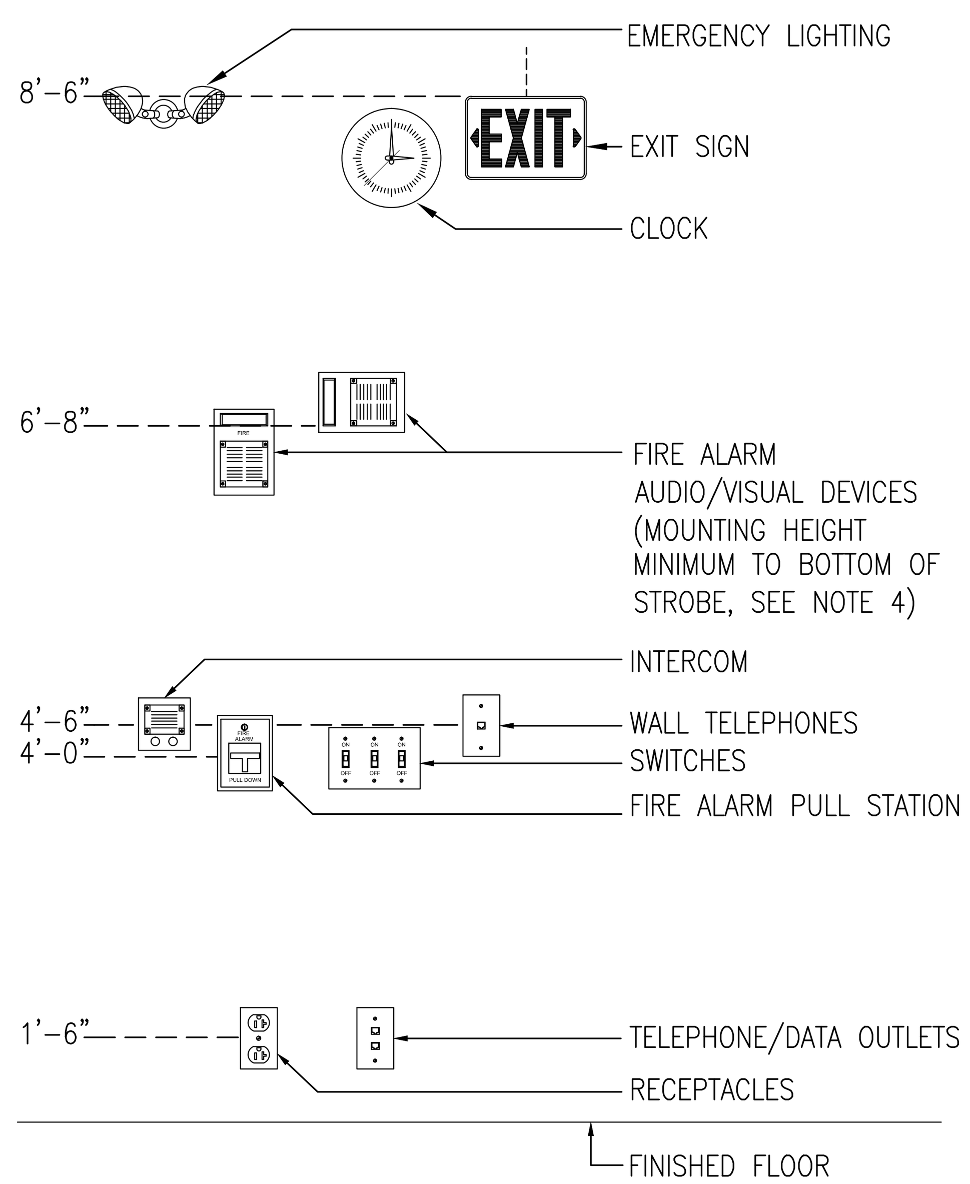
1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
4. TYPICAL FOR "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

TYPICAL NAMEPLATE DETAIL

ELECTRIC SYSTEM TAGS OR CALL OUT SYMBOLS

SYMBOL

- EQUIPMENT SYMBOLS (REFER TO EQUIPMENT SCHEDULES)
- EUH — EQUIPMENT DESIGNATION
- # — EQUIPMENT REFERENCE NUMBER (TYP)
- # — NEW WORK NOTE TAG
- # — DEMOLITION NOTE TAG



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. STROBE HEIGHT ILLUSTRATED AT MAXIMUM HEIGHT. STROBE SHALL BE 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL

BRANCH CIRCUIT & FEEDER LEGEND

SYMBOL	DESCRIPTION
———	BRANCH CIRCUIT OR FEEDER, CONCEALED IN FINISHED AREAS
— — —	BRANCH CIRCUIT OR FEEDER, CONCEALED IN OR UNDER SLAB
PP1-(X) / PP1-(X)	BRANCH CIRCUIT HOME RUN. TYPICAL 2#12 & 1#12G IN ¾"C MINIMUM. PP1-(1) INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.

ELECTRIC ABBREVIATIONS

A/AMP	AMPERE	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICAN WITH DISABILITIES ACT	MEC	MASSACHUSETTS ELECTRIC CODE
AF	AMPERE FRAME	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AT	AMPERE TRIP	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWTICH	#	NUMBER
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	PWR	POWER
CATV	CABLE TELEVISION	RGS	RIGID GALVANIZED STEEL
CCTV	CLOSED CIRCUIT TELEVISION	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	TEL	TELEPHONE
CKT	CIRCUIT	TERM	TERMINAL
℄	CENTERLINE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DWG	DRAWING	TSP	TWISTED SHIELDED PAIR
EC	ELECTRICAL CONTRACTOR	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UNO	UNLESS OTHERWISE NOTED
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	UPS	UNINTERRUPTIBLE POWER SUPPLY
GFI	GROUND FAULT INTERRUPTING	UTP	UNSHIELDED TWISTED PAIR
GND	GROUND	V	VOLT
HH	HANDHOLE	VA	VOLT AMPERE
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	W	WATT
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND		
KVA	KILOVOLT – AMPERE		
KW	KILOWATT		

MOTOR & CONTROLS LEGEND

SYMBOL	DESCRIPTION
S_M	MANUAL MOTOR STARTING SWITCH WITH THERMAL OVERLOAD PROTECTION
⊠	MAGNETIC MOTOR STARTER, REFER TO MAGNETIC MOTOR STARTER AND VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE
60AS/50AF	COMBINATION FUSED DISCONNECT MAGNETIC MOTOR STARTER. REFER TO MAGNETIC MOTOR STARTER AND VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE "60AS" – INDICATES 60AMP SWITCH "50AF" – INDICATES 50AMP FUSES
CP	EQUIPMENT CONTROL PANEL
VFD	VARIABLE SPEED DRIVE
2	MOTOR, NUMERAL INDICATES HORSEPOWER "2" – INDICATES HORSEPOWER RATING
30AS 3R	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" – INDICATES NEMA TYPE 3R ENCLOSURE "30AS" – INDICATES 30AMP SWITCH
30AS/15AF 3R	FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" – INDICATES NEMA TYPE 3R ENCLOSURE "30AS" – INDICATES 30AMP SWITCH "15AF" – INDICATES 15AMP FUSES

POWER DISTRIBUTION LEGEND

SYMBOL	DESCRIPTION
▬	208Y/120 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
▨	480Y/277 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
T	DRY TYPE TRANSFORMER
Ⓜ	CUSTOMER METER
Ⓜ	UTILITY METER AND SOCKET

WIRING DEVICES

SYMBOL	DESCRIPTION
# GFI	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "#" – INDICATES CIRCUIT NUMBER "WP" – INDICATES WEATHERPROOF "C" – INDICATES COUNTER HEIGHT "GFI" – INDICATES GROUND FAULT INTERRUPTER

EXISTING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
XM	EXISTING EQUIPMENT TO REMAIN
XR	EXISTING EQUIPMENT TO BE REMOVED
☐	EXISTING EQUIPMENT TO REMAIN FOR INFORMATION ONLY – (XM) INDICATED BY SYMBOL WITH LIGHT OUT OF FUNCTION LINE TYPE
☐	EXISTING EQUIPMENT TO BE REWORKED – (XN, XL, XE, XR) INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

ELECTRIC GENERAL NOTES

1. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF WORK. DAMAGE SHALL INCLUDE BUT NOT LIMITED TO THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
3. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINT OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY TRADE CONTRACTOR. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED AS SPARE.
4. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE OR TURNED OVER TO OWNER. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
5. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. CIRCUITRY HAS BEEN DETERMINED BASED UPON INFORMATION GATHERED, ASSUMPTIONS, AND INFORMATION OBTAINED FROM NAVFAC. EXACT CIRCUITING, EQUIPMENT SIZES, AND CONDUIT AND WIRING SIZES MAY DIFFER IN THE FIELD FROM WHAT IS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRACING ALL CIRCUITS BEING DEMOLISHED AND REUSED PRIOR TO DISCONNECTING, VERIFYING EXISTING CIRCUITRY AND EQUIPMENT SIZES, AND SHALL SIZE ALL NEW EQUIPMENT AND BRANCH CIRCUITRY ACCORDINGLY IF ACTUAL CONDITIONS DIFFER FROM WHAT IS SHOWN ON THE DRAWINGS. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
6. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
7. THE ELECTRICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
8. ROUTING IS DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ROUTING IN FIELD AND RE-USE EXISTING PENETRATIONS WHERE POSSIBLE.
9. SEE PWD-ME DRAWING NUMBERS;
   - 9.1. 43-15-67 FOR TITLE SHEET
   - 9.2. 43-15-68 FOR LIST OF DRAWINGS
   - 9.3. 43-15-69 FOR GENERAL NOTES & LEGENDS
   - 9.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
   - 9.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
E1.0	BUILDING 86 ELECTRICAL LEGEND
ED2.0E	BUILDING 86 ELECTRICAL BASEMENT FLOOR DEMO PLAN – EAST
ED2.1E	BUILDING 86 ELECTRICAL FIRST FLOOR DEMO PLAN – EAST
ED2.1W	BUILDING 86 ELECTRICAL FIRST FLOOR DEMO PLAN – WEST
ED2.2E	BUILDING 86 ELECTRICAL ROOF DEMO PLAN – EAST
ED2.2W	BUILDING 86 ELECTRICAL ROOF FLOOR DEMO PLAN – WEST
E2.0E	BUILDING 86 ELECTRICAL BASEMENT PLAN – EAST
E2.1E	BUILDING 86 ELECTRICAL FIRST FLOOR PLAN – EAST
E2.1W	BUILDING 86 ELECTRICAL FIRST FLOOR PLAN – WEST
E2.2E	BUILDING 86 ELECTRICAL ROOF PLAN – EAST
E2.2W	BUILDING 86 ELECTRICAL ROOF PLAN – WEST
E3.0	BUILDING 86 ELECTRICAL SCHEDULES

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER

SEAL

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE — NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD — KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL LEGEND

EPROJECT NO.: 1350913

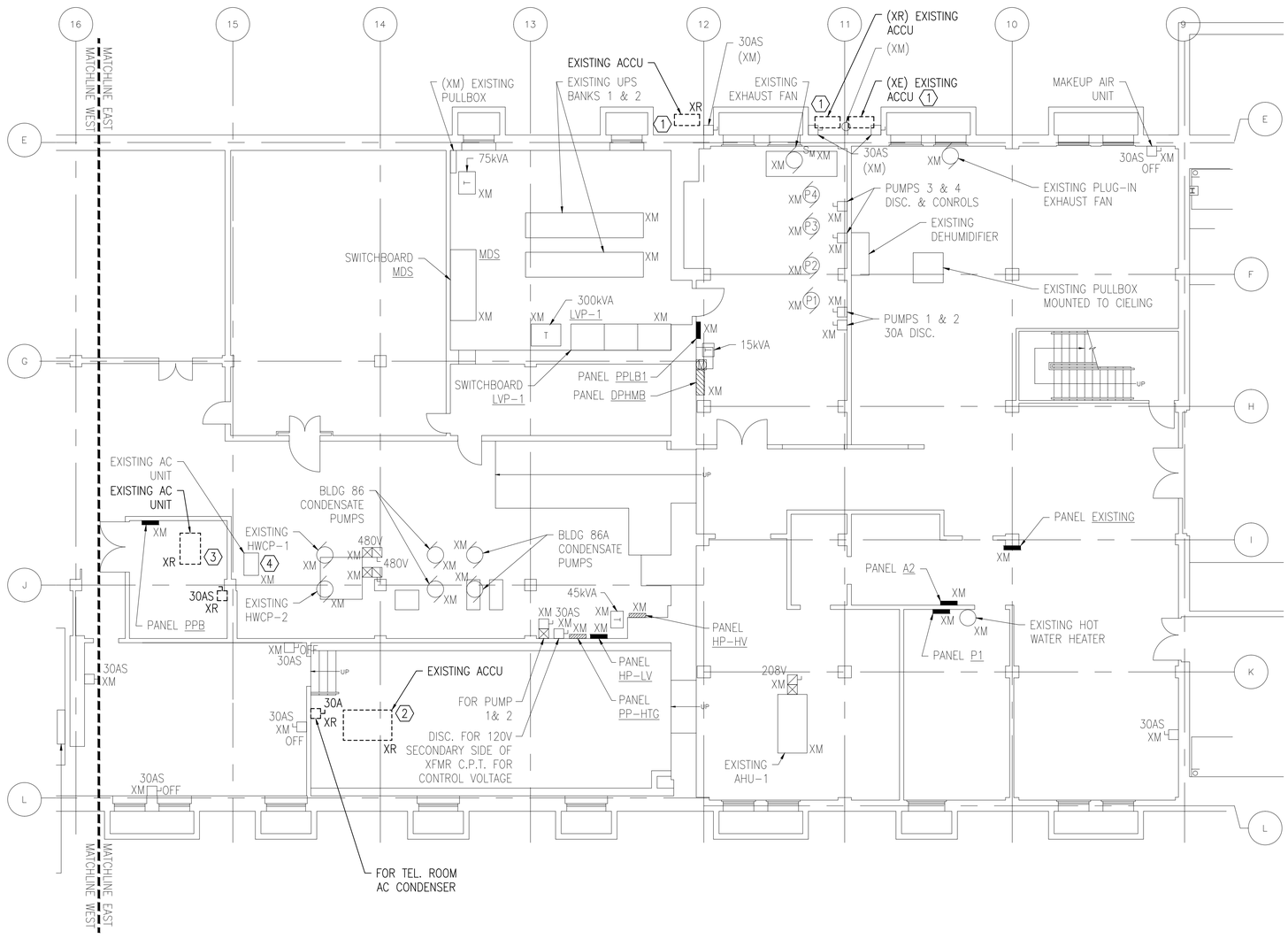
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703656

SHEET 203 OF 506

E1.0 | 86-15-943

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL BASEMENT DEMOLITION FLOOR PLAN - EAST

1/8"=1'-0"

PLAN NORTH

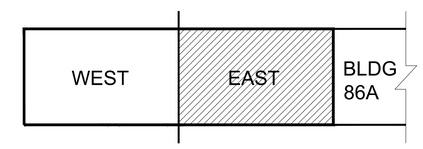
GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
3. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

DEMOLITION KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING UNIT. MAINTAIN ASSOCIATED DISCONNECT FOR REUSE. DEMOLISH ASSOCIATED BRANCH CIRCUITRY AND CIRCUIT BREAKER IN THEIR ENTIRETY.
2. ELECTRICAL CONTRACTOR SHALL CONFIRM IN THE FIELD IF THE EXISTING UNIT IS DISCONNECTED. IF UNIT IS NOT DISCONNECTED, THE CONTRACTOR SHALL DISCONNECT AND MAKE SAFE FOR REMOVAL. DEMOLISH ALL ASSOCIATED BRANCH CIRCUITRY AND DISCONNECT IN THEIR ENTIRETY. MAINTAIN ASSOCIATED CIRCUIT BREAKER AND LABEL AS "SPARE" FOR FUTURE USE.
3. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING UNIT. DEMOLISH ASSOCIATED BRANCH CIRCUITRY AND DISCONNECT IN THEIR ENTIRETY. MAINTAIN EXISTING CIRCUIT BREAKER AND LABEL AS "SPARE" FOR FUTURE USE.
4. EXISTING AC UNIT TO REMAIN.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR.
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
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STATE OF NEW HAMPSHIRE — CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER — SEAL

ENGINEER: CSI ENGINEERING, INC. 999 Bellevue Drive, Ste. 204 Fort Collins, CO 80526 970-232-9888 FIRE PROTECTION: 213 Maintain Ave. Ste. 204 Fort Collins, CO 80521 970-232-9888 — INFO

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ACTIVITY

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FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL BASEMENT
DEMOLITION FLOOR PLAN – EAST

EPROJECT NO.: 1350913

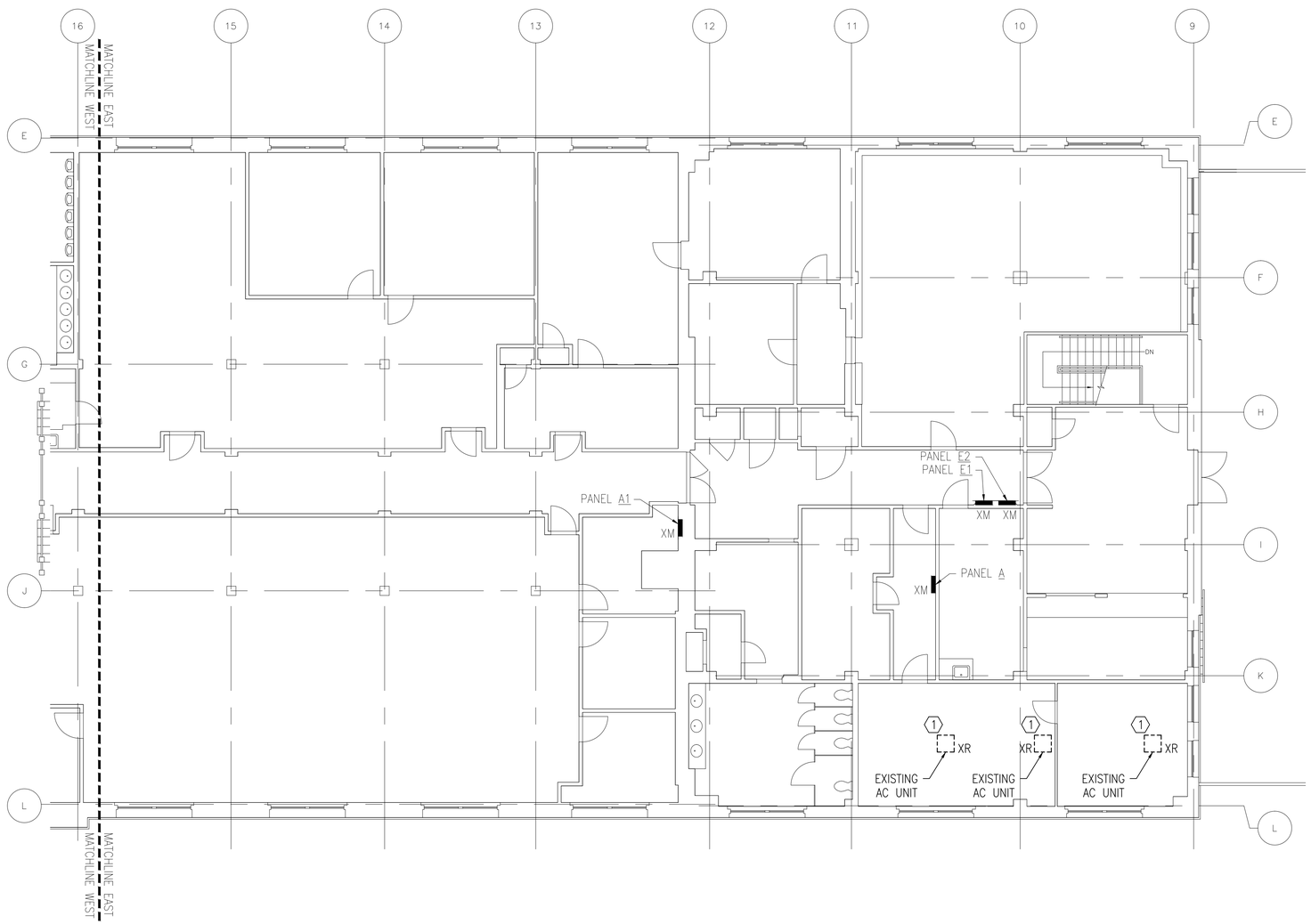
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703657

SHEET 204 OF 506

ED2.0E 86-15-944

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL FIRST FLOOR DEMOLITION PLAN - EAST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
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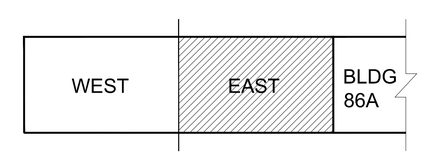
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

DEMOLITION KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING AC UNIT. DEMOLISH ASSOCIATED BRANCH CIRCUITRY AND DISCONNECT IN THEIR ENTIRETY. MAINTAIN EXISTING CIRCUIT BREAKER AND LABEL AS "SPARE" FOR FUTURE USE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

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PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

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FIRE PROTECTION X

DEPARTMENT OF THE NAVY
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NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL FIRST FLOOR DEMOLITION PLAN - EAST

EPROJECT NO.: 1350913

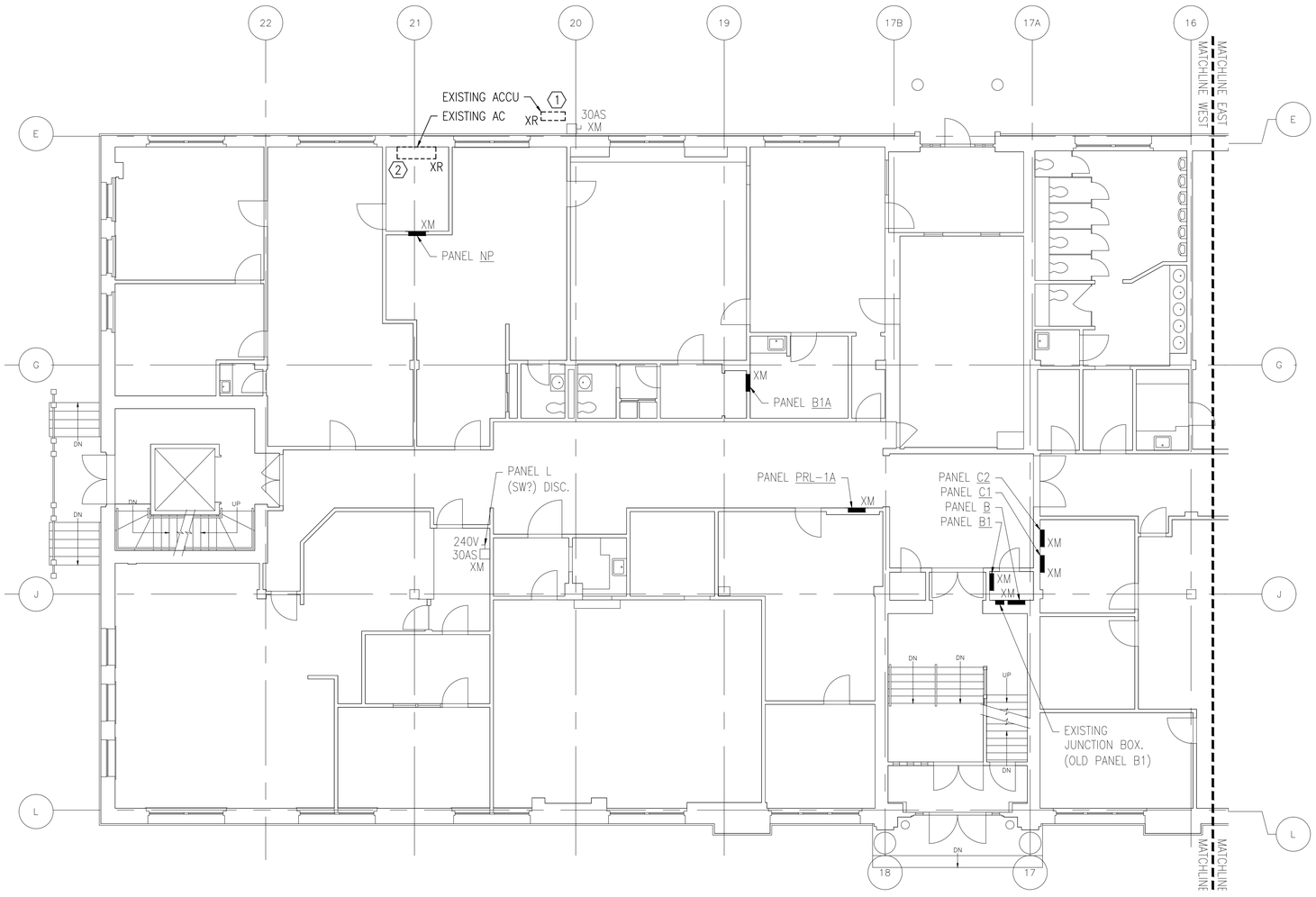
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703658

SHEET 205 OF 506

ED2.1E 86-15-945

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL FIRST FLOOR DEMOLITION PLAN - WEST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
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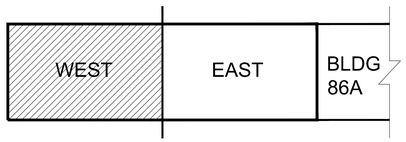
2. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING AC UNIT. DEMOLISH ASSOCIATED BRANCH CIRCUITRY, DISCONNECT, AND CIRCUIT BREAKER IN THEIR ENTIRETY.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
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0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
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401-331-9424
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ACTIVITY
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PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

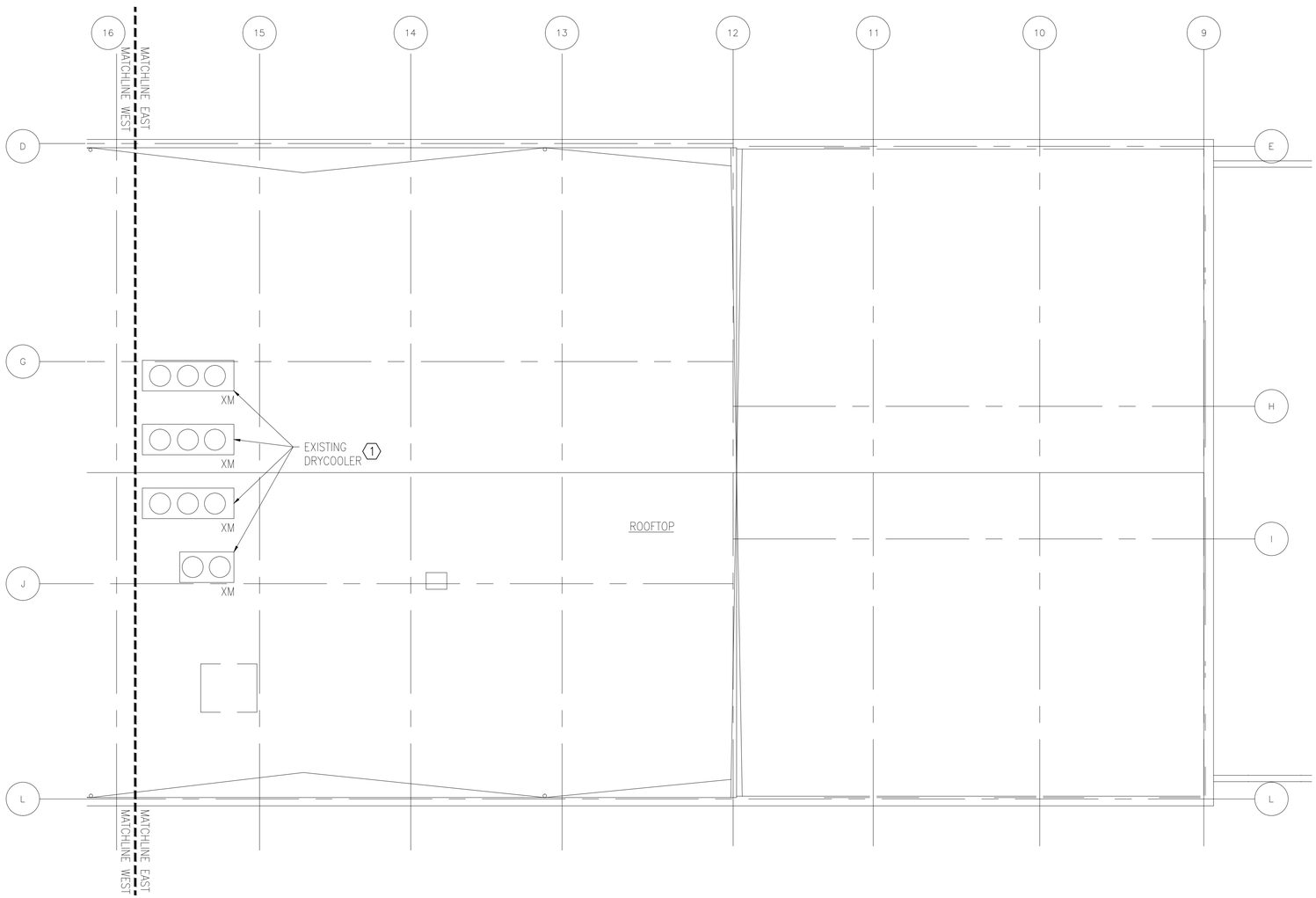
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL FIRST FLOOR DEMOLITION PLAN - WEST

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703659
SHEET 206 OF 506
ED2.1W 86-15-946

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL ROOF DEMOLITION PLAN - EAST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
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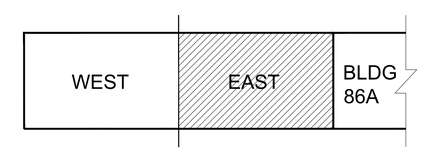
DEMOLITION KEYNOTES

1. EXISTING MECHANICAL EQUIPMENT TO REMAIN.

KEY PLAN



GRAPHIC SCALE

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4	100% SUBMISSION	08/07/2015	DM
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STATE OF NEW HAMPSHIRE
CHARLES E. MACE
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25 AUSTIN AVE, STE 334
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(518) 371-9424
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PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

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FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL ROOF DEMOLITION PLAN – EAST

EPROJECT NO.: 1350913

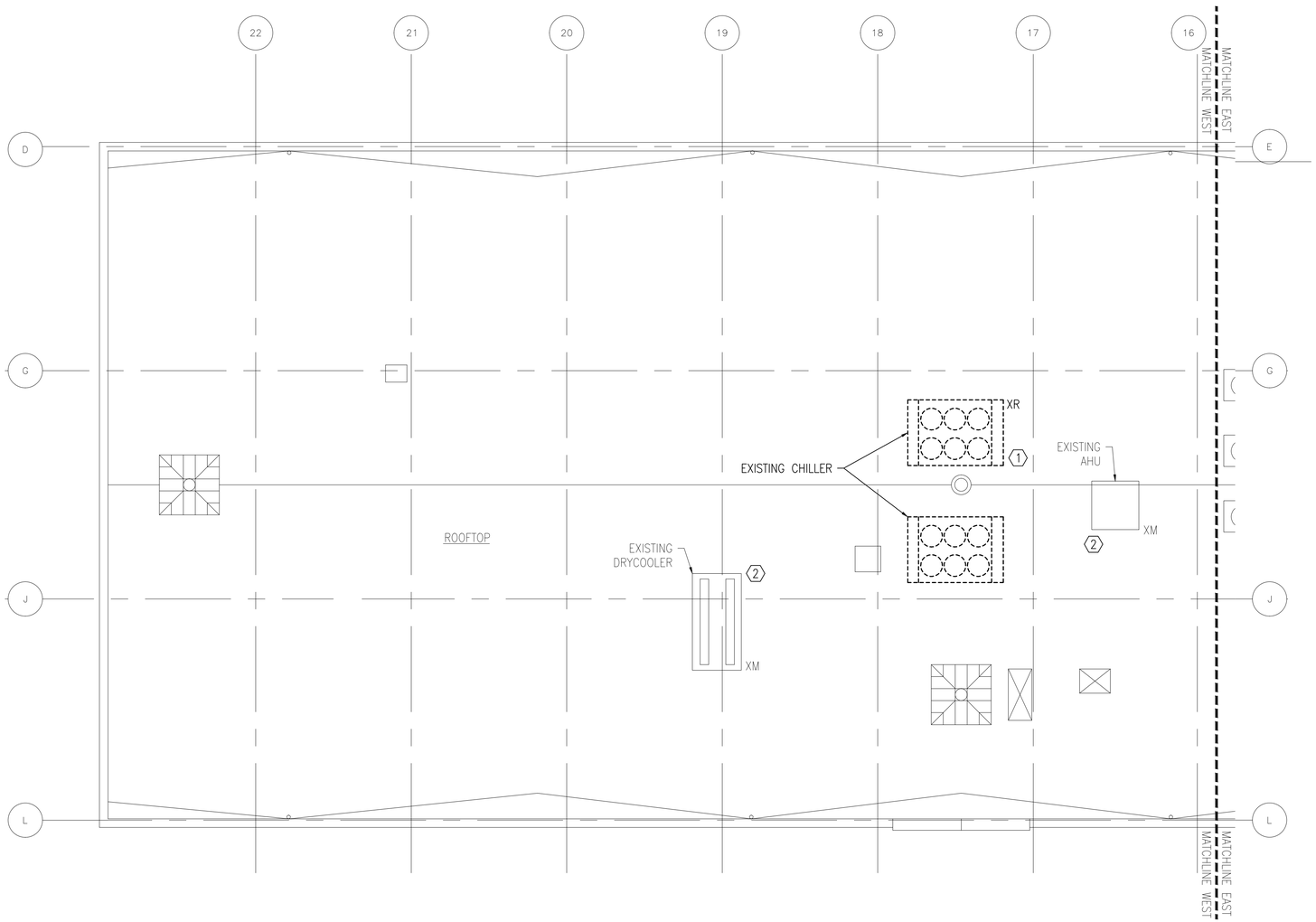
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703660

SHEET 207 OF 506

ED2.2E | 86-15-947

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL ROOF DEMOLITION PLAN - WEST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

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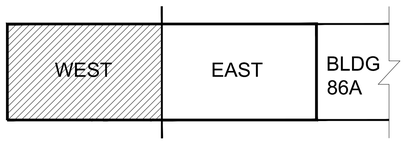
KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

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FIRE PROTECTION: 999 BRICKYARD WAY, STE 204 SAN LUIS OBISPO, CA 93401 805-215-2000

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FIRE PROTECTION X

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PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL ROOF DEMO PLAN - WEST

EPROJECT NO.: 1350913

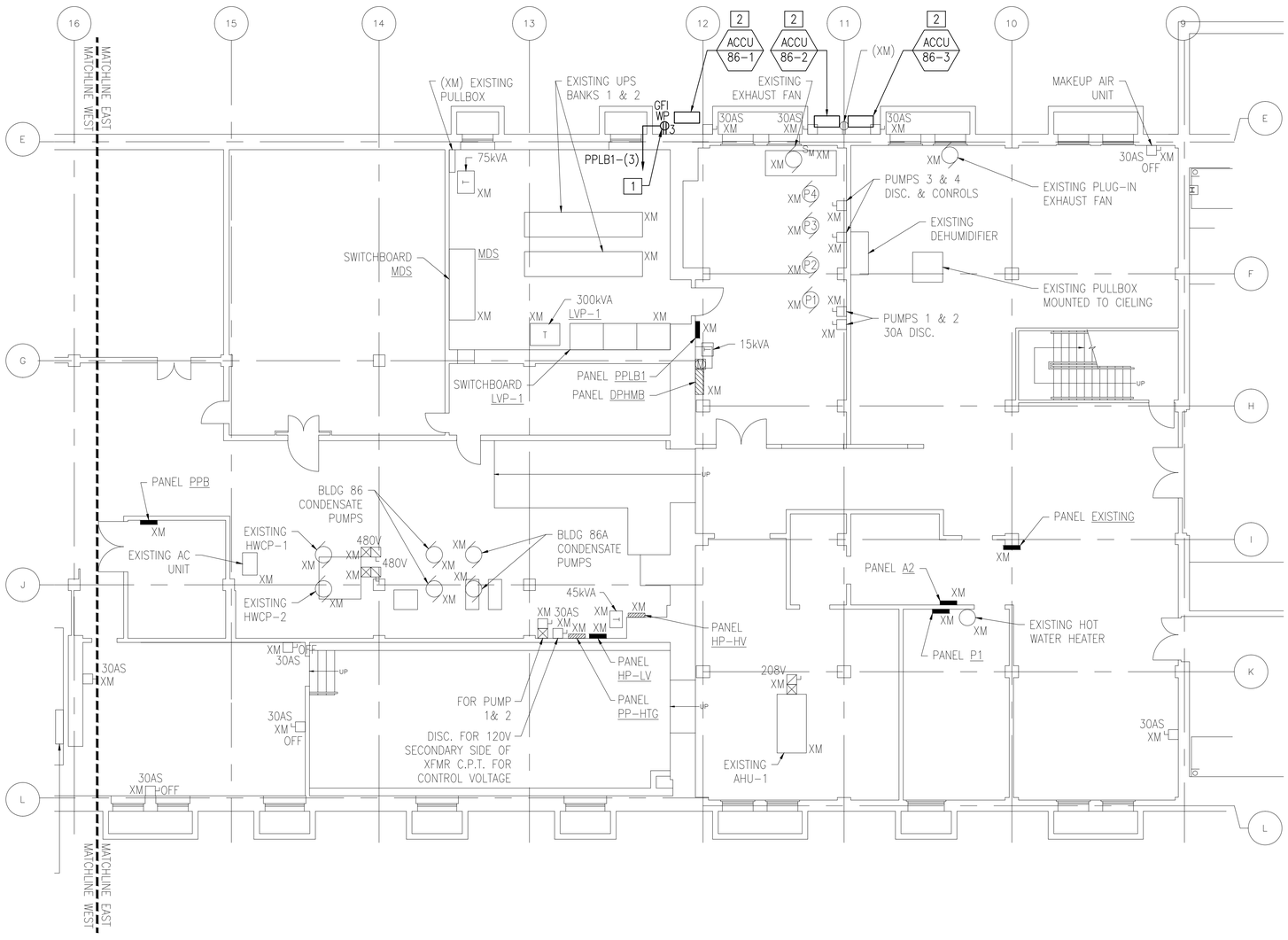
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703661

SHEET 208 OF 506

ED2.2W 86-15-948

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL BASEMENT FLOOR PLAN - EAST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
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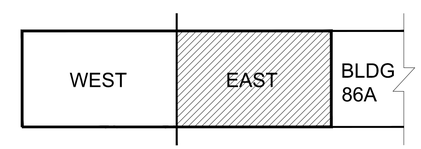
5. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. PROVIDE NEW RECEPTACLE AS SHOWN. REFER TO PANELBOARD SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
2. PROVIDE NEW CIRCUIT BREAKER IN PANEL "A" ON FIRST FLOOR FOR NEW ACCU. REUSE EXISTING DISCONNECT MAINTAINED DURING DEMOLITION. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE — CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER — SEAL

ENGINEER: CSI ENGINEERING, 978-232-9888

FIRE PROTECTION: CSI ENGINEERING, 978-232-9888

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL BASEMENT PLAN – EAST

EPROJECT NO.: 1350913

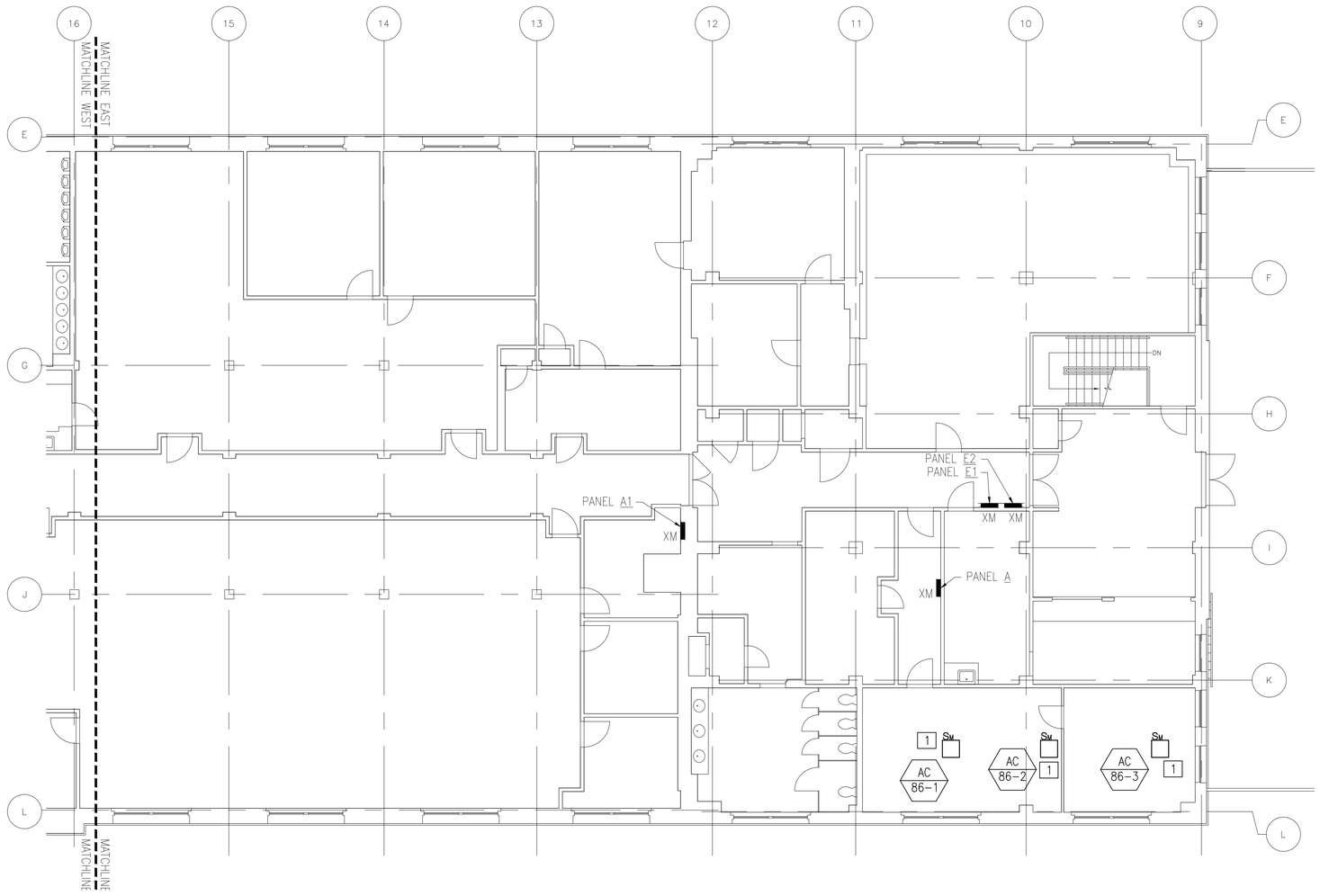
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703662

SHEET 209 OF 506

E2.0E 86-15-949

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL FIRST FLOOR PLAN - EAST
1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
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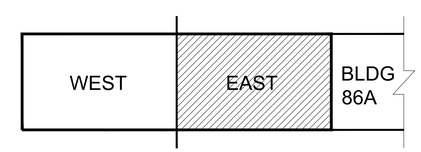
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. NEW AC UNIT IS FED VIA ITS ASSOCIATED CONDENSING UNIT. PROVIDE NEW MOTOR STARTER AT UNIT AS SHOWN. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.

KEY PLAN



GRAPHIC SCALE

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scale feet
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NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

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978-740-2-2-0028
25 SAUNDERS AVE, STE 204
BERWICK, ME 03901
207-641-2000
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APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM	DRW TM	CHK JO
PM/DM	PETER STOCKLESS	
BRANCH MANAGER	BRUCE LITALIEN	
FEAD/PM&E	AMIN BAHROUR PM&E	
FIRE PROTECTION	X	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

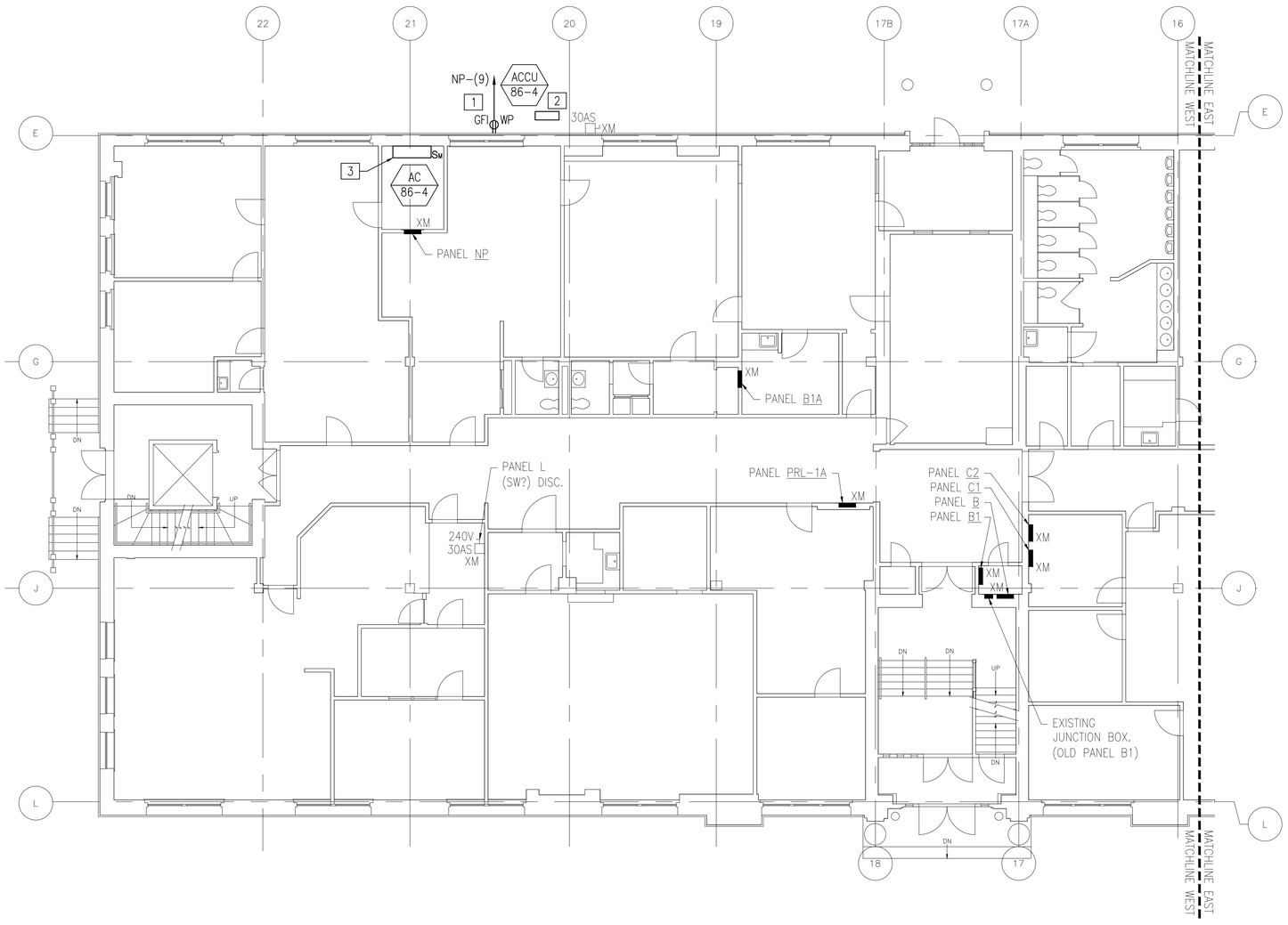
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL FIRST FLOOR PLAN - EAST

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703663
SHEET 210 OF 506
E2.1E 86-15-950

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL FIRST FLOOR PLAN - WEST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
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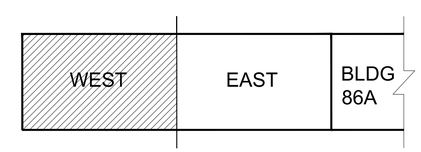
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY IF A RECEPTACLE EXISTS WITHIN 6' OF NEW ACCU. IF NO RECEPTACLE EXISTS, PROVIDE NEW AS SHOWN. REFER TO PANELBOARD SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
2. PROVIDE NEW CIRCUIT BREAKER IN PANEL "NP" FOR NEW CONDENSING UNIT. REUSE EXISTING DISCONENCT MAINTAINED DURING DEMOLITION. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
3. NEW AC UNIT IS FED VIA ITS ASSOCIATED CONDENSING UNIT. PROVIDE NEW MOTOR STARTER AT UNIT AS SHOWN. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.

KEY PLAN



GRAPHIC SCALE

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scale feet
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NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

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PROPRIETARY

CSI DESIGN
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978 BANDMAN BLVD. STE 204
CHARLESTON, SC 29492
TEL: 843-849-8228

A/E INFO
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DEERFIELD, NH 03037
603-437-9424

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL FIRST FLOOR PLAN – WEST

EPROJECT NO.: 1350913

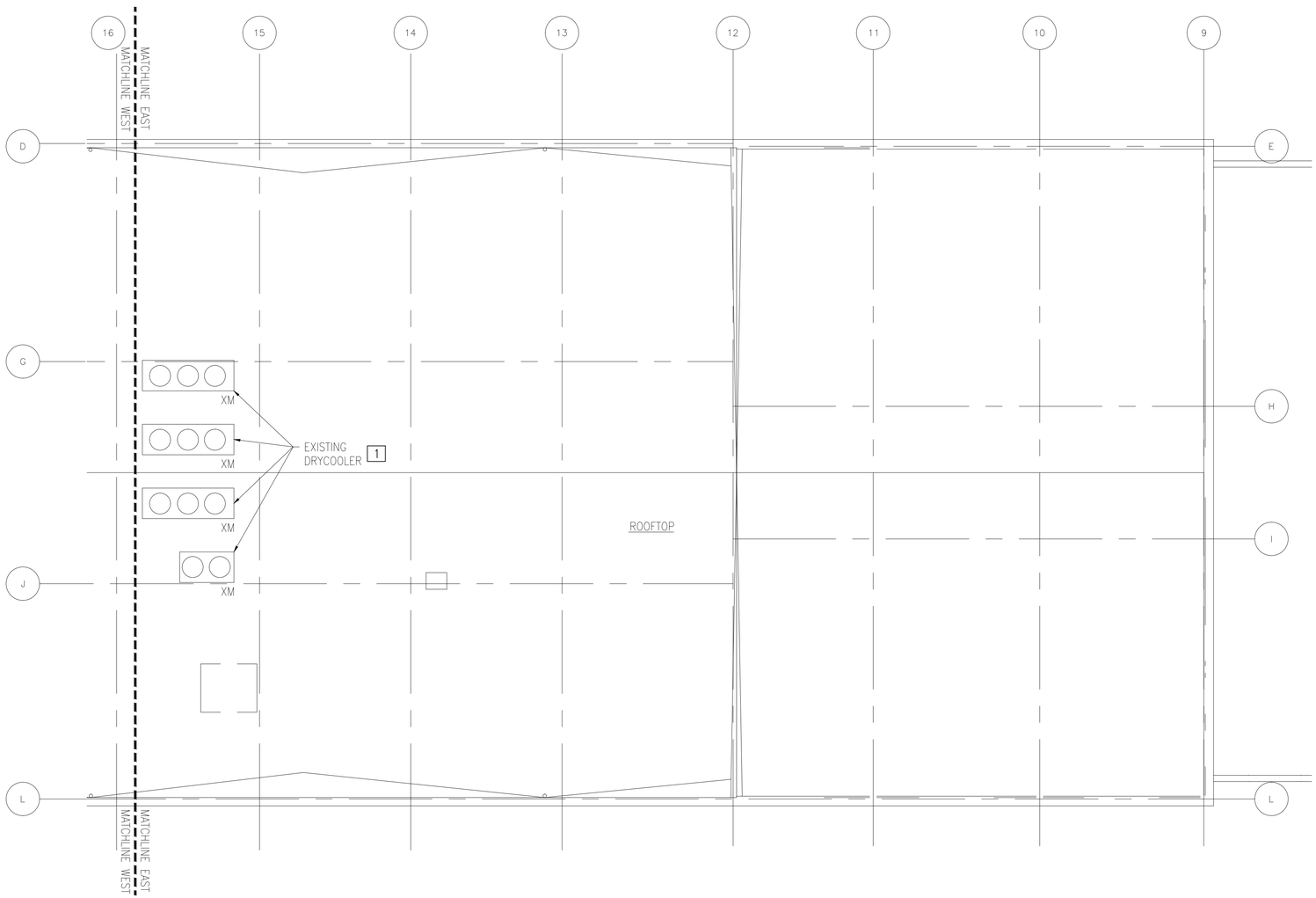
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703664

SHEET 211 OF 506

E2.1W 86-15-951

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL ROOF PLAN - EAST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
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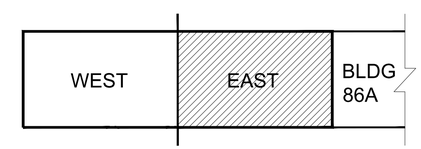
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. EXISTING MECHANICAL EQUIPMENT TO REMAIN.

KEY PLAN



GRAPHIC SCALE

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NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

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ENGINEER OF RECORD
CSI
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(916) 329-8000
CSI ENGINEERING
215 MARTINS AVE, STE 204
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(732) 367-0300
INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL ROOF PLAN – EAST

EPROJECT NO.: 1350913

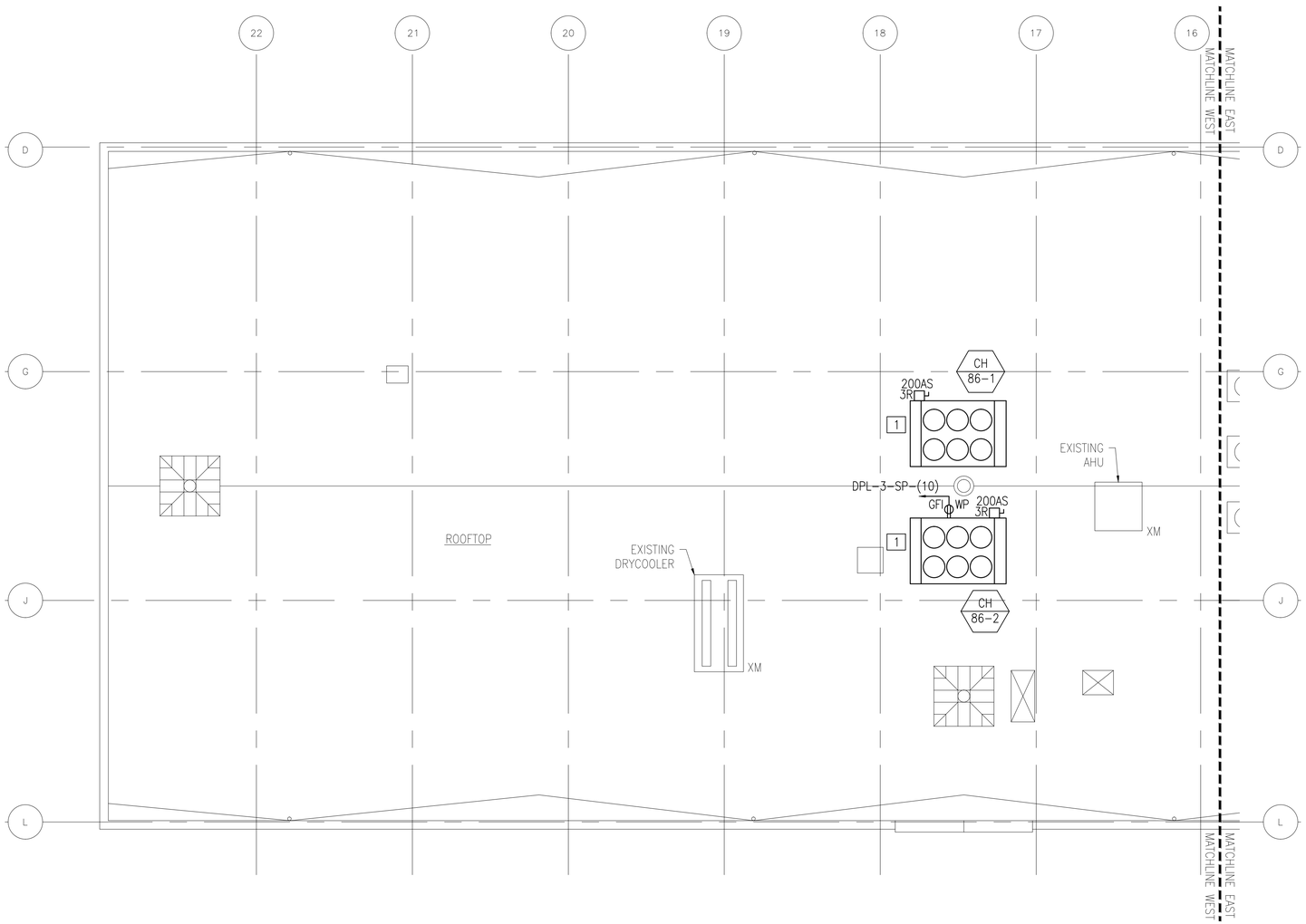
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703665

SHEET 212 OF 506

E2.2E | 86-15-952

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 86 ELECTRICAL ROOF PLAN - WEST

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
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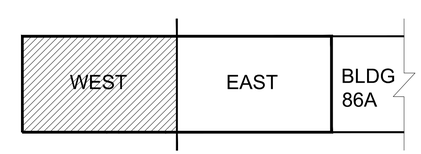
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. PROVIDE NEW CIRCUIT BREAKER IN PANEL "DPHM3" FOR NEW CHILLER. PROVIDE NEW DISCONNECT AS SHOWN. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.

KEY PLAN



GRAPHIC SCALE

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scale feet

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NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

PREPARED BY:
CSI
CONSTRUCTION SPECIFICATIONS, INC.
950 BOSTON POST ROAD, 2ND FLOOR
WILLIAMSBURG, VA 23185
757-253-0026
FIRM NO. C-0101
TYPE OF ENTITY: CORPORATION
CONTACT: JOHN DIMITRIADIS
CODE ID: 2011-0158
CONTRACT NO. N62470-11-D-8001

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86 ELECTRICAL ROOF PLAN – WEST

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703666

SHEET 213 OF 506

E2.2W 86-15-953

DRAWFORM REVISION: 10 OCTOBER 2014

PANELBOARD SCHEDULE

EQUIP TAG	DESCRIPTION	LOAD HP	LOAD KVA	LOAD VOLT	LOAD PH	PANEL SOURCE PANEL	PANEL SOURCE C/B	BRANCH CIRCUIT	CONNECTION FLEX	CONNECTION JB	CONNECTION REC	CONNECTION DISC	NOTES
CH 86-1	CHILLER	–	117.76	460	3	DPHM3-(25)	175A/3P	(3)#2/0 & (1)#6G, 2"C	X			X	NOTE 7
CH 86-2	CHILLER	–	117.76	460	3	DPHM3-(26)	175A/3P	(3)#2/0 & (1)#6G, 2"C	X			X	NOTE 7
ACCU 86-1	CONDENSING UNIT	–	3.74	208	1	A-(11,13)	30A/2P	(3)#10 & (1)#8G, 3/4"C	X			X	NOTE 7
ACCU 86-2	CONDENSING UNIT	–	3.74	208	1	A-(12,14)	30A/2P	(3)#10 & (1)#10G, 3/4"C	X			X	NOTE 7
ACCU 86-3	CONDENSING UNIT	–	3.74	208	1	A-(15,17)	30A/2P	(3)#10 & (1)#10G, 3/4"C	X			X	NOTE 7
ACCU 86-4	CONDENSING UNIT	–	2.7	208	1	NP-(1,3)	20A/2P	(2)#12 & (1)#12G, 3/4"C	X			X	NOTE 7
AC 86-1	AIR CONDITIONING UNIT	–	–	–	–	–	–	(2)#12 & (1)#12G, 3/4"C	X			X	NOTE 8,11
AC 86-2	AIR CONDITIONING UNIT	–	–	–	–	–	–	(2)#12 & (1)#12G, 3/4"C	X			X	NOTE 8,11
AC 86-3	AIR CONDITIONING UNIT	–	–	–	–	–	–	(2)#12 & (1)#12G, 3/4"C	X			X	NOTE 8,11
AC 86-4	AIR CONDITIONING UNIT	–	–	–	–	–	–	(2)#12 & (1)#12G, 3/4"C	X			X	NOTE 8,11

NOTES:

1. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION.
2. "FLEX" – DENOTES FINAL THREE FEET (MAXIMUM) OF RACEWAY SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT METAL CONDUIT.
3. "JB" – JUNCTION BOX DENOTES FINAL CONNECTION TO BOX OR CONTROL PANEL PREWIRED TO THE EQUIPMENT.
4. "REC" – PROVIDE RECEPTACLE IN THE NEMA CONFIGURATION NOTED.
5. NOTES 6–9 ARE OPTIONS WHICH SHALL BE SPECIFICALLY NOTED IN REMARKS FOR INCLUSION.
6. DISCONNECT SHALL BE FUSIBLE.
7. DISCONNECT SHALL BE NEMA "3R"
8. DISCONNECT SHALL BE MOTOR–RATED SWITCH WITH THERMAL OVERLOAD ELEMENT.
9. DISCONNECT PROVIDED INTEGRAL (PREWIRED) TO EQUIPMENT BY OTHERS.
10. INTEGRAL CONVENIENCE RECEPTACLE PROVIDED PREWIRED TO EQUIPMENT BY OTHERS.
11. UNIT IS FED VIA ITS ASSOCIATED CONDENSING UNIT.

PANELBOARD SCHEDULE

PANEL: DPHM3 — VOLTS: 277/ 480 — NEW/EXISTING.: EXISTING
MAIN: MLO — BUS AMPS: 400A — MOUNT.: SURFACE
PH/WIRE: 3ø/4W — AIC: — LOC: BLDG 86 3RD FLOOR ELECTRICAL ROOM

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1										2
3	20/3	SPARE	0	–		–	0	AHU-1	20/3	4
5										6
7										8
9	20/3	EF-1	0	–		–	0	SPARE	100/3	10
11										12
13		SPACE		–		–		SPACE		14
15		SPACE		–		–		SPACE		16
17		SPACE		–		–		SPACE		18
19		SPACE		–		–		SPACE		20
21		SPACE		–		–		SPACE		22
23		SPACE		–		–		SPACE		24
25	175/3	CH-86-1	117.8	1		1	117.8	CH-86-2	175/3	26
			117.8				117.8	TOTAL CONNECTED kVA:	235.60	
								TOTAL CONNECTED AMPERES:	283.72	

NOTES:
1. REMOVE EXISTING CIRCUIT BREAKER AND PROVIDE NEW SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: NP — VOLTS: 120/ 208 — NEW/EXISTING.: EXISTING
MAIN: 60A MCB — BUS AMPS: 125A — MOUNT.: SURFACE
PH/WIRE: 3ø/4W — AIC: — LOC: BLDG 86 1ST FLOOR BSO VAULT

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/2	ACCU-86-4	2.7	1		–	0	REC.	20/1	2
3						–	0	REC.	20/1	4
5	20/1	AC-1	0	–		–	0	LTS	20/1	6
7	20/1	NMCI THIS ROOM	0	–						8
9	30/1	SPARE	0	–		–	0	MAIN	60/3	10
11	20/1	SECURITY SYSTEM	0	–						12
			2.7				0.0	TOTAL CONNECTED kVA:	2.70	
								TOTAL CONNECTED AMPERES:	7.50	

NOTES:
1. REMOVE EXISTING CIRCUIT BREAKER AND PROVIDE NEW SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: A — VOLTS: 120/ 208 — NEW/EXISTING.: EXISTING
MAIN: 100A MCB — BUS AMPS: 250A — MOUNT.: SURFACE
PH/WIRE: 3ø/4W — AIC: — LOC: BLDG 86 1ST FLOOR CODE 1200 CORRIDOR

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	FAX MACHINE	0	–		–	0	OFFICE FURNITURE	20/1	2
3	20/1	REFRIGERATOR	0	–		–	0	OFFICE FURNITURE	20/1	4
5	20/1	MICROWAVE	0	–		–	0	OFFICE FURNITURE	20/1	6
7	20/1	SPARE	0	–		–	0	SPARE	20/1	8
9	20/1	SPARE	0	–		–	0	SPARE	20/1	10
11	30/2	ACCU-86-1	3.7	1		1	3.7	ACCU-86-2	30/2	12
13										14
15	30/2	ACCU-86-3	3.7	1		–		SPACE		16
17						–		SPACE		18
19		SPACE		–		–		SPACE		20
21		SPACE		–		–		SPACE		22
23		SPACE		–		–		SPACE		24
25		SPACE		–		–		SPACE		26
27		SPACE		–		–		SPACE		28
29		SPACE		–		–		SPACE		30
			7.4				3.7	TOTAL CONNECTED kVA:	11.10	
								TOTAL CONNECTED AMPERES:	30.85	

NOTES:
1. PROVIDE NEW CIRCUIT BREAKER SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

SYM	DESCRIPTION	DATE	APPR.
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

SEAL

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 86 ELECTRICAL SCHEDULES

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXXX
NAVFAC DRAWING NO. 12703667
SHEET 214 OF 506

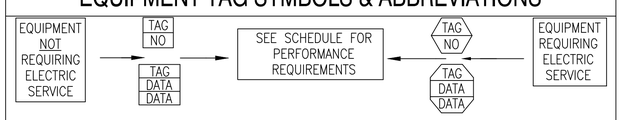
E3.0 86-15-954

DRAWFORM REVISION: 10 OCTOBER 2014

HVAC ABBREVIATIONS

°F	DEGREES FAHRENHEIT	ID	INSIDE DIAMETER
°C	DEGREES CELSIUS	IN	INCHES
ø	DIAMETER	INSUL	INSULATION
ACV	AUTOMATIC CONTROL VALVE	KW	KILOWATT
AD	ACCESS DOOR	KVA	KILOVOLT AMPERE
ADJ	ADJUSTABLE	L	LENGTH
ADDL	ADDITIONAL	LB	POUND
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
AFG	ABOVE FINISHED GRADE	LVG	LEAVING
ALT	ALTERNATE	M	ONE THOUSAND
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPS
AS	AIR SEPARATOR	MCC	MOTOR CONTROL CENTER
AVG	AVERAGE	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BFF	BELOW FINISHED FLOOR	MFR	MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BLDG	BUILDING	MTD	MOUNTED
BLR	BOILER	MU	MAKEUP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
BSMY	BASEMENT	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
C	CONVECTOR	NO.	NUMBER
CF	CEILING FAN	NOM	NOMINAL
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	OB	OCTAVE BAND
CO	CLEAN–OUT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPRESSOR	ODP	OPEN DRIP PROOF
CONC	CONCRETE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION	OFOI	OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR	OV	OUTLET VELOCITY
CORR	CORRIDOR	PCF	POUNDS PER CUBIC FOOT
CUF	CUBIC FEET	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	PH	PHASE
CYL	CYLINDER	PLMB	PLUMBING
D	DRAIN	POS	PROVIDED BY OTHER SECTION(S)
DB	DRY BULB TEMPERATURE	PRESS	PRESSURE
DDC	DIRECT DIGITAL CONTROL	PRIM	PRIMARY
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DIM	DIMENSION	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	REP	REPRESENTATIVE
EA	EACH	RET	RETURN
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EFF	EFFICIENCY	REQS	REQUIREMENTS
ECUH	ELECTRIC CABINET UNIT HEATER	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EMER	EMERGENCY	SCH	SCHEDULE
ENT	ENTERING	SOV	SOLENOID OPERATED VALVE
EQUIP	EQUIPMENT	SPECS	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SQFT	SQUARE FEET
FTR	FINNED TUBE RADIATION	SS	STAINLESS STEEL
FCV	FLOW CONTROL VALVE	STD	STANDARD
FG	FIBERGLASS	STDBY	STANDBY
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	SUCT	SUCTION
FLRDR	FLOOR DRAIN	SUP	SUPPLY
FP	FIRE PROTECTION	TA	THROW–AWAY
FPM	FEET PER MINUTE	TAV	THERMOSTATIC AIR VENT
FT	FEET	TEFC	TOTALLY ENCLOSED FAN COOLED
FT/SEC	FEET PER SECOND	TEL	TELEPHONE
FURN	FURNISHED	TEMP	TEMPERATURE
FVNR	FULL VOLTAGE NON–REVERSING	TOD	TOP OF DUCT
GA	GAUGE	TOP	TOP OF PIPE
GAL	GALLONS	TYP	TYPICAL
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	V	VENT
GND	GROUND	VEL	VELOCITY
GPH	GALLONS PER HOUR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
GRD	GRADE (GROUND LEVEL)	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDTH
H	HEIGHT	W/	WITH
HD	HEAD	W/O	WITHOUT
HP	HORSEPOWER	WB	WET BULB TEMPERATURE
HR	HOUR	WF	WIDE FLANGE
HZ	HERTZ	WG	WATER GAUGE
		WRT	WITH RESPECT TO

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS



NOTE:REFER TO SCHEDULES FOR DEFINITION OF EQUIPMENT SPECIFIC DATA LISTED WITHIN TAG BLOCKS

FLOW DIAGRAM & CONTROL DIAGRAM EQUIP. SYMBOLS

- FILTER BANK
- HEATING COIL
- COOLING COIL
- PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR
- BACKDRAFT DAMPER
- CENTRIFUGAL FAN
- INLINE CENTRIFUGAL FAN
- OPPOSED BLADE DAMPER W/ TWO POSITION ACTUATOR
- OPPOSED BLADE DAMPER W/ MODULATING ACTUATOR
- PARALLEL BLADE DAMPER W/ TWO POSITION ACTUATOR

HVAC SYSTEM TAGS

J
1
JACE BOX

CALL OUT SYMBOLS

- THERMOSTAT
- CONNECT TO EXISTING
- REFER TO DRAWINGS ( ) FOR CONTINUATION
- SYMBOL DESIGNATES ASSOCIATED SYSTEM OR SERVICE (ie LPS)
- DIFFUSER, GRILLE, REGISTER LETTER DESIGNATION (See Schedule for ATD type)
- SA–2 / 200 — DESIGN CFM

AIR SYSTEM SPECIFIC ABBREVIATIONS

AC	AIR CONDITIONING	LVDR	LOUVERED DOOR
ACD	AUTOMATIC CONTROL DAMPER	OA	OUTSIDE AIR
ACU	AIR CONDITIONING UNIT	OAI	OUTSIDE AIR INTAKE
AF	AIR FOIL	OBD	OPPOSED BLADE DAMPER
AHU	AIR HANDLING UNIT	OED	OPEN END DUCT
ALD	ACOUSTICALLY LINED DUCTWORK	RA	RETURN AIR
ATD	AIR TERMINAL DEVICE	RF	RETURN FAN
AVS	AIR VOLUME TRAVERSE STATION	RG	RETURN GRILLE
BDD	BACKDRAFT DAMPER	RHC	REHEAT COIL
BI	BACKWARD INCLINED	RLF	RELIEF
CC	COOLING COIL	RR	RETURN REGISTER
CD	CEILING DIFFUSER	RV	ROOF VENT
CFM	CUBIC FEET PER MINUTE	SA	SUPPLY AIR
CG	CEILING GRILLE	SATT	SOUND ATTENUATOR
DIFF	DIFFUSER	SCR	SCREEN
DWDI	DOUBLE WIDTH DOUBLE INLET	SD	SMOKE DAMPER
DWSI	DOUBLE WIDTH SINGLE INLET	SDET	SMOKE DETECTOR
DX	DIRECT EXPANSION	SEF	SMOKE EXHAUST FAN
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER WITH ACCESS DOOR
ESP	EXTERNAL STATIC PRESSURE		
F	FAN	SG	SUPPLY GRILLE
FC	FORWARD CURVED	SM	SHEETMETAL
FA	FREE AREA	SP	STATIC PRESSURE
FCU	FAN COIL UNIT	SR	SUPPLY REGISTER
FD	FIRE DAMPER (W/ ACCESS DOOR)	SWDI	SINGLE WIDTH DOUBLE INLET
FLTR	FILTER	SWSI	SINGLE WIDTH SINGLE INLET
FPI	FINS PER INCH	TE	TOILET EXHAUST
FPT	FAN POWERED TERMINAL BOX	TF	TRANSFER FAN
GE	GENERAL EXHAUST	TG	TRANSFER GRILLE
GIH	GRAVITY INTAKE HOOD	TR	TRANSFER
GRH	GRAVITY RELIEF HOOD	TSP	TOTAL STATIC PRESSURE
HC	HEATING COIL	UC	UNDERCUT DOOR
LAT	LEAVING AIR TEMPERATURE	VD	VOLUME DAMPER
LD	LINEAR DIFFUSER	VV	VARIABLE VOLUME SUPPLY AIR TERMINAL BOX
LUVR	LOUVER	WMS	WIRE MESH SCREEN

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS–BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS–BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS, AS WELL AS ROUTING PATHS, IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER, AND SHOULD BE KEPT TO A MINIMUM FOR SYSTEM EFFICIENCIES.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. VERIFY ACCESS IS PROVIDED FOR SERVICING EQUIPMENT AS REQUIRED.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
12. INSTALL NEW THERMOSTATS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ENGINEER.
13. GENERAL CONTRACTOR TO PATCH ALL EFFECTED INTERIOR AND EXTERIOR EXISTING FLOOR, WALL, AND CEILING SURFACES TO MATCH EXISTING. PROVIDE ESCUTCHEON PLATES.
14. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
15. ANY AND ALL WALLS, CEILINGS AND FLOORS THAT ARE ANTICIPATED TO BE DISTURBED DURING THE DEMOLITION OR INSTALLATIONS PROCESS, AS INDICATED ON THE DRAWINGS, SHALL BE TESTED FOR HAZARDOUS MATERIALS PRIOR TO DISTURBING THE SURFACES. ROUTING OF PIPING HAS BEEN INDICATED TO DEPICT THE INTENT OF THE WORK. ACTUAL ROUTING MAY DIFFER IN THE FIELD DUE TO BUILDING CONSTRUCTION. COORDINATE TESTING OF ALL SURFACES TO BE DISTURBED, ALONG THE ACTUAL INSTALLATION ROUTE, WITH THE HAZARDOUS MATERIALS CONTRACTOR. REFER TO EXISTING HAZMAT REPORT FOR TESTING RESULTS.
16. MECHANICAL CONTRACTOR TO REMOVE ALL IDENTIFIED R–22 EQUIPMENT AND ASSOCIATED APPURTENANCES AND REPLACE IN KIND WITH A R410A OR R407C SYSTEM.
17. REFRIGERANT PIPING IS DIAGRAMMATIC, CONTRACTOR TO DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS. ANY EXPOSED PIPING TO BE CONCEALED IN A CHASE. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
18. SEE CIVIL DRAWINGS FOR DEMOLISHED AND NEW CONCRETE PADS.
19. THE MECHANICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE MECHANICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
20. SEE PWD–ME DRAWING;
    43–15–67 FOR TITLE SHEET
    43–15–68 FOR LIST OF DRAWINGS
    43–15–69 FOR GENERAL NOTES & LEGENDS
    43–15–72 FOR CHASE AND SOFFIT DETAILS
    43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
M1.0A	BUILDING 86A HVAC LEGEND
MD2.0A	BUILDING 86A HVAC PENTHOUSE DEMOLITION FLOOR PLAN
M2.0A	BUILDING 86A HVAC PENTHOUSE FLOOR PLAN & SCHEDULES
M3.0A	BUILDING 86A HVAC CONTROLS
M3.1A	BUILDING 86A HVAC CONTROLS
M3.2A	BUILDING 86A HVAC CONTROLS

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE — DAVID H. MAHONEY No. 12370 — LICENSED PROFESSIONAL ENGINEER — SEAL

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ENGINEER: CSI ENGINEERING — FIRE PROTECTION — 978 Boston St. Suite 206, Salem, NH 03079, 781-32-3-0035, 6-23-2015, 6-23-2015

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: JC | DRW: SV | CHK: DM

PM/DM: PETER STOCKLESS

BRANCH MANAGER: BRUCE LITALIEN

FEAD/PM&E: AMIN BAHROUR PM&E

FIRE PROTECTION: X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 86A HVAC LEGEND

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085–XX–C–XXXX

NAVFAC DRAWING NO. 12703668

SHEET 215 OF 506

M1.0A | 86-15-937

DRAWFORM REVISION: 10 OCTOBER 2014

SHEET TAKEN OUT OF PROJECT

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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AUTHORIZED CONSULTANT
NAVAL FACILITIES ENGINEERING COMMAND
MAINE, NEW HAMPSHIRE, VERMONT
CONTRACT NO.
N40085-12-D-2010 DO 0010
CONTRACTOR
CSI ENGINEERING
FIRE PROTECTION
999 Bedford St., Ste. 204
Stamford, CT 06905
(781) 23-24028
215 Hartman Ave, Ste. 204
Lansdowne, PA 19050
610-317-9224
N.E. INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86A HVAC PENTHOUSE DEMOLITION FLOOR PLAN

EPROJECT NO.: 1350913

CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703669

SHEET 216 OF 506

MD2.0A | 86-15-938

DRAWFORM REVISION: 10 OCTOBER 2014

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet

CHECK GRAPHIC SCALE BEFORE USING

JACE BOX

TAG NO.	LOCATION	ELECTRICAL		MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
		AMP	V		
J-1	SEE PLANS	20	120	JACE 8000	SEE NOTES

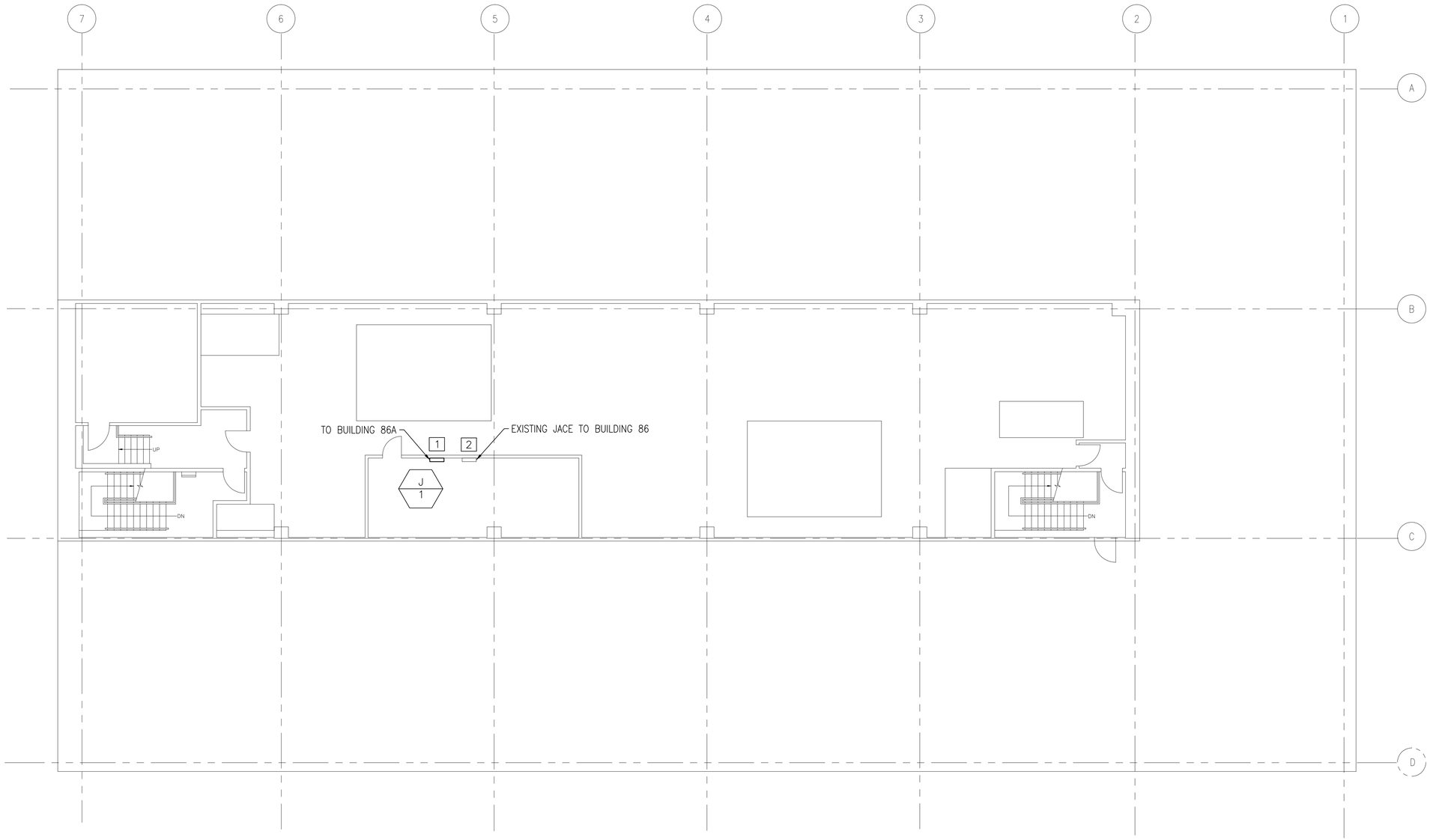
NOTES: 1. PROVIDE W/ MEMORY UPGRADE TO 4GB.

GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF NEW DDC JACE BOX WITH NAVFAC.
2. NEW EQUIPMENT IN BUILDING 86 TO BE TIED IN TO EXISTING JACE.



BUILDING 86A PENTHOUSE FLOOR PLAN
1/8"=1'-0"

PLAN NORTH

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
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ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

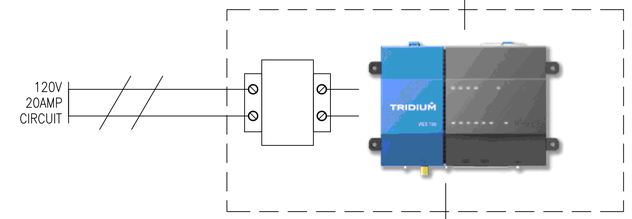
BUILDING 86A HVAC PENTHOUSE FLOOR PLAN & SCHEDULES

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703670
SHEET 217 OF 506
M2.0A 86-15-939

DRAWFORM REVISION: 10 OCTOBER 2014

PORTSMOUTH NAVAL SHIPYARD (BUILDING 86A _ ANNEX BUILDING)
EXISTING INVENSYS INTEGRATED DDC SYSTEM ARCHITECTURE

PLEASE SEE BUILDING 86
FOR CONTINUATION



JACE-8000

NEW TRIDIUM JACE INTEGRATION
EXISTING DDC SYSTEM

NEW TRIDIUM JACE INTEGRATION
EXISTING DDC SYSTEM

2

EXISTING
INVENSYS
UNC-500
JACE

1 1 1

ECHELON
COMMUNICATION

TYPICAL OF
ALL VAV BOXES

EXISTING UNITARY LON CONTROLLER	EXISTING UNITARY LON CONTROLLER	EXISTING PROGRAMMABLE LON CONTROLLER	EXISTING PROGRAMMABLE LON CONTROLLER	EXISTING PROGRAMMABLE LON CONTROLLER
VAV BOX (VAV-99)	VAV BOX (VAV-1)	VAV AHU	COOLING SYSTEM CONTROL	HEATING SYSTEM CONTROL

"BUILDING 86A _ ANNEX"

PANEL MATERIAL			
ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
		APPROPRIATE DEVICE PACKS	

1 IT IS CRITICAL THAT THE COMMUNICATION BUS IS WIRED IN A CONTINUOUS DAISY CHAIN FASHION.

2 REPLACE EXISTING R2 JACE WITH NEW JACE

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
SEAL

THIS DRAWING IS BEING PROVIDED FOR INFORMATION PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS SPECIFICALLY APPROVED FOR CONSTRUCTION BY THE CONTRACTING OFFICER. ANY AND ALL USE OF THIS DRAWING FOR CONSTRUCTION PURPOSES WITHOUT AUTHORIZATION BY THE CONTRACTING OFFICER IS STRICTLY PROHIBITED. CONTRACT NO. N40085-12-D-1800 DELIVERY ORDER 0299

PREPARED BY
CSI ENGINEERING
CIVIL STRUCTURAL MECHANICAL ELECTRICAL
CIVIL INFRASTRUCTURE
999 Bedford Street, 7th Floor
Stamford, CT 06905
TEL: 203-348-2626
FAX: 203-348-2680
P.O. BOX 1750 FL 32549
PENSACOLA, FL 32511
850-313-9214

APPROVED

FOR COMMANDER NAVFAC
ACTIVITY

SATISFACTORY TO DATE

DES JC	DRW SV	CHK DM	
PM/DM	PETER STOCKLESS		
BRANCH MANAGER	BRUCE LITALIEN		
FEAD/PM&E	AMIN BAHROUR PM&E		
FIRE PROTECTION	X		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86A HVAC CONTROLS

EPROJECT NO.: 1350913

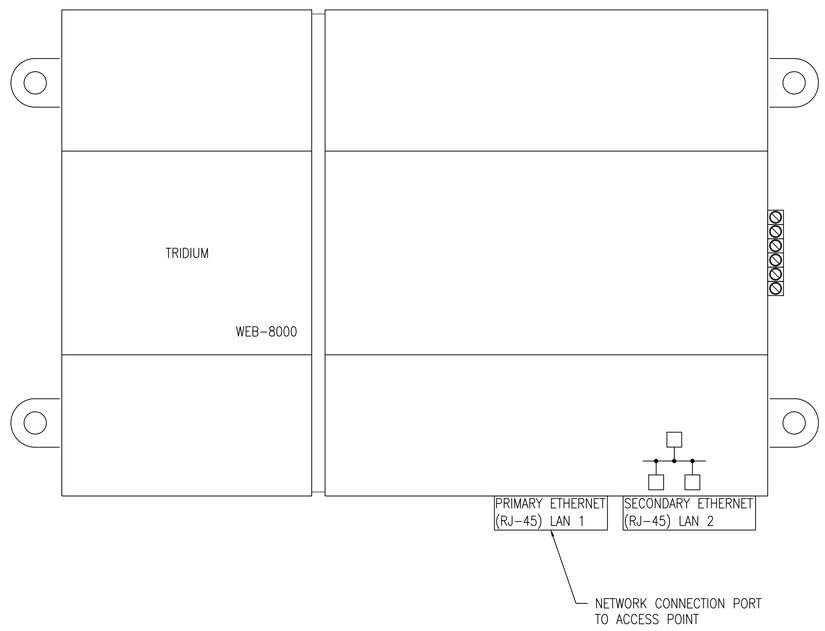
CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703671

SHEET 218 OF 506

M3.0A 86-15-940

DRAWFORM REVISION: 10 OCTOBER 2014



ETHERNET CONNECTION TO RF ACCESS POINT

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

"I HEREBY CERTIFY THAT THE ENGINEERING DATA SHOWN HEREON WAS PREPARED IN ACCORDANCE WITH THE DESIGN CRITERIA CURRENTLY IN EFFECT FOR THE NAVAL ENGINEERING COMMAND, NORTH DIVISION AND THAT I AM AUTHORIZED TO ACT AS AN AUTHORIZED REPRESENTATIVE OF THE ENGINEER OF RECORD FOR THIS DATA."
DAVID H. MAHONEY
CSI-ID: 2011-0106
EXP. 31 DEC 2015

ENGINEER
CSI TECHNICAL ENGINEERING
JOINT VENTURE
999 BROADWAY, SUITE 206
SAN DIEGO, CA 92101
619-233-8928
23 AVENTI AVE, STE 2324
SAN ANTONIO, TX 78216
512-521-9244
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

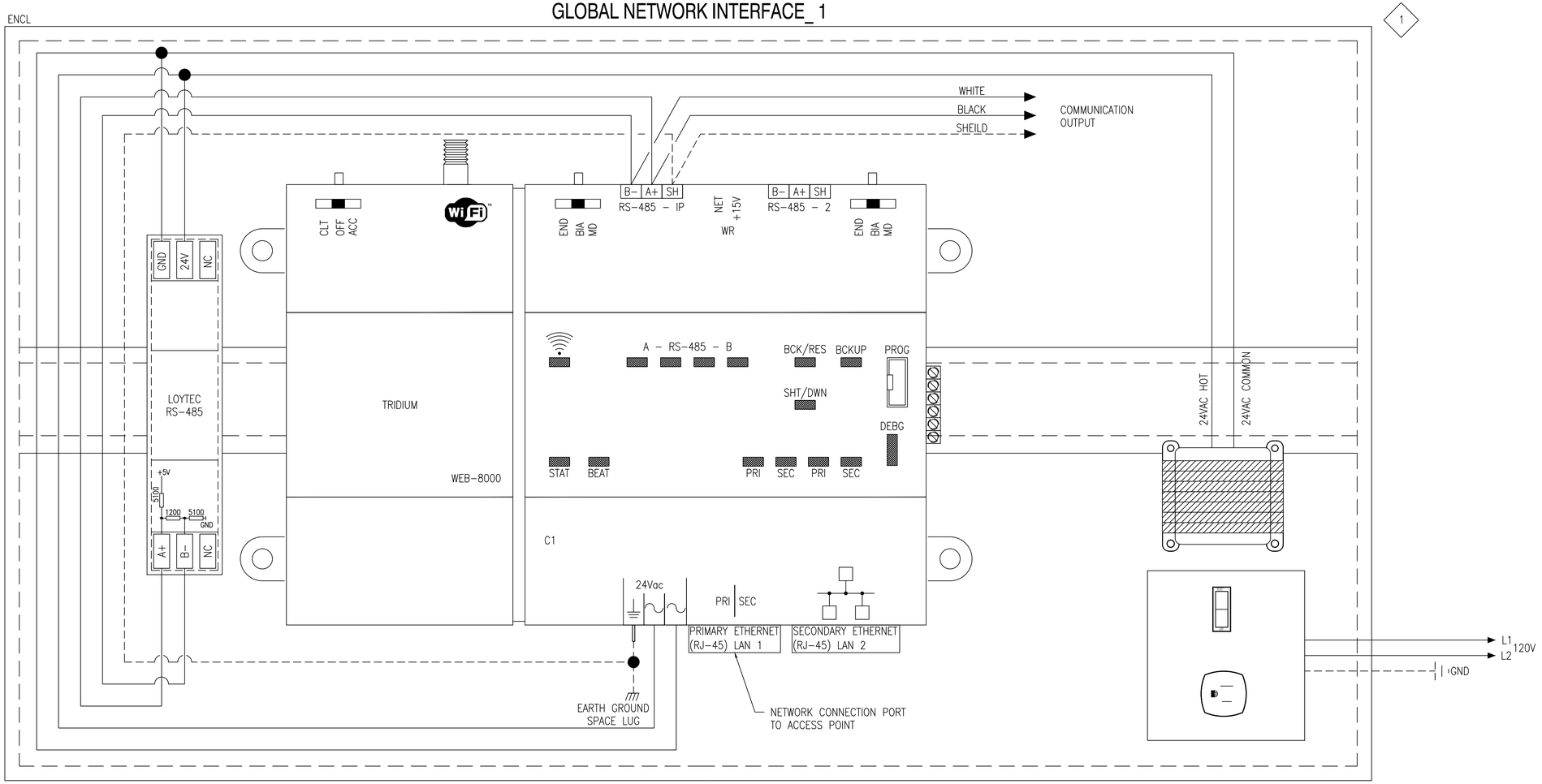
FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 86A HVAC CONTROLS

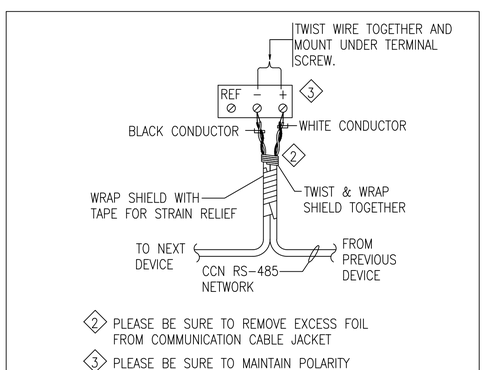
EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703672
SHEET 219 OF 506
M3.1A | 86-15-941

DRAWFORM REVISION: 10 OCTOBER 2014

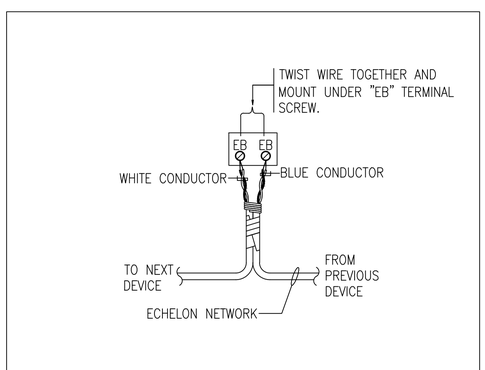
GLOBAL NETWORK INTERFACE_ 1



1 LOCATION OF CONTROLLER TO BE FIELD VERIFIED



RS-485 BACNET MS/TP CONNECTION DETAIL



E-BUS CONNECTION DETAIL

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
ENCL	ENC-001	12"x18"x4" ENCLOSURE W/ 24V TRANSFORMER	1
EOL1	209541B	END OF LINE RESISTOR	1
LT1	LT-B4	RS-485 NETWORK TERMINATOR	1

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370
LICENSED PROFESSIONAL ENGINEER
SEAL

PROJECT MANAGER
CSI
CONTROL SYSTEMS INTEGRATORS
CSI PROJECTION
999 Bedford St. Ste. 204
Stamford, CT 06905
781-329-8828
215 Ashford Ave. Ste. 204
Dennis Port, MA 02639
508-419-8244
ELECTRICAL
MECH.
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
BUILDING 86A HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703673
SHEET 220 OF 506
M3.2A 86-15-942
DRAWFORM REVISION: 10 OCTOBER 2014

TYPICAL FLASH PROTECTION WARNING LABEL

W A R N I N G

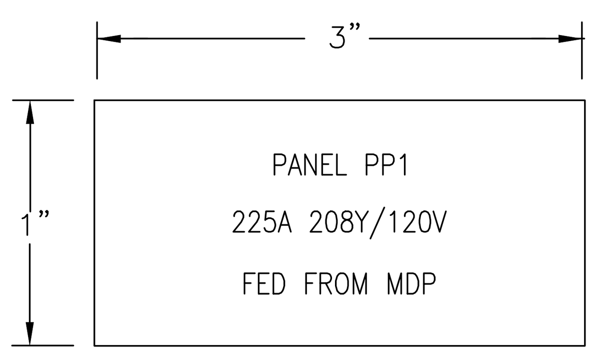
ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

EQUIPMENT TYPE:	
GROUNDING:	Y/N GROUNDED
WORK DISTANCE:	INCHES
AVAILABLE 3ϕ BOLTED CURRENT:	kA
FLASH PROTECTION BOUNDARY:	INCHES
INCIDENT ENERGY AT 23 INCHES:	cal/cm²
PPE LEVEL:	4
DATE:	xx/xx/xxxx

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. PROVIDE ON ALL IN–LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

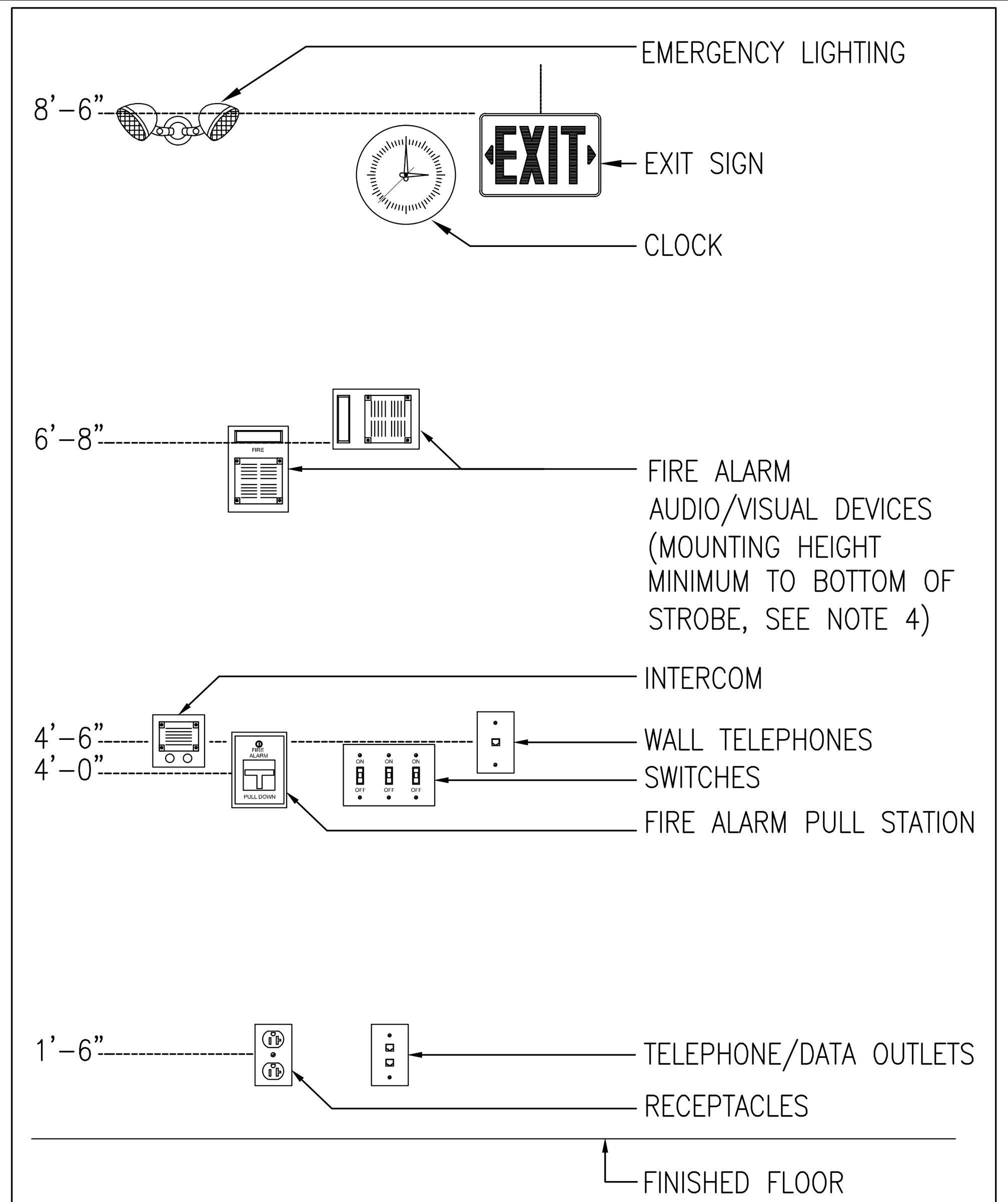
TYPICAL NAMEPLATE DETAIL



NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
4. TYPICAL FOR "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. STROBE HEIGHT ILLUSTRATED AT MAXIMUM HEIGHT. STROBE SHALL BE 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

ELECTRIC ABBREVIATIONS

A/AMP	AMPERE	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICAN WITH DISABILITIES ACT	MEC	MASSACHUSETTS ELECTRIC CODE
AF	AMPERE FRAME	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AT	AMPERE TRIP	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWTICH	#	NUMBER
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	PWR	POWER
CATV	CABLE TELEVISION	RGS	RIGID GALVANIZED STEEL
CCTV	CLOSED CIRCUIT TELEVISION	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	TEL	TELEPHONE
CKT	CIRCUIT	TERM	TERMINAL
℄	CENTERLINE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DWG	DRAWING	TSP	TWISTED SHIELDED PAIR
EC	ELECTRICAL CONTRACTOR	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UNO	UNLESS OTHERWISE NOTED
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	UPS	UNINTERRUPTIBLE POWER SUPPLY
GFI	GROUND FAULT INTERRUPTING	UTP	UNSHIELDED TWISTED PAIR
GND	GROUND	V	VOLT
HH	HANDHOLE	VA	VOLT AMPERE
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	W	WATT
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND		
KVA	KILOVOLT – AMPERE		
KW	KILOWATT		

MOTOR & CONTROLS LEGEND

SYMBOL	DESCRIPTION
S_M	MANUAL MOTOR STARTING SWITCH WITH THERMAL OVERLOAD PROTECTION
60AS	COMBINATION DISCONNECT MAGNETIC MOTOR STARTER. "60AS" – INDICATES 60AMP SWITCH
30AS	DISCONNECT SWITCH RATED 30AMP, 3–POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "30AS" – INDICATES 30A SWITCH
JCB	DDC CONTROL JACE BOX. PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION.
	UNIT HEATER

BRANCH CIRCUIT & FEEDER LEGEND

SYMBOL	DESCRIPTION
PP1–(X)	BRANCH CIRCUIT HOME RUN. TYPICAL 2#12 & 1#12G IN ¾"C MINIMUM. PP1–(1) INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A–1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.

ELECTRIC SYSTEM SYMBOLS OR CALL OUT TAGS

SYMBOL	
#	NEW WORK NOTE TAG

EXISTING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
XM	EXISTING EQUIPMENT TO REMAIN
	EXISTING EQUIPMENT TO REMAIN FOR INFORMATION ONLY – (XM) INDICATED BY SYMBOL WITH LIGHT OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED – (XN, XL, XE, XR) INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

POWER DISTRIBUTION LEGEND

SYMBOL	DESCRIPTION
	208Y/120 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
	480Y/277 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
T	DRY TYPE TRANSFORMER

ELECTRIC GENERAL NOTES

1. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF WORK. DAMAGE SHALL INCLUDE BUT NOT LIMITED TO THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
3. THE ELECTRICAL CONTRACTOR SHALL DE–ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINT OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY TRADE CONTRACTOR. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE–ENERGIZED AND LABELED AS SPARE.
4. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE OR TURNED OVER TO OWNER. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
5. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS–BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. CIRCUITRY HAS BEEN DETERMINED BASED UPON INFORMATION GATHERED, ASSUMPTIONS, AND INFORMATION OBTAINED FROM NAVFAC. EXACT CIRCUITING, EQUIPMENT SIZES, AND CONDUIT AND WIRING SIZES MAY DIFFER IN THE FIELD FROM WHAT IS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRACING ALL CIRCUITS BEING DEMOLISHED AND REUSED PRIOR TO DISCONNECTING, VERIFYING EXISTING CIRCUITRY AND EQUIPMENT SIZES, AND SHALL SIZE ALL NEW EQUIPMENT AND BRANCH CIRCUITRY ACCORDINGLY IF ACTUAL CONDITIONS DIFFER FROM WHAT IS SHOWN ON THE DRAWINGS. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
6. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
7. THE ELECTRICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
8. ROUTING IS DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS WHERE POSSIBLE.
9. SEE PWD–ME DRAWING NUMBERS;
   - 9.1. 43–15–67 FOR TITLE SHEET
   - 9.2. 43–15–68 FOR LIST OF DRAWINGS
   - 9.3. 43–15–69 FOR GENERAL NOTES & LEGENDS
   - 9.4. 43–15–72 FOR CHASE AND SOFFIT DETAILS
   - 9.5. 43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
E1.0A	BUILDING 86A ELECTRICAL LEGEND
E2.0A	BUILDING 86A ELECTRICAL PENTHOUSE PLAN

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER
SEAL

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25 AVIATION AVE STE 204 PORTSMOUTH, NH 03801 603-319-8244
A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 86A ELECTRICAL LEGEND

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXXX
NAVFAC DRAWING NO. 12703674
SHEET 221 OF 506

E1.0A | 86-15-955

DRAWFORM REVISION: 10 OCTOBER 2014

PANELBOARD SCHEDULE

PANEL: PLNL1–1	VOLTS: 120/ 208	NEW/EXISTING.: EXISTING	
MAIN: MLO	BUS AMPS: 125A	MOUNT.: SURFACE	
PH/WIRE: 3ø/4W	AIC:	LOC: BLDG 86A PENTHOUSE LOBBY	

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	ELEV. RM AIC	0	–	–	0	ELEVATOR RM AIC UNIT	20/1	2
3	20/1	UV LTS IN AHU–1	0	–	–	0	GIANT VOICE SPEAKERS	20/1	4
5	20/1	UV LTS IN AHU–2	0	–	–	0	AMI	20/1	6
7	20/1	BLDG 86 JACE BOX	0.02	1	–		SPACE		8
9		SPACE		–	–		SPACE		10
11		SPACE		–	–		SPACE		12
13		SPACE		–	–		SPACE		14
15		SPACE		–	–		SPACE		16
17		SPACE		–	–		SPACE		18
			0.0			0.0	TOTAL CONNECTED kVA:	0.02	
							TOTAL CONNECTED AMPERES:	0.06	

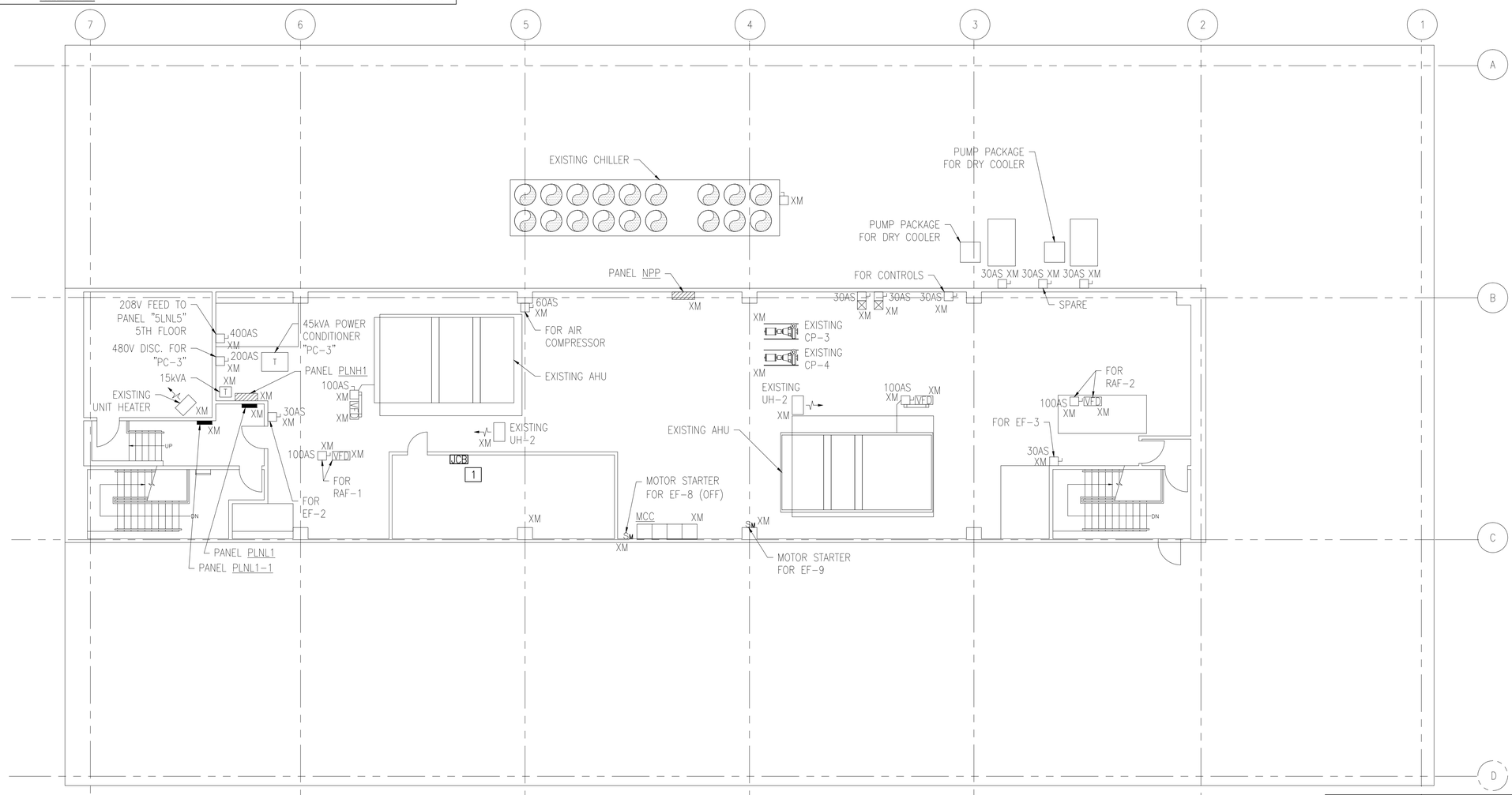
NOTES:
1. PROVIDE NEW CIRCUIT BREAKER SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FINAL LOW–VOLTAGE CONNECTIONS TO BE MADE BY CONTROLS CONTRACTOR. FIELD COORDINATE EXACT LOCATION OF EQUIPMENT WITH CONTROLS CONTRACTOR AND NAVFAC.

NEW WORK KEYNOTES

1. NEW DDC JACE BOX PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION WITH NAVFAC AND CONTROLS CONTRACTOR. CONNECT NEW JACE BOX TO EXISTING BRANCH CIRCUITRY. EXTEND TO NEW LOCATION AS NEEDED.



BUILDING 86A ELECTRICAL PLENTHOUSE PLAN

1/8"=1'–0"

PLAN NORTH

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 – LICENSED – PROFESSIONAL ENGINEER
SEAL

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CAGE CODE: 3D114 DUNS: 079777410
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM DRW TM CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

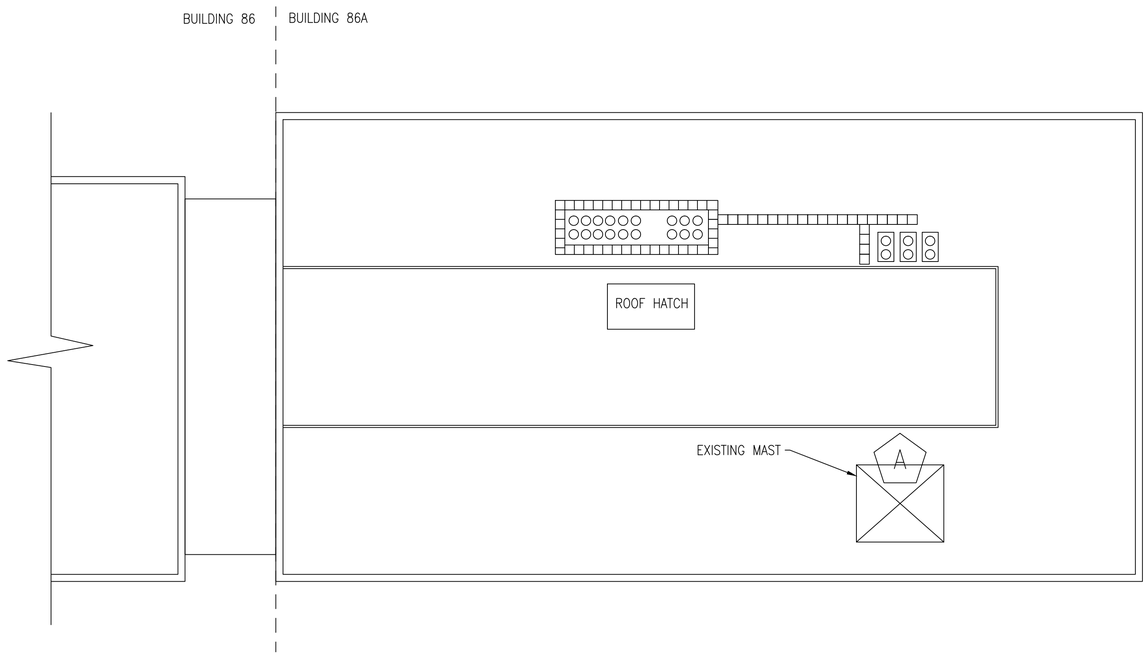
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 86A ELECTRICAL PENTHOUSE PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXXX
NAVFAC DRAWING NO. 12703675
SHEET 222 OF 506
E2.0A 86-15-956

DRAWFORM REVISION: 10 OCTOBER 2014



B86A ANTENNA LOCATION - ROOF PLAN

1/16" = 1'-0"

PLAN NORTH

EQUIPMENT	WIRELESS STANDARD	ANTENNA	FREQUENCY	DIMENSIONS	WEIGHT	INPUT POWER	MANUFACTURER	DESIGN BASED ON MODEL
WIRELESS ACCESS POINT	802.11n	INTEGRATED	2.4 GHZ & 5.8 GHZ	9 X 7 X 4 INCHES	5 LBS	AIR-PWRINJ4	CISCO AIRONET	AIR-AP1532I-UXK9

NOTE: PROVIDE POWER INJECTOR FOR POWER OF ETHERNET TO WIRELESS ACCESSS POINT. DESIGN BASED ON CISCO MODEL AIR-PWRINJ4.

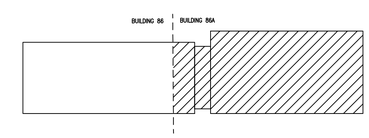
GENERAL SHEET NOTES

1. FASTENERS SHALL BE ATTACHED TO MORTAR IN MASONRY BUILDINGS, AVOIDING DAMAGE TO THE BRICK WHEREVER PRACTICAL.
2. EXTERIOR CONDUIT SHALL BE INSTALLED IN SHADOW-LINES OR ADJACENT TO EXISTING CONDUIT; CONDUIT COLOR TO BE COORDINATED WITH CULTURAL RESOURCE MANAGER AND A-E.
3. REFER TO MECHANICAL DRAWINGS FOR JACE LOCATION AND INFORMATION.
4. EXISTING ROOF AND WALL PENETRATIONS SHALL BE USED WHEREVER PRACTICAL.
5. INTERIOR, WINDOW-MOUNTED ACCESS POINTS SHALL BE MOUNTED IN AN OBSCURE LOCATION THAT IS LEAST VISIBLE FROM INTERIOR & EXTERIOR.
6. ACCESS POINT MOUNTS SHALL NOT OBSTRUCT EGRESS, EXISTING WALKWAYS, STAIRWELLS, MECHANICAL EQUIPMENT CLEARANCES, OR OTHER APPURTANANCES.
7. UNLESS OTHERWISE NOTED, ROOFTOP ACCESS POINTS SHALL BE CENTRALIZED ON THE ROOF TO MINIMIZE VISIBILITY FROM GROUND LEVEL.
8. CONTRACTOR TO FIELD-VERIFY COMMUNICATION ACCESS POINTS ARE ALIGNED AND LINE OF SIGHT IS UNOBSTRUCTED.
9. IF A FIELD CHANGE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH CULTURAL RESOURCE MANAGER AND A-E PRIOR TO RELOCATING EQUIPMENT.
10. ANY PROPOSED CHANGES (PENETRATIONS, CONDUIT, ETC.) NOT ALREADY INDICATED ON DRAWINGS MADE TO HISTORIC BUILDINGS OR BUILDINGS LOCATED IN HISTORIC DISTRICT MUST BE REVIEWED AND APPROVED BY SHPO THROUGH NAVFAC CULTURAL RESOURCES DEPARTMENT PRIOR TO INSTALLATION.
11. CONTRACTOR TO VERIFY RF SIGNAL STRENGTH AND CONNECTIVITY FROM/TO ALL ACCESS POINTS.
12. SEE PWD-ME DRAWING NUMBERS;
    - 12.1. 43-15-67 FOR TITLE SHEET
    - 12.2. 43-15-68 FOR LIST OF DRAWINGS
    - 12.3. 43-15-69 FOR GENERAL NOTES AND LEGEND
    - 12.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
    - 12.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORT

(A) NEW WORK KEYNOTES

1. CONTRACTOR SHALL INSTALL NEW RF ACCESS POINT 10' BELOW TOP OF EXISTING MAST, LOCATED ON B86A, VIA POLE MOUNT THAT EXTENDS 2-3' AWAY FROM TOWER TO ALLOW ACCESS TO EXISTING EQUIPMENT LOCATED HIGHER UP.
2. ACCESS POINT MOUNT SHALL BE CAPABLE OF WITHSTANDING 100 MPH SUSTAINED WINDS AND 165 MPH WIND GUSTS.
3. CAT5 CABLE SHALL BE ROUTED THROUGH EXISTING ROOF PENETRATION IN PENTHOUSE TO JACE.

KEY PLAN



GRAPHIC SCALE

1/16" = 1' 1 6" 0 1 2 3
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
0	90% SUBMISSION	07/15/15	DM
	100% SUBMISSION	07/31/15	

NAVFAC

STATE OF NEW HAMPSHIRE KEITH CHRISTOPHER LICENSED PROFESSIONAL ENGINEER No. 13914
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FIRE PROTECTION X

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NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
B086 RF INSTALLATION DETAILS

PROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703676
SHEET 223 OF 506
ET1.0 86-15-957

DRAWFORM REVISION: 10 OCTOBER 2014

HVAC ABBREVIATIONS

°F	DEGREES FAHRENHEIT	ID	INSIDE DIAMETER
°C	DEGREES CELSIUS	IN	INCHES
ø	DIAMETER	INSUL	INSULATION
ACV	AUTOMATIC CONTROL VALVE	KW	KILOWATT
AD	ACCESS DOOR	KVA	KILOVOLT AMPERE
ADJ	ADJUSTABLE	L	LENGTH
ADDL	ADDITIONAL	LB	POUND
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
AFG	ABOVE FINISHED GRADE	LVG	LEAVING
ALT	ALTERNATE	M	ONE THOUSAND
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPS
AS	AIR SEPARATOR	MCC	MOTOR CONTROL CENTER
AVG	AVERAGE	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BFF	BELOW FINISHED FLOOR	MFR	MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BLDG	BUILDING	MTD	MOUNTED
BLR	BOILER	MU	MAKEUP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
BSMY	BASEMENT	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
C	CONVECTOR	NO.	NUMBER
CF	CEILING FAN	NOM	NOMINAL
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	OB	OCTAVE BAND
CO	CLEAN-OUT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPRESSOR	ODP	OPEN DRIP PROOF
CONC	CONCRETE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION	OFOI	OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR	OV	OUTLET VELOCITY
CORR	CORRIDOR	PCF	POUNDS PER CUBIC FOOT
CUF	CUBIC FEET	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	PH	PHASE
CYL	CYLINDER	PLMB	PLUMBING
D	DRAIN	POS	PROVIDED BY OTHER SECTION(S)
DB	DRY BULB TEMPERATURE	PRESS	PRESSURE
DDC	DIRECT DIGITAL CONTROL	PRIM	PRIMARY
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DIM	DIMENSION	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	REP	REPRESENTATIVE
EA	EACH	RET	RETURN
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EFF	EFFICIENCY	REQS	REQUIREMENTS
ECUH	ELECTRIC CABINET UNIT HEATER	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EMER	EMERGENCY	SCH	SCHEDULE
ENT	ENTERING	SOV	SOLENOID OPERATED VALVE
EQUIP	EQUIPMENT	SPECS	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SQFT	SQUARE FEET
FTR	FINNED TUBE RADIATION	SS	STAINLESS STEEL
FCV	FLOW CONTROL VALVE	STD	STANDARD
FG	FIBERGLASS	STDBY	STANDBY
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	SUCT	SUCTION
FLRDR	FLOOR DRAIN	SUP	SUPPLY
FP	FIRE PROTECTION	TA	THROW-AWAY
FPM	FEET PER MINUTE	TAV	THERMOSTATIC AIR VENT
FT	FEET	TEFC	TOTALLY ENCLOSED FAN COOLED
FT/SEC	FEET PER SECOND	TEL	TELEPHONE
FURN	FURNISHED	TEMP	TEMPERATURE
FVNR	FULL VOLTAGE NON-REVERSING	TOD	TOP OF DUCT
GA	GAUGE	TOP	TOP OF PIPE
GAL	GALLONS	TYP	TYPICAL
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	V	VENT
GND	GROUND	VEL	VELOCITY
GPH	GALLONS PER HOUR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
GRD	GRADE (GROUND LEVEL)	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDTH
H	HEIGHT	W/	WITH
HD	HEAD	W/O	WITHOUT
HP	HORSEPOWER	WB	WET BULB TEMPERATURE
HR	HOUR	WF	WIDE FLANGE
HZ	HERTZ	WG	WATER GAUGE
		WRT	WITH RESPECT TO

FLOW DIAGRAM & CONTROL DIAGRAM EQUIP. SYMBOLS

FILTER BANK

HEATING COIL

COOLING COIL

PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR

BACKDRAFT DAMPER

CENTRIFUGAL FAN

INLINE CENTRIFUGAL FAN

OPPOSED BLADE DAMPER W/ TWO POSITION ACTUATOR

OPPOSED BLADE DAMPER W/ MODULATING ACTUATOR

PARALLEL BLADE DAMPER W/ TWO POSITION ACTUATOR

HVAC SYSTEM TAGS

RTU 1 — ROOF TOP UNIT

J 1 — JACE BOX

CALL OUT SYMBOLS

THERMOSTAT

CONNECT TO EXISTING

LIMIT OF NEW WORK

REFER TO DRAWINGS ( ) FOR CONTINUATION

SYMBOL DESIGNATES ASSOCIATED SYSTEM OR SERVICE (ie LPS)

DIFFUSER, GRILLE, REGISTER LETTER DESIGNATION (See Schedule for ATD type)

SA-2 / 200 — DESIGN CFM

AIR SYSTEM SPECIFIC ABBREVIATIONS

AC	AIR CONDITIONING	LVDR	LOUVERED DOOR
ACD	AUTOMATIC CONTROL DAMPER	OA	OUTSIDE AIR
ACU	AIR CONDITIONING UNIT	OAI	OUTSIDE AIR INTAKE
AF	AIR FOIL	OBD	OPPOSED BLADE DAMPER
AHU	AIR HANDLING UNIT	OED	OPEN END DUCT
ALD	ACOUSTICALLY LINED DUCTWORK	RA	RETURN AIR
ATD	AIR TERMINAL DEVICE	RF	RETURN FAN
AVS	AIR VOLUME TRAVERSE STATION	RG	RETURN GRILLE
BDD	BACKDRAFT DAMPER	RHC	REHEAT COIL
BI	BACKWARD INCLINED	RLF	RELIEF
CC	COOLING COIL	RR	RETURN REGISTER
CD	CEILING DIFFUSER	RV	ROOF VENT
CFM	CUBIC FEET PER MINUTE	SA	SUPPLY AIR
CG	CEILING GRILLE	SATT	SOUND ATTENUATOR
DIFF	DIFFUSER	SCR	SCREEN
DWDI	DOUBLE WIDTH DOUBLE INLET	SD	SMOKE DAMPER
DWSI	DOUBLE WIDTH SINGLE INLET	SDET	SMOKE DETECTOR
DX	DIRECT EXPANSION	SEF	SMOKE EXHAUST FAN
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER
ESP	EXTERNAL STATIC PRESSURE		WITH ACCESS DOOR
F	FAN	SG	SUPPLY GRILLE
FC	FORWARD CURVED	SM	SHEETMETAL
FA	FREE AREA	SP	STATIC PRESSURE
FCU	FAN COIL UNIT	SR	SUPPLY REGISTER
FD	FIRE DAMPER (W/ ACCESS DOOR)	SWDI	SINGLE WIDTH DOUBLE INLET
FLTR	FILTER	SWSI	SINGLE WIDTH SINGLE INLET
FPI	FINS PER INCH	TE	TOILET EXHAUST
FPT	FAN POWERED TERMINAL BOX	TF	TRANSFER FAN
GE	GENERAL EXHAUST	TG	TRANSFER GRILLE
GIH	GRAVITY INTAKE HOOD	TR	TRANSFER
GRH	GRAVITY RELIEF HOOD	TSP	TOTAL STATIC PRESSURE
HC	HEATING COIL	UC	UNDERCUT DOOR
LAT	LEAVING AIR TEMPERATURE	VD	VOLUME DAMPER
LD	LINEAR DIFFUSER	VV	VARIABLE VOLUME SUPPLY AIR TERMINAL BOX
LUVR	LOUVER	WMS	WIRE MESH SCREEN

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS-BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS-BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS, AS WELL AS ROUTING PATHS, IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER, AND SHOULD BE KEPT TO A MINIMUM FOR SYSTEM EFFICIENCIES.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. VERIFY ACCESS IS PROVIDED FOR SERVICING EQUIPMENT AS REQUIRED.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
12. INSTALL NEW THERMOSTATS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ENGINEER.
13. GENERAL CONTRACTOR TO PATCH ALL EFFECTED INTERIOR AND EXTERIOR EXISTING FLOOR, WALL, AND CEILING SURFACES TO MATCH EXISTING. PROVIDE ESCUTCHEON PLATES.
14. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
15. ANY AND ALL WALLS, CEILINGS AND FLOORS THAT ARE ANTICIPATED TO BE DISTURBED DURING THE DEMOLITION OR INSTALLATIONS PROCESS, AS INDICATED ON THE DRAWINGS, SHALL BE TESTED FOR HAZARDOUS MATERIALS PRIOR TO DISTURBING THE SURFACES. ROUTING OF PIPING HAS BEEN INDICATED TO DEPICT THE INTENT OF THE WORK. ACTUAL ROUTING MAY DIFFER IN THE FIELD DUE TO BUILDING CONSTRUCTION. COORDINATE TESTING OF ALL SURFACES TO BE DISTURBED, ALONG THE ACTUAL INSTALLATION ROUTE, WITH THE HAZARDOUS MATERIALS CONTRACTOR. REFER TO EXISTING HAZMAT REPORT FOR TESTING RESULTS.
16. MECHANICAL CONTRACTOR TO REMOVE ALL IDENTIFIED R-22 EQUIPMENT AND ASSOCIATED APPURTENANCES AND REPLACE IN KIND WITH A R410A OR R407C SYSTEM.
17. REFRIGERANT PIPING IS DIAGRAMMATIC, CONTRACTOR TO DETERMINE ROUTING IN FIELD AND RE-USE EXISTING PENETRATIONS. ANY EXPOSED PIPING TO BE CONCEALED IN A CHASE. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
18. SEE CIVIL DRAWINGS FOR DEMOLISHED AND NEW CONCRETE PADS.
19. THE MECHANICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE MECHANICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
20. SEE PWD-ME DRAWING;
    43-15-67 FOR TITLE SHEET
    43-15-68 FOR LIST OF DRAWINGS
    43-15-69 FOR GENERAL NOTES & LEGENDS
    43-15-72 FOR CHASE AND SOFFIT DETAILS
    43-15-74 FOR STRUCTURAL NOTES AND SUPPORTS

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS

EQUIPMENT NOT REQUIRING ELECTRIC SERVICE — TAG NO / TAG DATA DATA → SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS ← TAG NO / TAG DATA DATA — EQUIPMENT REQUIRING ELECTRIC SERVICE

NOTE:REFER TO SCHEDULES FOR DEFINITION OF EQUIPMENT SPECIFIC DATA LISTED WITHIN TAG BLOCKS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
M1.0	BUILDING 96 HVAC LEGEND
MD2.0A	BUILDING 96 HVAC ROOF DEMOLITION PLAN PART A
MD2.0D	BUILDING 96 HVAC ROOF DEMOLITION PLAN PART D
M2.0A	BUILDING 96 HVAC FIRST FLOOR PARTIAL PLAN AND ROOF PLAN PART A
M2.0D	BUILDING 96 HVAC ROOF PLAN PART D
M3.0	BUILDING 96 HVAC CONTROLS
M3.1	BUILDING 96 HVAC CONTROLS
M3.2	BUILDING 96 HVAC CONTROLS
M4.0	BUILDING 96 HVAC SCHEDULES AND DETAILS

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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NAVFAC

STATE OF NEW HAMPSHIRE — DAVID H. MAHONEY No. 12370 — LICENSED PROFESSIONAL ENGINEER — SEAL

THE CAD DOCUMENTS AND DATA ATTACHED HERE AND ARE CONTRACT DELIVERABLES PER THE NAVFAC-EFD PWD CONTRACT. ANY UNAUTHORIZED USE OF THE DOCUMENTS OR DATA ARE PROHIBITED AND ARE UNAUTHORIZED USE AS DEFINED BY THE CONTRACT. CONTRACT NO. N62470-10-D-8007 CONTRACTOR: CSI ENGINEERING — FIRE PROTECTION — 919 BRIDGEWAY, SUITE 226, SAUSALITO, CA 94965, 781-233-0028, 25 B SANTINI AVE, STE 203, LINCOLN, RI 02865, 401-333-4404

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC LEGEND

EPROJECT NO.: 1350913

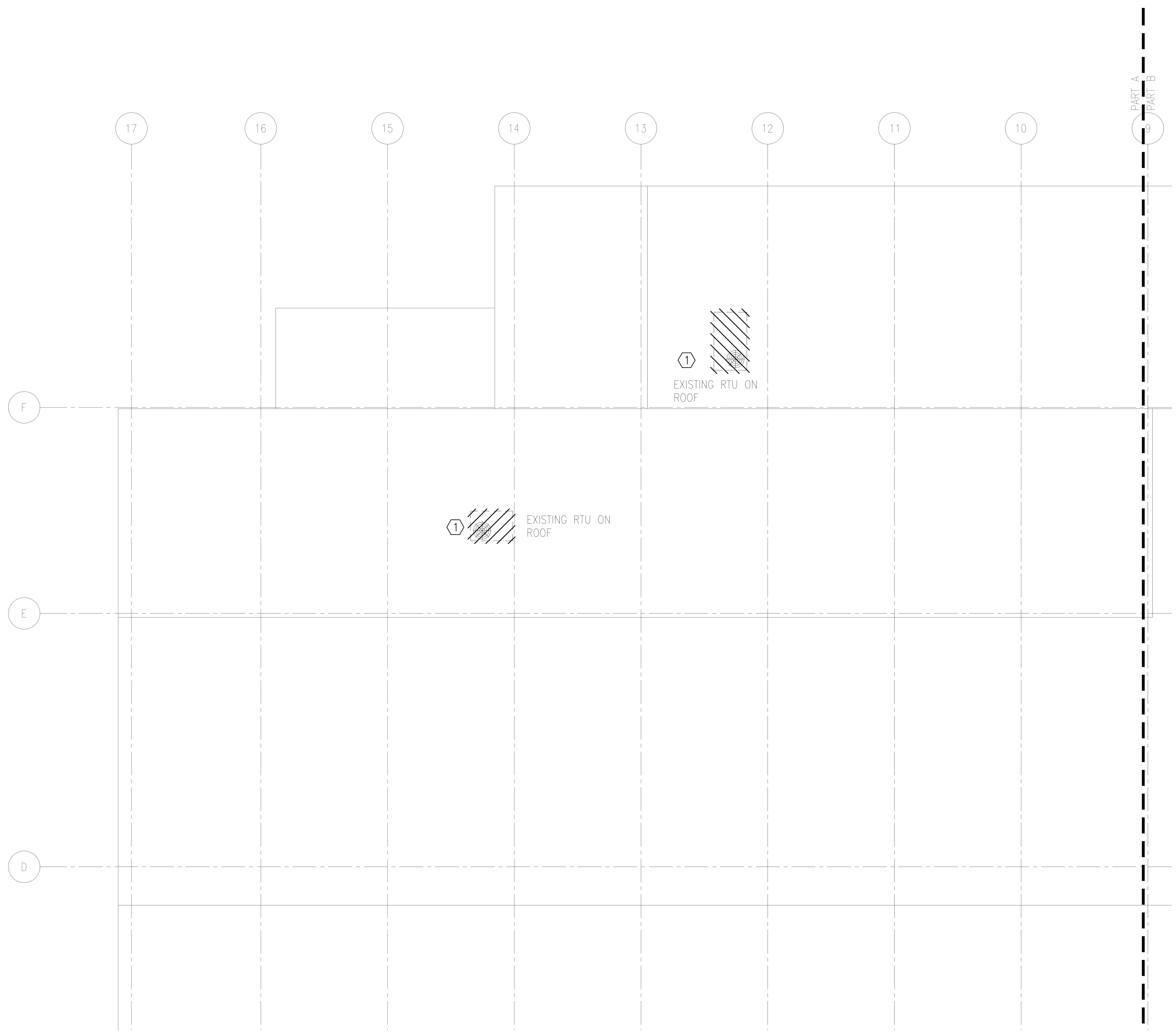
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703677

SHEET 224 OF 506

M1.0 | 96-15-532

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 HVAC ROOF DEMOLITION PLAN PART A

1/8"=1'-0"

PLAN NORTH

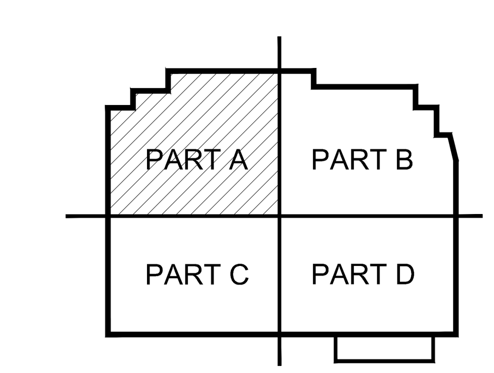
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING RTU AND ASSOCIATED THERMOSTAT. EXISTING DUCTWORK AND CONTROL WIRING TO REMAIN AND BE DISCONNECTED FROM RTU.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

SYM	DESCRIPTION	DATE	APPR
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1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

STATE OF NEW HAMPSHIRE – DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER

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CSI ENGINEERING
PLUMBING HVAC ELECTRICAL FIRE PROTECTION
999 BROADWAY SUITE 206 SAUGUS, MA 01906 781-233-4808
25 AVIATION AVE STE 204 PORTSMOUTH, NH 03801 603-319-8244
A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC ROOF DEMOLITION PLAN PART A

EPROJECT NO.: 1350913

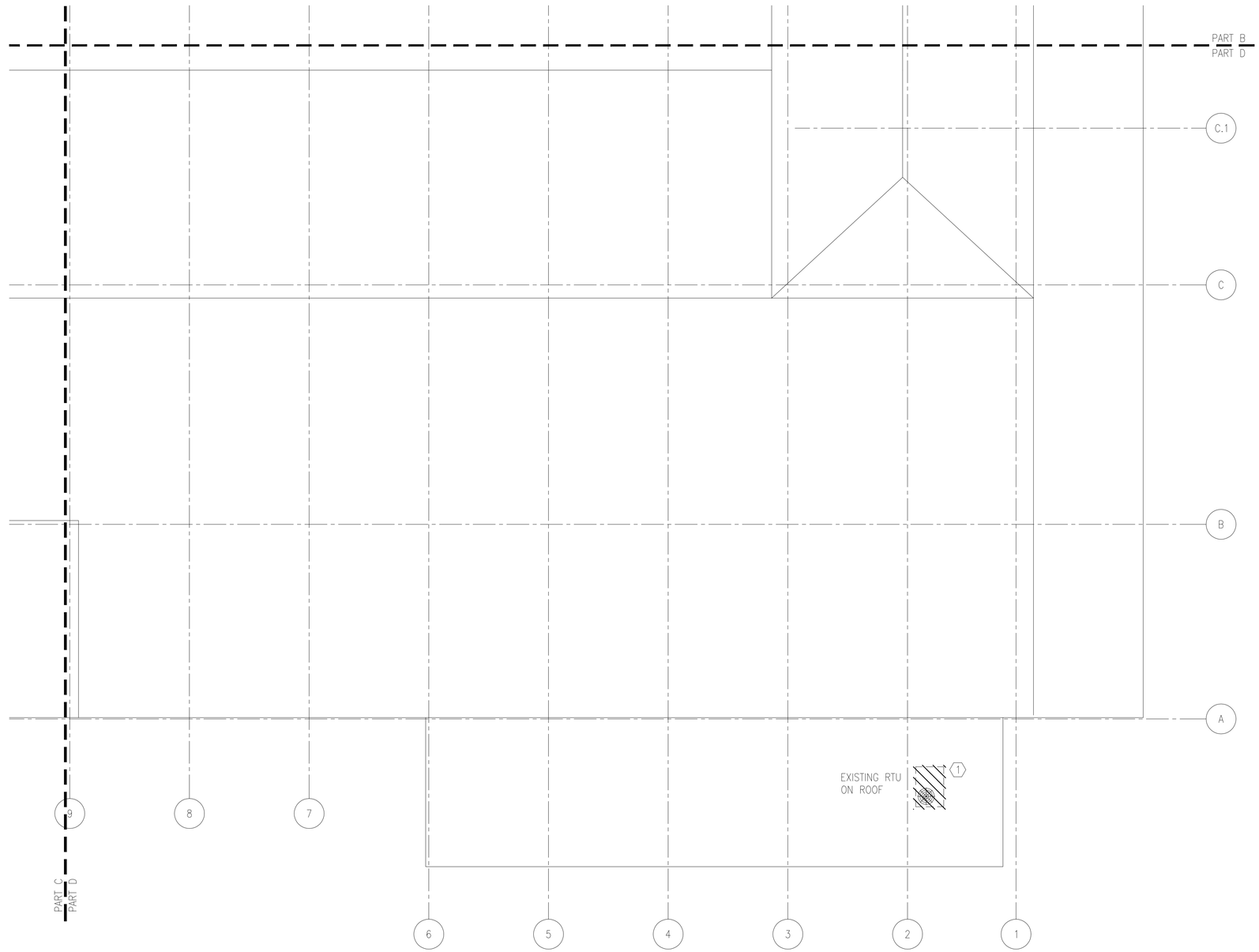
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703678

SHEET 225 OF 506

MD2.0A | 96-15-533

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 HVAC ROOF DEMOLITION PLAN PART D

1/8"=1'-0"

PLAN NORTH

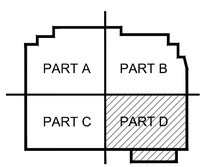
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING RTU AND ASSOCIATED THERMOSTAT. EXISTING DUCTWORK AND CONTROL WIRING TO REMAIN AND BE DISCONNECTED FROM RTU.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

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DESIGN: CSI ENGINEERING — FIRE PROTECTION — 999 Bedford Street, 7th Floor, Stamford, CT 06905 — 781-329-9600 — 23 Ayrshire Ave, Ste 204, Concord, NH 03301 — 603-219-6244 — A/E INFO

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BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC ROOF DEMOLITION PLAN PART D

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703679

SHEET 226 OF 506

MD2.0D | 96-15-534

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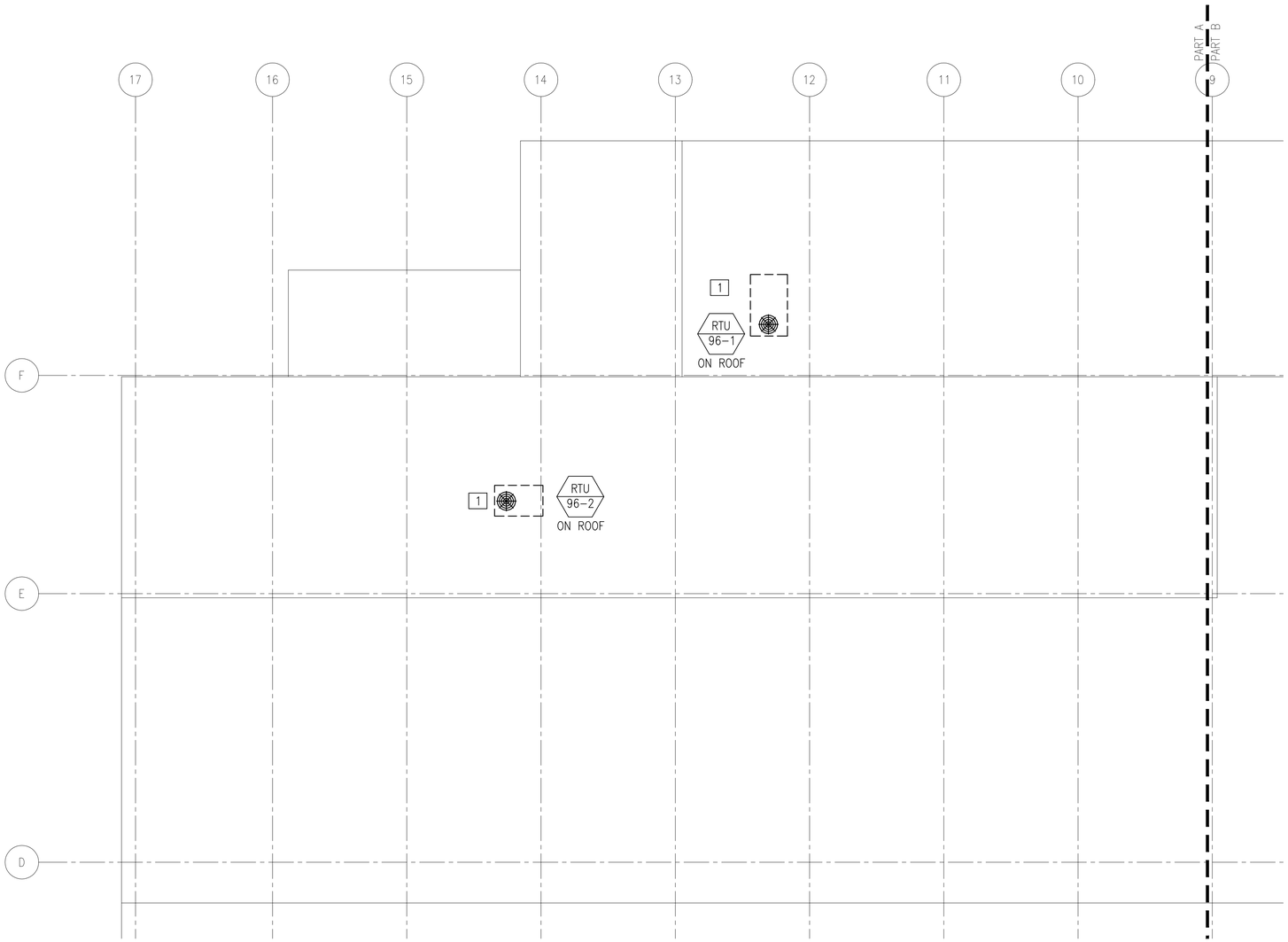
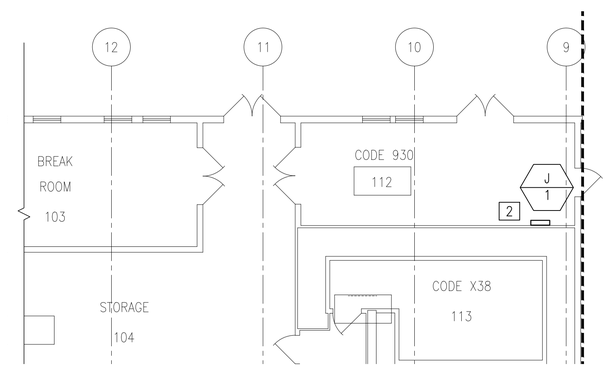


BUILDING 96 HVAC ROOF PLAN PART A
1/8"=1'-0"

PLAN NORTH



BUILDING 96 HVAC FIRST FLOOR PARTIAL PLAN
1/8" = 1'-0"

PLAN NORTH

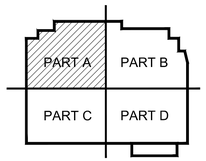
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW RTU. EXISTING DUCTWORK AND CONTROL WIRING TO BE RECONNECTED. PROVIDE WITH NEW DUCTWORK WHERE NECESSARY TO CONNECT TO NEW EQUIPMENT. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.
2. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF NEW DDC JACE BOX WITH NAVFAC.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet

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0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
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25 SANTINI AVE, STE 204
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A/E INFO

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FIRE PROTECTION X

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NAVAL FACILITIES ENGINEERING COMMAND
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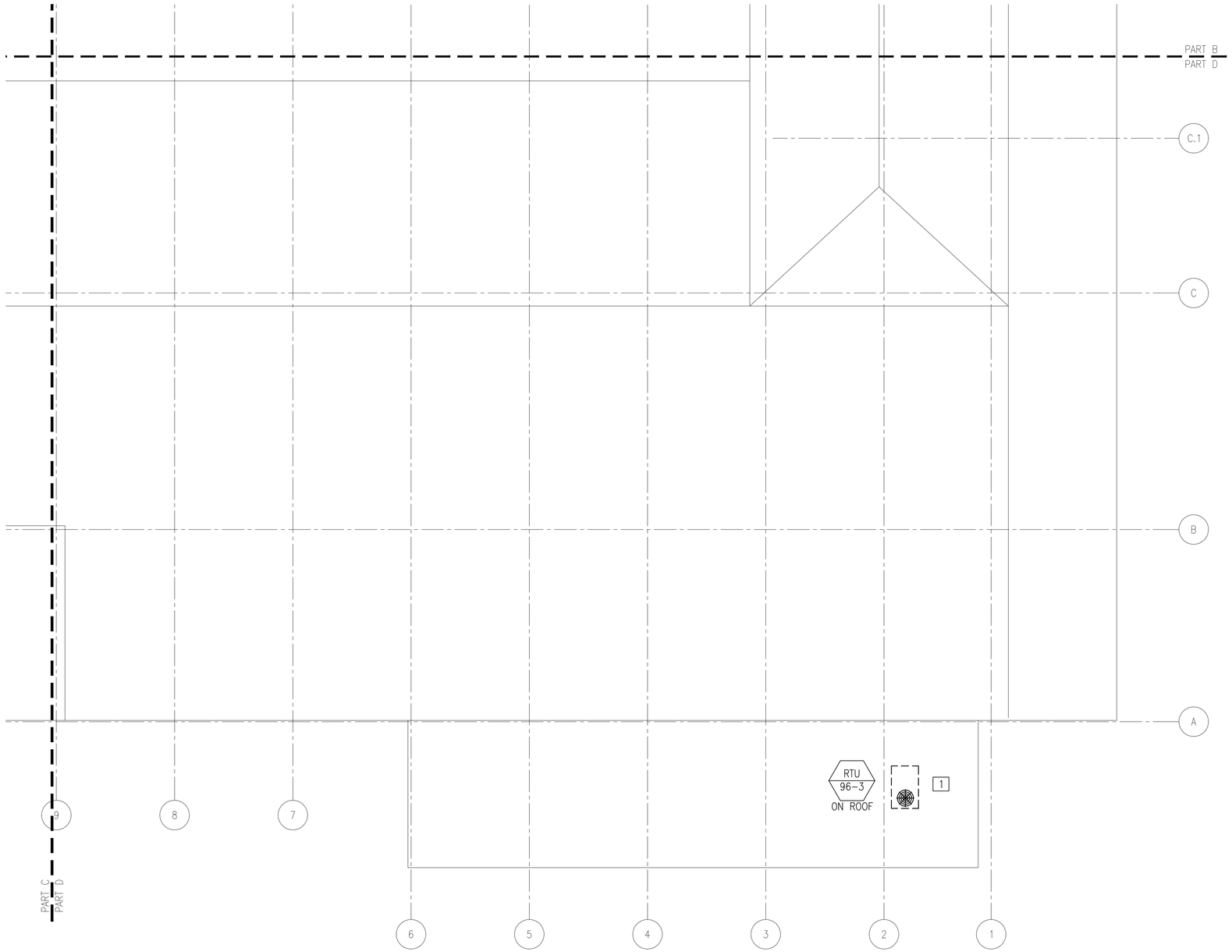
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC FIRST FLOOR PARTIAL PLAN AND ROOF PLAN PART A

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703680
SHEET 227 OF 506
M2.0A | 96-15-535

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 HVAC ROOF PLAN PART D
1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

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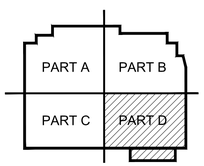
NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW RTU. EXISTING DUCTWORK AND CONTROL WIRING TO BE RECONNECTED. PROVIDE WITH NEW DUCTWORK WHERE NECESSARY TO CONNECT TO NEW EQUIPMENT. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.

KEY PLAN



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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
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25 Walnoth Ave, Ste. 304
Boston, MA 02110
617-317-9214
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FIRE PROTECTION X

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PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC ROOF PLAN PART D

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703681
SHEET 228 OF 506
M2.0D | 96-15-536

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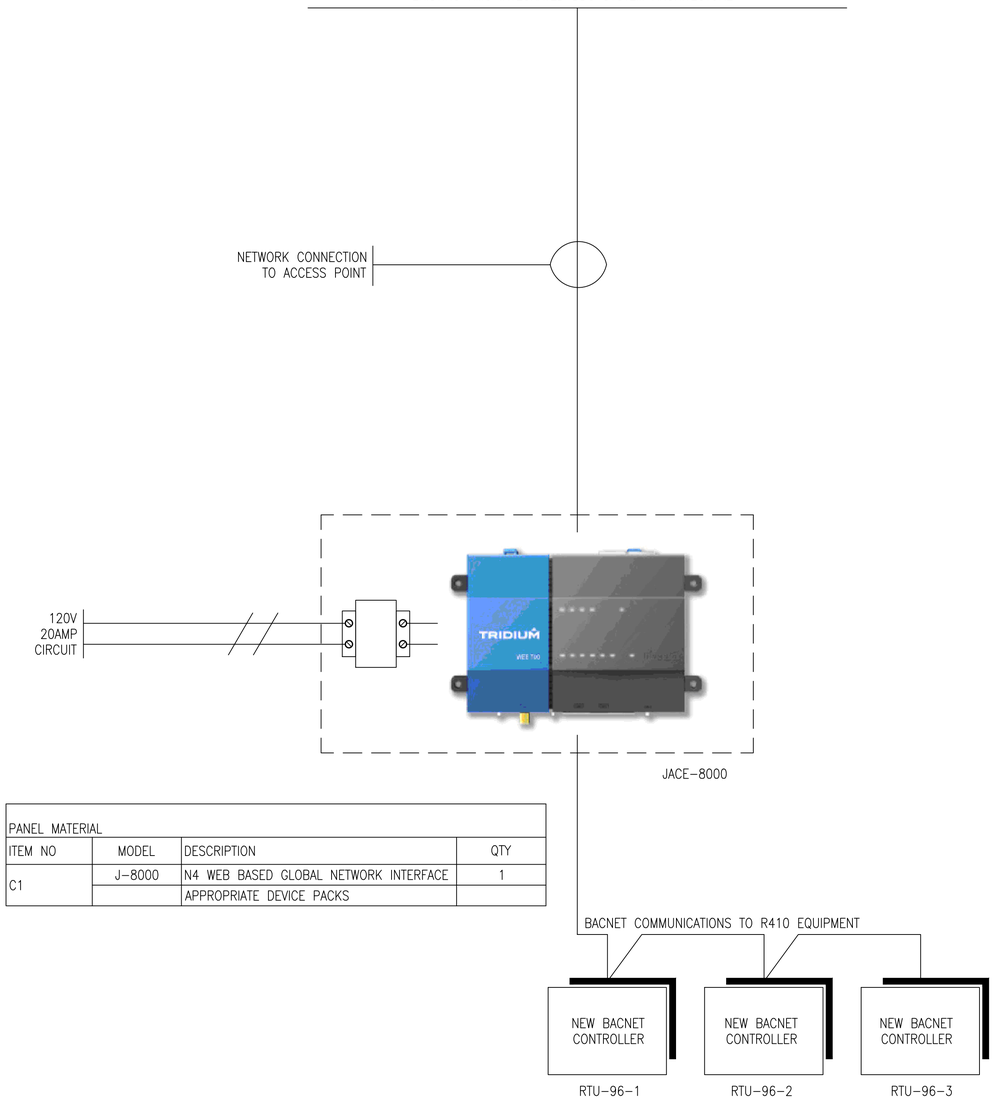
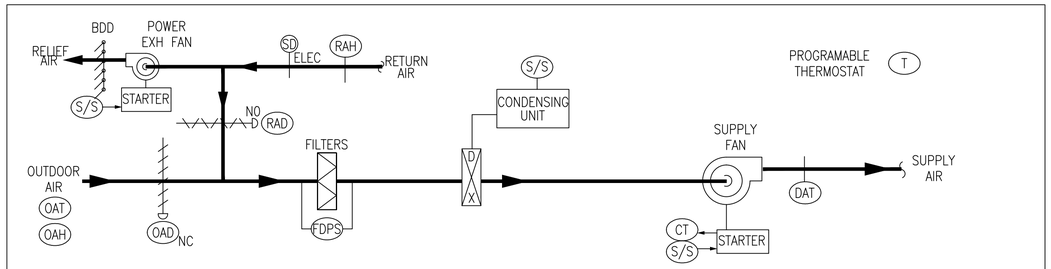
PORTSMOUTH NAVAL SHIPYARD (BUILDING 96_PROD. SHOP, STORAGE)
EXISTING KMC INTEGRATED DDC SYSTEM ARCHITECTURE



PANEL MATERIAL			
ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
		APPROPRIATE DEVICE PACKS	



GENERAL

- ROOFTOP UNIT IS STARTED AND STOPPED VIA DDC THERMOSTATS.
- COORDINATE OCCUPIED/UNOCCUPIED SCHEDULES WITH OWNER.
- ONCE THE UNIT IS STARTED, THE ROOFTOP UNIT'S PACKAGED CONTROLS CONTROL RTU'S FUNCTIONS.
- ALL ACTUATORS ARE ELECTRONIC

UNOCCUPIED

- SF IS OFF
- EF IS OFF
- OAD IS CLOSED
- EAD IS CLOSED
- RAD IS OPEN
- COOLING SYSTEM IS OFF

UNOCCUPIED COOLING

- SF IS ON
- EF IS OFF
- OAD IS CLOSED
- EAD IS CLOSED
- RAD IS OPEN
- COOLING SYSTEM IS ENERGIZED
- NIGHT SETPOINT IS 80°F(ADJ)

OCCUPIED MODE

- SF IS ON
- EF IS LOW
- OAD IS OPEN TO MINIMUM POSITION
- EAD IS OPEN TO MINIMUM POSITION
- RAD IS OPEN TO MINIMUM POSITION
- COOLING SYSTEM IS DE-ENERGIZED

OCCUPIED COOLING

- SF IS ON
- EF IS LOW
- OAD IS OPEN TO MINIMUM POSITION
- EAD IS OPEN TO MINIMUM POSITION
- RAD IS OPEN TO MINIMUM POSITION
- COOLING SYSTEM IS ENERGIZED
- ROOM TEMPERATURE SET POINT IS 75°F(ADJ)
- DAT AT 55°F

ECONOMIZER MODE

- IF OUTSIDE AIR ENTHALPY IS BELOW ROOM ENTHALPY THE OAD, AND RAD MODULATE UP TO 100% OA
- CONDENSING UNITS AND COMPRESSORS ARE STAGED ON IF ADDITIONAL COOLING IS REQUIRED
- DAT OVERRIDES TO LIMIT SUPPLY AIR TEMP TO 50°F MINIMUM
- IF OA ENTHALPY RISES ABOVE ROOM ENTHALPY, UNIT RETURNS TO OCCUPIED COOLING MODE
- EF IS HIGH

ALARMS AND SAFETIES

- SAFETIES HAVE MANUAL RESET BUTTON
- SAFETIES SHUT DOWN RTU VIA HARDWARE BEFORE H-O-A
- WHEN SMOKE DETECTOR IS ACTIVATED RTU IS SHUTDOWN
- IF FAN FAILS, THE UNIT CONTROLLER SHALL SHOW FAILURE STATUS.
- IF FILTER PRESSURE DROP EXCEEDS SETPOINT FOR 10 MINUTES, THE UNIT CONTROLLER SHALL GIVE A DETAILED SIGNAL.

ROOFTOP UNIT CONTROL SEQUENCES

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
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PROJECTION

MADE IN USA

CSI ENGINEERING

TYPE OF PROJECT

FIRE PROTECTION

CSI ENGINEERING
918 BANDMAN BLVD. STE 204
GUYTON, GEORGIA 31312
TEL: 912-330-9925
FAX: 912-330-9926

CSI ENGINEERING
P.O. BOX 1
KITTERY, MAINE 03904
207-439-1924

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ACTIVITY

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DES JC | DRW SV | CHK DM

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FIRE PROTECTION X

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NAVAL FACILITIES ENGINEERING COMMAND
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NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC CONTROLS

EPROJECT NO.: 1350913

CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703682

SHEET 229 OF 506

M3.0 | 96-15-537

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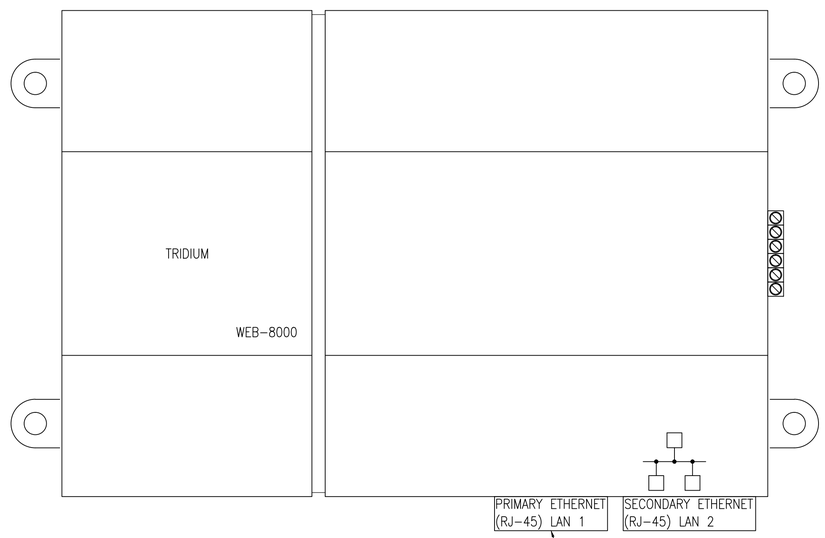

ETHERNET CONNECTION TO RF ACCESS POINT

STM	DESCRIPTION	DATE	APPR.
4	100% SUBMISSION	08/07/2015	DM
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No. 12370
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CONTRACT NO. N40085-12-D-1300
DELIVERY ORDER NO. 0029

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CSI PROFESSIONAL SERVICES, INC.
999 Bedford Street, 7th Floor
Portsmouth, NH 03801
(781) 23-24828
AE INFO: 215 Ayer Road, Ste 204, Harvard, MA 01451, 978-772-9224

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FIRE PROTECTION X

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PUBLIC WORKS DEPARTMENT – MAINE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH

PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703683
SHEET 230 OF 506

M3.1 | 96-15-538

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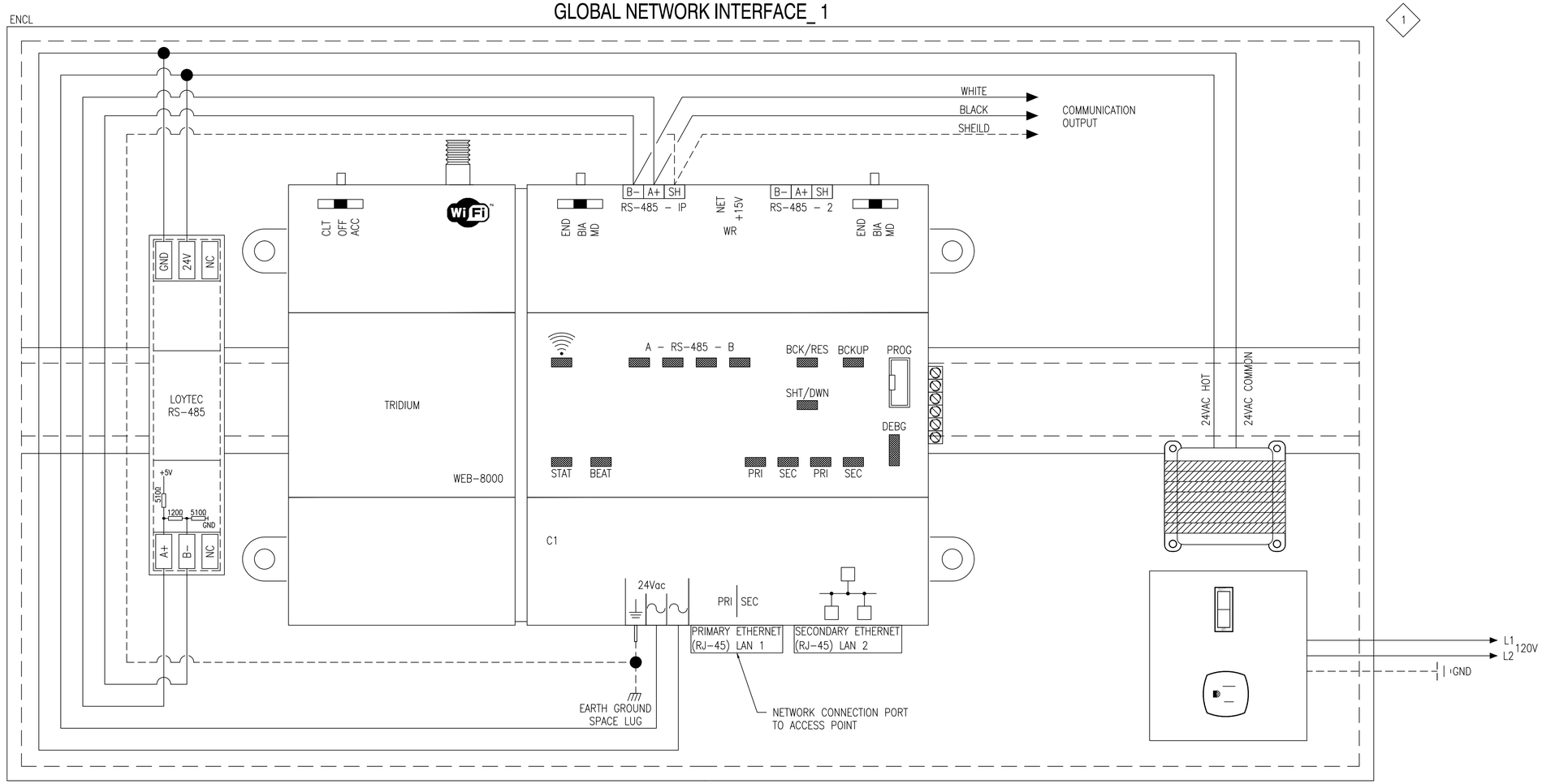
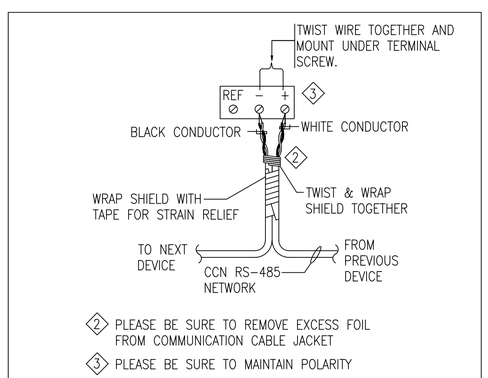
GLOBAL NETWORK INTERFACE_ 1



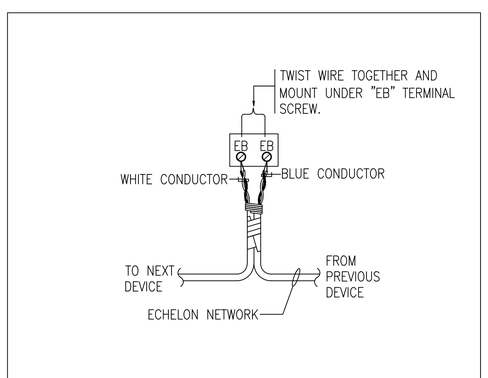
1 LOCATION OF CONTROLLER TO BE FIELD VERIFIED



2 PLEASE BE SURE TO REMOVE EXCESS FOIL FROM COMMUNICATION CABLE JACKET

3 PLEASE BE SURE TO MAINTAIN POLARITY

RS-485 BACNET MS/TP CONNECTION DETAIL



E-BUS CONNECTION DETAIL

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
ENCL	ENC-001	12"x18"x4" ENCLOSURE W/ 24V TRANSFORMER	1
EOL1	209541B	END OF LINE RESISTOR	1
LT1	LT-B4	RS-485 NETWORK TERMINATOR	1

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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25 AVIATION AVE, STE 320
PORTSMOUTH, NH 03801
603-431-9424
N/A INFO

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KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC CONTROLS

EPROJECT NO.: 1350913

CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703684

SHEET 231 OF 506

M3.2 | 96-15-539

DRAWFORM REVISION: 10 OCTOBER 2014

PACKAGED DX ROOFTOP AIR HANDLING UNIT SCHEDULE

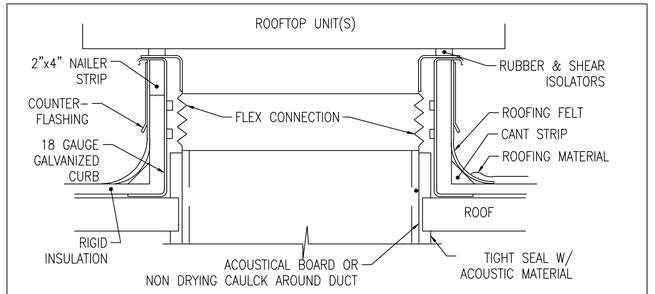
TAG NO.	LOCATION	MIN. O.A. CONDITIONS			BUILDING R.A. CONDITIONS			SUPPLY FAN						UNIT COOLING COIL		AIR-COOLED CONDENSING UNIT				ELECTRICAL DATA					FILTER DATA	WEIGHT (LBS)	DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
								CFM	STATIC PRESS. (IN.WG)	WHEEL		MOTOR		CAPACITY (MBH)		COMPRESSOR(S)		CONDENSER FAN										
		CFM	DB (°F)	WB (°F)	CFM	DB (°F)	WB (°F)	TOTAL	EXTERNAL	DIA (IN)	TYPE	RPM	HP	TOTAL	SENS.	TYPE	NO.	NO.	HP	HZ	V	PH	MCA	MOP				
RTU-96-1	ROOF	SEE NOTE 5.	87	71	SEE NOTE 5.	75	63	2,400	1.0	15	CENT.	1,750	1	72	51	SCROLL	2	1	0.7	60	460	3	15.1	20	TA-2"	1,027	TRANE THC072F	SEE NOTES
RTU-96-2	ROOF	SEE NOTE 5.	87	71	SEE NOTE 5.	75	63	1,600	1.0	11	CENT.	VAR.	1	48	33	SCROLL	1	1	0.4	60	460	3	12.8	15	TA-2"	905	TRANE THC048F	1,4-11
RTU-96-3	ROOF	SEE NOTE 5.	87	71	SEE NOTE 5.	75	63	2,000	1.0	11	CENT.	VAR.	1	60	43	SCROLL	1	1	0.4	60	460	3	13.8	20	TA-2"	942	TRANE THC060F	SEE NOTES

NOTES: 1. PROVIDE W/ POWER EXHAUST. 2. PROVIDE W/ ENTHALPY CONTROLLED ECONOMIZER. 3. MECHANICAL CONTRACTOR TO VERIFY SMOKE DETECTOR IN RETURN AIR DUCTWORK. 4. PROVIDE W/ BACNET INTERFACE. 5. CONTRACTOR TO VERIFY EXISTING OUTDOOR AIR INTAKE, RETURN AIR FLOW, AND PRESSURE REQUIREMENTS BEFORE DEMO WITH A TAB REPORT AND BALANCE AS REQUIRED. 6. PROVIDE UNIT CONTROL PANEL WITH MAIN DISCONNECT SWITCH. 7. PROVIDE ADJUSTABLE BELT DRIVE BLOWER. 8. PROVIDE OUTSIDE AIR INTAKE HOOD. 9. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 10. PROVIDE WITH ROOF ADAPTOR. 11. PROVIDE WITH SEACOAST RATED COATING FOR CONDENSER COIL.

JACE BOX

TAG NO.	LOCATION	ELECTRICAL		DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
		AMP	V		
J-1	SEE PLANS	20	120	JACE 8000	SEE NOTES

NOTES: 1. PROVIDE W/ MEMORY UPGRADE TO 4GB. 2. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.



NOTE:
1. LINE ROOF UNDER CURB AND SIDES OF CURB W/ 4" THICK ACOUSTICAL BOARD.

ROOFTOP UNIT MOUNTING W/ CURB

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER SEAL

PREPARED BY: CSI ENGINEERING, INC. FIRE PROTECTION 978-123-2-9828 978-123-2-9829 915 MIDDLESTREET, STE 204 MANCHESTER, NH 03101 603-213-9214 A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 HVAC SCHEDULES AND DETAILS

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703685

SHEET 232 OF 506

M4.0 | 96-15-540

DRAWFORM REVISION: 10 OCTOBER 2014

TYPICAL FLASH PROTECTION WARNING LABEL

WARNING

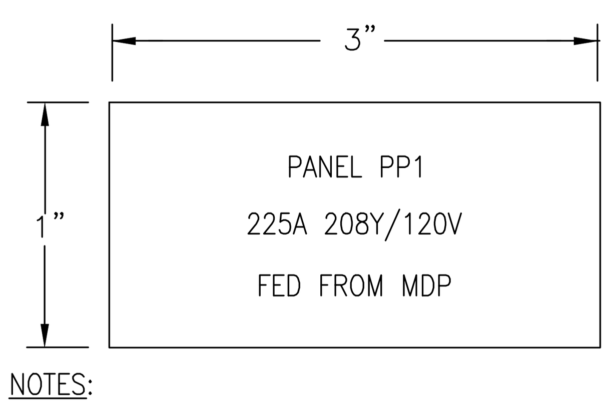
ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

EQUIPMENT TYPE:	
GROUNDING:	Y/N GROUNDED
WORK DISTANCE:	INCHES
AVAILABLE 3ϕ BOLTED CURRENT:	kA
FLASH PROTECTION BOUNDARY:	INCHES
INCIDENT ENERGY AT 23 INCHES:	cal/cm²
PPE LEVEL:	4
DATE:	xx/xx/xxxx

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

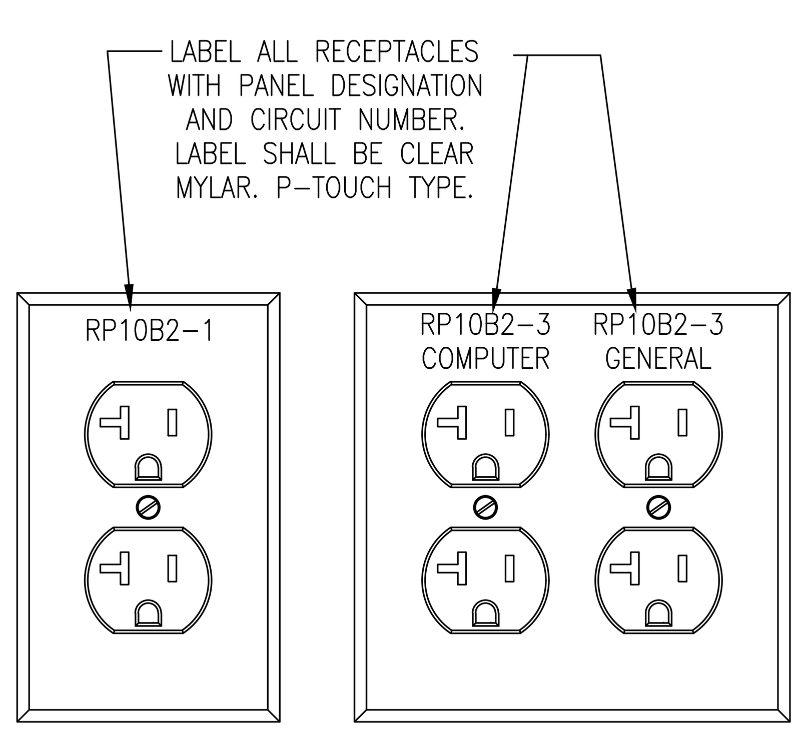
TYPICAL NAMEPLATE DETAIL



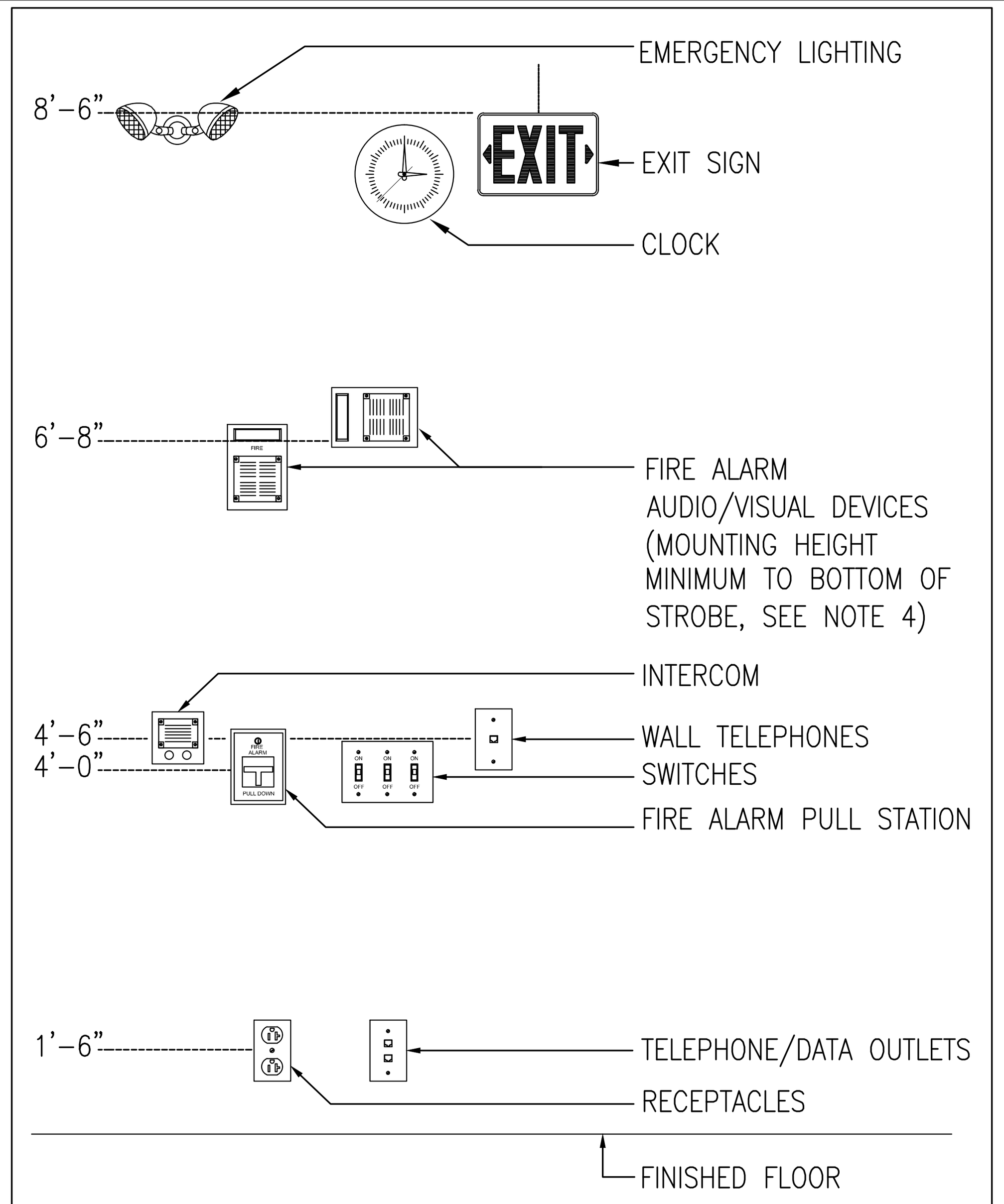
NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
4. TYPICAL FOR "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

RECEPTACLE LABEL REQUIREMENTS



TYPICAL DEVICE MOUNTING HEIGHTS DETAIL



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. STROBE HEIGHT ILLUSTRATED AT MAXIMUM HEIGHT. STROBE SHALL BE 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

ELECTRIC ABBREVIATIONS

A/AMP	AMPERE	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICAN WITH DISABILITIES ACT	MEC	MASSACHUSETTS ELECTRIC CODE
AF	AMPERE FRAME	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AT	AMPERE TRIP	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWTICH	#	NUMBER
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	PWR	POWER
CATV	CABLE TELEVISION	RGS	RIGID GALVANIZED STEEL
CCTV	CLOSED CIRCUIT TELEVISION	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	TEL	TELEPHONE
CKT	CIRCUIT	TERM	TERMINAL
℄	CENTERLINE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DWG	DRAWING	TSP	TWISTED SHIELDED PAIR
EC	ELECTRICAL CONTRACTOR	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UNO	UNLESS OTHERWISE NOTED
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	UPS	UNINTERRUPTIBLE POWER SUPPLY
GFI	GROUND FAULT INTERRUPTING	UTP	UNSHIELDED TWISTED PAIR
GND	GROUND	V	VOLT
HH	HANDHOLE	VA	VOLT AMPERE
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	W	WATT
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND		
KVA	KILOVOLT - AMPERE		
KW	KILOWATT		

MOTOR & CONTROLS LEGEND

SYMBOL	DESCRIPTION
30AS	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" - INDICATES NEMA TYPE 3R ENCLOSURE "30AS" - INDICATES 30AMP SWITCH
FS	FIBER OPTIC SWITCH. PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION WITH NAVFAC AND CONTROLS CONTRACTOR.
	HONEYWELL AT120B1028/B 120VAC-24VAC FIBER OPTIC CONTROL TRANSFORMER. FIELD COORDINATE EXACT LOCATION. FINAL LOW-VOLTAGE CONNECTION BY TRADE CONTRACTOR.
JCB	DDC CONTROL JACE BOX. PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION.

ELECTRIC SYSTEM TAGS OR CALL OUT SYMBOLS

SYMBOL

- EUH / # — EQUIPMENT SYMBOLS (REFER TO EQUIPMENT SCHEDULES)
- EQUIPMENT DESIGNATION
- EQUIPMENT REFERENCE NUMBER (TYP)
- # — NEW WORK NOTE TAG
- # — DEMOLITION NOTE TAG

WIRING DEVICES

SYMBOL	DESCRIPTION
# GFI	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "#" - INDICATES CIRCUIT NUMBER (TYP) "WP" - INDICATES WEATHERPROOF (TYP) "GFI" - INDICATES GROUND FAULT INTERRUPTER

POWER DISTRIBUTION LEGEND

SYMBOL	DESCRIPTION
	208Y/120 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
	480Y/277 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
T	DRY TYPE TRANSFORMER

BRANCH CIRCUIT & FEEDER LEGEND

SYMBOL	DESCRIPTION
PP1-(X)	BRANCH CIRCUIT HOME RUN. TYPICAL 2#12 & 1#12G IN ¾"C MINIMUM. PP1-(1) INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.

EXISTING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
XM	EXISTING EQUIPMENT TO REMAIN
XR	EXISTING EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT TO REMAIN FOR INFORMATION ONLY - (XM) INDICATED BY SYMBOL WITH LIGHT OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED - (XN, XL, XE, XR) INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
XXXX	FIRE ALARM DEVICE "RTS" - INDICATES REMOTE TEST STATION
S	DUCT MOUNTED SMOKE DETECTOR

ELECTRIC GENERAL NOTES

1. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF WORK. DAMAGE SHALL INCLUDE BUT NOT LIMITED TO THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
3. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINT OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY TRADE CONTRACTOR. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED AS SPARE.
4. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE OR TURNED OVER TO OWNER. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
5. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. CIRCUITRY HAS BEEN DETERMINED BASED UPON INFORMATION GATHERED, ASSUMPTIONS, AND INFORMATION OBTAINED FROM NAVFAC. EXACT CIRCUITING, EQUIPMENT SIZES, AND CONDUIT AND WIRING SIZES MAY DIFFER IN THE FIELD FROM WHAT IS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRACING ALL CIRCUITS BEING DEMOLISHED AND REUSED PRIOR TO DISCONNECTING, VERIFYING EXISTING CIRCUITRY AND EQUIPMENT SIZES, AND SHALL SIZE ALL NEW EQUIPMENT AND BRANCH CIRCUITRY ACCORDINGLY IF ACTUAL CONDITIONS DIFFER FROM WHAT IS SHOWN ON THE DRAWINGS. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
6. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
7. THE ELECTRICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
8. ROUTING IS DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ROUTING IN FIELD AND RE-USE EXISTING PENETRATIONS WHERE POSSIBLE.
9. SEE PWD-ME DRAWING NUMBERS;
   - 9.1. 43-15-67 FOR TITLE SHEET
   - 9.2. 43-15-68 FOR LIST OF DRAWINGS
   - 9.3. 43-15-69 FOR GENERAL NOTES & LEGENDS
   - 9.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
   - 9.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
E1.0	BUILDING 96 ELECTRICAL LEGEND
ED2.0A	BUILDING 96 ELECTRICAL SECOND FLOOR DEMOLITION PLAN PART A
ED2.0D	BUILDING 96 ELECTRICAL SECOND FLOOR DEMOLITION PLAN PART D
E2.0A	BUILDING 96 ELECTRICAL FIRST FLOOR PARTIAL PLAN AND SECOND FLOOR PLAN PART A
E2.0D	BUILDING 96 ELECTRICAL SECOND FLOOR PLAN PART D
E3.0	BUILDING 96 ELECTRICAL SCHEDULES

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE - CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER
SEAL

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25 AVIATION AVE STE 204 PORTSMOUTH, NH 03801 603-319-8244
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

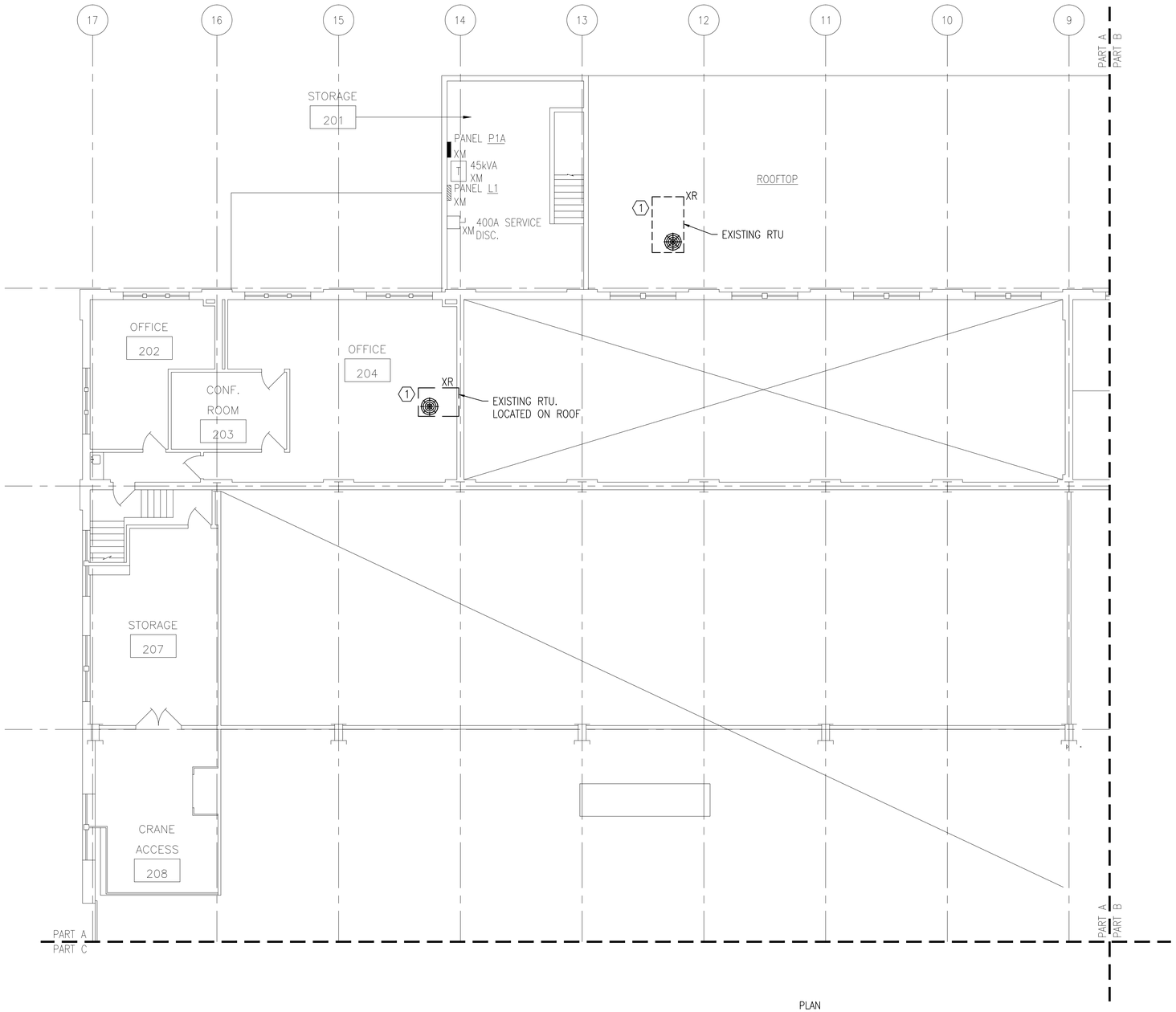
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT - MAINE — NAVAL SHIPYARD - PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD — KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 ELECTRICAL LEGEND

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703686
SHEET 233 OF 506
E1.0 | 96-15-541

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 ELECTRICAL SECOND FLOOR DEMOLITION PLAN - PART A

1/8" = 1'-0"

PLAN NORTH

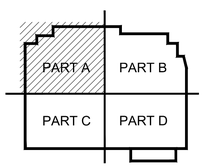
GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
3. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

DEMOLITION KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING RTU. DEMOLISH EXISTING BRANCH CIRCUITRY, AND DISCONNECT IN THEIR ENTIRETY. MAINTAIN EXISTING CIRCUIT BREAKER AND LABEL AS "SPARE" FOR FUTURE USE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
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TEL 609-392-8828
ELECTRICAL
215 Haddon Ave, Ste. 204
Haddonfield, New Jersey 08033
856-216-0024
INFO

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ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 ELECTRICAL SECOND FLOOR DEMOLITION PLAN PART A

EPROJECT NO.: 1350913

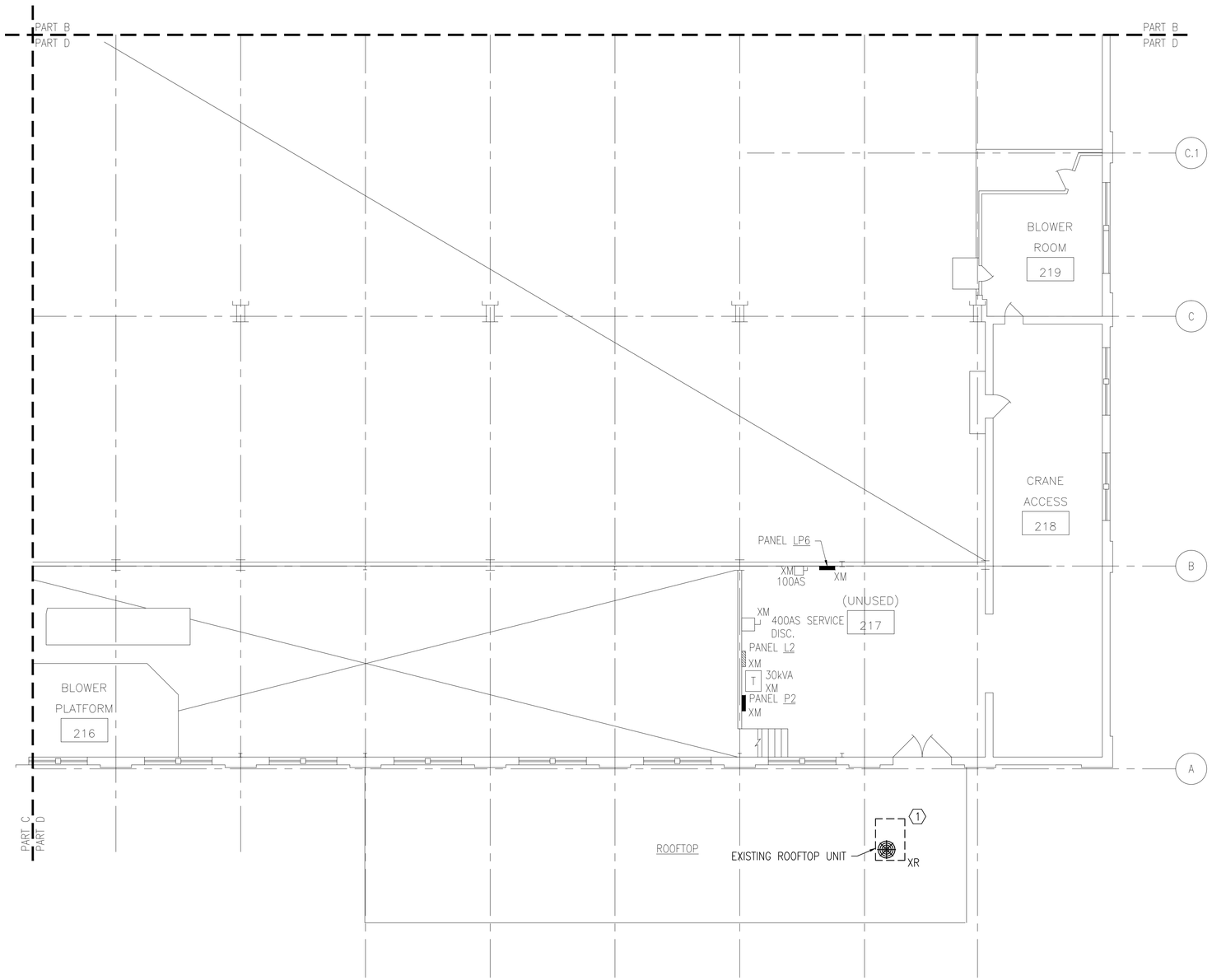
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703687

SHEET 234 OF 506

ED2.0A 96-15-542

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 ELECTRICAL SECOND FLOOR DEMOLITION PLAN - PART D

1/8" = 1'-0"

PLAN NORTH

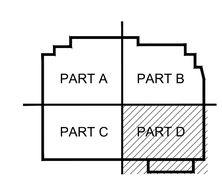
GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
3. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

NEW WORK KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING ROOFTOP UNIT. DEMOLISH EXISTING BRANCH CIRCUITRY AND DISCONNECT IN THEIR ENTIRETY. MAINTAIN EXISTING CIRCUIT BREAKER AND LABEL AS "SPARE" FOR FUTURE USE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
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0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

THE CAD/CADD/GIS/IT RESOURCE DOCUMENTS AND DATA INCLUDED HEREIN WERE PREPARED BY THE CONTRACTOR FOR THE GOVERNMENT. THE GOVERNMENT MAKES NO REPRESENTATIONS AS TO THE ACCURACY OF ANY UNCHANGED, UNMODIFIED, UNALTERED, OR UNAMENDED DOCUMENTS OR DATA. ANY CHANGES MADE TO THE DOCUMENTS OR DATA MUST BE REPRESENTED AS A NEW DOCUMENT OR DATA FILE CREATED BY THE CONTRACTOR.

PREPARED

CSI ENGINEERING TECHNOLOGIES

FIRE PROTECTION

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SAN DIEGO, CA 92101
619-233-8828

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CHARLESTON, SC 29407
843-571-9214

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 ELECTRICAL SECOND FLOOR DEMOLITION PLAN PART D

EPROJECT NO.: 1350913

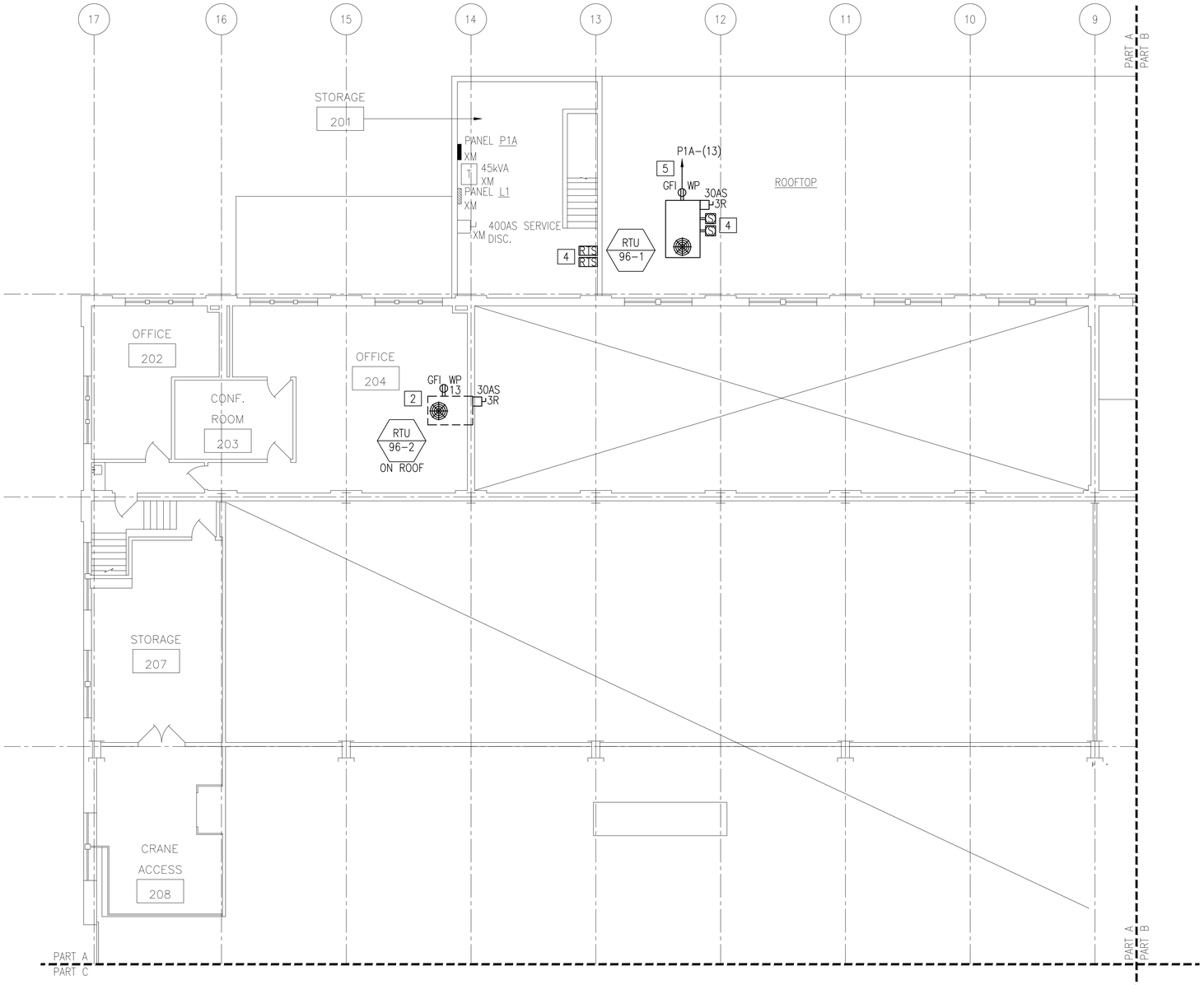
CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703688

SHEET 235 OF 506

ED2.0D 96-15-543

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 ELECTRICAL SECOND FLOOR PLAN - PART A

1/8" = 1'-0"

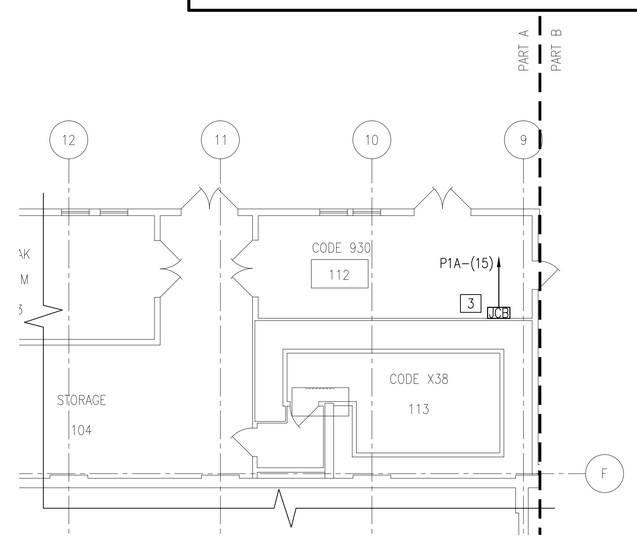
PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FINAL LOW-VOLTAGE CONNECTIONS TO BE MADE BY CONTROLS CONTRACTOR. FIELD COORDINATE EXACT LOCATION OF EQUIPMENT WITH CONTROLS CONTRACTOR AND NAVFAC.
5. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
6. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.
7. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

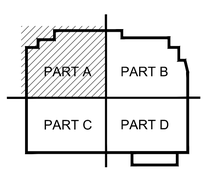
1. UTILIZE TO EXISTING CIRCUIT BREAKER IN PANEL "L1" FOR NEW RTU. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
2. PROVIDE NEW CIRCUIT BREAKER IN PANEL "L1" FOR NEW ROOFTOP UNIT. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
3. NEW DDC JACE BOX PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION WITH NAVFAC AND CONTROLS CONTRACTOR.
4. NEW DUCT SMOKE DETECTOR PROVIDED BY TRADE CONTRACTOR. COORDINATE EXACT LOCATION OF DUCT SMOKE DETECTOR WITH MECHANICAL CONTRACTOR. PROVIDE NEW REMOTE TEST STATION. CONNECT NEW DUCT SMOKE DETECTOR AND REMOTE TEST STATION TO EXISTING FIRE ALARM DETECTION CIRCUIT SERVING THE AREA. REUSE AS MUCH EXISTING CONDUIT AND WIRING AS POSSIBLE AND EXTEND AS NEEDED. NEW CONDUIT AND WIRING SHALL MATCH EXISTING IN ALL RESPECTS.



BUILDING 96 ELECTRICAL FIRST FLOOR PARTIAL PLAN - PART A

1/8" = 1'-0"

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

DESIGN CONSULTANT IN THE PERFORMANCE OF THIS DESIGN, THE DESIGN CONSULTANT HAS ADHERED TO, AND COORDINATED WITH, THE DESIGN GUIDANCE OF ALL APPLICABLE DOD, NAVY AND NAVFAC CRITERIA. ALL DESIGN DOCUMENTS, OVERSIGHT, CALCULATIONS, AND ANALYSES HAVE BEEN PERFORMED BY AUTHORIZED DESIGNERS AND REVIEWED BY DESIGN PROFESSIONALS REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. THE DESIGN CONSULTANT HAS ASSURED THAT THE DESIGN MEETS THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONTRACT NO. N62470-10-D-8013, DO/TO 0010 AND 0014

DESIGNER
CSI ENGINEERING
FIRE PROTECTION
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GUAYNABO, PR 00966
787.273.9424

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM DRW TM CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

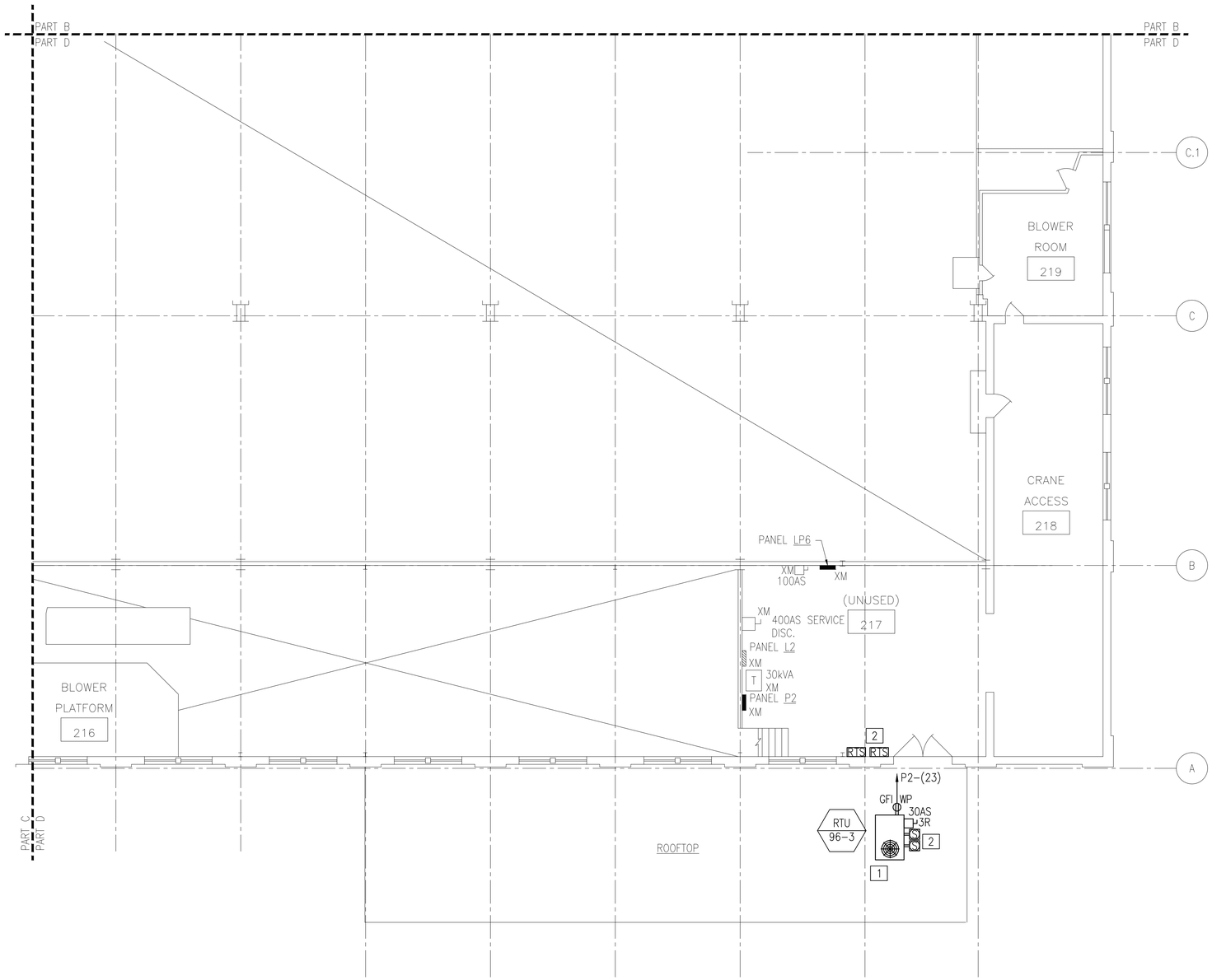
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 ELECTRICAL FIRST FLOOR PARTIAL PLAN AND SECOND FLOOR PLAN PART A

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703689
SHEET 236 OF 506
E2.0A 96-15-544

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 96 ELECTRICAL SECOND FLOOR PLAN - PART D

1/8" = 1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
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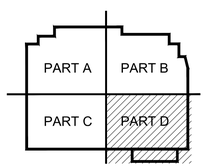
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. PROVIDE NEW CIRCUIT BREAKER IN PANEL "L2" FOR NEW ROOFTOP UNIT. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
2. NEW DUCT SMOKE DETECTOR PROVIDED BY TRADE CONTRACTOR. COORDINATE EXACT LOCATION OF DUCT SMOKE DETECTOR WITH MECHANICAL CONTRACTOR. PROVIDE NEW REMOTE TEST STATION. CONNECT NEW DUCT SMOKE DETECTOR AND REMOTE TEST STATION TO EXISTING FIRE ALARM DETECTION CIRCUIT SERVING THE AREA. REUSE AS MUCH EXISTING CONDUIT AND WIRING AS POSSIBLE AND EXTEND AS NEEDED. NEW CONDUIT AND WIRING SHALL MATCH EXISTING IN ALL RESPECTS.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
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STM	DESCRIPTION	DATE	APPR
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1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
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SEAL

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617-313-9214
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM DRW TM CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT ~ MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD ~ PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 96 ELECTRICAL SECOND FLOOR PLAN PART D

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703690
SHEET 237 OF 506
E2.0D 96-15-545

DRAWFORM REVISION: 10 OCTOBER 2014

MECHANICAL EQUIPMENT SCHEDULE

EQUIP TAG	DESCRIPTION	LOAD HP	LOAD KVA	LOAD VOLT	LOAD PH	PANEL SOURCE PANEL	PANEL SOURCE C/B	BRANCH CIRCUIT	CONNECTION FLEX	CONNECTION JB	CONNECTION REC	CONNECTION DISC	NOTES
RTU 96-1	ROOFTOP UNIT	1	12.03	460	3	L1-(8,10,12)	20A/3P	(3)#12 & (1)#12G, 3/4"C	X			X	NOTE 7,9
RTU 96-2	ROOFTOP UNIT	1	10.20	460	3	L1-(20,22,24)	15A/3P	(3)#12 & (1)#12G, 3/4"C	X			X	NOTE 7,9
RTU 96-3	ROOFTOP UNIT	1	11.00	460	3	L2-(15,17,19)	20A/3P	(3)#12 & (1)#12G, 3/4"C	X			X	NOTE 7,9

MECHANICAL EQUIPMENT SCHEDULE NOTES:
1. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION.
2. "FLEX" – DENOTES FINAL THREE FEET (MAXIMUM) OF RACEWAY SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT METAL CONDUIT.
3. "JB" – JUNCTION BOX DENOTES FINAL CONNECTION TO BOX OR CONTROL PANEL PREWIRED TO THE EQUIPMENT.
4. "REC" – PROVIDE RECEPTACLE IN THE NEMA CONFIGURATION NOTED.
5. NOTES 6–9 ARE OPTIONS WHICH SHALL BE SPECIFICALLY NOTED IN REMARKS FOR INCLUSION.
6. DISCONNECT SHALL BE FUSIBLE.
7. DISCONNECT SHALL BE NEMA "3R"
8. DISCONNECT SHALL BE MOTOR–RATED SWITCH WITH THERMAL OVERLOAD ELEMENT.
9. DISCONNECT PROVIDED INTEGRAL (PREWIRED) TO EQUIPMENT BY TRADE CONTRACTOR.
10. INTEGRAL CONVENIENCE RECEPTACLE PROVIDED PREWIRED TO EQUIPMENT BY TRADE CONTRACTOR.

PANELBOARD SCHEDULE

PANEL: L1 VOLTS: 277/ 480 NEW/EXISTING.: EXISTING
MAIN: 225A MCB BUS AMPS: 225A MOUNT.: SURFACE
PH/WIRE: 3ø/4W AIC: LOC: BLDG 96 MEZZ. ABOVE RM 102

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	2ND FLOOR BASEBOARD	0	–	–	0	SPARE	20/1	2
3	20/1	SPARE	0	–	–	0	SPARE	20/1	4
5	20/1	SPARE	0	–	–	0	SPARE	20/1	6
7	20/3	HTEX CONTROLS 1ST FLOOR	0	–	1	12.0	RTU–96–1	20/3	8
9									10
11									12
13	30/3	SPARE	0	–	–	0.38	P1A VIA 45kVA TRANSFORMER	100/3	14
15									16
17									18
19	60/3	FEED FOR OUTSIDE DISC.	0	–	2	10.2	RTU–96–2	15/3	20
21									22
23									24
25		SPACE		–	–		SPACE		26
27		SPACE		–	–		SPACE		28
29		SPACE		–	–		SPACE		30
31		SPACE		–	–		SPACE		32
33		SPACE		–	–		SPACE		34
35		SPACE		–	–		SPACE		36
37		SPACE		–	–		SPACE		38
39		SPACE		–	–		SPACE		40
41		SPACE		–	–		SPACE		42
			0.0			22.6	TOTAL CONNECTED kVA:	22.58	
							TOTAL CONNECTED AMPERES:	27.19	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. PROVIDE NEW CIRCUIT BREAKER SIZED AS INDICATED FOR NEW LOAD.
3. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: P2 VOLTS: 120/ 208 NEW/EXISTING.: EXISTING
MAIN: 100A MCB BUS AMPS: 250A MOUNT.: SURFACE
PH/WIRE: 3ø/4W AIC: LOC: BLDG 96 UNUSED RM 217

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	LTS RM 118, 119	0	–	–	0	LTS RM 117	20/1	2
3	20/1	REC. RM 119	0	–	–	0	REC. RM 116, 117	20/1	4
5	20/1	REC. RM 116, 117	0	–	–	0	MICROWAVE 1	20/1	6
7	20/1	COPIER #5	0	–	–	0	MICROWAVE 2	20/1	8
9	20/1	REC. RM 118	0	–	–	0	COPIER #4	20/1	10
11	20/1	PUMP 1&2	0	–	–	0	GUARDHOUSE LTS	20/1	12
13	20/1	ISC	0	–	–	0	OUTSIDE LTS EAST WALL	20/1	14
15	20/1	OVERHEAD LTS HIGH BAY	0	–	–	0	OVERHEAD LTS HIGH BAY	20/1	16
17	20/1	OVERHEAD LTS HIGH BAY	0	–	–	0	OVERHEAD LTS HIGH BAY	20/1	18
19	20/1	REC.	0	–	–	0	DESK COMPUTER REC.	20/1	20
21	20/1	(4) 8FT LIGHTS	0	–	–	0	REC.	20/1	22
23	20/1	ROOFTOP UNIT RECPT.	.18	1	–		SPACE		24
25		SPACE		–	–		SPACE		26
27		SPACE		–	–		SPACE		28
29		SPACE		–	–		SPACE		30
			0.2			0.0	TOTAL CONNECTED kVA:	0.18	
							TOTAL CONNECTED AMPERES:	0.50	

NOTES:
1. PROVIDE NEW CIRCUIT BREAKER SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: L2 VOLTS: 277/ 480 NEW/EXISTING.: EXISTING
MAIN: 225A MCB BUS AMPS: 225A MOUNT.: SURFACE
PH/WIRE: 3ø/4W AIC: LOC: BLDG 96 UNUSED RM 217

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	SPARE	0	–	–	0	SPARE	20/1	2
3	20/1	SPARE	0	–	–	0	SPARE	20/1	4
5	20/1	SPARE	0	–	–	0	ES–1	20/1	6
7	20/1	SPARE	0	–	–	0	GUARD HOUSE XFMR	20/2	8
9	70/3	PANEL P2 VIA 30kVA XFMR	0.18	–					10
11									12
13					–	0	SPARE	25/3	14
15	20/3	RTU–96–3	11.0	1					16
17									18
19					–		SPACE		20
21		SPACE		–	–		SPACE		22
23		SPACE		–	–		SPACE		24
25		SPACE		–	–		SPACE		26
27		SPACE		–	–		SPACE		28
29		SPACE		–	–		SPACE		30
31		SPACE		–	–		SPACE		32
33		SPACE		–	–		SPACE		34
35		SPACE		–	–		SPACE		36
37		SPACE		–	–		SPACE		38
39		SPACE		–	–		SPACE		40
41		SPACE		–	–		SPACE		42
			11.2			0.0	TOTAL CONNECTED kVA:	11.18	
							TOTAL CONNECTED AMPERES:	13.46	

NOTES:
1. PROVIDE NEW CIRCUIT BREAKER SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: P1A VOLTS: 120/ 208 NEW/EXISTING.: EXISTING
MAIN: 100A MCB BUS AMPS: 150A MOUNT.: SURFACE
PH/WIRE: 3ø/4W AIC: LOC: BLDG 96

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	LTS GARAGE OFFICE	0	–	–	0	LTS RM 109,110	20/1	2
3	20/1	VAULT LIGHTS	0	–	–	0	REC. RM 106,107	20/1	4
5	20/1	REC. RM 107,109,111	0	–	–	0	REC. RM 109,110	20/1	6
7	20/1	REC. RM 112	0	–	–	0	REC. RM 111,113	20/1	8
9	20/1	REC. RM 114	0	–	–	0	REC. RM 115	20/1	10
11	20/1	COPIER #1	0	–	–	0	COPIER #2	20/1	12
13	20/1	ROOFTOP UNIT RECPTS.	.36	1	OFF	0	EXISTING LOAD	20/1	14
15	20/1	JACE BOX	0.02	1	–	0	REC. RM 202,203,204	20/1	16
17	20/1	REC. RM 203,204,206	0	–	–	0	REC. RM 206	20/1	18
19	20/1	LTS RM 203, HALL	0	–	–	0	LTS. RM 204,206	20/1	20
21	20/1	SRE OFFICE COPIER	0	–	–	0	EXISTING LOAD	20/1	22
23	20/1	SRE OFFICE MICROWAVE	0	–	–	0	EXISTING LOAD	20/1	24
25	20/1	COPIER #3	0	–	–	0	PUMP 3&4 2ND FLOOR	20/1	26
27	20/1	COFFEE MACHINE RM 202	0	–	–	0	PUMP 1&2 FIRST FLOOR	20/1	28
29	20/1	UNIT HEATER – GARAGE	0	–	–	0	EXHAUST FAN #2	20/1	30
31	20/1	EXHAUST FAN #1	0	–	–	0	SUPPLY FAN #1	20/3	32
33	20/1	REC. RM 113	0	–					34
35	20/1	REC. RM 206,207	0	–					36
37	20/1	SPARE	0	–	–	0	MAIN	100/3	38
39	20/1	SPARE	0	–					40
41	20/1	SPARE	0	–					42
			0.4			0.0	TOTAL CONNECTED kVA:	0.38	
							TOTAL CONNECTED AMPERES:	1.06	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	07/10/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	01/20/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 – LICENSED PROFESSIONAL ENGINEER – SEAL

ENGINEER: CSI ENGINEERING, INC. 999 Breakfast Brook Drive, Suite 206, Portsmouth, NH 03801, 781-233-4600, www.csieng.com

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM DRW TM CHK JO
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BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

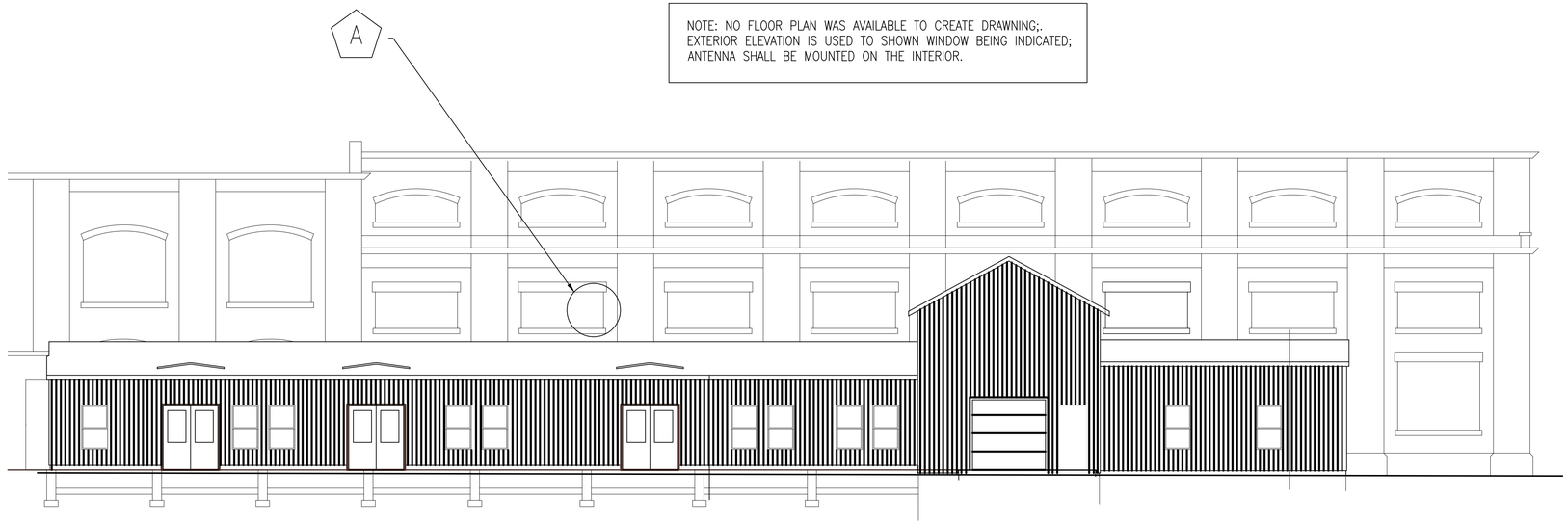
FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 96 ELECTRICAL SCHEDULES

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXX
NAVFAC DRAWING NO. 12703691
SHEET 238 OF 506
E3.0 96-15-546

DRAWFORM REVISION: 10 OCTOBER 2014

NOTE: NO FLOOR PLAN WAS AVAILABLE TO CREATE DRAWNING;. EXTERIOR ELEVATION IS USED TO SHOWN WINDOW BEING INDICATED; ANTENNA SHALL BE MOUNTED ON THE INTERIOR.



B96 ANTENNA LOCATION - NORTH ELEVATION

1/8" = 1'-0"

PLAN NORTH

EQUIPMENT	WIRELESS STANDARD	ANTENNA	FREQUENCY	DIMENSIONS	WEIGHT	INPUT POWER	MANUFACTURER	DESIGN BASED ON MODEL
WIRELESS ACCESS POINT	802.11n	INTEGRATED	2.4 GHZ & 5.8 GHZ	8.7 X 8.7 X 1.84 INCHES	1.9 LBS	AIR-PWRINJ4	CISCO AIRONET	AIR-CAP1602I-x-K9

NOTE: PROVIDE POWER INJECTOR FOR POWER OVER ETHERNET TO WIRELESS ACCESSS POINT. DESIGN BASED ON CISCO MODEL AIR-PWRINJ4.

GENERAL SHEET NOTES

1. FASTENERS SHALL BE ATTACHED TO MORTAR IN MASONRY BUILDINGS, AVOIDING DAMAGE TO THE BRICK WHEREVER PRACTICAL.
2. EXTERIOR CONDUIT SHALL BE INSTALLED IN SHADOW-LINES OR ADJACENT TO EXISTING CONDUIT; CONDUIT COLOR TO BE COORDINATED WITH CULTURAL RESOURCE MANAGER AND A-E.
3. REFER TO MECHANICAL DRAWINGS FOR JACE LOCATION AND INFORMATION.
4. EXISTING ROOF AND WALL PENETRATIONS SHALL BE USED WHEREVER PRACTICAL.
5. INTERIOR, WINDOW-MOUNTED ACCESS POINTS SHALL BE MOUNTED IN AN OBSCURE LOCATION THAT IS LEAST VISIBLE FROM INTERIOR & EXTERIOR.
6. ACCESS POINT MOUNTS SHALL NOT OBSTRUCT EGRESS, EXISTING WALKWAYS, STAIRWELLS, MECHANICAL EQUIPMENT CLEARANCES, OR OTHER APPURTANANCES.
7. UNLESS OTHERWISE NOTED, ROOFTOP ACCESS POINTS SHALL BE CENTRALIZED ON THE ROOF TO MINIMIZE VISIBILITY FROM GROUND LEVEL.
8. CONTRACTOR TO FIELD-VERIFY COMMUNICATION ACCESS POINTS ARE ALIGNED AND LINE OF SIGHT IS UNOBSTRUCTED.
9. IF A FIELD CHANGE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH CULTURAL RESOURCE MANAGER AND A-E PRIOR TO RELOCATING EQUIPMENT.
10. ANY PROPOSED CHANGES (PENETRATIONS, CONDUIT, ETC.) NOT ALREADY INDICATED ON DRAWINGS MADE TO HISTORIC BUILDINGS OR BUILDINGS LOCATED IN HISTORIC DISTRICT MUST BE REVIEWED AND APPROVED BY SHPO THROUGH NAVFAC CULTURAL RESOURCES DEPARTMENT PRIOR TO INSTALLATION.
11. CONTRACTOR TO VERIFY RF SIGNAL STRENGTH AND CONNECTIVITY FROM/TO ALL ACCESS POINTS.
12. SEE PWD-ME DRAWING NUMBERS;
    - 12.1. 43-15-67 FOR TITLE SHEET
    - 12.2. 43-15-68 FOR LIST OF DRAWINGS
    - 12.3. 43-15-69 FOR GENERAL NOTES AND LEGEND
    - 12.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
    - 12.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORT

(A) NEW WORK KEYNOTES

1. CONTRACTOR SHALL MOUNT RF ACCESS POINT TO INSIDE SECOND STORY WINDOW IN NORTH WALL OF LOW BAY AREA.
2. CONTRACTOR SHALL ENSURE LINE-OF-SIGHT THROUGH WINDOW TO B086A ACCESS POINT.
3. CAT5 CABLE SHALL BE ROUTED THROUGH EXISTING PENETRATIONS AND ABOVE DROP CEILING TO JACE.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
0	90% SUBMISSION	07/15/15	DM
	100% SUBMISSION	07/31/15	

NAVFAC

STATE OF NEW HAMPSHIRE KEITH CHRISTOPHER LICENSED PROFESSIONAL ENGINEER No. 13914

SEAL

aecom architects|engineers

13 WATER ST NEWMARKET NH
(603) 200-0096 AECOM.COM

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES VSL | DRW SRR | CHK KLC

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD - PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B096 RF INSTALLATION DETAILS

EPROJECT NO.: 1350913

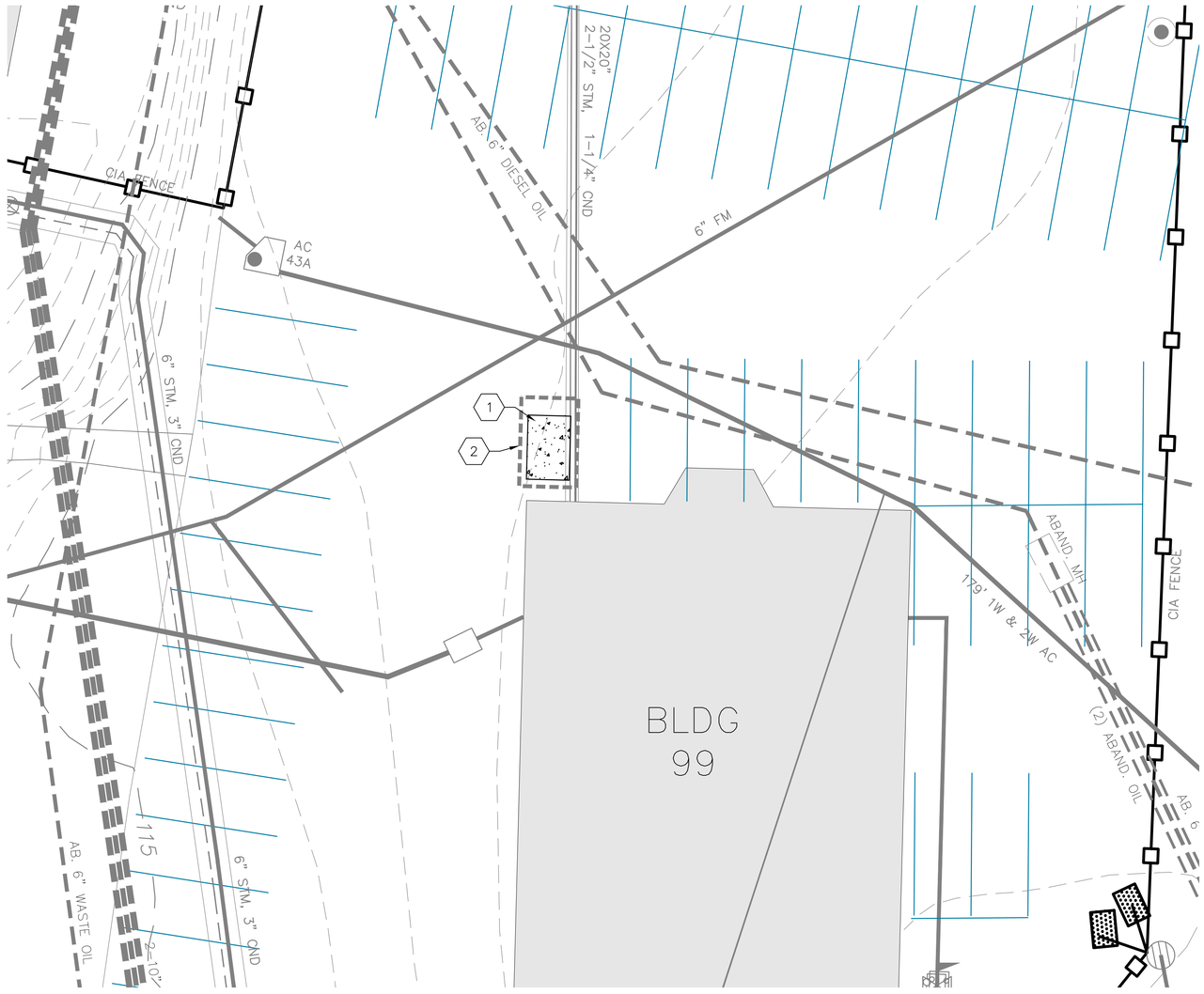
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703692

SHEET 239 OF 506

ET1.0 96-15-547

DRAWFORM REVISION: 10 OCTOBER 2014



B99 DEMOLITION PLAN

SCALE: 1" = 10'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL WORK SHALL BE COORDINATED THROUGH THE PWD-MAINE CONSTRUCTION OFFICER.
2. BURIED UTILITIES ARE SHOWN FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY ACTUAL LOCATIONS OF ALL BURIED UTILITIES.
3. CONTRACTOR SHALL CONDUCT AN ENVIRONMENTAL PERMIT REVIEW OF THE SITE PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL CONDUCT AN ARCHEOLOGICAL REVIEW OF THE SITE PRIOR TO EXCAVATION.
5. EXCAVATED SOIL SHALL BE DISPOSED OF IN ACCORDANCE WITH SECTION 31 23 00.00 22 EXCAVATION AND FILL (PWD MAINE).
6. CONTRACTOR SHALL DISPOSE OF ALL CONSTRUCTION DEBRIS AND MATERIALS AT PERMITTED OFF-SITE DISPOSAL FACILITY.

DEMOLITION KEYNOTES

1. DEMOLISH EXISTING CONCRETE EQUIPMENT PAD.
2. LIMIT OF SAWCUT.

GRAPHIC SCALE

1" = 10'

10 5 0 10 20 30

scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE
Bradlee Mezquita
9410
LICENSED
PROFESSIONAL ENGINEER
SEAL

Tighe&Bond
Consulting Engineers
177 Corporate Drive
Portsmouth, New Hampshire
(603) 433-8818
www.tighebond.com

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: A/E DRW: REP CHK: BLM

PM/DM: PETER STOCKLESS

BRANCH MANAGER: BRUCE LITALIEN

FEAD/PM&E: AMIN BAHROUR PM&E

FIRE PROTECTION: X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH

FORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B99 DEMOLITION PLAN

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

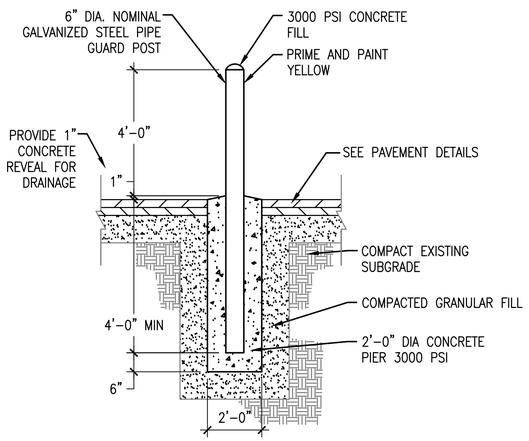
NAVFAC DRAWING NO. 12703693

SHEET 240 OF 506

C1.0 | 99-15-142

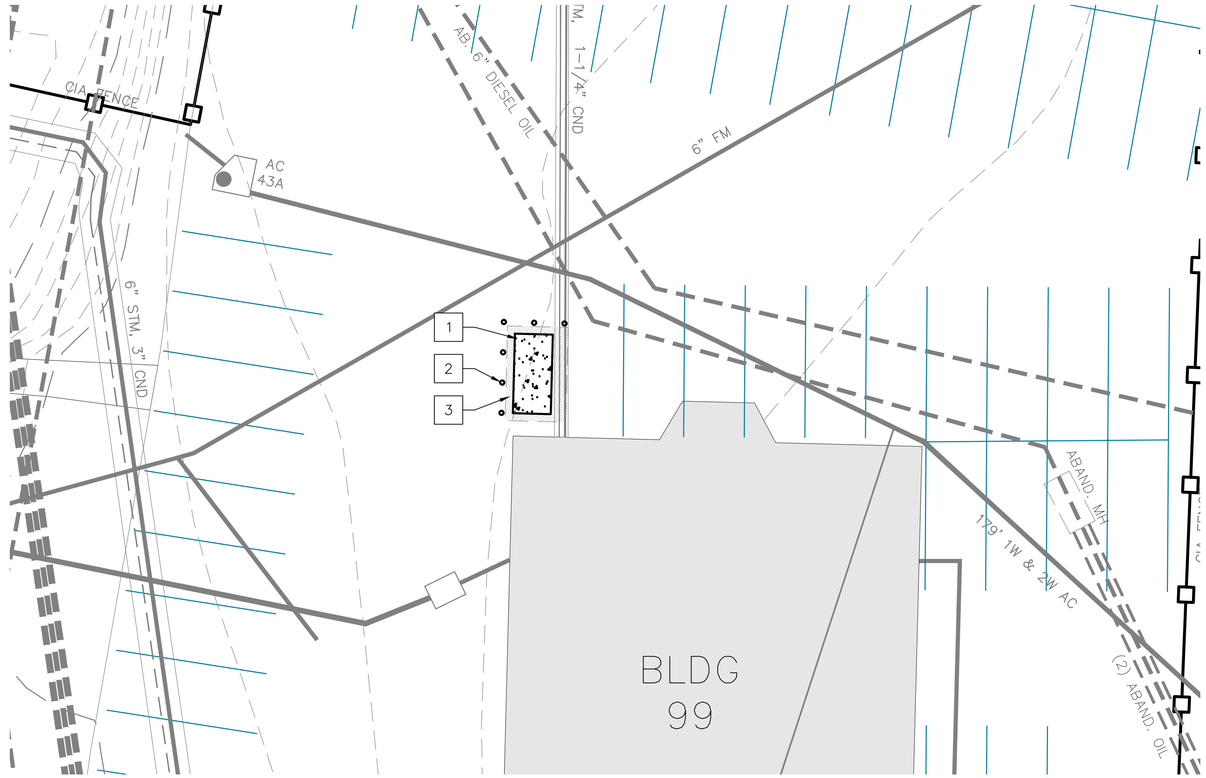
DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\02_R-22\DWG-CAD\DESIGN\A1066_2_R22_SITE.dwg LAYOUT NAME: C1.0 B099 DEMO PLOTTED: Friday, August 07, 2015 - 2:54pm USER: REP



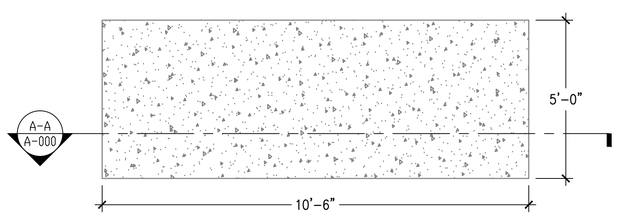
CONCRETE FILLED STEEL BOLLARD DETAIL (2)

NO SCALE



B99 SITE PLAN

SCALE: 1" = 10'

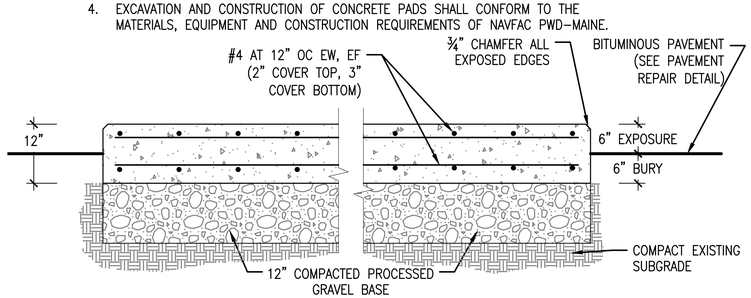


CONCRETE EQUIPMENT PAD DETAIL (1)

NO SCALE

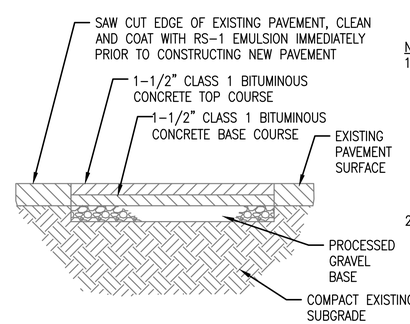
NOTES:

1. COORDINATE PAD DIMENSIONS WITH ACTUAL EQUIPMENT DIMENSIONS.
2. CONCRETE SHALL EXTEND 6" ON EACH SIDE OF EQUIPMENT.
3. CONCRETE SHALL BE MINIMUM 4000 PSI, 7% AIR ENTRAINED.
4. EXCAVATION AND CONSTRUCTION OF CONCRETE PADS SHALL CONFORM TO THE MATERIALS, EQUIPMENT AND CONSTRUCTION REQUIREMENTS OF NAVFAC PWD-MAINE.



SECTION VIEW (A-A)

NO SCALE



NOTES:

1. ALL BITUMINOUS CONCRETE, AGGREGATE, STABILIZED COURSE, SUBBASE AND LIQUID BITUMEN SHALL CONFORM TO THE MATERIALS, EQUIPMENT AND CONSTRUCTION REQUIREMENTS OF NAVFAC AND MAINE DOT.
2. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 15' WIDE TRAVEL WAY AT ROAD CROSSINGS AT ALL TIMES DURING CONSTRUCTION.

PERMANENT PAVEMENT REPAIR DETAIL (3)

NO SCALE

GENERAL SHEET NOTES

1. ALL WORK SHALL BE COORDINATED THROUGH THE PWD-MAINE CONSTRUCTION OFFICER.
2. BURIED UTILITIES ARE SHOWN FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY ACTUAL LOCATIONS OF ALL BURIED UTILITIES.
3. CONTRACTOR SHALL CONDUCT AN ENVIRONMENTAL PERMIT REVIEW OF THE SITE PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL CONDUCT AN ARCHEOLOGICAL REVIEW OF THE SITE PRIOR TO EXCAVATION.
5. EXCAVATED SOIL SHALL BE DISPOSED OF IN ACCORDANCE WITH SECTION 31 23 00.00 22 EXCAVATION AND FILL (PWD MAINE).
6. CONTRACTOR SHALL DISPOSE OF ALL CONSTRUCTION DEBRIS AND MATERIALS AT PERMITTED OFF-SITE DISPOSAL FACILITY.
7. VERIFY LOCATION AND DEPTH OF TUNNEL AREA PRIOR TO CONSTRUCTION ACTIVITIES. RELOCATE EQUIPMENT PAD AS NECESSARY TO AVOID INTERRUPTION TO EXISTING UTILITIES.

NEW WORK KEYNOTES

1. CONSTRUCT CONCRETE EQUIPMENT PAD.
2. CONSTRUCT 6" CONCRETE FILLED STEEL BOLLARDS AROUND EQUIPMENT PAD. (TYP. OF 6) BOLLARDS SHALL BE EVENLY SPACED AND PLACED AS TO NOT INTERFERE WITH EQUIPMENT ACCESS OR OPERATION.
3. REPAIR PAVEMENT IN AREA OF DEMOLISHED EQUIPMENT PAD.

GRAPHIC SCALE

1" = 10' 10 5 0 10 20 30 scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE Bradlee Mesquita 9410 LICENSED PROFESSIONAL ENGINEER

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A/E INFO

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES A/E DRW REP CHK BLM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD
FY 16 ENERGY PROJECT
TASK 1-B-R-22
B99 SITE PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703694
SHEET 241 OF 506
C2.0 99-15-143

DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\02_R-22\DWG-CAD\DESIGN\A1066_2_R22_SITE.dwg LAYOUT NAME: C2.0 B099 SITE PLOTTED: Friday, August 07, 2015 - 2:54pm USER: REP

GENERIC HVAC ABBREVIATIONS

°F	DEGREES FAHRENHEIT	ID	INSIDE DIAMETER
°C	DEGREES CELSIUS	IN	INCHES
ø	DIAMETER	INSUL	INSULATION
ACV	AUTOMATIC CONTROL VALVE	KW	KILOWATT
AD	ACCESS DOOR	KVA	KILOVOLT AMPERE
ADJ	ADJUSTABLE	L	LENGTH
ADDL	ADDITIONAL	LB	POUND
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
AFG	ABOVE FINISHED GRADE	LVG	LEAVING
ALT	ALTERNATE	M	ONE THOUSAND
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPS
AS	AIR SEPARATOR	MCC	MOTOR CONTROL CENTER
AVG	AVERAGE	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BFF	BELOW FINISHED FLOOR	MFR	MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BLDG	BUILDING	MTD	MOUNTED
BLR	BOILER	MU	MAKEUP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
BSMY	BASEMENT	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
C	CONVECTOR	NO.	NUMBER
CF	CEILING FAN	NOM	NOMINAL
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	OB	OCTAVE BAND
CO	CLEAN–OUT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPRESSOR	ODP	OPEN DRIP PROOF
CONC	CONCRETE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION	OFOI	OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR	OV	OUTLET VELOCITY
CORR	CORRIDOR	PCF	POUNDS PER CUBIC FOOT
CUF	CUBIC FEET	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	PH	PHASE
CYL	CYLINDER	PLMB	PLUMBING
D	DRAIN	POS	PROVIDED BY OTHER SECTION(S)
DB	DRY BULB TEMPERATURE	PRESS	PRESSURE
DDC	DIRECT DIGITAL CONTROL	PRIM	PRIMARY
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DIM	DIMENSION	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	REP	REPRESENTATIVE
EA	EACH	RET	RETURN
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EFF	EFFICIENCY	REQS	REQUIREMENTS
ECUH	ELECTRIC CABINET UNIT HEATER	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EMER	EMERGENCY	SCH	SCHEDULE
ENT	ENTERING	SOV	SOLENOID OPERATED VALVE
EQUIP	EQUIPMENT	SPECS	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SQFT	SQUARE FEET
FTR	FINNED TUBE RADIATION	SS	STAINLESS STEEL
FCV	FLOW CONTROL VALVE	STD	STANDARD
FG	FIBERGLASS	STDBY	STANDBY
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	SUCT	SUCTION
FLRDR	FLOOR DRAIN	SUP	SUPPLY
FP	FIRE PROTECTION	TA	THROW–AWAY
FPM	FEET PER MINUTE	TAV	THERMOSTATIC AIR VENT
FT	FEET	TEFC	TOTALLY ENCLOSED FAN COOLED
FT/SEC	FEET PER SECOND	TEL	TELEPHONE
FURN	FURNISHED	TEMP	TEMPERATURE
FVNR	FULL VOLTAGE NON–REVERSING	TOD	TOP OF DUCT
GA	GAUGE	TOP	TOP OF PIPE
GAL	GALLONS	TYP	TYPICAL
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	V	VENT
GND	GROUND	VEL	VELOCITY
GPH	GALLONS PER HOUR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
GRD	GRADE (GROUND LEVEL)	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDTH
H	HEIGHT	W/	WITH
HD	HEAD	W/O	WITHOUT
HP	HORSEPOWER	WB	WET BULB TEMPERATURE
HR	HOUR	WF	WIDE FLANGE
HZ	HERTZ	WG	WATER GAUGE
		WRT	WITH RESPECT TO

GENERIC HVAC SYSTEM TAGS

CH 1 — CHILLER

J 1 — JACE BOX

CALL OUT SYMBOLS

CONNECT TO EXISTING

LIMIT OF NEW WORK

REFER TO DRAWINGS ( ) FOR CONTINUATION

SYMBOL DESIGNATES ASSOCIATED SYSTEM OR SERVICE (ie LPS)

DIFFUSER, GRILLE, REGISTER LETTER DESIGNATION (See Schedule for ATD type)

SA–2 / 200 — DESIGN CFM

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS

EQUIPMENT NOT REQUIRING ELECTRIC SERVICE — TAG / NO / TAG / DATA / DATA — SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS — TAG / NO / TAG / DATA / DATA — EQUIPMENT REQUIRING ELECTRIC SERVICE

NOTE:REFER TO SCHEDULES FOR DEFINITION OF EQUIPMENT SPECIFIC DATA LISTED WITHIN TAG BLOCKS

PIPING LEGEND

- RISE (SINGLE LINE – PLAN VIEW)
- DROP (SINGLE LINE – PLAN VIEW)
- TOP TAKEOFF
- BOTTOM TAKEOFF
- PIPE BREAK (SINGLE LINE)

AIR SYSTEM SPECIFIC ABBREVIATIONS

AC	AIR CONDITIONING	LVDR	LOUVERED DOOR
ACD	AUTOMATIC CONTROL DAMPER	OA	OUTSIDE AIR
ACU	AIR CONDITIONING UNIT	OAI	OUTSIDE AIR INTAKE
AF	AIR FOIL	OBD	OPPOSED BLADE DAMPER
AHU	AIR HANDLING UNIT	OED	OPEN END DUCT
ALD	ACOUSTICALLY LINED DUCTWORK	RA	RETURN AIR
ATD	AIR TERMINAL DEVICE	RF	RETURN FAN
AVS	AIR VOLUME TRAVERSE STATION	RG	RETURN GRILLE
BDD	BACKDRAFT DAMPER	RHC	REHEAT COIL
BI	BACKWARD INCLINED	RLF	RELIEF
CC	COOLING COIL	RR	RETURN REGISTER
CD	CEILING DIFFUSER	RV	ROOF VENT
CFM	CUBIC FEET PER MINUTE	SA	SUPPLY AIR
CG	CEILING GRILLE	SATT	SOUND ATTENUATOR
DIFF	DIFFUSER	SCR	SCREEN
DWDI	DOUBLE WIDTH DOUBLE INLET	SD	SMOKE DAMPER
DWSI	DOUBLE WIDTH SINGLE INLET	SDET	SMOKE DETECTOR
DX	DIRECT EXPANSION	SEF	SMOKE EXHAUST FAN
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER WITH ACCESS DOOR
ESP	EXTERNAL STATIC PRESSURE		
F	FAN	SG	SUPPLY GRILLE
FC	FORWARD CURVED	SM	SHEETMETAL
FA	FREE AREA	SP	STATIC PRESSURE
FCU	FAN COIL UNIT	SR	SUPPLY REGISTER
FD	FIRE DAMPER (W/ ACCESS DOOR)	SWDI	SINGLE WIDTH DOUBLE INLET
FLTR	FILTER	SWSI	SINGLE WIDTH SINGLE INLET
FPI	FINS PER INCH	TE	TOILET EXHAUST
FPT	FAN POWERED TERMINAL BOX	TF	TRANSFER FAN
GE	GENERAL EXHAUST	TG	TRANSFER GRILLE
GIH	GRAVITY INTAKE HOOD	TR	TRANSFER
GRH	GRAVITY RELIEF HOOD	TSP	TOTAL STATIC PRESSURE
HC	HEATING COIL	UC	UNDERCUT DOOR
LAT	LEAVING AIR TEMPERATURE	VD	VOLUME DAMPER
LD	LINEAR DIFFUSER	VV	VARIABLE VOLUME SUPPLY AIR TERMINAL BOX
LUVR	LOUVER	WMS	WIRE MESH SCREEN

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS–BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS–BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS, AS WELL AS ROUTING PATHS, IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER, AND SHOULD BE KEPT TO A MINIMUM FOR SYSTEM EFFICIENCIES.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. VERIFY ACCESS IS PROVIDED FOR SERVICING EQUIPMENT AS REQUIRED.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
12. INSTALL NEW THERMOSTATS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ENGINEER.
13. GENERAL CONTRACTOR TO PATCH ALL EFFECTED INTERIOR AND EXTERIOR EXISTING FLOOR, WALL, AND CEILING SURFACES TO MATCH EXISTING. PROVIDE ESCUTCHEON PLATES.
14. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
15. ANY AND ALL WALLS, CEILINGS AND FLOORS THAT ARE ANTICIPATED TO BE DISTURBED DURING THE DEMOLITION OR INSTALLATIONS PROCESS, AS INDICATED ON THE DRAWINGS, SHALL BE TESTED FOR HAZARDOUS MATERIALS PRIOR TO DISTURBING THE SURFACES. ROUTING OF PIPING HAS BEEN INDICATED TO DEPICT THE INTENT OF THE WORK. ACTUAL ROUTING MAY DIFFER IN THE FIELD DUE TO BUILDING CONSTRUCTION. COORDINATE TESTING OF ALL SURFACES TO BE DISTURBED, ALONG THE ACTUAL INSTALLATION ROUTE, WITH THE HAZARDOUS MATERIALS CONTRACTOR. REFER TO EXISTING HAZMAT REPORT FOR TESTING RESULTS.
16. MECHANICAL CONTRACTOR TO REMOVE ALL IDENTIFIED R–22 EQUIPMENT AND ASSOCIATED APPURTENANCES AND REPLACE IN KIND WITH A R410A OR R407C SYSTEM.
17. REFRIGERANT PIPING IS DIAGRAMMATIC, CONTRACTOR TO DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS. ANY EXPOSED PIPING TO BE CONCEALED IN A CHASE. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
18. SEE CIVIL DRAWINGS FOR DEMOLISHED AND NEW CONCRETE PADS.
19. THE MECHANICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE MECHANICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
20. SEE PWD–ME DRAWING;
    43–15–67 FOR TITLE SHEET
    43–15–68 FOR LIST OF DRAWINGS
    43–15–69 FOR GENERAL NOTES & LEGENDS
    43–15–72 FOR CHASE AND SOFFIT DETAILS
    43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

HYDRONIC SYSTEM SPECIFIC ABBREVIATIONS

AS	AIR SEPARATOR	ET	EXPANSION TANK
AAV	AUTOMATIC AIR VENT	EWT	ENTERING WATER TEMPERATURE
CH	CHILLER	LWT	LEAVING WATER TEMPERATURE
CHEM	CHEMICAL FEED	MAV	MANUAL AIR VENT
CHW	CHILLED WATER	NPSH	NET POSITIVE SUCTION HEAD
CHWR	CHILLED WATER RETURN	OS&Y	OUTSIDE STEM AND YOKE
CHWS	CHILLED WATER SUPPLY	PU	PUMP
CT	COOLING TOWER	TDH	TOTAL DYNAMIC HEAD
CTK	COMPRESSION TANK		
DDV	DRAIN OFF VALVE		

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
M1.0	BUILDING 99 HVAC LEGEND
MD2.0	BUILDING 99 HVAC FIRST FLOOR DEMOLITION PLAN
M2.0	BUILDING 99 HVAC FIRST FLOOR PLAN
M3.0	BUILDING 99 HVAC CONTROLS
M3.1	BUILDING 99 HVAC CONTROLS
M3.2	BUILDING 99 HVAC CONTROLS
M4.0	BUILDING 99 HVAC SCHEDULES AND DETAILS

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE — DAVID H. MAHONEY No. 12370 — LICENSED PROFESSIONAL ENGINEER — SEAL

THE CAD/CAD SOFTWARE USED TO PRODUCE THIS PLAN, SPECIFICATION OR REPORT WAS PURCHASED IN ACCORDANCE WITH THE NAVFAC CAD STANDARDS CURRENTLY IN EFFECT AT THE TIME OF PURCHASE. ANY MODIFICATIONS TO THE SOFTWARE WERE MADE IN ACCORDANCE WITH AUTHORIZED CUSTOMIZATION PROCEDURES. ANY MODIFICATIONS TO THE DATA WERE MADE USING VALID, ENGINEERING DATA. ANY CALCULATIONS PERFORMED BY THE CAD/CAD SOFTWARE WERE VERIFIED AT THE TIME OF USE. CONTACT NAVFAC ATLANTIC CAD/BIM MANAGER (757-322-8311) FOR QUESTIONS.

PROJECTS

MADE — CSI ENGINEERING — TYPOGRAPHY

FIRE PROTECTION: 919 BANCROFT WAY, STE 204, ALAMEDA, CA 94501, 510-337-1100

A/E INFO: 23 AVIATION AVE, STE 204, PORTSMOUTH, NH 03801, 603-431-8020

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 99 HVAC LEGEND

EPROJECT NO.: 1350913

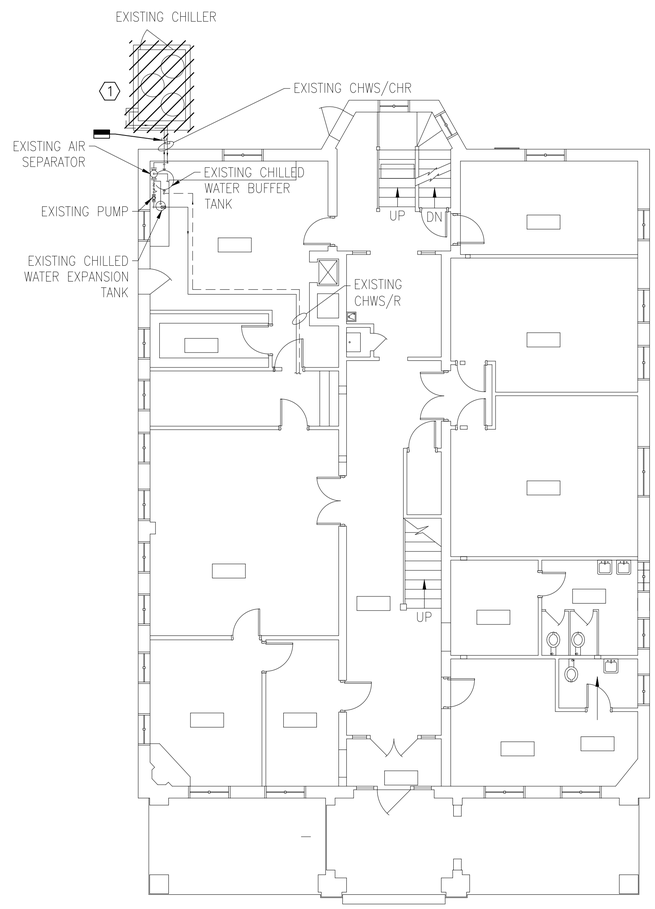
CONSTR. CONTR. NO. N40085–XX–C–XXXX

NAVFAC DRAWING NO. 12703695

SHEET 242 OF 506

M1.0 | 99-15-144

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 99 HVAC FIRST FLOOR DEMOLITION PLAN

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING CHILLER AND IT'S ASSOCIATED PIPING TO THE POINT OF DEMOLITION AS INDICATED ON THE DRAWING. EXISTING CONCRETE PAD TO REMAIN.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER

SEAL

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ENGINEER

CSI

CONSTRUCTION SPECIFICATIONS, INC.

959 BANDMAN AVE, STE 205 VIRGINIA BEACH, VA 23462 757-323-8828

215 MARTIN AVE, STE 3304 SANTA CLARA, CA 95050 408-213-9244

ARCH

ELECTRICAL

INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH

KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 HVAC FIRST FLOOR DEMOLITION PLAN

EPROJECT NO.: 1350913

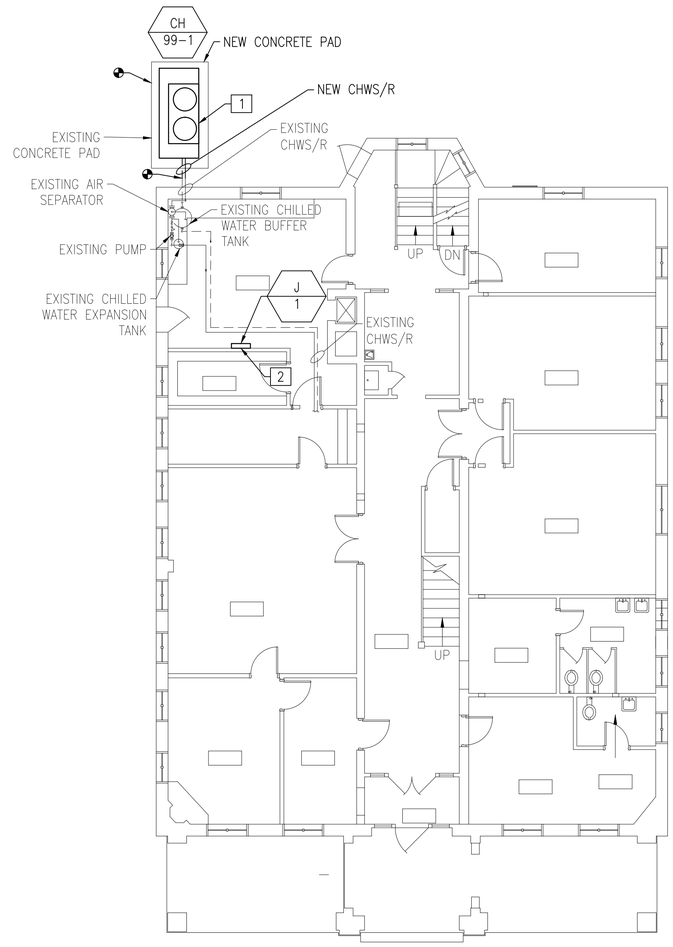
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703696

SHEET 243 OF 506

MD2.0 | 99-15-145

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 99 HVAC FIRST FLOOR PLAN

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL A NEW CHILLER AND IT'S ASSOCIATED CHWS/R PIPING AND CONNECT TO THE EXISTING SYSTEM. NEW CHILLER TO BE PLACED ON EXISTING CONCRETE PAD, EXTEND
2. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF NEW DDC JACE BOX WITH NAVFAC.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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ENGINEER
CSI ENGINEERING
FIRE PROTECTION
918 BRIDGEWAY SUITE 206
SAUSALITO, CA 94965
TEL: 415-332-8828
CA LICENSE NO. C-10 C-61/D-02
23 MARTINA AVE, STE 204
BEDFORD, NH 03110
603-471-9414
INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: JC DRW: SV CHK: DM

PM/DM: PETER STOCKLESS

BRANCH MANAGER: BRUCE LITALIEN

FEAD/PM&E: AMIN BAHROUR PM&E

FIRE PROTECTION: X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 HVAC FIRST FLOOR PLAN

EPROJECT NO.: 1350913

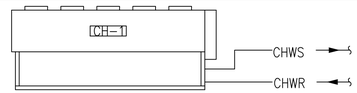
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703697

SHEET 244 OF 506

M2.0 | 99-15-146

DRAWFORM REVISION: 10 OCTOBER 2014



GENERAL:
- PACKAGED CHILLER IS MONITORED AND ON/OFF CONTROLLED BY THE NEW NIAGRA BUILDING DDC SYSTEM

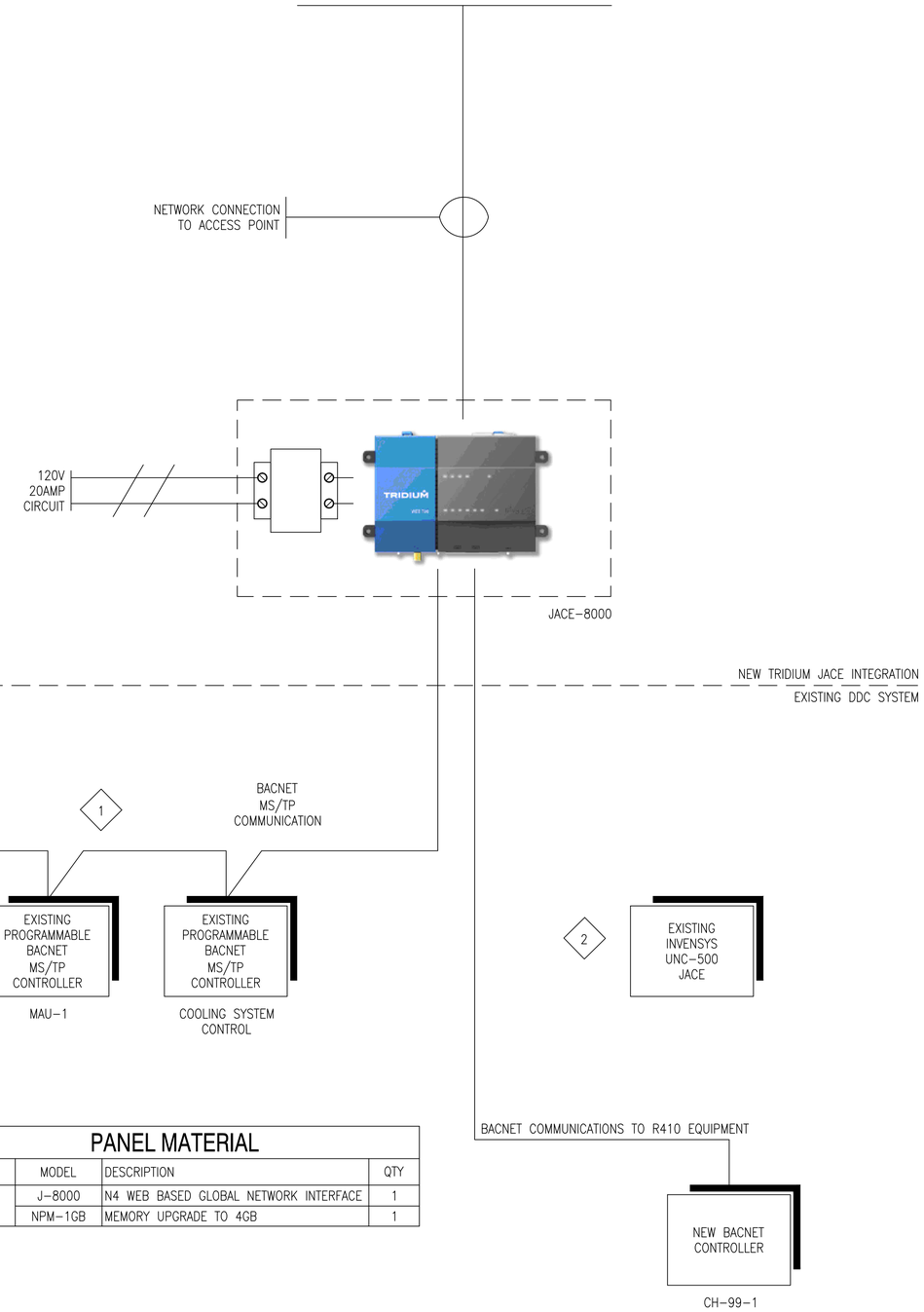
OFF MODE:
- PACKAGED CHILLER IS DE-ENERGIZED

ON MODE:
- CHILLED WATER PUMPS ARE ENERGIZED AND FLOW ESTABLISHED
- PACKAGED CHILLER IS ENERGIZED
- SCROLL COMPRESSORS STAGE ON TO MAINTAIN DISCHARGE WATER TEMPERATURE OF 44°F (ADJ.)

ALARMS:
- PUMP FAILURE SENDS SIGNAL TO DDC FRONT END
- GENERAL FAILURE ALARM FROM CHILLER CONTROL PANEL

PACKAGED CHILLER SEQUENCE OF OPERATION

PORTSMOUTH NAVAL SHIPYARD (BUILDING 99 _ ADMINISTRATION)
EXISTING INVENSYS INTEGRATED DDC SYSTEM ARCHITECTURE



1 IT IS CRITICAL THAT THE COMMUNICATION BUS IS WIRED IN A CONTINUOUS DAISY CHAIN FASHION.

2 REPLACE EXISTING R2 JACE WITH NEW JACE

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
	NPM-1GB	MEMORY UPGRADE TO 4GB	1

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

PROJECT MANAGER
CSI TECHNOLOGY
LEAD ARCHITECT
CSI TECHNOLOGY
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Biloxi, Mississippi 39530
228-374-5121 FAX 228-374-5123
CSI ENGINEERING
999 Backshore Blvd. Ste 204
Biloxi, Mississippi 39530
228-374-5121 FAX 228-374-5123
N/A INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

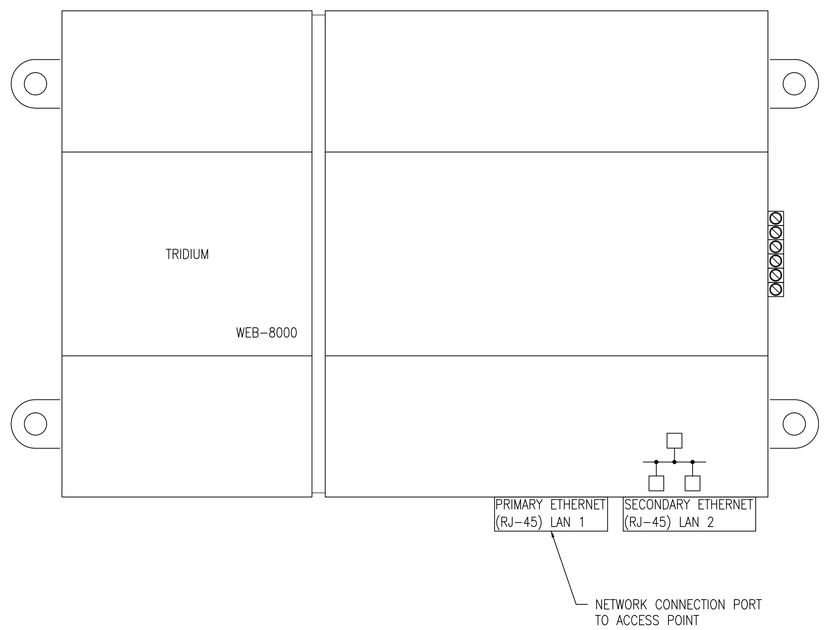
FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703698
SHEET 245 OF 506

M3.0 | 99-15-147

DRAWFORM REVISION: 10 OCTOBER 2014



ETHERNET CONNECTION TO RF ACCESS POINT

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
SEAL

"I HEREBY CERTIFY THAT THE PLANS, SPECIFICATIONS, AND ESTIMATES FOR THE PROJECT DESIGNED BY ME OR UNDER MY DIRECT SUPERVISION AND CHARGE AND NOT SUBSTITUTED BY OTHERS HAVE BEEN PREPARED ACCORDING TO ACCEPTED ENGINEERING PRACTICE AND ARE ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE ESTIMATES REFLECT THE REASONABLE COST OF CONSTRUCTION IN PLACE."
CONTRACT NO. N40085-12-D-1918
DELIVERY ORDER NO. 0203
DATE 02/23/2015

PROPERTY OF:
CSI TECHNOLOGY
LEAD PROJECTION:
999 BROADWAY, SUITE 276
SAN DIEGO, CA 92101
619-233-8833
23 AVIATION AVE, STE 203
PORTSMOUTH, NH 03801
603-319-0414
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

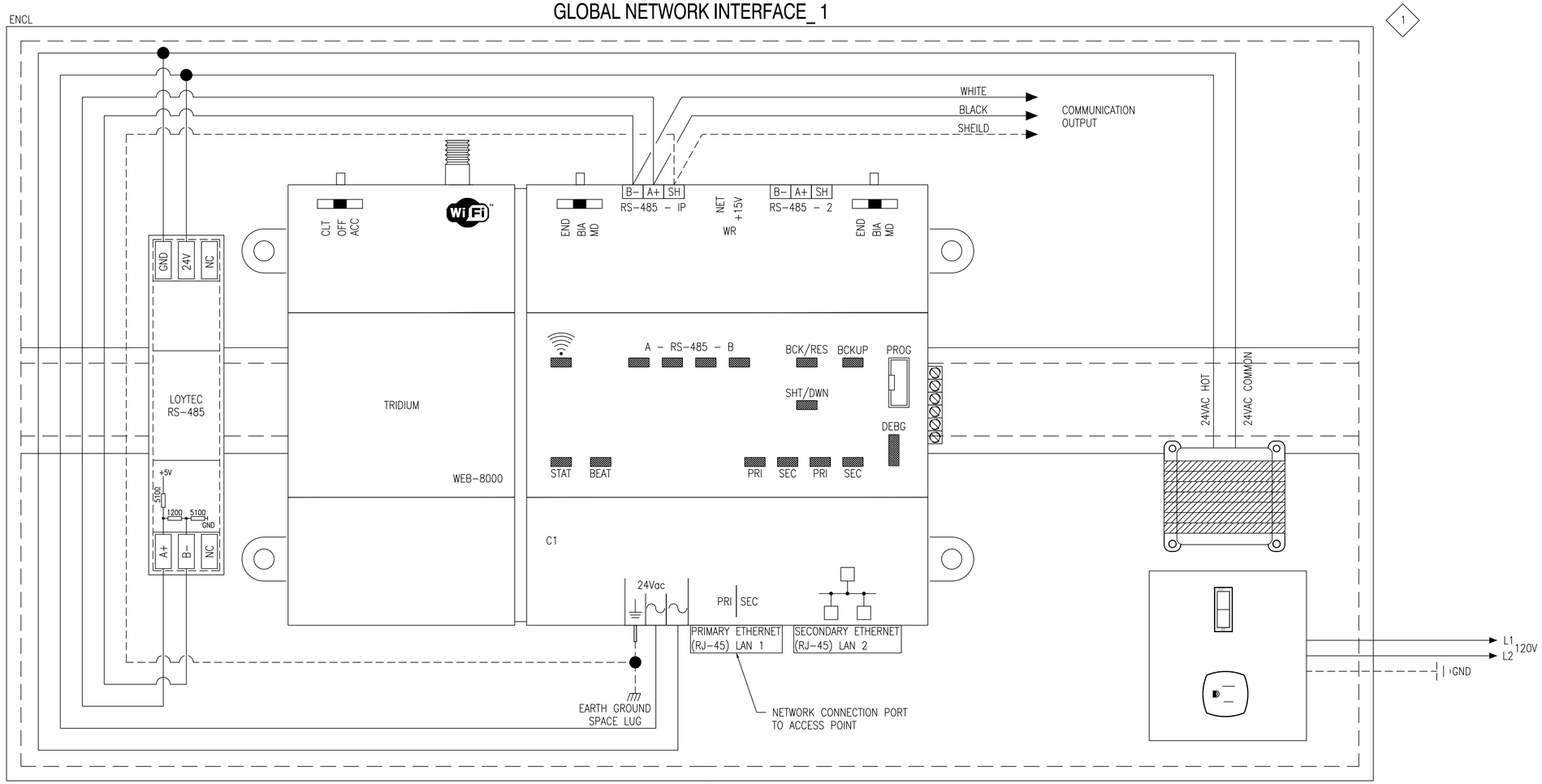
BUILDING 99 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703699
SHEET 246 OF 506

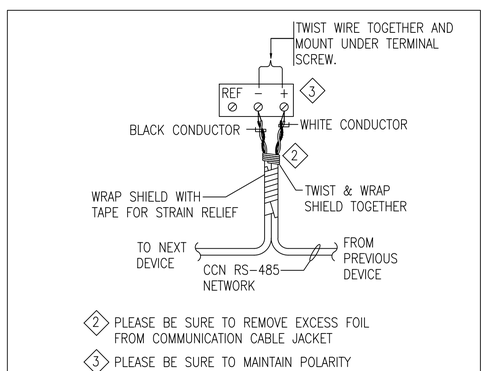
M3.1 | 99-15-148

DRAWFORM REVISION: 10 OCTOBER 2014

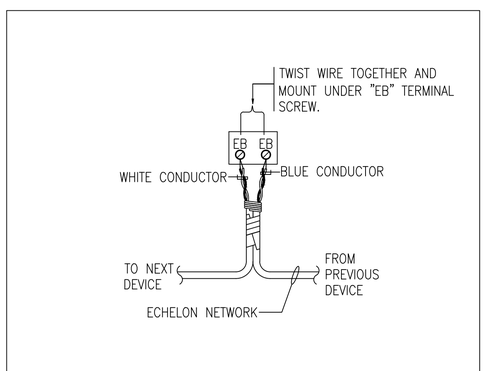
GLOBAL NETWORK INTERFACE_ 1



1 LOCATION OF CONTROLLER TO BE FIELD VERIFIED



RS-485 BACNET MS/TP CONNECTION DETAIL



E-BUS CONNECTION DETAIL

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
ENCL	ENC-001	12"x18"x4" ENCLOSURE W/ 24V TRANSFORMER	1
EOL1	209541B	END OF LINE RESISTOR	1
LT1	LT-B4	RS-485 NETWORK TERMINATOR	1

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

PROJECT MANAGER
CSI
CONSULTANTS
CSI ENGINEERING
999 Backstretch Bldg. 226
Patuxent River, MD 20670
301-342-8888
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703700
SHEET 247 OF 506

M3.2 | 99-15-149

DRAWFORM REVISION: 10 OCTOBER 2014

AIR-COOLED WATER CHILLER SCHEDULE

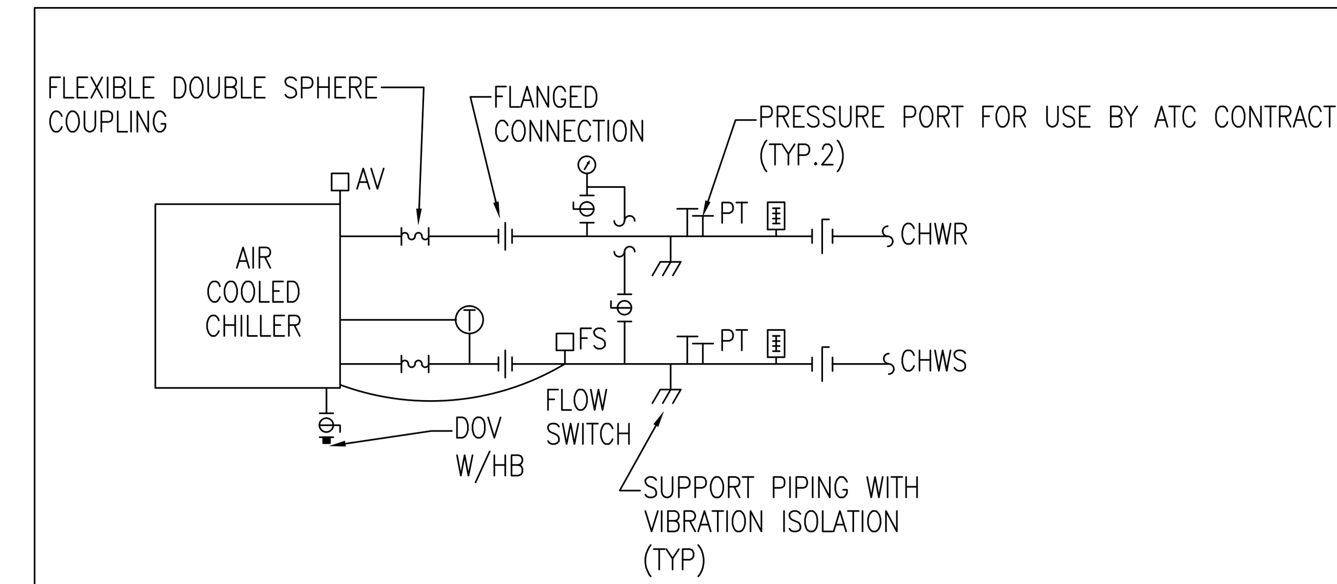
TAG	SERVICE	LOCATION	MINIMUM CAPACITY (TONS)	EVAPORATOR					REFRIG. TYPE	COMPRESSOR(S)			AMBIENT (°F)	CONDENSER FAN			ELECTRIC SERVICE					WEIGHT (LBS)	DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
				GPM	% GLYCOL	EWT (°F)	LWT (°F)	P.D.(FT.)		QTY.	POWER (KW)	TYPE	MAX	QTY.	POWER (KW)	RPM	MAX kW	MCA (AMP)	MOP (AMP)	V	PH			
CH-99-1	BLDG 99	GROUND FLOOR	26	62.3	35	54	44	18.1	R-410A	2	27.3	SCROLL	95	2	2.4	840	29.9	56.4	70	460	3	2278	TRANE CGAM026F	SEE NOTES

NOTES: 1. PROVIDE W/ BACNET INTERFACE. 2. PROVIDE WITH LOW TEMPERATURE PROCESSING. 3. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 4. PROVIDE WITH SEACOAST RATED COATING FOR CONDENSER COIL.

JACE BOX

TAG NO.	LOCATION	ELECTRICAL		DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
		AMP	V		
J-1	SEE PLANS	20	120	JACE 8000	SEE NOTES

NOTES: 1. PROVIDE W/ MEMORY UPGRADE TO 4GB. 2. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.



AIR COOLED CHILLER PIPING DETAIL

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

STATE OF NEW HAMPSHIRE – DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
SEAL

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HVAC PLUMBING ELECTRICAL FIRE PROTECTION
CSI ENGINEERING
999 BROADWAY SUITE 206 SAUGUS, MA 01906 781-233-4808
25 AVIATION AVE STE 204 PORTSMOUTH, NH 03801 603-319-8244
A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 HVAC SCHEDULES AND DETAILS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703701
SHEET 248 OF 506
M4.0 | 99-15-150

DRAWFORM REVISION: 10 OCTOBER 2014

W A R N I N G

ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

EQUIPMENT TYPE:	
GROUNDING:	Y/N GROUNDED
WORK DISTANCE:	INCHES
AVAILABLE 3ϕ BOLTED CURRENT:	kA
FLASH PROTECTION BOUNDARY:	INCHES
INCIDENT ENERGY AT 23 INCHES:	cal/cm²
PPE LEVEL:	4
DATE:	xx/xx/xxxx

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

TYPICAL FLASH PROTECTION WARNING LABEL

3"

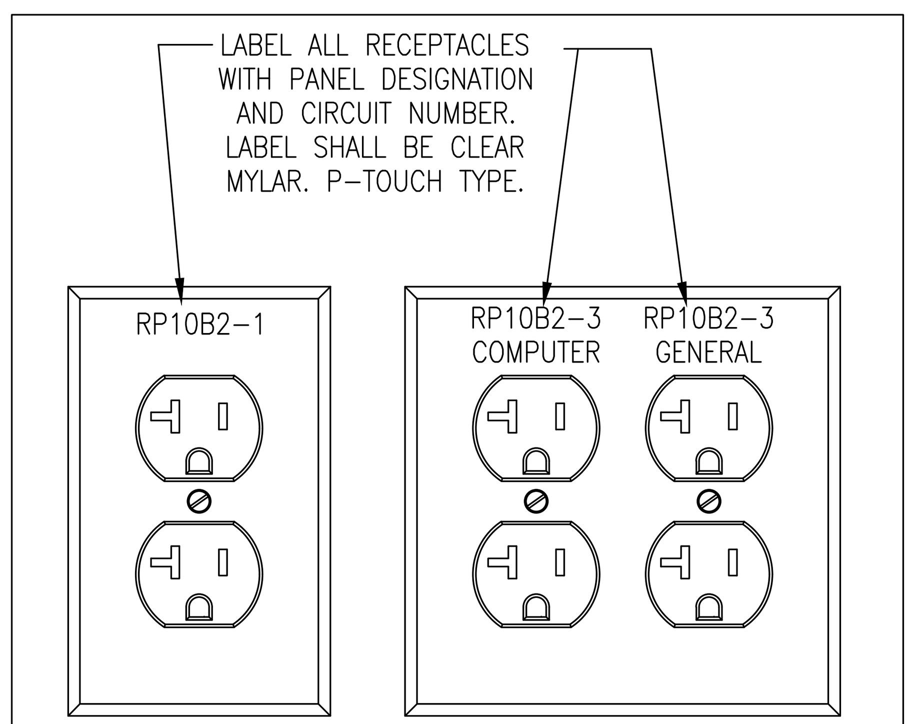
1"

PANEL PP1
225A 208Y/120V
FED FROM MDP

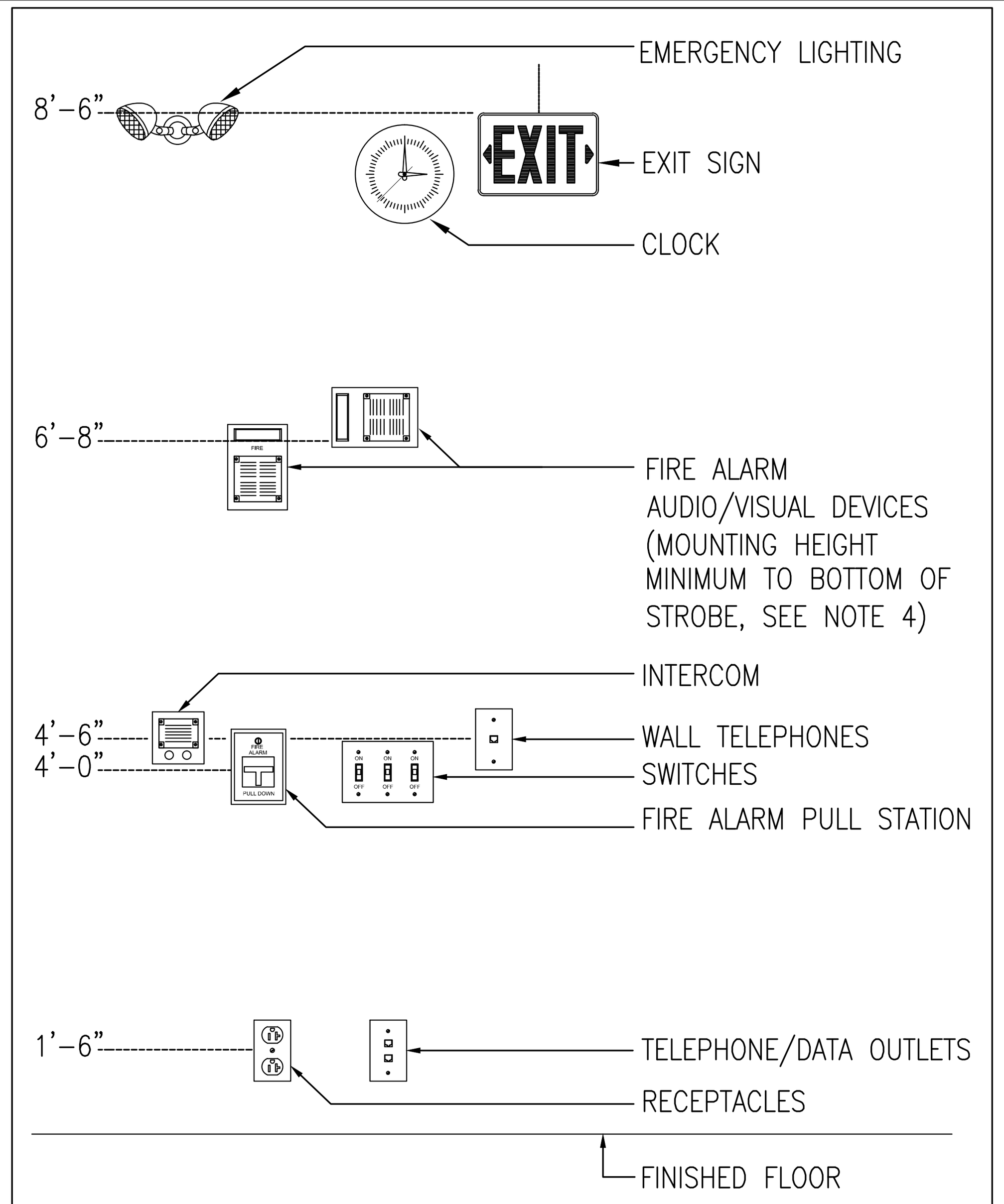
NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
4. TYPICAL FOR "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

TYPICAL NAMEPLATE DETAIL



RECEPTACLE LABEL REQUIREMENTS



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. STROBE HEIGHT ILLUSTRATED AT MAXIMUM HEIGHT. STROBE SHALL BE 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL

ELECTRIC ABBREVIATIONS

A/AMP	AMPERE	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICAN WITH DISABILITIES ACT	MEC	MASSACHUSETTS ELECTRIC CODE
AF	AMPERE FRAME	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AT	AMPERE TRIP	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWTICH	#	NUMBER
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	PWR	POWER
CATV	CABLE TELEVISION	RGS	RIGID GALVANIZED STEEL
CCTV	CLOSED CIRCUIT TELEVISION	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	TEL	TELEPHONE
CKT	CIRCUIT	TERM	TERMINAL
℄	CENTERLINE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DWG	DRAWING	TSP	TWISTED SHIELDED PAIR
EC	ELECTRICAL CONTRACTOR	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UNO	UNLESS OTHERWISE NOTED
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	UPS	UNINTERRUPTIBLE POWER SUPPLY
GFI	GROUND FAULT INTERRUPTING	UTP	UNSHIELDED TWISTED PAIR
GND	GROUND	V	VOLT
HH	HANDHOLE	VA	VOLT AMPERE
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	W	WATT
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND		
KVA	KILOVOLT – AMPERE		
KW	KILOWATT		

MOTOR & CONTROLS LEGEND

SYMBOL	DESCRIPTION
30AS	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" – INDICATES NEMA TYPE 3R ENCLOSURE "30AS" – INDICATES 30A SWITCH
30AS/15AF	FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "30AS" – INDICATES 30AMP SWITCH "15AF" – INDICATES 15AMP FUSES
JCB	DDC CONTROL JACE BOX. PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION.

ELECTRIC SYSTEM TAGS OR CALL OUT SYMBOLS

SYMBOL

EUH / #	EQUIPMENT SYMBOLS (REFER TO EQUIPMENT SCHEDULES) EQUIPMENT DESIGNATION EQUIPMENT REFERENCE NUMBER (TYP)
#	NEW WORK NOTE TAG
#	DEMOLITION NOTE TAG

POWER DISTRIBUTION LEGEND

SYMBOL	DESCRIPTION
▬	208Y/120 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
T	DRY TYPE TRANSFORMER

BRANCH CIRCUIT & FEEDER LEGEND

SYMBOL	DESCRIPTION
PP1-(X)	BRANCH CIRCUIT HOME RUN. TYPICAL 2#12 & 1#12G IN ¾"C MINIMUM. PP1-(1) INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.

EXISTING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
XM	EXISTING EQUIPMENT TO REMAIN
XE	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
☐	EXISTING EQUIPMENT TO REMAIN FOR INFORMATION ONLY – (XM) INDICATED BY SYMBOL WITH LIGHT OUT OF FUNCTION LINE TYPE
⬚	EXISTING EQUIPMENT TO BE REWORKED – (XN, XL, XE, XR) INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

WIRING DEVICES

SYMBOL	DESCRIPTION
# GFI	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "#" – INDICATES CIRCUIT NUMBER (TYP) "WP" – INDICATES WEATHERPROOF (TYP) "GFI" – INDICATES GROUND FAULT INTERRUPTER

ONE-LINE LEGEND

SYMBOL	DESCRIPTION
60AS	DISCONNECT SWITCH, UNFUSED "60AS" – INDICATES 60AMP SWITCH "2P" – INDICATES 2 POLE SINGLE PHASE DISCONNECT "3R" – INDICATES NEMA TYPE 3R ENCLOSURE
XXAS/XXAF	DISCONECT SWITCH, FUSED "XXAS" – INDICATES SWITCH SIZE "XXAF" – INDICATES FUSE SIZE
480V / 120/208V	TRANSFORMER, 480V INDICATES PRIMARY VOLTAGE, 120/208V INDICATES SECONDARY VOLTAGE
Δ	3 PHASE, 3 WIRE DELTA CONNECTION
Y	3 PHASE, 4 WIRE WYE SOLIDLY GROUNDED
PANEL PP1	PANELBOARD "PP1" – INDICATES PANELBOARD NAME REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION

ELECTRIC GENERAL NOTES

1. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF WORK. DAMAGE SHALL INCLUDE BUT NOT LIMITED TO THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
3. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINT OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY TRADE CONTRACTOR. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED AS SPARE.
4. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE OR TURNED OVER TO OWNER. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
5. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. CIRCUITRY HAS BEEN DETERMINED BASED UPON INFORMATION GATHERED, ASSUMPTIONS, AND INFORMATION OBTAINED FROM NAVFAC. EXACT CIRCUITING, EQUIPMENT SIZES, AND CONDUIT AND WIRING SIZES MAY DIFFER IN THE FIELD FROM WHAT IS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRACING ALL CIRCUITS BEING DEMOLISHED AND REUSED PRIOR TO DISCONNECTING, VERIFYING EXISTING CIRCUITRY AND EQUIPMENT SIZES, AND SHALL SIZE ALL NEW EQUIPMENT AND BRANCH CIRCUITRY ACCORDINGLY IF ACTUAL CONDITIONS DIFFER FROM WHAT IS SHOWN ON THE DRAWINGS. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
6. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
7. THE ELECTRICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
8. ROUTING IS DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ROUTING IN FIELD AND RE-USE EXISTING PENETRATIONS WHERE POSSIBLE.
9. SEE PWD-ME DRAWING NUMBERS;
   - 9.1. 43-15-67 FOR TITLE SHEET
   - 9.2. 43-15-68 FOR LIST OF DRAWINGS
   - 9.3. 43-15-69 FOR GENERAL NOTES & LEGENDS
   - 9.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
   - 9.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE DRAWINGS

DWG#	DESCRIPTION
E1.0	BUILDING 99 ELECTRICAL LEGEND
ED2.0	BUILDING 99 ELECTRICAL FIRST FLOOR DEMOLITION PLAN
E2.0	BUILDING 99 ELECTRICAL FIRST FLOOR PLAN, ONE-LINE DIAGRAM, AND SCHEDULES

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

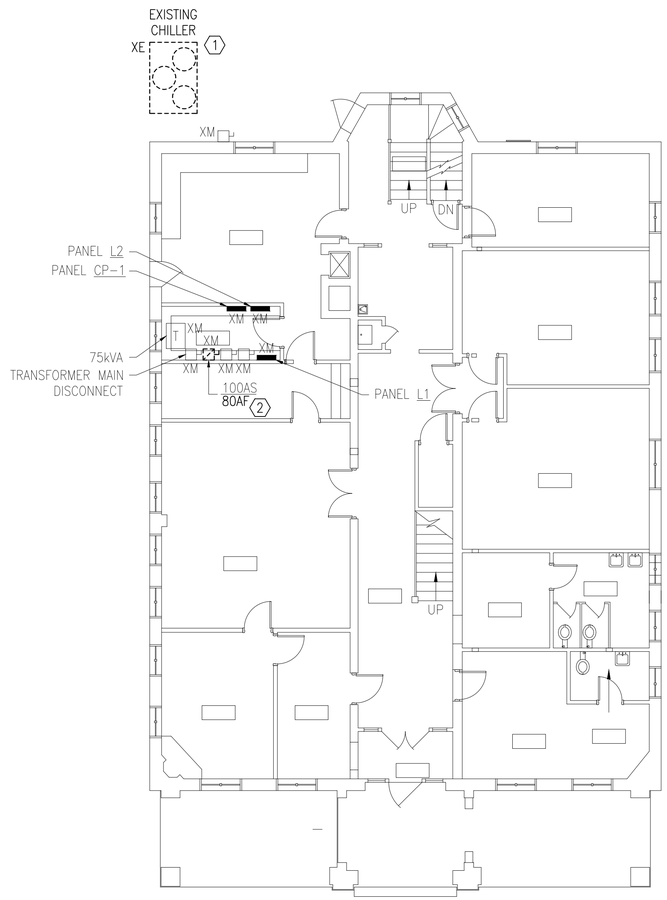
FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 ELECTRICAL LEGEND

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703702
SHEET 249 OF 506

E1.0 | 99-15-151

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 99 ELECTRICAL FIRST FLOOR DEMOLITION PLAN

1/8" = 1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
3. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

DEMOLITION KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING CHILLER. DEMOLISH EXISTING BRANCH CIRCUITRY BACK TO WIREWAY. MAINTAIN DISCONNECT FOR REUSE.
2. EXISTING DISCONNECT FOR CHILLER. ELECTRICAL CONTRACTOR SHALL OVERALL MAINTAIN DISCONNECT FOR REUSE. REMOVE EXISTING 80A FUSE TO ALLOW NEW FUSE TO BE INSTALLED IN NEW WORK PHASE.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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CHARLES E. MACE
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CONTRACT NO. GS-10F-0016 ORDER NO. N62470-12-F-7003 CLIN 0101-0011-0108 EXPIRES 8/31/2017

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23 AVIATION AVE, STE 203
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NH
A/E INFO

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FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
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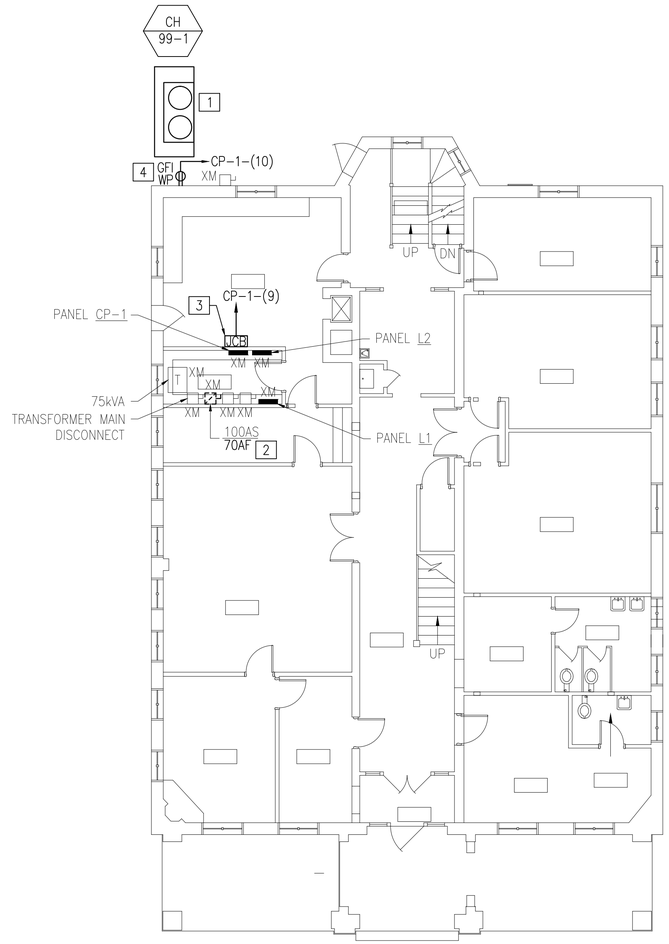
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 ELECTRICAL FIRST FLOOR DEMOLITION PLAN

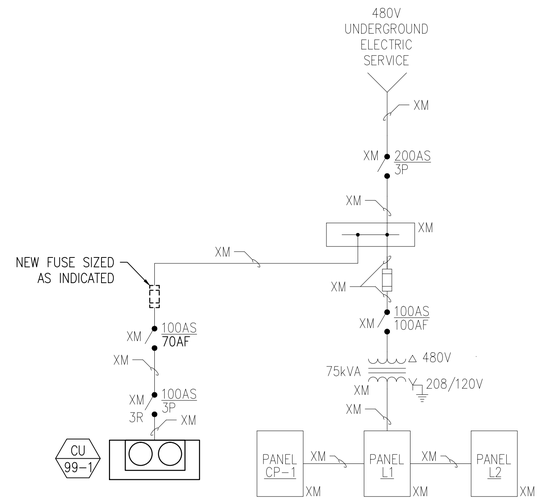
EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703703
SHEET 250 OF 506
ED2.0 | 99-15-152

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 99 ELECTRICAL FIRST FLOOR PLAN
1/8" = 1'-0"

PLAN NORTH



ELECTRICAL ONE-LINE DIAGRAM
SCALE: NTS

MECHANICAL EQUIPMENT SCHEDULE

EQUIP TAG	DESCRIPTION	LOAD				PANEL SOURCE		BRANCH CIRCUIT	CONNECTION				NOTES
		HP	KVA	VOLT	PH	PANEL	C/B		FLEX	JB	REC	DISC	
CU 99-1	CHILLER	–	46.53	460	3	REFER TO ONE-LINE DIAGRAM	REFER TO ONE-LINE DIAGRAM	(3)#4 & (1)#8G, 1"C	X			X	NOTE 6,7

NOTES:

1. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION.
2. "FLEX" – DENOTES FINAL THREE FEEL (MAXIMUM) OF RACEWAY SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT METAL CONDUIT.
3. "JB" – JUNCTION BOX DENOTES FINAL CONNECTION TO BOX OR CONTROL PANEL PREWIRED TO THE EQUIPMENT.
4. "REC" – PROVIDE RECEPTACLE IN THE NEMA CONFIGURATION NOTED.
5. NOTES 6–9 ARE OPTIONS WHICH SHALL BE SPECIFICALLY NOTED IN REMARKS FOR INCLUSION.
6. DISCONNECT SHALL BE FUSIBLE.
7. DISCONNECT SHALL BE NEMA "3R"
8. DISCONNECT SHALL BE MOTOR-RATED SWITCH WITH THERMAL OVERLOAD ELEMENT.
9. DISCONNECT PROVIDED INTEGRAL (PREWIRED) TO EQUIPMENT BY TRADE CONTRACTOR.
10. INTEGRAL CONVENIENCE RECEPTACLE PROVIDED PREWIRED TO EQUIPMENT BY TRADE CONTRACTOR.

PANELBOARD SCHEDULE

PANEL: CP-1	VOLTS: 120/ 208	NEW/EXISTING.: EXISTING
MAIN: MLO	BUS AMPS: 100A	MOUNT.: SURFACE
PH/WIRE: 3ø/4W	AIC: 10K	LOC: ELECTRICAL RM.

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	1ST 3RD FLR CORR. LIGHTS STAIR & E-LIGHTS	0	–		–	0	FIRE ALARM PANEL	20/1	2
3	20/1	COC RM. LIGHTS	0	–		–	0	NMCI RECEPT	20/1	4
5	20/1	COC RECEPTS	0	–		–	0	NMCI RECEPT	20/1	6
7	20/1	COC RECEPTS	0	–		–	0	TEL-CAB REC. 1ST, 2ND, 3RD	20/1	8
9	20/1	JACE BOX	.02	1		1	.18	CH-99-1 GFI RECEPTACLE	20/1	10
11	20/1	2ND FL CORR LIGHTS & EM	0	–		–	0	SPARE	20/1	12
13	20/1	SPARE	0	–		–	0	ISC RECEPT	20/1	14
15	20/1	SPARE	0	–		–	0	SPARE	20/1	16
17	20/1	EXTERIOR FLOOD LTS.	0	–		–	0	SPARE	20/1	18
19	20/1	COC RECEPTS	0	–		–	0	SPARE	20/1	20
21	20/1	COC RECEPTS	0	–		–	0	SPARE	20/1	22
23	20/1	COC RM UPS	0	–		–	0	SPARE	20/1	24
25	20/1	SPARE	0	–		–	0	SPARE	20/1	26
27	20/1	GFI	0	–		–	0	GFI	20/1	28
29	20/1	GFI	0	–		–	0	GFI	20/1	30
			0.02				0.18	TOTAL CONNECTED kVA:	0.20	
								TOTAL CONNECTED AMPERES:	0.56	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FINAL LOW-VOLTAGE CONNECTIONS TO BE MADE BY CONTROLS CONTRACTOR. FIELD COORDINATE EXACT LOCATION OF EQUIPMENT WITH CONTROLS CONTRACTOR AND NAVFAC.

NEW WORK KEYNOTES

1. CONNECT NEW CHILLER TO EXISTING BRANCH CIRCUITRY AND DISCONNECT MAINTAINED DURING DEMOLITION.
2. PROVIDE NEW 70A FUSE IN EXISTING DISCONNECT FOR NEW CHILLER AS SHOWN.
3. NEW DDC JACE BOX PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION WITH NAVFAC AND CONTROLS CONTRACTOR.
4. ELECTRICAL CONTRACTOR TO FIELD VERIFY IF A RECEPTACLE EXISTS WITHIN 6' OF NEW CHILLER. IF NO RECEPTACLE EXISTS, PROVIDE NEW AS SHOWN. REFER TO PANELBOARD SCHEDULE THIS SHEET FOR ADDITIONAL INFORMATION.

GRAPHIC SCALE
1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
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STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
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505.913.9214
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ACTIVITY
SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
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FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 99 ELECTRICAL FIRST FLOOR
PLAN, ONE-LINE DIAGRAM, & SCHEDULES

EPROJECT NO.: 1350913
CONSTR. CONTR. NO.: N40085-XX-C-XXXX
NAVFAC DRAWING NO.: 12703704
SHEET 251 OF 506
E2.0 | 99-15-153

DRAWFORM REVISION: 10 OCTOBER 2014

NOTE: NO FLOOR PLAN WAS AVAILABLE TO CREATE DRAWING. EXTERIOR ELEVATION IS USED TO IDENTIFY THE REFERENCED WINDOW. ANTENNA IS TO BE LOCATED ON THE INTERIOR.

B99 ANTENNA LOCATION - NORTH ELEVATION

1/16" = 1'-0"

EQUIPMENT	WIRELESS STANDARD	ANTENNA	FREQUENCY	DIMENSIONS	WEIGHT	INPUT POWER	MANUFACTURER	DESIGN BASED ON MODEL
WIRELESS ACCESS POINT	802.11n	INTEGRATED	2.4 GHZ & 5.8 GHZ	8.7 X 8.7 X 1.84 INCHES	1.9 LBS	AIR-PWRINJ4	CISCO AIRONET	AIR-CAP1602I-x-K9

NOTE: PROVIDE POWER INJECTOR FOR POWER OVER ETHERNET TO WIRELESS ACCESSS POINT. DESIGN BASED ON CISCO MODEL AIR-PWRINJ4.

GENERAL SHEET NOTES

1. FASTENERS SHALL BE ATTACHED TO MORTAR IN MASONRY BUILDINGS, AVOIDING DAMAGE TO THE BRICK WHEREVER PRACTICAL.
2. EXTERIOR CONDUIT SHALL BE INSTALLED IN SHADOW-LINES OR ADJACENT TO EXISTING CONDUIT; CONDUIT COLOR TO BE COORDINATED WITH CULTURAL RESOURCE MANAGER AND A-E.
3. REFER TO MECHANICAL DRAWINGS FOR JACE LOCATION AND INFORMATION.
4. EXISTING ROOF AND WALL PENETRATIONS SHALL BE USED WHEREVER PRACTICAL.
5. INTERIOR, WINDOW-MOUNTED ACCESS POINTS SHALL BE MOUNTED IN AN OBSCURE LOCATION THAT IS LEAST VISIBLE FROM INTERIOR & EXTERIOR.
6. ACCESS POINT MOUNTS SHALL NOT OBSTRUCT EGRESS, EXISTING WALKWAYS, STAIRWELLS, MECHANICAL EQUIPMENT CLEARANCES, OR OTHER APPURTANANCES.
7. UNLESS OTHERWISE NOTED, ROOFTOP ACCESS POINTS SHALL BE CENTRALIZED ON THE ROOF TO MINIMIZE VISIBILITY FROM GROUND LEVEL.
8. CONTRACTOR TO FIELD-VERIFY COMMUNICATION ACCESS POINTS ARE ALIGNED AND LINE OF SIGHT IS UNOBSTRUCTED.
9. IF A FIELD CHANGE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH CULTURAL RESOURCE MANAGER AND A-E PRIOR TO RELOCATING EQUIPMENT.
10. ANY PROPOSED CHANGES (PENETRATIONS, CONDUIT, ETC.) NOT ALREADY INDICATED ON DRAWINGS MADE TO HISTORIC BUILDINGS OR BUILDINGS LOCATED IN HISTORIC DISTRICT MUST BE REVIEWED AND APPROVED BY SHPO THROUGH NAVFAC CULTURAL RESOURCES DEPARTMENT PRIOR TO INSTALLATION.
11. CONTRACTOR TO VERIFY RF SIGNAL STRENGTH AND CONNECTIVITY FROM/TO ALL ACCESS POINTS.
12. SEE PWD-ME DRAWING NUMBERS;
    - 12.1. 43-15-67 FOR TITLE SHEET
    - 12.2. 43-15-68 FOR LIST OF DRAWINGS
    - 12.3. 43-15-69 FOR GENERAL NOTES AND LEGEND
    - 12.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
    - 12.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORT

(A) NEW WORK KEYNOTES

1. CONTRACTOR SHALL USE NON-PENETRATING MOUNT FOR RF ACCESS POINT ON INTERIOR OF CUPOLA WINDOW.
2. CONTRACTOR SHALL ENSURE LINE-OF-SIGHT THROUGH WINDOW TO B086A ACCESS POINT.
3. CAT5 CABLE SHALL BE ROUTED ALONG EXISTING COMMUNICATION PATH TO BASEMENT AND THROUGH EXISTING FLOOR PENETRATION UP TO JACE.

GRAPHIC SCALE

1/16" = 1' 1 6" 0 1 2 3
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
0	90% SUBMISSION	07/15/15	DM
1	100% SUBMISSION	07/31/15	

NAVFAC

STATE OF NEW HAMPSHIRE KEITH CHRISTOPHER LICENSED PROFESSIONAL ENGINEER No. 13914 SEAL

aecom architects|engineers
13 WATER ST NEWMARKET NH
(603) 200-0096 AECGR.COM
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES VSL | DRW SRR | CHK KLC
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
B099 RF INSTALLATION DETAILS

PROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703705
SHEET 252 OF 506
ET1.0 99-15-154

DRAWFORM REVISION: 10 OCTOBER 2014

HAZARDOUS MATERIAL SAMPLING SUMMARY

SAMPLE ID	ACM	LBP
153-13	ND	NS
153-14	ND	NS

ACM = ASBESTOS CONTAINING MATERIALS
LBP = LEAD BASED PAINT
<RL = LESS THAN REPORTING LIMIT
ND = NONE DETECTED
NS = NOT SAMPLED
H = EXCEEDS REGULATORY STANDARDS FOR HAZARDOUS CONCENTRATION

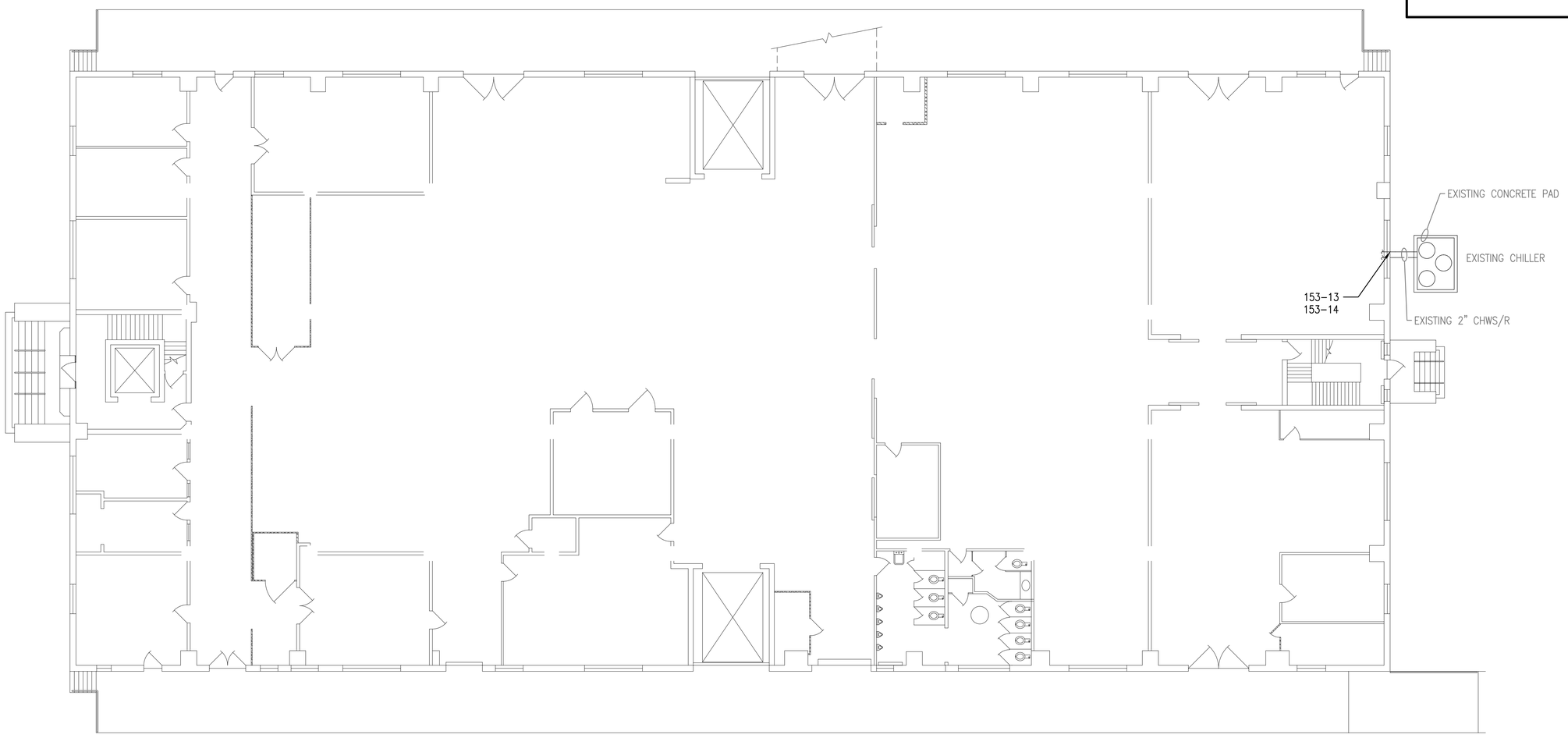
NOTE:
REFER TO HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT DATED JUNE 22, 2015 FOR COMPLETE SAMPLING INFORMATION AND DATA.

GENERAL SHEET NOTES

1. ALL PACM (PRESUMED ASBESTOS CONTAINING MATERIAL), LBP (LEAD BASED PAINT), PCB, AND OTHER HAZARDOUS BUILDING MATERIALS MAY NOT BE IDENTIFIED IN THIS SURVEY, PARTICULARLY THOSE HIDDEN IN WALLS, CEILINGS, FLOORS, ETC. AND IN AREAS DESCRIBED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, WHICH WERE INACCESSIBLE DURING THE SURVEY. ASSESSMENT EFFORTS DID INCLUDE, TO THE EXTENT FEASIBLE, ACCESS TO INTERIOR AND EXTERIOR OF THE STRUCTURE. HOWEVER, THE ABSENCE OF ALL PACM, LBP, PCB, AND OTHER HAZARDOUS BUILDING MATERIALS IN HIDDEN OR INACCESSIBLE PORTIONS CANNOT BE DEFINITIVELY ENSURED.

2. RENOVATION AND/OR DEMOLITION ACTIVITIES SHOULD BE MONITORED BY PERSONNEL CAPABLE OF IDENTIFYING PACM, LBP, PCB AND OTHER HAZARDOUS BUILDING MATERIALS. IF PACM, LBP, PCB OR OTHER HAZARDOUS BUILDING MATERIALS ARE ENCOUNTERED, THESE MATERIALS SHOULD BE BULK SAMPLED BY A LICENSED INSPECTOR AND DISPOSED OF IN ACCORDANCE WITH PNSY AND ALL OTHER APPLICABLE REGULATIONS.

3. SEE B153 ASBESTOS, LEAD, PCB, AND TCLP INVENTORY TABLES LOCATED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, DATED JUNE 22, 2015, FOR ADDITIONAL INFORMATION.



B153 SECOND FLOOR HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE
Bradlee Mezquita
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LICENSED
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SEAL

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(603) 433-8818
www.tighebond.com
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES A/E DRW REP CHK BLM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
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PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

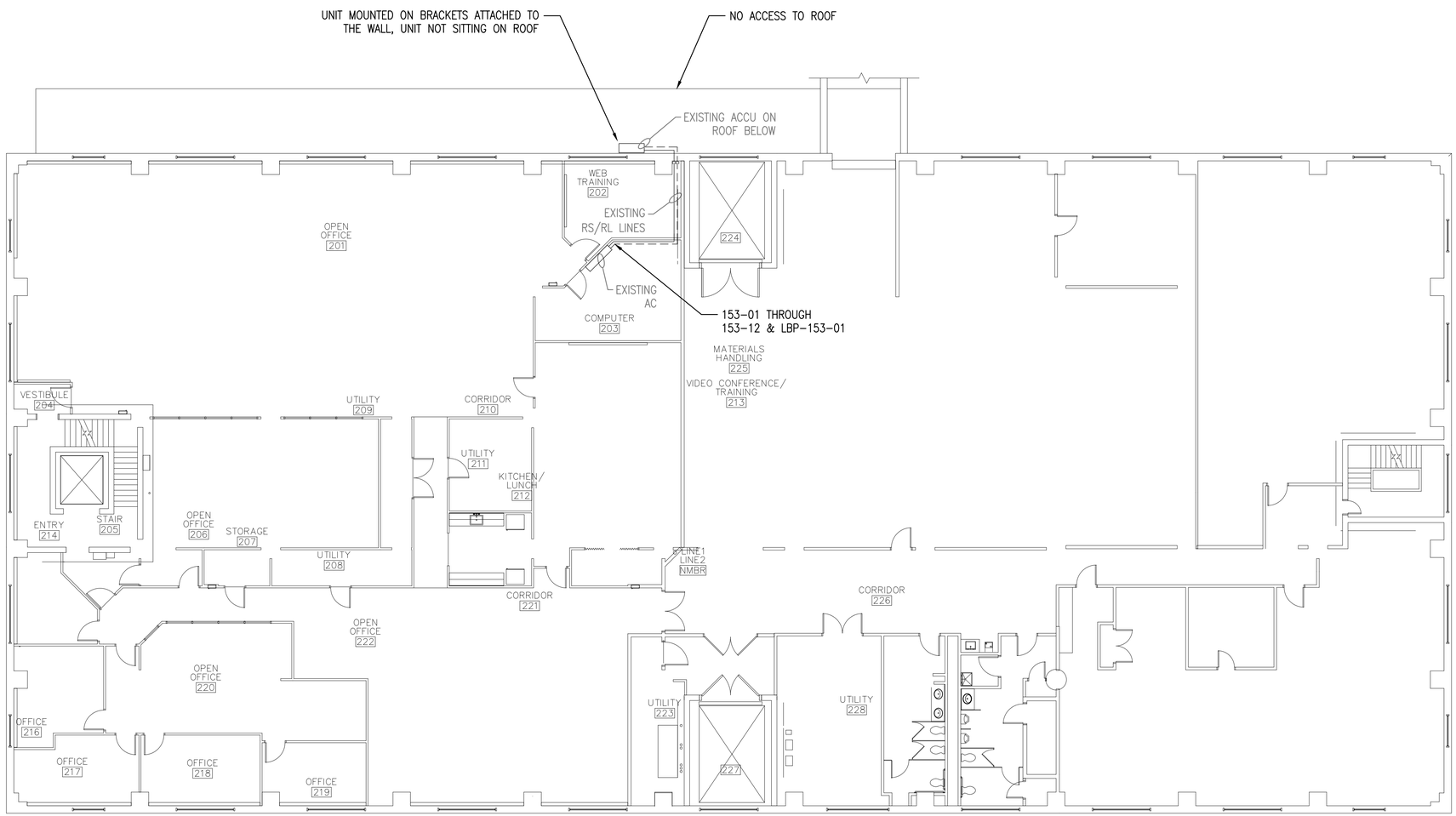
FY 16 ENERGY PROJECT
TASK 1-B-R-22

B153 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703706
SHEET 253 OF 506
H1.0 153-15-349

DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\InzzMats\DWG\A1066_2_H2MT_R22.dwg LAYOUT NAME: B153-H1.0 PLOTTED: Friday, August 07, 2015 - 2:35pm USER: REP



B153 THIRD FLOOR HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL PACM (PRESUMED ASBESTOS CONTAINING MATERIAL), LBP (LEAD BASED PAINT), PCB, AND OTHER HAZARDOUS BUILDING MATERIALS MAY NOT BE IDENTIFIED IN THIS SURVEY, PARTICULARLY THOSE HIDDEN IN WALLS, CEILINGS, FLOORS, ETC. AND IN AREAS DESCRIBED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, WHICH WERE INACCESSIBLE DURING THE SURVEY. ASSESSMENT EFFORTS DID INCLUDE, TO THE EXTENT FEASIBLE, ACCESS TO INTERIOR AND EXTERIOR OF THE STRUCTURE. HOWEVER, THE ABSENCE OF ALL PACM, LBP, PCB, AND OTHER HAZARDOUS BUILDING MATERIALS IN HIDDEN OR INACCESSIBLE PORTIONS CANNOT BE DEFINITIVELY ENSURED.

2. RENOVATION AND/OR DEMOLITION ACTIVITIES SHOULD BE MONITORED BY PERSONNEL CAPABLE OF IDENTIFYING PACM, LBP, PCB AND OTHER HAZARDOUS BUILDING MATERIALS. IF PACM, LBP, PCB OR OTHER HAZARDOUS BUILDING MATERIALS ARE ENCOUNTERED, THESE MATERIALS SHOULD BE BULK SAMPLED BY A LICENSED INSPECTOR AND DISPOSED OF IN ACCORDANCE WITH PNSY AND ALL OTHER APPLICABLE REGULATIONS.

3. SEE B153 ASBESTOS, LEAD, PCB, AND TCLP INVENTORY TABLES LOCATED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, DATED JUNE 22, 2015, FOR ADDITIONAL INFORMATION.

HAZARDOUS MATERIAL SAMPLING SUMMARY

SAMPLE ID	ACM	LBP
153-01	ND	NS
153-02	ND	NS
153-03	ND	NS
153-04	ND	NS
153-05	ND	NS
153-06	ND	NS
153-07	ND	NS
153-08	ND	NS
153-09	ND	NS
153-10	ND	NS
153-11	ND	NS
153-12	ND	NS
LBP-153-01	NS	<RL

ACM = ASBESTOS CONTAINING MATERIALS
LBP = LEAD BASED PAINT
<RL = LESS THAN REPORTING LIMIT
ND = NONE DETECTED
NS = NOT SAMPLED
H = EXCEEDS REGULATORY STANDARDS FOR HAZARDOUS CONCENTRATION

NOTE:
REFER TO HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT DATED JUNE 22, 2015 FOR COMPLETE SAMPLING INFORMATION AND DATA.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE
Bradlee Mazquita
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PROFESSIONAL ENGINEER
SEAL

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(603) 433-8818
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A/E INFO

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ACTIVITY
SATISFACTORY TO DATE

DES A/E | DRW REP | CHK BLM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

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PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

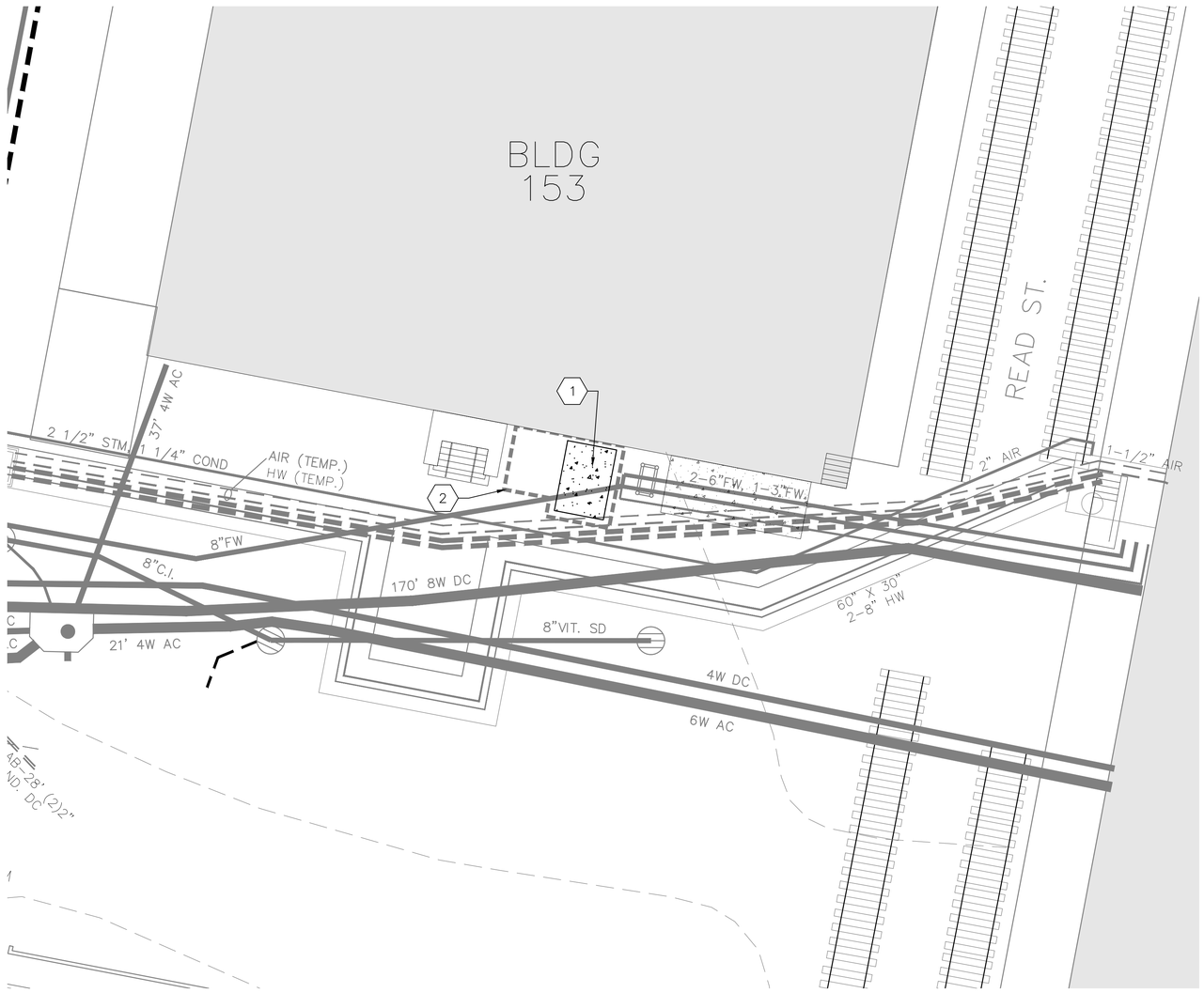
FY 16 ENERGY PROJECT
TASK 1-B-R-22

B153 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703707
SHEET 254 OF 506
H1.1 | 153-15-350

DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEG Subconsulting Support\Inactiats\DWG\A1066_2_H2MT_R22.dwg LAYOUT NAME: B153-H1.1 PLOTTED: Friday, August 07, 2015 - 2:35pm USER: REP



B153 DEMOLITION PLAN

SCALE: 1" = 10'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL WORK SHALL BE COORDINATED THROUGH THE PWD–MAINE CONSTRUCTION OFFICER.
2. BURIED UTILITIES ARE SHOWN FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY ACTUAL LOCATIONS OF ALL BURIED UTILITIES.
3. CONTRACTOR SHALL CONDUCT AN ENVIRONMENTAL PERMIT REVIEW OF THE SITE PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL CONDUCT AN ARCHEOLOGICAL REVIEW OF THE SITE PRIOR TO EXCAVATION.
5. EXCAVATED SOIL SHALL BE DISPOSED OF IN ACCORDANCE WITH SECTION 31 23 00.00 22 EXCAVATION AND FILL (PWD MAINE).
6. CONTRACTOR SHALL DISPOSE OF ALL CONSTRUCTION DEBRIS AND MATERIALS AT PERMITTED OFF–SITE DISPOSAL FACILITY.

DEMOLITION KEYNOTES

1. DEMOLISH EXISTING CONCRETE EQUIPMENT PAD.
2. LIMIT OF SAWCUT.

GRAPHIC SCALE

1" = 10' 10 5 0 10 20 30

scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

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STATE OF MAINE
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A/E INFO

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ACTIVITY

SATISFACTORY TO DATE

DES A/E | DRW REP | CHK BLM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

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PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

B153 DEMOLITION PLAN

EPROJECT NO.: 1350913

CONSTR. CONTR. NO.
N40085–XX–C–XXXX

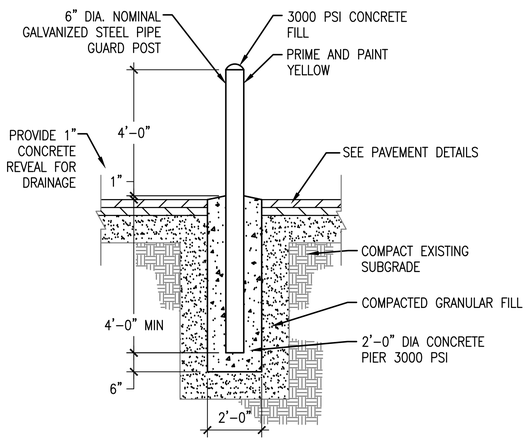
NAVFAC DRAWING NO.
12703708

SHEET 255 OF 306

C1.0 | 153-15-351

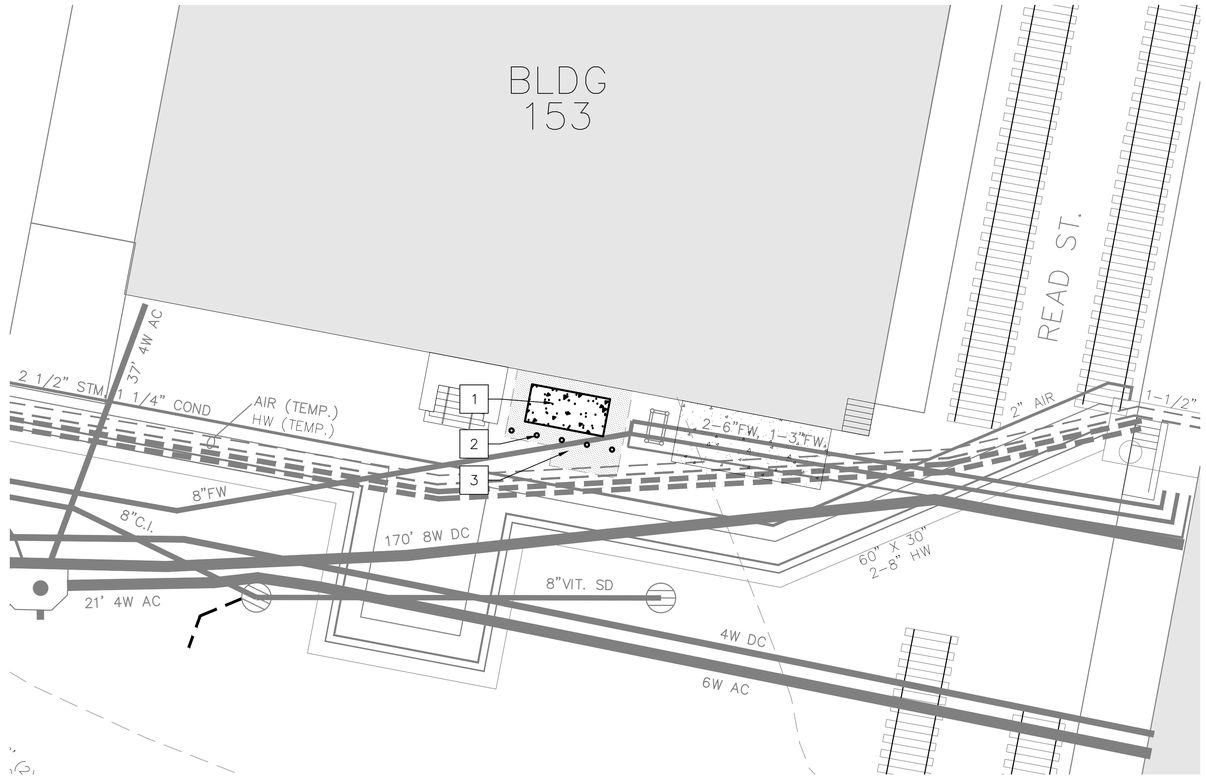
DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\02_R-22\DWG-CAD\DESIGN\A1066_2_R22_SITE.dwg LAYOUT NAME: C1.0 B153 DEMO PLOTTED: Friday, August 07, 2015 - 2:54pm USER: REP



CONCRETE FILLED STEEL BOLLARD DETAIL (2)

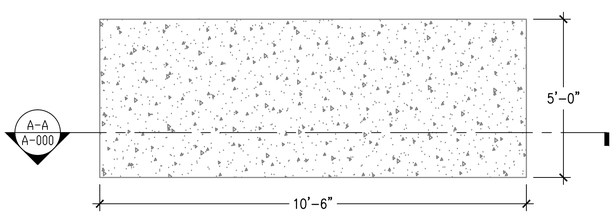
NO SCALE



B153 SITE PLAN

SCALE: 1" = 10'

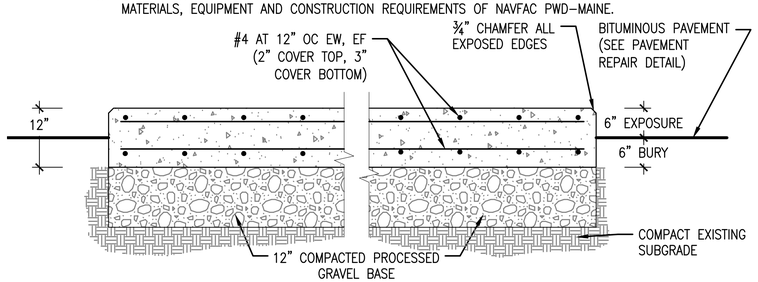
PLAN NORTH



CONCRETE EQUIPMENT PAD DETAIL (1)

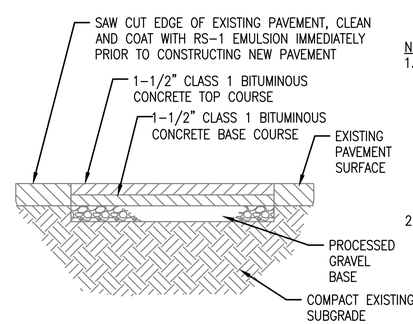
NO SCALE

NOTES:
1. COORDINATE PAD DIMENSIONS WITH ACTUAL EQUIPMENT DIMENSIONS.
2. CONCRETE SHALL EXTEND 6" ON EACH SIDE OF EQUIPMENT.
3. CONCRETE SHALL BE MINIMUM 4000 PSI, 7% AIR ENTRAINED.
4. EXCAVATION AND CONSTRUCTION OF CONCRETE PADS SHALL CONFORM TO THE MATERIALS, EQUIPMENT AND CONSTRUCTION REQUIREMENTS OF NAVFAC PWD-MAINE.



SECTION VIEW (A-A)

NO SCALE



NOTES:
1. ALL BITUMINOUS CONCRETE, AGGREGATE, STABILIZED COURSE, SUBBASE AND LIQUID BITUMEN SHALL CONFORM TO THE MATERIALS, EQUIPMENT AND CONSTRUCTION REQUIREMENTS OF NAVFAC AND MAINE DOT.
2. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 15' WIDE TRAVEL WAY AT ROAD CROSSINGS AT ALL TIMES DURING CONSTRUCTION.

PERMANENT PAVEMENT REPAIR DETAIL (3)

NO SCALE

GENERAL SHEET NOTES

1. ALL WORK SHALL BE COORDINATED THROUGH THE PWD-MAINE CONSTRUCTION OFFICER.
2. BURIED UTILITIES ARE SHOWN FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY ACTUAL LOCATIONS OF ALL BURIED UTILITIES.
3. CONTRACTOR SHALL CONDUCT AN ENVIRONMENTAL PERMIT REVIEW OF THE SITE PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL CONDUCT AN ARCHEOLOGICAL REVIEW OF THE SITE PRIOR TO EXCAVATION.
5. EXCAVATED SOIL SHALL BE DISPOSED OF IN ACCORDANCE WITH SECTION 31 23 00.00 22 EXCAVATION AND FILL (PWD MAINE).
6. CONTRACTOR SHALL DISPOSE OF ALL CONSTRUCTION DEBRIS AND MATERIALS AT PERMITTED OFF-SITE DISPOSAL FACILITY.
7. VERIFY LOCATION AND DEPTH OF WATER MAINS PRIOR TO CONSTRUCTION ACTIVITIES. RELOCATE EQUIPMENT PAD AND BOLLARDS AS NECESSARY TO AVOID INTERRUPTION TO EXISTING UTILITIES.

NEW WORK KEYNOTES

1. CONSTRUCT CONCRETE EQUIPMENT PAD.
2. CONSTRUCT 6" CONCRETE FILLED STEEL BOLLARDS AROUND EQUIPMENT PAD. (TYP. OF 5) BOLLARDS SHALL BE EVENLY SPACED AND PLACED AS TO NOT INTERFERE WITH EQUIPMENT ACCESS OR OPERATION.
3. REPAIR PAVEMENT IN AREA OF DEMOLISHED EQUIPMENT PAD.

GRAPHIC SCALE

1" = 10' 10 5 0 10 20 30
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

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A/E INFO

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FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES A/E | DRW REP | CHK BLM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B153 SITE PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703709
SHEET 256 OF 506
C2.0 | 153-15-352

DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\02. R-22\DWG-CAD\DESIGN\A1066_2_R22_SITE.dwg LAYOUT NAME: C2.0 B153 SITE PLOTTED: Friday, August 07, 2015 - 2:54pm USER: REP

HVAC ABBREVIATIONS

°F	DEGREES FAHRENHEIT	ID	INSIDE DIAMETER
°C	DEGREES CELSIUS	IN	INCHES
ø	DIAMETER	INSUL	INSULATION
ACV	AUTOMATIC CONTROL VALVE	KW	KILOWATT
AD	ACCESS DOOR	KVA	KILOVOLT AMPERE
ADJ	ADJUSTABLE	L	LENGTH
ADDL	ADDITIONAL	LB	POUND
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
AFG	ABOVE FINISHED GRADE	LVG	LEAVING
ALT	ALTERNATE	M	ONE THOUSAND
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPS
AS	AIR SEPARATOR	MCC	MOTOR CONTROL CENTER
AVG	AVERAGE	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BFF	BELOW FINISHED FLOOR	MFR	MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BLDG	BUILDING	MTD	MOUNTED
BLR	BOILER	MU	MAKEUP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
BSMY	BASEMENT	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
C	CONVECTOR	NO.	NUMBER
CF	CEILING FAN	NOM	NOMINAL
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	OB	OCTAVE BAND
CO	CLEAN–OUT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPRESSOR	ODP	OPEN DRIP PROOF
CONC	CONCRETE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION	OFOI	OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR	OV	OUTLET VELOCITY
CORR	CORRIDOR	PCF	POUNDS PER CUBIC FOOT
CUF	CUBIC FEET	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	PH	PHASE
CYL	CYLINDER	PLMB	PLUMBING
D	DRAIN	POS	PROVIDED BY OTHER SECTION(S)
DB	DRY BULB TEMPERATURE	PRESS	PRESSURE
DDC	DIRECT DIGITAL CONTROL	PRIM	PRIMARY
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DIM	DIMENSION	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	REP	REPRESENTATIVE
EA	EACH	RET	RETURN
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EFF	EFFICIENCY	REQS	REQUIREMENTS
ECUH	ELECTRIC CABINET UNIT HEATER	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EMER	EMERGENCY	SCH	SCHEDULE
ENT	ENTERING	SOV	SOLENOID OPERATED VALVE
EQUIP	EQUIPMENT	SPECS	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SQFT	SQUARE FEET
FTR	FINNED TUBE RADIATION	SS	STAINLESS STEEL
FCV	FLOW CONTROL VALVE	STD	STANDARD
FG	FIBERGLASS	STDBY	STANDBY
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	SUCT	SUCTION
FLRDR	FLOOR DRAIN	SUP	SUPPLY
FP	FIRE PROTECTION	TA	THROW–AWAY
FPM	FEET PER MINUTE	TAV	THERMOSTATIC AIR VENT
FT	FEET	TEFC	TOTALLY ENCLOSED FAN COOLED
FT/SEC	FEET PER SECOND	TEL	TELEPHONE
FURN	FURNISHED	TEMP	TEMPERATURE
FVNR	FULL VOLTAGE NON–REVERSING	TOD	TOP OF DUCT
GA	GAUGE	TOP	TOP OF PIPE
GAL	GALLONS	TYP	TYPICAL
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	V	VENT
GND	GROUND	VEL	VELOCITY
GPH	GALLONS PER HOUR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
GRD	GRADE (GROUND LEVEL)	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDTH
H	HEIGHT	W/	WITH
HD	HEAD	W/O	WITHOUT
HP	HORSEPOWER	WB	WET BULB TEMPERATURE
HR	HOUR	WF	WIDE FLANGE
HZ	HERTZ	WG	WATER GAUGE
		WRT	WITH RESPECT TO

PIPING LEGEND

- RISE (SINGLE LINE – PLAN VIEW)
- DROP (SINGLE LINE – PLAN VIEW)
- TOP TAKEOFF
- BOTTOM TAKEOFF
- PIPE BREAK (SINGLE LINE)

FLOW DIAGRAM & CONTROL DIAGRAM EQUIP. SYMBOLS

- FILTER BANK
- CENTRIFUGAL FAN
- HEATING COIL
- COOLING COIL

HVAC SYSTEM TAGS

- CH 1 — CHILLER
- ACCU 1 — AIR COOLED CONDENSING UNIT
- AC 1 — AIR CONDITIONING UNIT
- J 1 — JACE BOX

CALL OUT SYMBOLS

- THERMOSTAT
- CONNECT TO EXISTING
- LIMIT OF NEW WORK
- REFER TO DRAWINGS ( ) FOR CONTINUATION
- SYMBOL DESIGNATES ASSOCIATED SYSTEM OR SERVICE (ie LPS)
- DIFFUSER, GRILLE, REGISTER LETTER DESIGNATION (See Schedule for ATD type)
- SA–2 / 200 — DESIGN CFM

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS

EQUIPMENT NOT REQUIRING ELECTRIC SERVICE → TAG NO / TAG DATA DATA → SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS ← TAG NO / TAG DATA DATA ← EQUIPMENT REQUIRING ELECTRIC SERVICE

NOTE:REFER TO SCHEDULES FOR DEFINITION OF EQUIPMENT SPECIFIC DATA LISTED WITHIN TAG BLOCKS

AIR SYSTEM SPECIFIC ABBREVIATIONS

AC	AIR CONDITIONING	LVDR	LOUVERED DOOR
ACD	AUTOMATIC CONTROL DAMPER	OA	OUTSIDE AIR
ACU	AIR CONDITIONING UNIT	OAI	OUTSIDE AIR INTAKE
AF	AIR FOIL	OBD	OPPOSED BLADE DAMPER
AHU	AIR HANDLING UNIT	OED	OPEN END DUCT
ALD	ACOUSTICALLY LINED DUCTWORK	RA	RETURN AIR
ATD	AIR TERMINAL DEVICE	RF	RETURN FAN
AVS	AIR VOLUME TRAVERSE STATION	RG	RETURN GRILLE
BDD	BACKDRAFT DAMPER	RHC	REHEAT COIL
BI	BACKWARD INCLINED	RLF	RELIEF
CC	COOLING COIL	RR	RETURN REGISTER
CD	CEILING DIFFUSER	RV	ROOF VENT
CFM	CUBIC FEET PER MINUTE	SA	SUPPLY AIR
CG	CEILING GRILLE	SATT	SOUND ATTENUATOR
DIFF	DIFFUSER	SCR	SCREEN
DWDI	DOUBLE WIDTH DOUBLE INLET	SD	SMOKE DAMPER
DWSI	DOUBLE WIDTH SINGLE INLET	SDET	SMOKE DETECTOR
DX	DIRECT EXPANSION	SEF	SMOKE EXHAUST FAN
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER
ESP	EXTERNAL STATIC PRESSURE		WITH ACCESS DOOR
F	FAN	SG	SUPPLY GRILLE
FC	FORWARD CURVED	SM	SHEETMETAL
FA	FREE AREA	SP	STATIC PRESSURE
FCU	FAN COIL UNIT	SR	SUPPLY REGISTER
FD	FIRE DAMPER (W/ ACCESS DOOR)	SWDI	SINGLE WIDTH DOUBLE INLET
FLTR	FILTER	SWSI	SINGLE WIDTH SINGLE INLET
FPI	FINS PER INCH	TE	TOILET EXHAUST
FPT	FAN POWERED TERMINAL BOX	TF	TRANSFER FAN
GE	GENERAL EXHAUST	TG	TRANSFER GRILLE
GIH	GRAVITY INTAKE HOOD	TR	TRANSFER
GRH	GRAVITY RELIEF HOOD	TSP	TOTAL STATIC PRESSURE
HC	HEATING COIL	UC	UNDERCUT DOOR
LAT	LEAVING AIR TEMPERATURE	VD	VOLUME DAMPER
LD	LINEAR DIFFUSER	VV	VARIABLE VOLUME SUPPLY AIR TERMINAL BOX
LUVR	LOUVER	WMS	WIRE MESH SCREEN

HYDRONIC SYSTEM SPECIFIC ABBREVIATIONS

AS	AIR SEPARATOR	ET	EXPANSION TANK
AAV	AUTOMATIC AIR VENT	EWT	ENTERING WATER TEMPERATURE
CH	CHILLER	LWT	LEAVING WATER TEMPERATURE
CHW	CHILLED WATER	MAV	MANUAL AIR VENT
CHWR	CHILLED WATER RETURN	NPSH	NET POSITIVE SUCTION HEAD
CHWS	CHILLED WATER SUPPLY	PU	PUMP

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS–BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS–BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS, AS WELL AS ROUTING PATHS, IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER, AND SHOULD BE KEPT TO A MINIMUM FOR SYSTEM EFFICIENCIES.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. VERIFY ACCESS IS PROVIDED FOR SERVICING EQUIPMENT AS REQUIRED.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
12. INSTALL NEW THERMOSTATS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ENGINEER.
13. GENERAL CONTRACTOR TO PATCH ALL EFFECTED INTERIOR AND EXTERIOR EXISTING FLOOR, WALL, AND CEILING SURFACES TO MATCH EXISTING. PROVIDE ESCUTCHEON PLATES.
14. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
15. ANY AND ALL WALLS, CEILINGS AND FLOORS THAT ARE ANTICIPATED TO BE DISTURBED DURING THE DEMOLITION OR INSTALLATIONS PROCESS, AS INDICATED ON THE DRAWINGS, SHALL BE TESTED FOR HAZARDOUS MATERIALS PRIOR TO DISTURBING THE SURFACES. ROUTING OF PIPING HAS BEEN INDICATED TO DEPICT THE INTENT OF THE WORK. ACTUAL ROUTING MAY DIFFER IN THE FIELD DUE TO BUILDING CONSTRUCTION. COORDINATE TESTING OF ALL SURFACES TO BE DISTURBED, ALONG THE ACTUAL INSTALLATION ROUTE, WITH THE HAZARDOUS MATERIALS CONTRACTOR. REFER TO EXISTING HAZMAT REPORT FOR TESTING RESULTS.
16. MECHANICAL CONTRACTOR TO REMOVE ALL IDENTIFIED R–22 EQUIPMENT AND ASSOCIATED APPURTENANCES AND REPLACE IN KIND WITH A R410A OR R407C SYSTEM.
17. REFRIGERANT PIPING IS DIAGRAMMATIC, CONTRACTOR TO DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS. ANY EXPOSED PIPING TO BE CONCEALED IN A CHASE. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
18. SEE CIVIL DRAWINGS FOR DEMOLISHED AND NEW CONCRETE PADS.
19. THE MECHANICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE MECHANICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
20. SEE PWD–ME DRAWING;
    43–15–67 FOR TITLE SHEET
    43–15–68 FOR LIST OF DRAWINGS
    43–15–69 FOR GENERAL NOTES & LEGENDS
    43–15–72 FOR CHASE AND SOFFIT DETAILS
    43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
M1.0	BUILDING 153 HVAC LEGEND
MD2.0B	BUILDING 153 HVAC FIRST FLOOR DEMOLITION PLAN PART B
MD2.1B	BUILDING 153 HVAC SECOND FLOOR DEMOLITION PLAN PART B
M2.0B	BUILDING 153 HVAC FIRST FLOOR PLAN PART B
M2.1B	BUILDING 153 HVAC SECOND FLOOR PLAN PART B
M3.0	BUILDING 153 HVAC CONTROLS
M3.1	BUILDING 153 HVAC CONTROLS
M3.2	BUILDING 153 HVAC CONTROLS
M4.0	BUILDING 153 HVAC SCHEDULES AND DETAILS

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

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PM/DM	PETER STOCKLESS	
BRANCH MANAGER	BRUCE LITALIEN	
FEAD/PM&E	AMIN BAHROUR PM&E	
FIRE PROTECTION	X	

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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 153 HVAC LEGEND

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085–XX–C–XXXX

NAVFAC DRAWING NO. 12703710

SHEET 257 OF 506

M1.0 | 153-15-353

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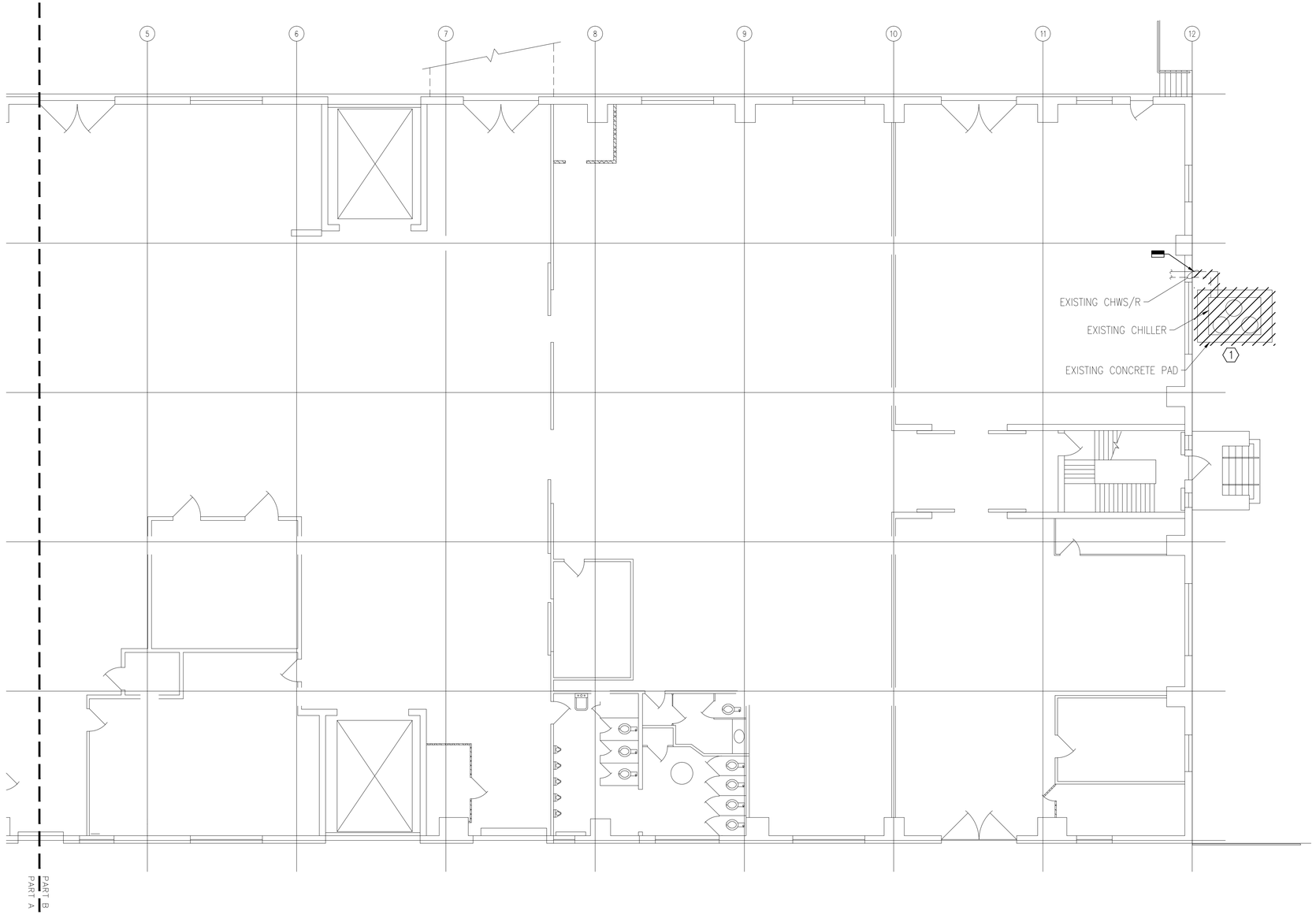


BUILDING 153 HVAC FIRST FLOOR DEMOLITION PLAN PART B

1/8"=1'-0"

PLAN NORTH

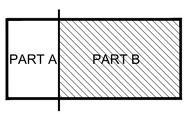
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING CHILLER AND ASSOCIATED CHWS/R LINES UP TO POINT OF DEMOLITION AS INDICATED ON THE DRAWING. EXISTING CONCRETE PAD TO BE REMOVED.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24

scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
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NAVAL SHIPYARD - PORTSMOUTH, NH

KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 153 HVAC FIRST FLOOR DEMOLITION PLAN PART B

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703711

SHEET 258 OF 506

MD2.0B 153-15-354

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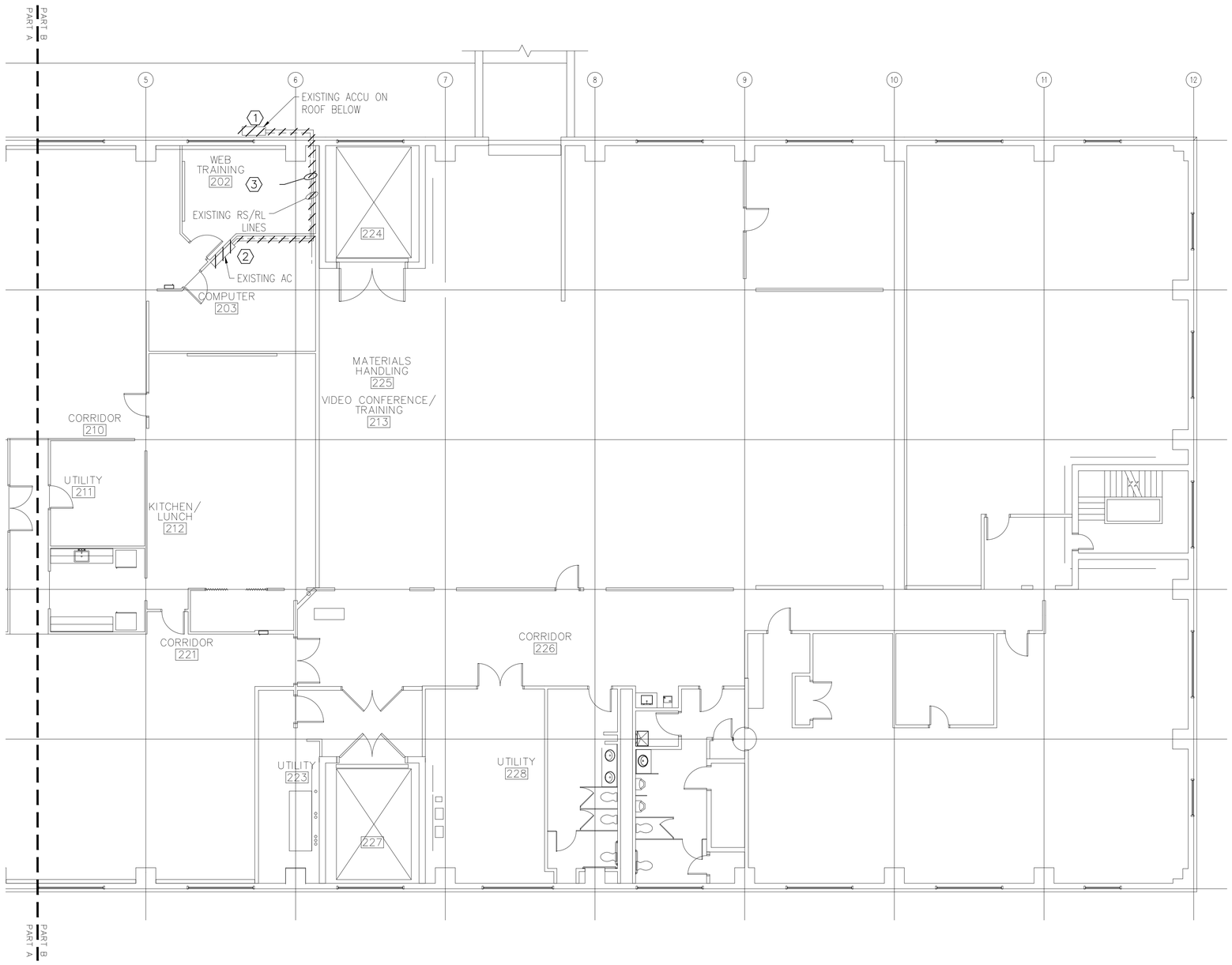


BUILDING 153 HVAC SECOND FLOOR DEMOLITION PLAN PART B

1/8"=1'-0"

PLAN NORTH

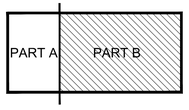
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING ACCU. CONTRACTOR TO FIELD VERIFY EXISTING ROOF CURB. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.
2. REMOVE EXISTING AC AND ASSOCIATED THERMOSTAT. EXISTING CONDENSATE LINES AND CONTROL WIRING TO REMAIN AND BE DISCONNECTED.
3. ACCESSIBLE EXISTING RS/RL LINES TO BE REMOVED. ANY REMAINING CHWS/R CONCEALED TO BE EVACUATED, CAPPED AND ABANDONED IN PLACE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

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FEAD/PM&E AMIN BAHROUR PM&E

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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 153 HVAC SECOND FLOOR DEMOLITION PLAN PART B

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703712

SHEET 259 OF 506

MD2.1B | 153-15-355

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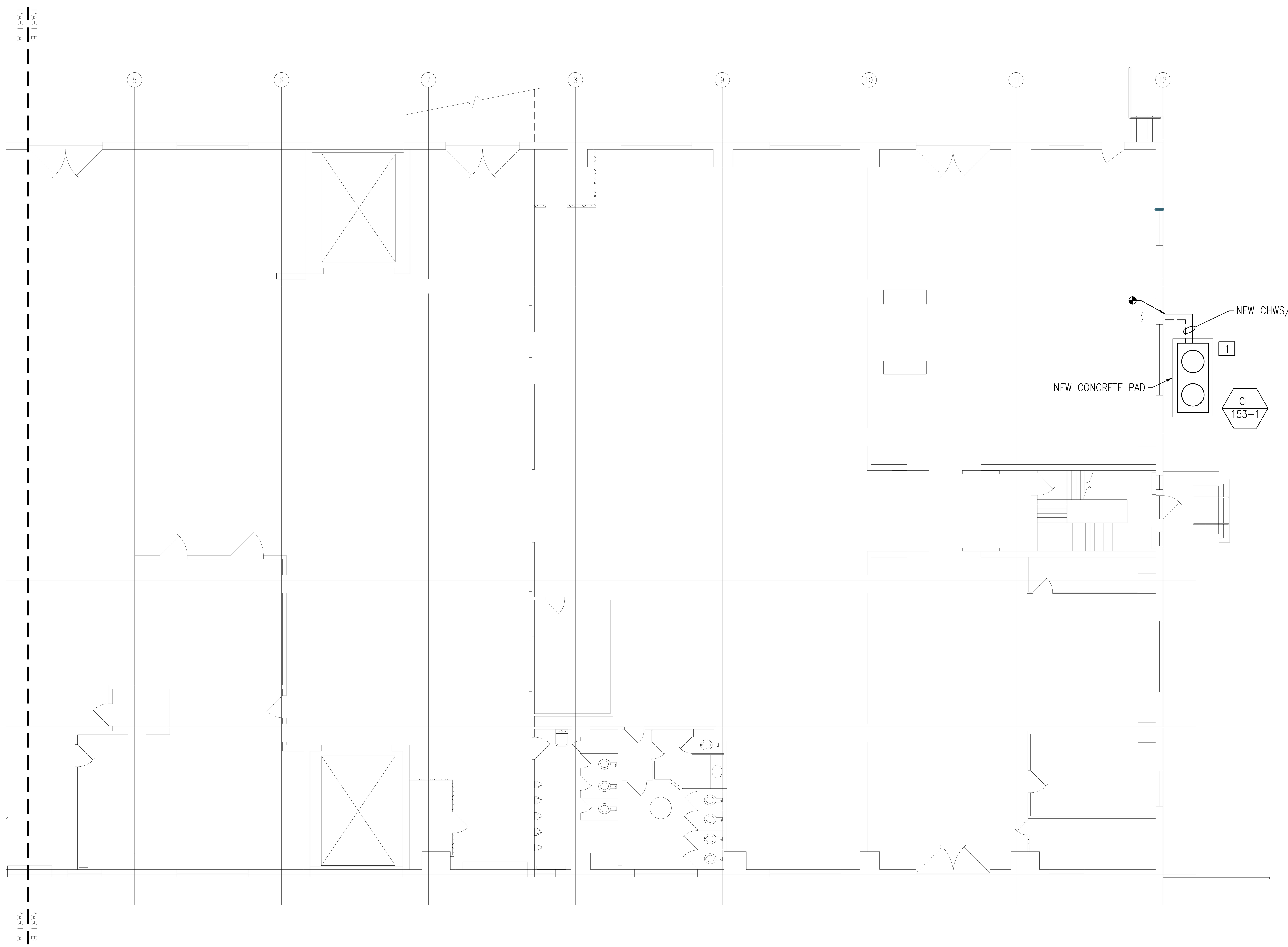


BUILDING 153 HVAC FIRST FLOOR PLAN PART B
1/8"=1'–0"

PLAN NORTH

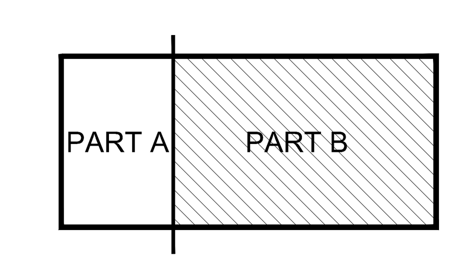
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW CHILLER AND IT'S ASSOCIATED CHWS/R LINES AND CONNECT IT TO THE EXISTING SYSTEM. CHILLER TO BE PLACED ON NEW CONCRETE PAD.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' — 8 4 0 8 16 24 — scale feet

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A/E INFO

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SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 153 HVAC FIRST FLOOR PLAN PART B

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXXX
NAVFAC DRAWING NO. 12703713
SHEET 260 OF 506
M2.0B 153-15-356

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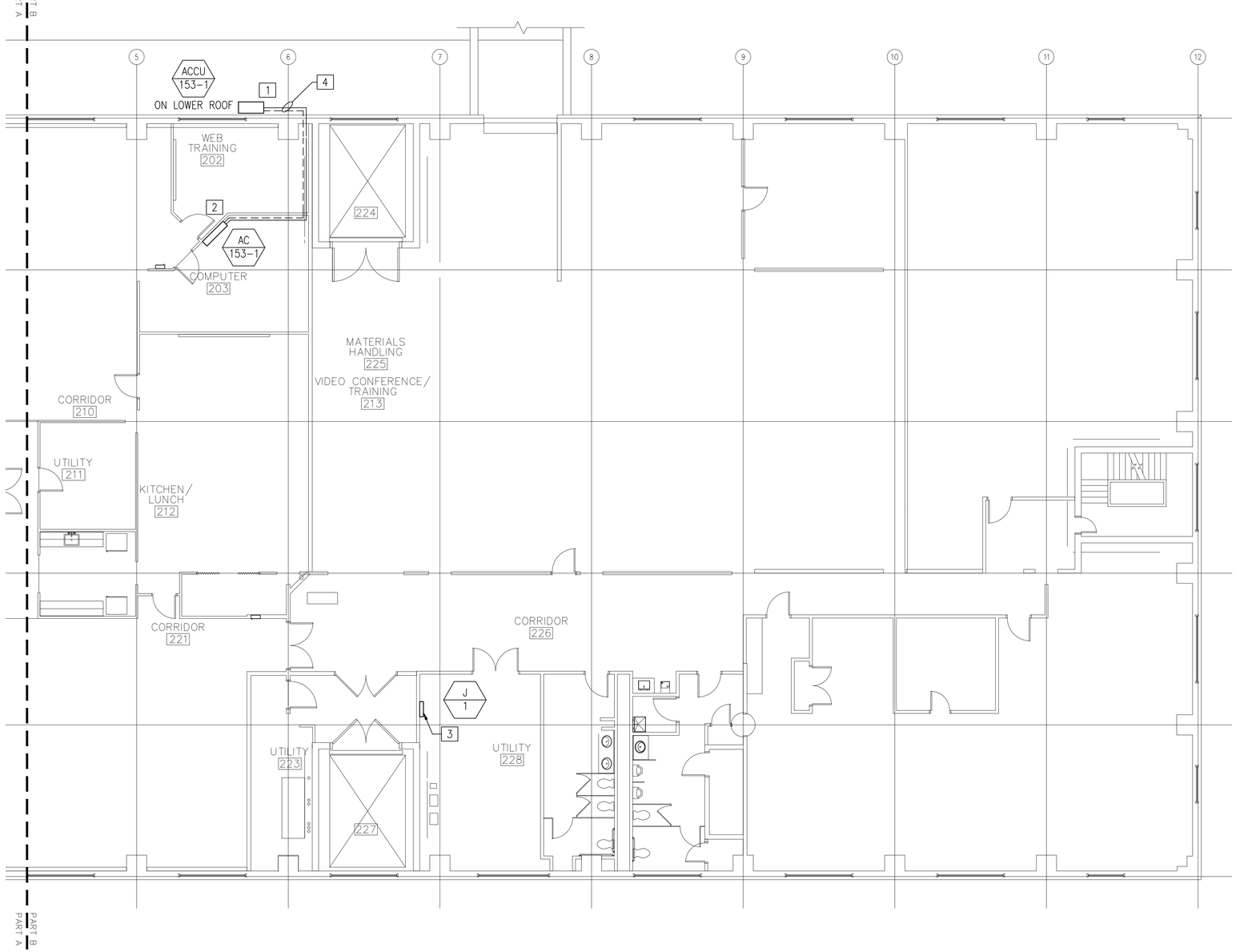


BUILDING 153 HVAC SECOND FLOOR PLAN PART B
1/8"=1'-0"

PLAN NORTH

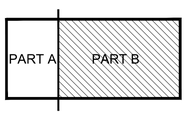
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW ACCU AND IT'S ASSOCIATED RS/RL LINES. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.
2. FURNISH AND INSTALL NEW AC AND CONNECT TO ASSOCIATED RS/RL LINES. EXISTING CONDENSATE LINES AND CONTROL WIRING TO BE RECONNECTED. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.
3. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF NEW DDC JACE BOX WITH NAVFAC.
4. SEE HVAC GENERAL NOTE 17 ON SHEET M1.0 FOR PIPING INFORMATION.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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CONTRACT NO. N40085-12-D-1800 DO 0010 CLIN 0010 AND 0014

PRIME
CSI ENGINEERING
FIRE PROTECTION
999 BANDMAN STATE 206 PENSACOLA, FL 32514 781-33-3600
213 WATERS AVE, STE 304 SCARBOROUGH, ME 04074 207-217-0214
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC DRW SV CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
BUILDING 153 HVAC SECOND FLOOR PLAN PART B

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703714
SHEET 261 OF 506
M2.1B 153-15-357

DRAWFORM REVISION: 10 OCTOBER 2014

TR
PROGRAMMABLE
THERMOSTAT

EQUIPMENT:

AC-153-1
ACCU-153-1

GENERAL
1. THE EQUIPMENT IS STARTED AND STOPPED VIA DDC THERMOSTAT. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER.

OFF
1. SF DEENERGIZED
2. ACCU DEENERGIZED

UNOCCUPIED COOLING CONTROL

1. SF ENERGIZED
2. ACCU IS STAGED ON TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 80°F(ADJ).
3. DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL LIMIT SUPPLY AIR TO 53°F MINIMUM.

OCCUPIED COOLING CONTROL

1. SF ENERGIZED
2. ACCU IS STAGED ON TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 75°F(ADJ).
3. DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL LIMIT SUPPLY AIR TO 53°F MINIMUM.

AIR CONDITIONER W/ DX COOLING SEQUENCE OF OPERATION

GENERAL:
- PACKAGED CHILLER IS MONITORED AND ON/OFF CONTROLLED BY THE NEW NIAGRA BUILDING DDC SYSTEM

OFF MODE:
- PACKAGED CHILLER IS DE-ENERGIZED

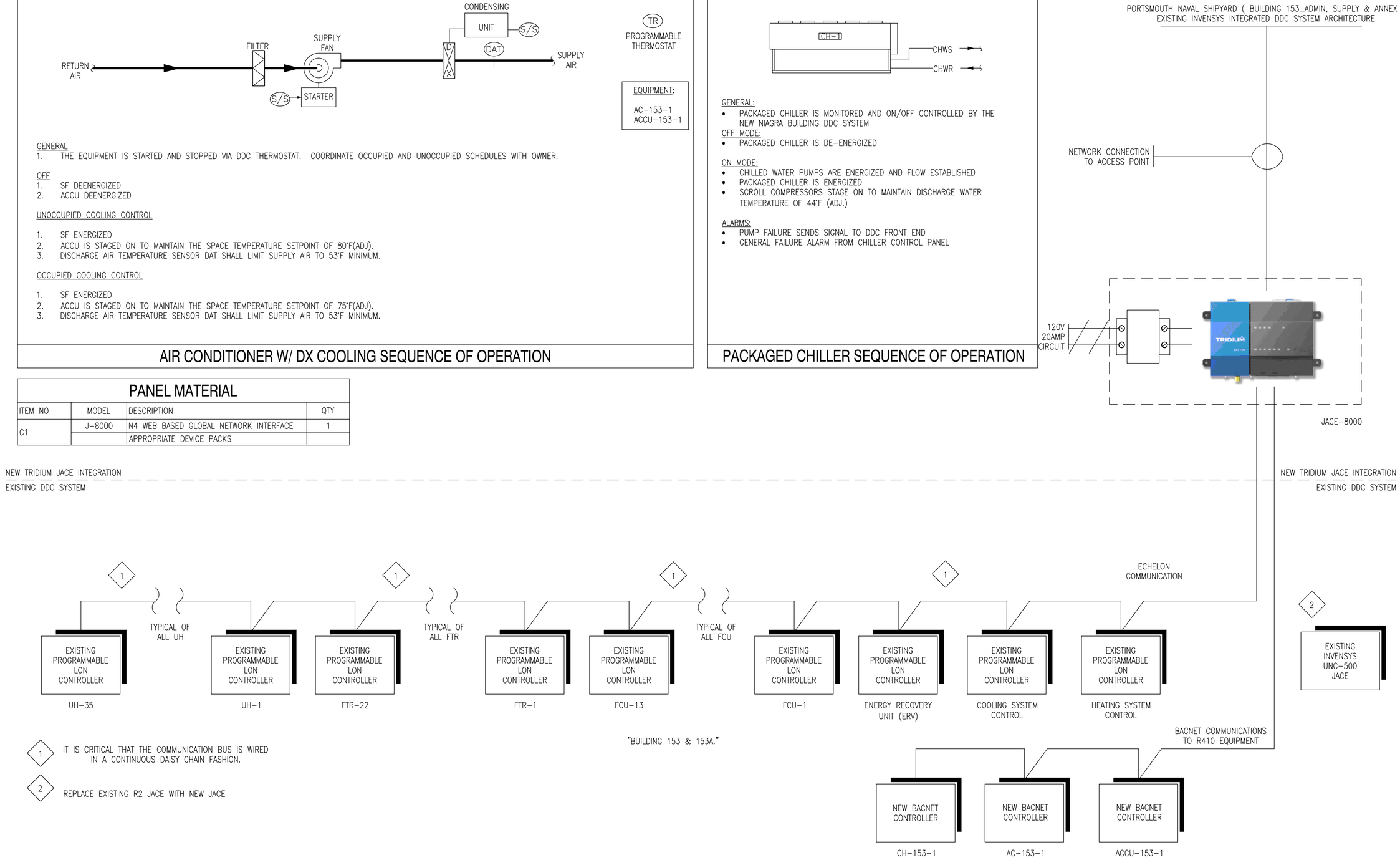
ON MODE:
- CHILLED WATER PUMPS ARE ENERGIZED AND FLOW ESTABLISHED
- PACKAGED CHILLER IS ENERGIZED
- SCROLL COMPRESSORS STAGE ON TO MAINTAIN DISCHARGE WATER TEMPERATURE OF 44°F (ADJ.)

ALARMS:
- PUMP FAILURE SENDS SIGNAL TO DDC FRONT END
- GENERAL FAILURE ALARM FROM CHILLER CONTROL PANEL

PACKAGED CHILLER SEQUENCE OF OPERATION

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
		APPROPRIATE DEVICE PACKS	



STM	DESCRIPTION	DATE	APPR.
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

DESIGN FIRM
CSI
CONSULTING INC.
ENGINEERING
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FIRE PROTECTION
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Fort Worth, TX 76103
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623-313-924
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APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 153 HVAC CONTROLS

EPROJECT NO.: 1350913

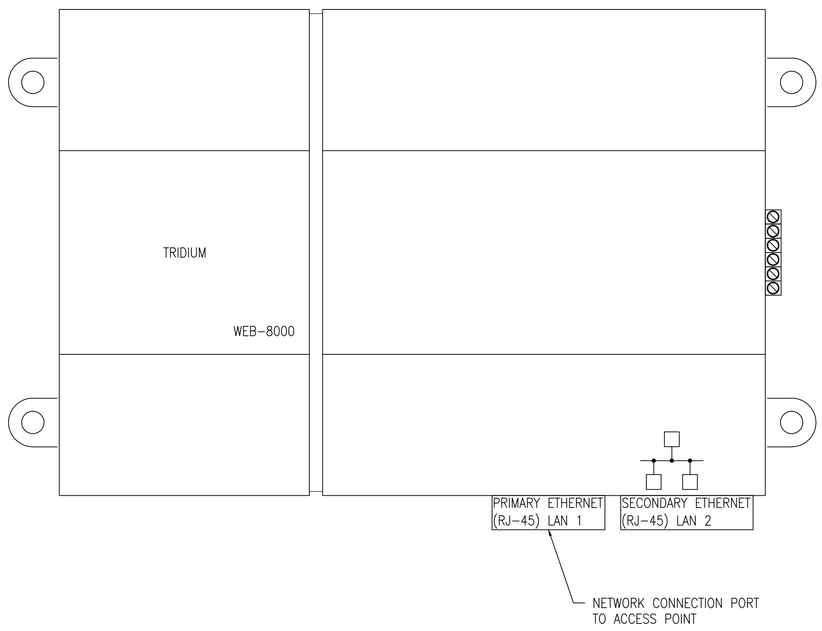
CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703715

SHEET 262 OF 506

M3.0 | 153-15-358

DRAWFORM REVISION: 10 OCTOBER 2014



ETHERNET CONNECTION TO RF ACCESS POINT

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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CSI-01-2015-08
DAVID H. MAHONEY

ENGINEER
CSI
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781-233-2600
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757-723-7600
A/E INFO

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FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

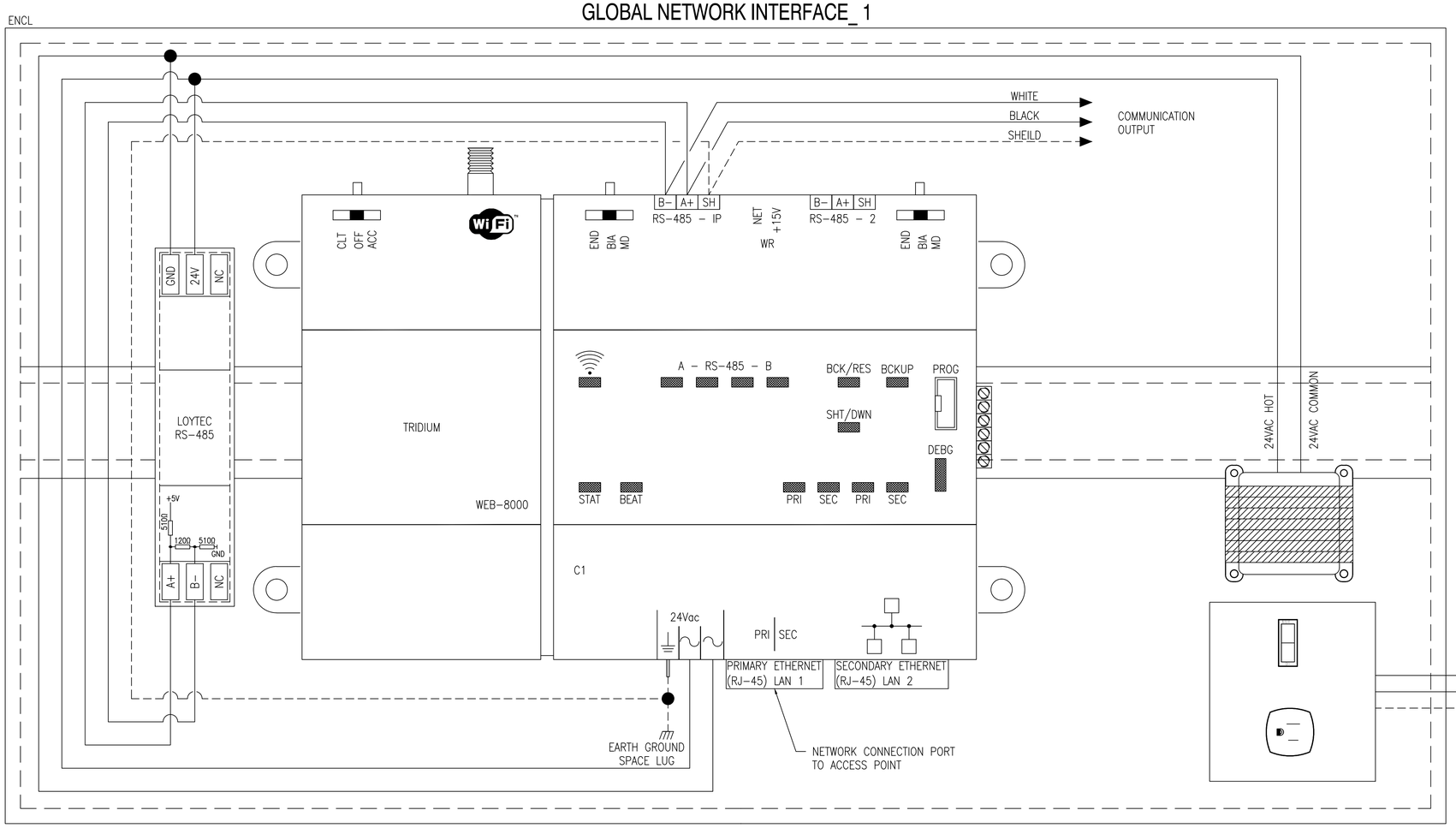
BUILDING 153 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703716
SHEET 263 OF 506

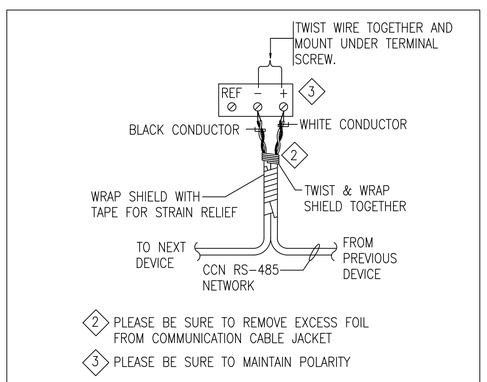
M3.1 | 153-15-359

DRAWFORM REVISION: 10 OCTOBER 2014

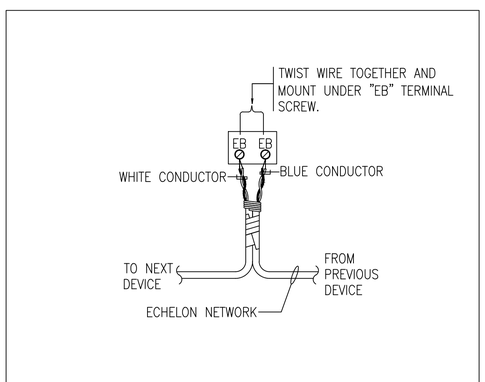
GLOBAL NETWORK INTERFACE_ 1



1 LOCATION OF CONTROLLER TO BE FIELD VERIFIED



RS-485 BACNET MS/TP CONNECTION DETAIL



E-BUS CONNECTION DETAIL

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J–8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
ENCL	ENC–001	12"x18"x4" ENCLOSURE W/ 24V TRANSFORMER	1
EOL1	209541B	END OF LINE RESISTOR	1
LT1	LT–B4	RS–485 NETWORK TERMINATOR	1

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
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Harvard, MA 01451
978.772.9944
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD
FY 16 ENERGY PROJECT
TASK 1–B–R–22
BUILDING 153 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXXX
NAVFAC DRAWING NO. 12703717
SHEET 264 OF 506
M3.2 | 153-15-360

DRAWFORM REVISION: 10 OCTOBER 2014

AIR-COOLED WATER CHILLER SCHEDULE

TAG	SERVICE	LOCATION	MINIMUM CAPACITY (TONS)	EVAPORATOR					REFRIG. TYPE	COMPRESSOR(S)			AMBIENT (°F)	CONDENSER FAN			ELECTRIC SERVICE					WEIGHT (LBS)	DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
				GPM	% GLYCOL	EWT (°F)	LWT (°F)	P.D.(FT.)		QTY.	POWER (KW)	TYPE	MAX	QTY.	POWER (KW)	RPM	MAX kW	MCA (AMP)	MOP (AMP)	V	PH			
CH-153-1	BLDG 153	GROUND FLOOR	26	62.3	35	54	44	18.1	R-410A	2	27.3	SCROLL	95	2	2.4	840	29.9	56.4	70	460	3	2278	TRANE CGAM026F	SEE NOTES

NOTES: 1. PROVIDE W/ BACNET INTERFACE. 2. PROVIDE WITH LOW-TEMPERATURE PROCESSING. 3. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 4. PROVIDE WITH SEACOAST RATED COATING FOR CONDENSER COIL.

JACE BOX

TAG NO.	LOCATION	ELECTRICAL		DESGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
		AMP	V		
J-1	SEE PLANS	20	120	JACE 8000	SEE NOTES

NOTES: 1. PROVIDE W/ MEMORY UPGRADE UP TO 4GB. 2. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.

INDOOR AIR CONDITIONER SCHEDULE

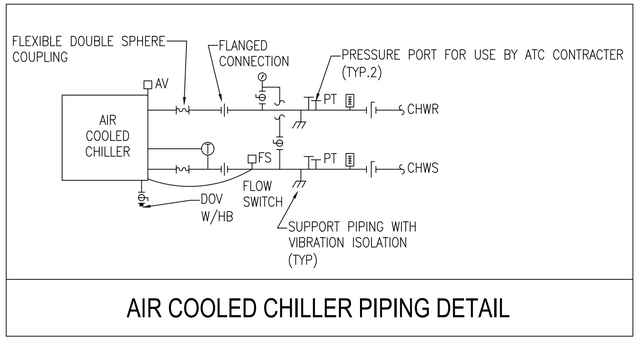
INDOOR UNIT														
TAG NO.	LOCATION	ASSOCIATED OUTDOOR UNIT	TYPE	COOLING DATA				FAN DATA	ELECTRICAL DATA				DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
				TOTAL MBH	INDOOR TEMP.		OUTDOOR TEMP. DB(°F)	CFM	V	PH	Hz	MOP		
					DB(°F)	WB(°F)								
AC-153-1	BUILDING 153	ACCU-153-1	FLOOR	17.4	75	63	85	870	208	1	60	15	LIEBERT DME020E-PC7	SEE NOTES

NOTES: 1. PROVIDE WITH 2" THROWAWAY FILTERS. 2. PROVIDE CONDENSATE LIFT MECHANISM 3. PROVIDE W/ BACNET INTERFACE. 4. PROVIDE WITH CONDENSATE PUMP. 5. PROVIDE WITH POINT LEAK DETECTION SENSOR. 6. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.

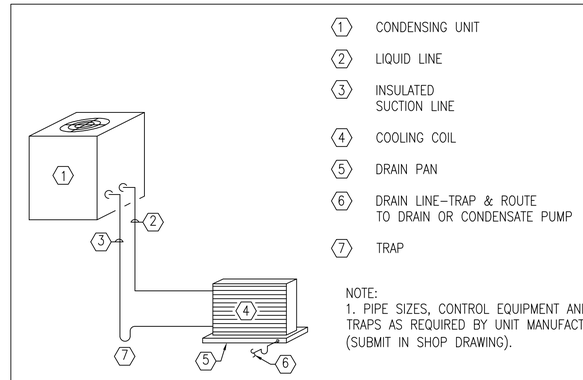
AIR COOLED CONDENSING UNIT SCHEDULE

TAG	SERVES	DESIGN BASED ON MANUFACTURER	DESIGN BASED ON MODEL No.	COOLING DATA	ELECTRIC DATA						NOTES
				COOLING (MBH)	VOLTS	HZ	PHASE	FLA	MCA	MOCP	
ACCU-153-1	BLDG 153	LIEBERT	PFH020A-PL7	17.4	208	60	1	12.1	14.8	25	SEE NOTES

NOTES: 1. PROVIDE W/ BACNET INTERFACE 2. PROVIDE WITH HOT GAS BY-PASS. 2. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 3. PROVIDE WITH SEACOAST RATED COATING FOR CONDENSER COIL.

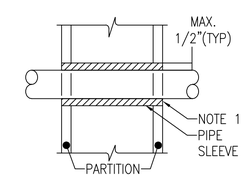


AIR COOLED CHILLER PIPING DETAIL



NOTE:
1. PIPE SIZES, CONTROL EQUIPMENT AND TRAPS AS REQUIRED BY UNIT MANUFACTURER (SUBMIT IN SHOP DRAWING).

REFRIGERANT PIPING SMALL COMPONENT SCHEMATIC



NOTES:
1. AT FIRE RATED PARTITIONS ADD LAYER OF FIRE SAFING INSULATION AROUND PENETRATIONS SO AS TO FILL CAVITY.
2. PIPE PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.
3. CONTRACTOR REPSONSIBLE FOR DETERMINING REQUIRED HOUR RATING TO MATCH EXISTING WALL ASSEMBLY.

PIPE PENETRATIONS

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER SEAL

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ENGINEER: CSI ENGINEERING, LLC. FIRE PROTECTION. 999 Bedford St. Suite 206 Stamford, CT 06905 TEL: 203-323-9025 FAX: 203-323-9254. 25 Anthony Ave, Ste 304 Mt. Vernon, NY 10550 914-667-4116. INFO@CSIENGINEERING.COM

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC DRW SV CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 153 HVAC SCHEDULES AND DETAILS

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703718

SHEET 265 OF 506

M4.0 153-15-361

DRAWFORM REVISION: 10 OCTOBER 2014

TYPICAL FLASH PROTECTION WARNING LABEL

W A R N I N G

ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

EQUIPMENT TYPE:	
GROUNDING:	Y/N GROUNDED
WORK DISTANCE:	INCHES
AVAILABLE 3φ BOLTED CURRENT:	kA
FLASH PROTECTION BOUNDARY:	INCHES
INCIDENT ENERGY AT 23 INCHES:	cal/cm²
PPE LEVEL:	4
DATE:	xx/xx/xxxx

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

TYPICAL NAMEPLATE DETAIL

3" × 1"

PANEL PP1
225A 208Y/120V
FED FROM MDP

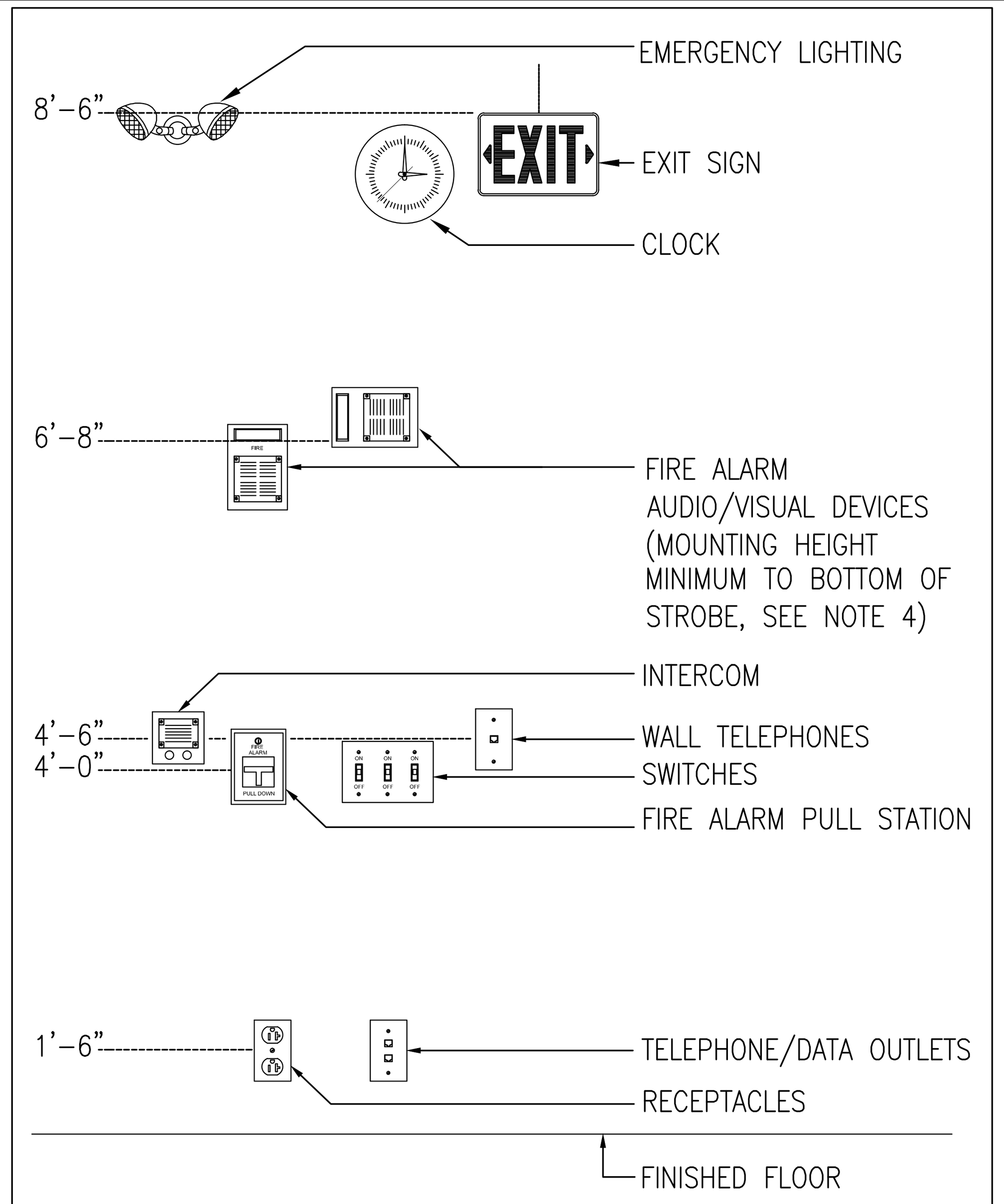
NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
4. TYPICAL FOR "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

WIRING DEVICES

SYMBOL	DESCRIPTION
# GFI (receptacle symbol)	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "#" – INDICATES CIRCUIT NUMBER (TYP) "WP" – INDICATES WEATHERPROOF (TYP) "C" – INDICATES COUNTER HEIGHT (TYP) "GFI" – INDICATES GROUND FAULT INTERRUPTER

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. STROBE HEIGHT ILLUSTRATED AT MAXIMUM HEIGHT. STROBE SHALL BE 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

ELECTRIC ABBREVIATIONS

A/AMP	AMPERE	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICAN WITH DISABILITIES ACT	MEC	MASSACHUSETTS ELECTRIC CODE
AF	AMPERE FRAME	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AT	AMPERE TRIP	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWTICH	#	NUMBER
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	PWR	POWER
CATV	CABLE TELEVISION	RGS	RIGID GALVANIZED STEEL
CCTV	CLOSED CIRCUIT TELEVISION	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	TEL	TELEPHONE
CKT	CIRCUIT	TERM	TERMINAL
℄	CENTERLINE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DWG	DRAWING	TSP	TWISTED SHIELDED PAIR
EC	ELECTRICAL CONTRACTOR	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UNO	UNLESS OTHERWISE NOTED
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	UPS	UNINTERRUPTIBLE POWER SUPPLY
GFI	GROUND FAULT INTERRUPTING	UTP	UNSHIELDED TWISTED PAIR
GND	GROUND	V	VOLT
HH	HANDHOLE	VA	VOLT AMPERE
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	W	WATT
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND		
KVA	KILOVOLT – AMPERE		
KW	KILOWATT		

MOTOR & CONTROLS LEGEND

SYMBOL	DESCRIPTION
30AS	DISCONNECT SWITCH RATED 30AMP, 3–POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" – INDICATES NEMA TYPE 3R ENCLOSURE "30AS" – INDICATES 30AMP SWITCH
30AS/15AF	FUSED DISCONNECT SWITCH, 3–POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" – INDICATES NEMA TYPE 3R ENCLOSURE "30AS" – INDICATES 30AMP SWITCH "15AF" – INDICATES 15AMP FUSES
100AF/80AT	ENCLOSED CIRCUIT BREAKER IN NEMA TYPE 1 ENCLOSURE UNLESS OTHERWISE NOTED. "100AF" – INDICATES 100A, 3–POLE FRAME CIRCUIT BREAKER "80AT" – INDICATES TRIP RATING
JCB	DDC CONTROL JACE BOX. PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION.

ELECTRIC SYSTEM TAGS OR CALL OUT SYMBOLS

SYMBOL

- DETAIL LETTER
- DWG NUMBER ON WHICH SECTION IS SHOWN
- EQUIPMENT SYMBOLS (REFER TO EQUIPMENT SCHEDULES)
- EUH – EQUIPMENT DESIGNATION
- # – EQUIPMENT REFERENCE NUMBER (TYP)
- # – NEW WORK NOTE TAG
- # – DEMOLITION NOTE TAG

POWER DISTRIBUTION LEGEND

SYMBOL	DESCRIPTION
(solid bar)	208Y/120 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
(hatched bar)	480Y/277 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
T	DRY TYPE TRANSFORMER

BRANCH CIRCUIT & FEEDER LEGEND

SYMBOL	DESCRIPTION
PP1–(X) PP1–(X)	BRANCH CIRCUIT HOME RUN. TYPICAL 2#12 & 1#12G IN ¾"C MINIMUM. PP1–(1) INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A–1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.

EXISTING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
XM	EXISTING EQUIPMENT TO REMAIN
XR	EXISTING EQUIPMENT TO BE REMOVED
XE	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
(light box)	EXISTING EQUIPMENT TO REMAIN FOR INFORMATION ONLY – (XM) INDICATED BY SYMBOL WITH LIGHT OUT OF FUNCTION LINE TYPE
(dashed box)	EXISTING EQUIPMENT TO BE REWORKED – (XN, XL, XE, XR) INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

ELECTRIC GENERAL NOTES

1. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF WORK. DAMAGE SHALL INCLUDE BUT NOT LIMITED TO THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
3. THE ELECTRICAL CONTRACTOR SHALL DE–ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINT OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY TRADE CONTRACTOR. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE–ENERGIZED AND LABELED AS SPARE.
4. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE OR TURNED OVER TO OWNER. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
5. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS–BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. CIRCUITRY HAS BEEN DETERMINED BASED UPON INFORMATION GATHERED, ASSUMPTIONS, AND INFORMATION OBTAINED FROM NAVFAC. EXACT CIRCUITING, EQUIPMENT SIZES, AND CONDUIT AND WIRING SIZES MAY DIFFER IN THE FIELD FROM WHAT IS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRACING ALL CIRCUITS BEING DEMOLISHED AND REUSED PRIOR TO DISCONNECTING, VERIFYING EXISTING CIRCUITRY AND EQUIPMENT SIZES, AND SHALL SIZE ALL NEW EQUIPMENT AND BRANCH CIRCUITRY ACCORDINGLY IF ACTUAL CONDITIONS DIFFER FROM WHAT IS SHOWN ON THE DRAWINGS. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
6. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
7. THE ELECTRICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
8. ROUTING IS DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS WHERE POSSIBLE.
9. SEE PWD–ME DRAWING NUMBERS;
   - 9.1. 43–15–67 FOR TITLE SHEET
   - 9.2. 43–15–68 FOR LIST OF DRAWINGS
   - 9.3. 43–15–69 FOR GENERAL NOTES & LEGENDS
   - 9.4. 43–15–72 FOR CHASE AND SOFFIT DETAILS
   - 9.5. 43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
E1.0	BUILDING 153 ELECTRICAL LEGEND
ED2.0B	BUILDING 153 ELECTRICAL FIRST FLOOR DEMOLITION PLAN PART B
ED2.1B	BUILDING 153 ELECTRICAL SECOND FLOOR DEMOLITION PLAN PART B
E2.0B	BUILDING 153 ELECTRICAL FIRST FLOOR PLAN PART B
E2.1B	BUILDING 153 ELECTRICAL SECOND FLOOR PLAN PART B
E3.0	BUILDING 153 ELECTRICAL SCHEDULES

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER – SEAL

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25 AVIATION AVE STE 204, PORTSMOUTH, NH 03801, 603-319-8244
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

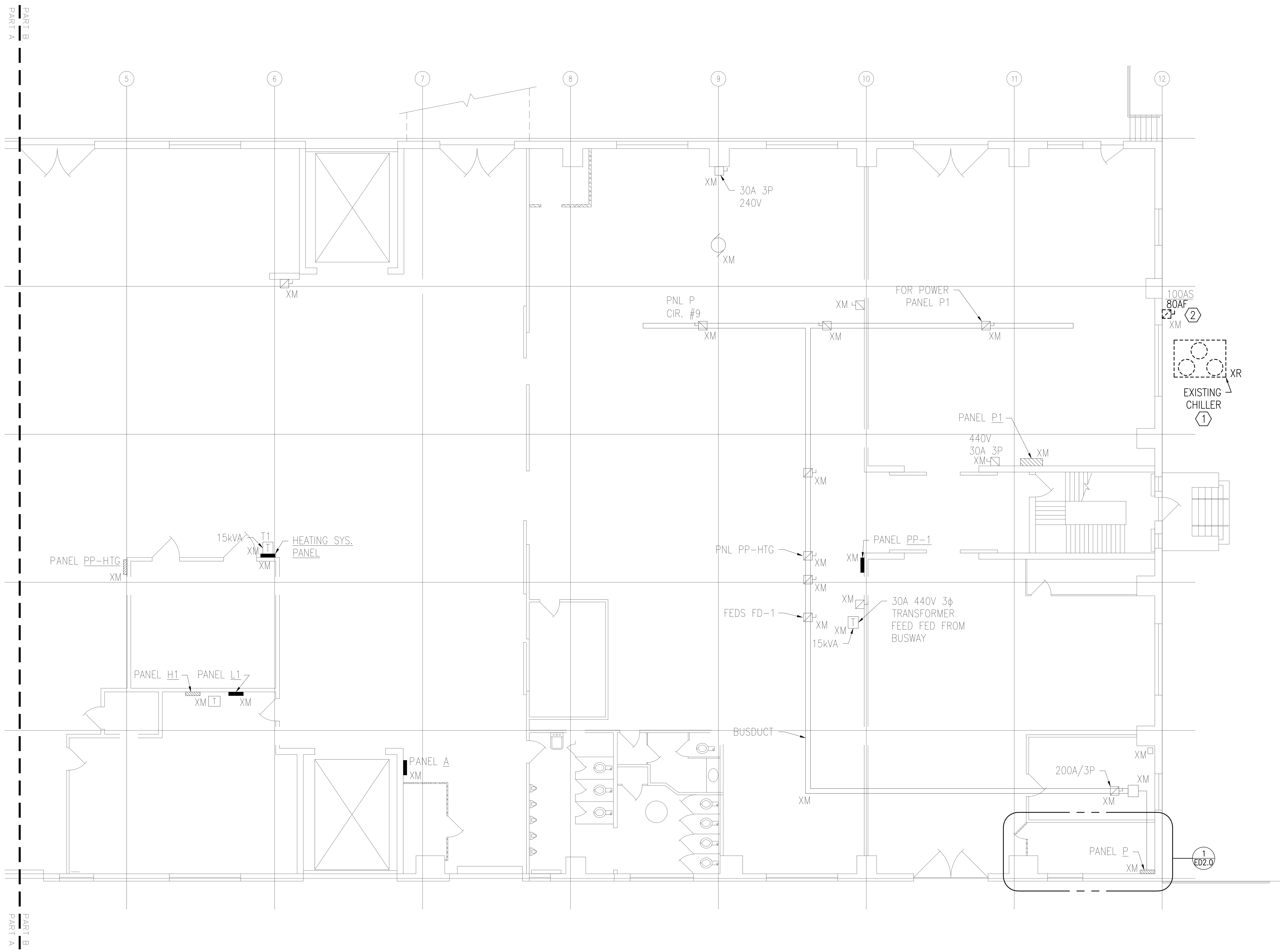
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 153 ELECTRICAL LEGEND

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXXX
NAVFAC DRAWING NO. 12703719
SHEET 266 OF 506
E1.0 | 153-15-362

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 153 ELECTRICAL FIRST FLOOR DEMOLITION PLAN - PART B

1/8" = 1'-0"

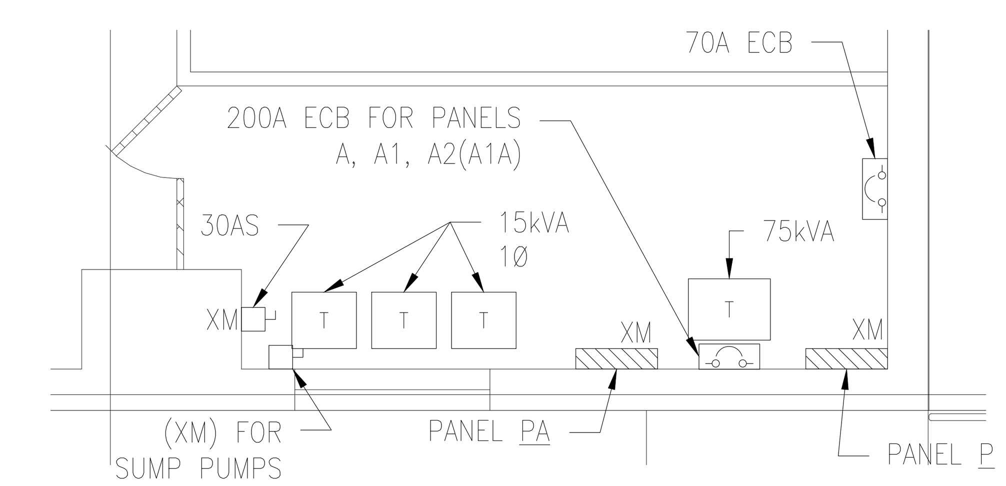
PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE–ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
3. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

DEMOLITION KEYNOTES

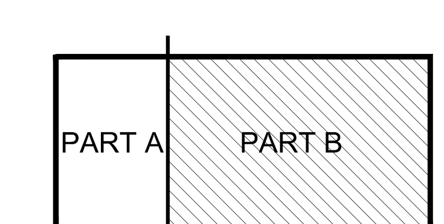
1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING CHILLER. DEMOLISH ASSOCIATED CONDUIT AND WIRING IN THEIR ENTIRETY. MAINTAIN ASSOCIATED CIRCUIT BREAKER AND AND LABEL AS "SPARE" FOR FUTURE USE.
2. MAINTAIN EXISTING CHILLER DISCONNECT. REMOVE EXISTING 80A FUSE TO ALLOW FOR INSTALLATION OF NEW FUSE DURING NEW WORK PHASE. FIELD COORDINATE EXACT LOCATION OF DISCONNECT.



FIRST FLOOR MAIN ELECTRICAL CAGE

1 / ED2.0 — 1/4" = 1'-0"

KEY PLAN



GRAPHIC SCALE

1/8" = 1' — 8 4 0 8 16 24 — scale feet

CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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0	35% SUBMISSION	02/23/2015	DM

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25 AVIATION AVE STE 204, PORTSMOUTH, NH 03801, 603-319-8244
A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE — NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD — KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 153 ELECTRICAL FIRST FLOOR DEMOLITION PLAN PART B

EPROJECT NO.: 1350913

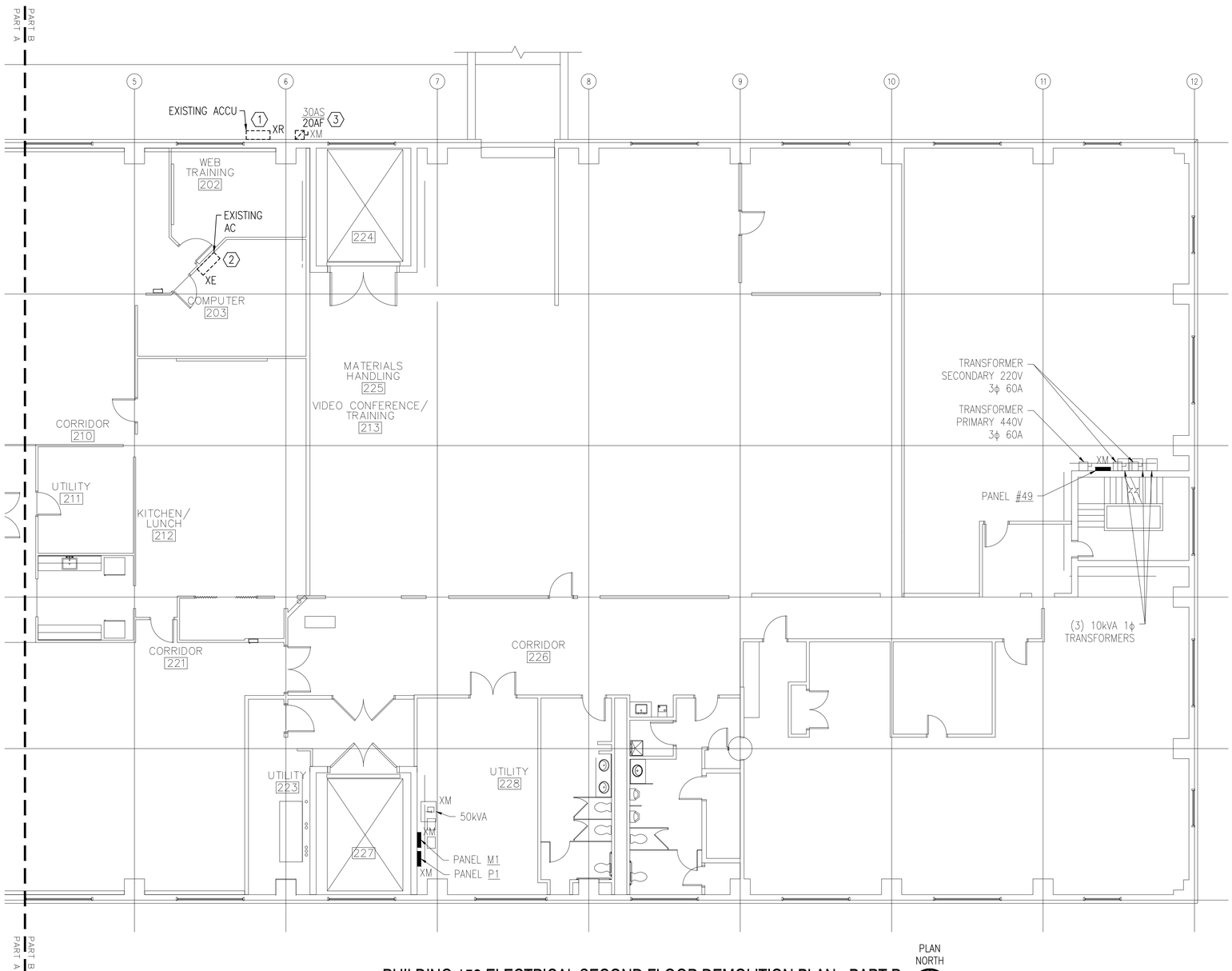
CONSTR. CONTR. NO. N40085–XX–C–XXXX

NAVFAC DRAWING NO. 12703720

SHEET 267 OF 506

ED2.0B | 153-15-363

DRAWFORM REVISION: 10 OCTOBER 2014



PLAN NORTH

BUILDING 153 ELECTRICAL SECOND FLOOR DEMOLITION PLAN - PART B

1/8" = 1'-0"

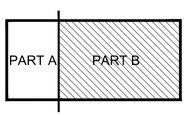
GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS SCHEDULED TO BE REMOVED WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
3. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
4. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.

DEMOLITION KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING ACCU. DEMOLISH ASSOCIATED CONDUIT, WIRING AND CIRCUIT BREAKER IN THEIR ENTIRETY. MAINTAIN ASSOCIATED DISCONNECT FOR REUSE.
2. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING AC UNIT. MAINTAIN ASSOCIATED CONDUIT, WIRING AND CIRCUIT BREAKER FOR REUSE. DEMOLISH EXISTING DISCONNECT IN ITS ENTIRETY.
3. REMOVE EXISTING 20A FUSE FROM EXISTING DISCONNECT TO ALLOW FOR INSTALLATION OF NEW FUSE IN NEW WORK PHASE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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No. 13078
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PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT ~ MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD ~ PORTSMOUTH, NH
KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
BUILDING 153 ELECTRICAL SECOND FLOOR
DEMOLITION PLAN PART B

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703721
SHEET 268 OF 506
ED2.1B | 153-15-364

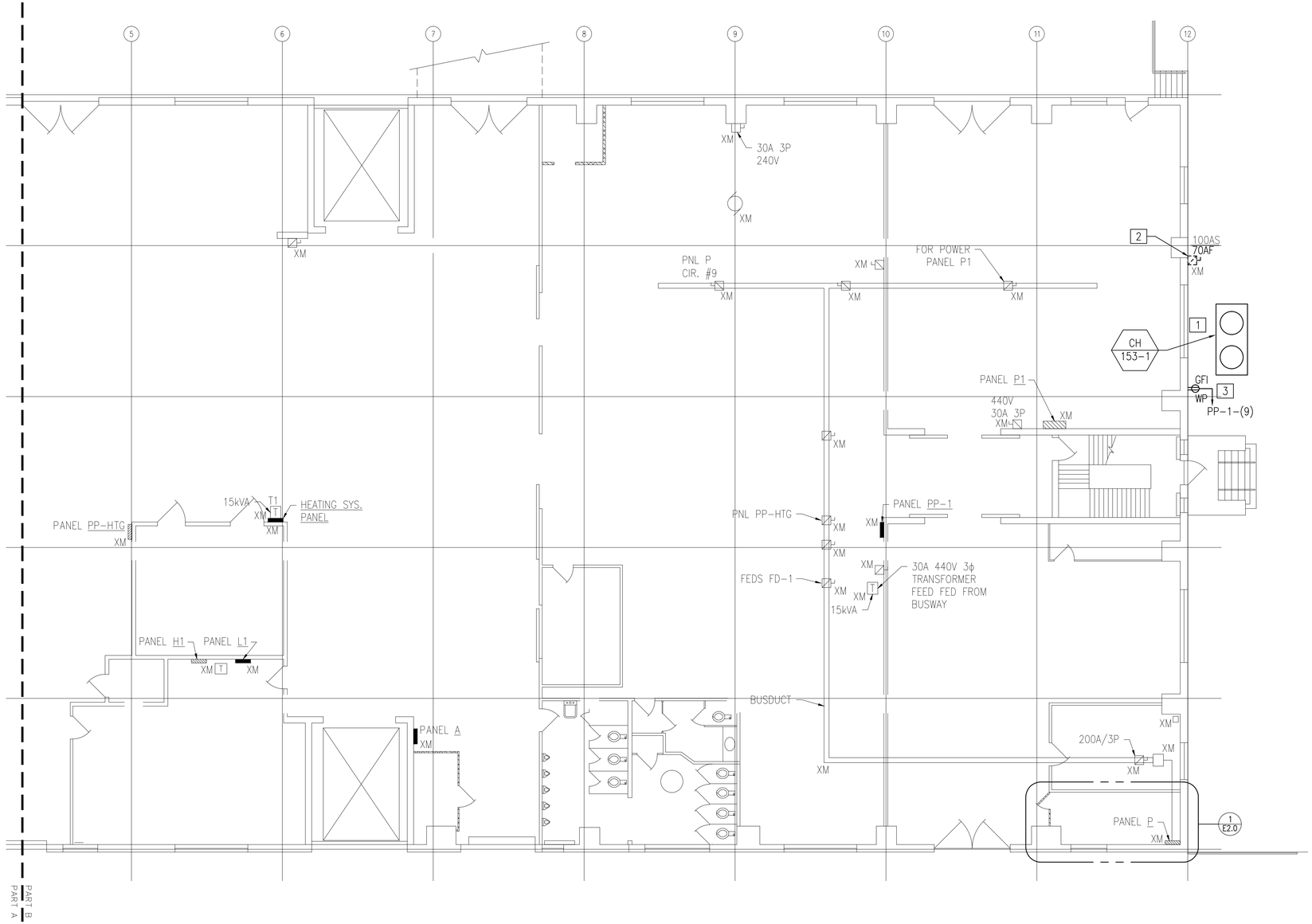
DRAWFORM REVISION: 10 OCTOBER 2014

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

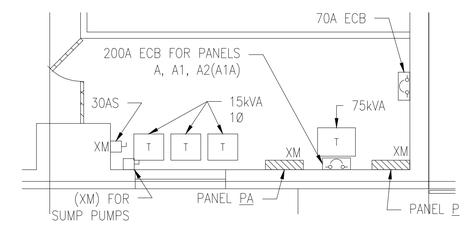
NEW WORK KEYNOTES

1. UTILIZE EXISTING DISCONNECT MAINTAINED DURING DEMOLITION FOR NEW CHILLER. PROVIDE NEW CIRCUIT BREAKER IN PANEL "PA" FOR NEW CHILLER. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION. REUSE EXISTING DISCONNECT MAINTAINED DURING DEMOLITION.
2. PROVIDE NEW 70A FUSE IN EXISTING DISCONNECT MAINTAINED DURING DEMOLITION. PROVIDE NEW WHIP FROM DISCONNECT TO NEW CHILLER. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
3. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY IF A RECEPTACLE EXISTS WITHIN 6' OF NEW CHILLER. IF NO RECEPTACLE EXISTS, PROVIDE NEW AS SHOWN. REFER TO PANELBOARD SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.



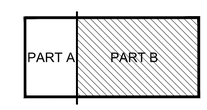
BUILDING 153 ELECTRICAL FIRST FLOOR PLAN - PART B
1/8" = 1'-0"

PLAN NORTH



1 / E2.0 FIRST FLOOR MAIN ELECTRICAL CAGE
1/4" = 1'-0"

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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CAD/CD-2014-08
CONTRACT NO. N62472-90-D-1900

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MADE: CSI ENGINEERING
FIRE PROTECTION:
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BOISE, ID 83706-4000
TEL: 208-343-0828
215 MARTINS AVE, STE 203
SAN JOSE, CA 95126
408-241-9424
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES: TM | DRW: TM | CHK: JO
PM/DM: PETER STOCKLESS
BRANCH MANAGER: BRUCE LITALIEN
FEAD/PM&E: AMIN BAHROUR PM&E
FIRE PROTECTION: X

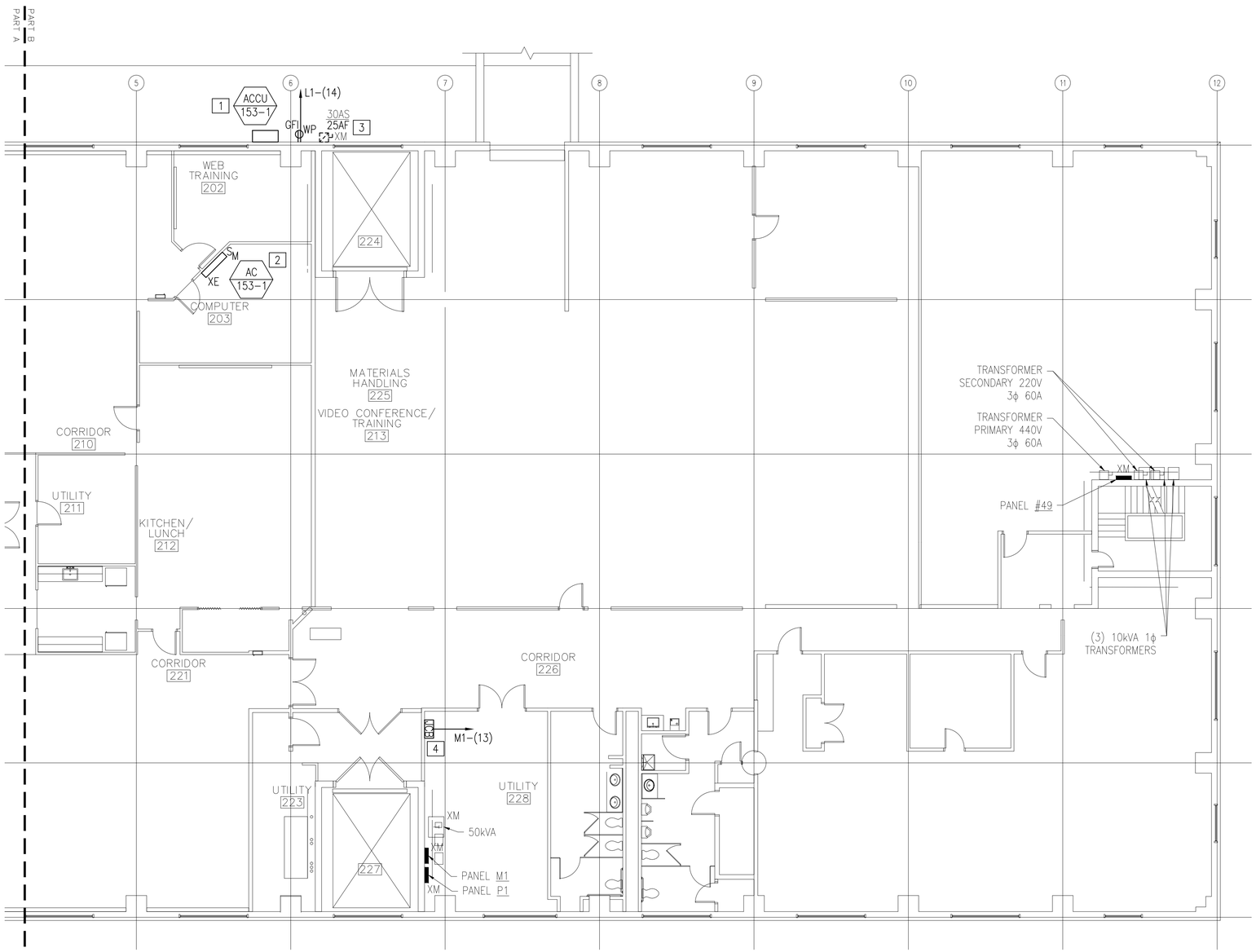
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT ~ MAINE
NAVAL SHIPYARD ~ PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 153 ELECTRICAL FIRST FLOOR PLAN PART B

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703722
SHEET 269 OF 506
E2.0B | 153-15-365

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 153 ELECTRICAL SECOND FLOOR PLAN
1/8" = 1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FINAL LOW-VOLTAGE CONNECTIONS TO BE MADE BY CONTROLS CONTRACTOR. FIELD COORDINATE EXACT LOCATION OF EQUIPMENT WITH CONTROLS CONTRACTOR AND NAVFAC.

NEW WORK KEYNOTES

1. PROVIDE NEW CIRCUIT BREAKER IN PANEL "M1" FOR NEW ACCU. FIELD COORDINATE EXACT LOCATION OF UNIT WITH MECHANICAL CONTRACTOR. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION. REUSE EXISTING DISCONNECT MAINTAINED DURING DEMOLITION.
2. UTILIZE EXISTING CIRCUIT BREAKER IN PANEL "L1" FOR NEW AC UNIT. REUSE AS MUCH EXISTING CONDUIT AND WIRING AS POSSIBLE AND EXTEND AS NEEDED. NEW CONDUIT AND WIRING SHALL MATCH EXISTING IN ALL RESPECTS. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION. FIELD COORDINATE EXACT LOCATION OF UNIT WITH MECHANICAL CONTRACTOR.
3. PROVIDE NEW 25A FUSE IN EXISTING DISCONNECT MAINTAINED DURING DEMOLITION FOR NEW ACCU. RECONNECT EXISTING DISCONNECT TO NEW UNIT. FIELD COORDINATE EXACT LOCATION OF DISCONNECT.
4. NEW JACE BOX PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION WITH NAVFAC AND CONTROLS CONTRACTOR.

KEY PLAN

PART A | PART B

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

THE CADD DRAWINGS AND DATA CONTAINED HEREON HAVE BEEN PREPARED IN ACCORDANCE WITH THE APPLICABLE NAVFAC GUIDE SPECIFICATIONS AND WILL CONFORM TO NAVFAC ENGINEERING STANDARDS AND PUBLICATIONS IN EFFECT ON THE DATE OF CONTRACT AWARD UNLESS OTHERWISE AUTHORIZED. CONTRACTOR SHALL REVIEW, VERIFY AND VALIDATE ALL DATA RECEIVED ON THIS MEDIA PRIOR TO INSTALLATION IN THE WORK. ALL DATA RECEIVED ON THIS MEDIA SHALL BE VERIFIED AND VALIDATED AS ADEQUATE FOR THE PURPOSE INTENDED BY THE CONTRACTOR.
CONTRACT NO. N62470-02-D-1003 CLIN 0010 - 2015-108 SOFTWARE USED: AUTOCAD 2013

ENGINEERING
MAGE
CSI ENGINEERING
TYPE/SIZE E
FIRE PROTECTION
918 BANDMAN, SUITE 206
ANNAPOLIS, MD 21401
TEL: 410-224-8028
215 MARTIN AVE, STE 204
SANFORD, ME 04073
207-324-7424
INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 153 ELECTRICAL SECOND FLOOR PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703723
SHEET 270 OF 506
E2.1B | 153-15-366

DRAWFORM REVISION: 10 OCTOBER 2014

MECHANICAL EQUIPMENT SCHEDULE

EQUIP TAG	DESCRIPTION	LOAD				PANEL SOURCE		BRANCH CIRCUIT	CONNECTION				NOTES
		HP	KVA	VOLT	PH	PANEL	C/B		FLEX	JB	REC	DISC	
ACCU 153-1	AIR COOLED CONDENSING UINIT	–	3.08	208	1	M1-(10,12)	25A/2P	(2)#12 & (1)#12G, 3/4"C	X			X	11
AC 153-1	AIR CONDITIONING UNIT	–	0.38	208	1	L1-(7,9)	20A/2P	–	X			X	8,12
CH 153-1	CHILLER	–	44.94	460	3	PA-(7,9,11) (CRT. #3)	70A/3P	(3)#4 & (1)#8G, 1"C	X			X	11

NOTES:

1. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION.
2. "FLEX" – DENOTES FINAL THREE FEET (MAXIMUM) OF RACEWAY SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT METAL CONDUIT.
3. "JB" – JUNCTION BOX DENOTES FINAL CONNECTION TO BOX OR CONTROL PANEL PREWIRED TO THE EQUIPMENT.
4. "REC" – PROVIDE RECEPTACLE IN THE NEMA CONFIGURATION NOTED.
5. NOTES 6–9 ARE OPTIONS WHICH SHALL BE SPECIFICALLY NOTED IN REMARKS FOR INCLUSION.
6. DISCONNECT SHALL BE FUSIBLE.
7. DISCONNECT SHALL BE NEMA "3R"
8. DISCONNECT SHALL BE MOTOR–RATED SWITCH WITH THERMAL OVERLOAD ELEMENT.
9. DISCONNECT PROVIDED INTEGRAL (PREWIRED) TO EQUIPMENT BY TRADE CONTRACTOR.
10. INTEGRAL CONVENIENCE RECEPTACLE PROVIDED PREWIRED TO EQUIPMENT BY TRADE CONTRACTOR.
11. EQUIPMENT TO REUSE EXISTING DISCONNECT. REPLACE EXISTING FUSE AS SHOWN ON DRAWINGS.
12. REUSE EXISTING BRANCH CIRCUITRY & CIRCUIT BREAKER. PROVIDE NEW DISCONNECT AS SHOWN ON DRAWING E2.1 AND EXTEND AS NEEDED.

PANELBOARD SCHEDULE

PANEL: M1 | VOLTS: 120/ 208 | NEW/EXISTING.: EXISTING
MAIN: 150A MCB | BUS AMPS: 225A | MOUNT.: SURFACE
PH/WIRE: 3ø/4W | AIC: | LOC: 2ND FLOOR MECHANICAL ROOM NEAR ELEV.

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/2	FCU-2-3 & FCU-2-5	0	–	–	0	FCU-2-4, FCU-2-7, FCU-2-8	20/2	2
3									4
5	20/2	FCU-2-6	0	–	–	0	FCU-2-9	20/2	6
7									8
9	20/2	FCU-2-11, FCU-2-12, FCU-2-13	0	–	1	3.08	ACCU-153-1	25/2	10
11									12
13	20/1	JACE BOX	0.02	1	–	0	SPARE	20/1	14
15	20/1	SPARE	0	–	–	0	SPARE	20/1	16
17	20/1	SPARE	0	–	–	0	SPARE	20/1	18
19	20/1	SPARE	0	–	–	0	SPARE	20/1	20
21	20/1	SPARE	0	–	–	0	ERV-1	30/2	22
23	20/1	SPARE	0	–					24
25	20/1	SPARE	0	–	–	0	HVAC CONTROLS 2ND FLOOR	20/1	26
27	30/1	SPARE	0	–	–	0	SPARE	20/1	28
29		SPACE		–	–		SPACE		30
			0.02			3.08	TOTAL CONNECTED kVA:	3.10	
							TOTAL CONNECTED AMPERES:	8.61	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: PP-1 | VOLTS: 120/ 208 | NEW/EXISTING.: EXISTING
MAIN: 60A MCB | BUS AMPS: | MOUNT.: SURFACE
PH/WIRE: 3ø/4W | AIC: | LOC: BLDG 153 1ST FLOOR WOODWORKING AREA 1

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/3	SHREDDER	0	–	–	0	MAIN	60/3	2
3									4
5									6
7	20/1	REC.	0	–	–	0	REC.	20/1	8
9	20/1	CHILLER GFI RECEPTACLE	.18	1	–	0	REC.	20/1	10
11	20/1	SPARE		OFF	–	0	REC.	20/1	12
			0.18			0.00	TOTAL CONNECTED kVA:	0.18	
							TOTAL CONNECTED AMPERES:	0.50	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: L1 | VOLTS: 120/ 208 | NEW/EXISTING.: EXISTING
MAIN: 150A MCB | BUS AMPS: 225A | MOUNT.: SURFACE
PH/WIRE: 3ø/4W | AIC: | LOC: 2ND FLOOR UTILITY ROOM

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	LTS RM 201, 204	0	–	–	0	LTS RM 213, 212A, 210-212	20/1	2
3	20/1	LTS RMS 206-209, 214, 215	0	–	–	0	LTS RM 201	20/1	4
5	20/1	LTS RM 216-220	0	–	–	0	LTS RMS 221, 222	20/1	6
7	20/2	AC-153-1	0.38	1	–	0	MICROWAVE RM 212	20/1	8
9					–	0	MICROWAVE RM 212	20/1	10
11	20/1	LTS RM 202, 203, 223	0	–	–	0	MICROWAVE RM 212	20/1	12
13	20/1	RECPTS RM 202	0	–	–	0.18	ACCU GFI RECEPTACLE	20/1	14
15	20/1	SYS. FURNITURE RM 201	0	–	–	0	SYS. FURNITURE RM 201	20/1	16
17	20/1	SYS. FURNITURE RM 201	0	–	–	0	SYS. FURNITURE RM 201	20/1	18
19	20/1	SPARE	0	–	–	0	SYS. FURNITURE RM 201	20/1	20
21	20/1	SPARE	0	–	–	0	SYS. FURNITURE RM 201	20/1	22
23	20/1	SYS. FURNITURE RM 206	0	–	–	0	SYS. FURNITURE RM 201	20/1	24
25	20/1	SYS. FURNITURE RM 206	0	–	–	0	SYS. FURNITURE RM 201	20/1	26
27	20/1	SYS. FURNITURE RM 206	0	–	–	0	SYS. FURNITURE RM 201	20/1	28
29	20/1	SYS. FURNITURE RM 206	0	–	OFF	0	SYS. FURNITURE RM 201	20/1	30
31	20/1	RECPTS. RM 201 – COPY	0	–	OFF	0	SYS. FURNITURE RM 201	20/1	32
33	20/1	PRINTER RM 206	0	–	–	0	SYS. FURNITURE RM 201	20/1	34
35	20/1	DATA RACK RM 203	0	–	–	0	SPARE	20/1	36
37	20/1	SPARE	0	–	–	0	SPARE	20/1	38
39	20/1	SPARE	0	–	–	0	SPARE	20/1	40
41	20/1	SPARE	0	–	–	0	SPARE	20/1	42
			0.38			0.18	TOTAL CONNECTED kVA:	0.56	
							TOTAL CONNECTED AMPERES:	1.56	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: PA | VOLTS: 277/ 480 | NEW/EXISTING.: EXISTING
MAIN: 250A MLO | BUS AMPS: 400A | MOUNT.: SURFACE
PH/WIRE: 3ø/4W | AIC: | LOC: 1ST FLOOR MAIN ELECTRICAL CAGE

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE	NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	100/3	TRANSFORMER 5-A	0	–	–	0	TRANSFORMER 5-B	60/3	2
3									4
5									6
7	70/3	CH-153-1	44.9	1	–	0	BATTERY CHARGER TRANSFORMERS	60/3	8
9									10
11									12
BLANK									
BLANK									
BLANK									
			44.9			0.00	TOTAL CONNECTED kVA:	44.90	
							TOTAL CONNECTED AMPERES:	54.07	

NOTES:
1. REMOVE EXISTING CIRCUIT BREAKER AND PROVIDE NEW SIZED AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

SYM	DESCRIPTION	DATE	APPR.
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER – SEAL

THE CAD DOCUMENT IS THE LATEST REVISION AND CONTAINS INFORMATION THAT HAS BEEN ELECTRONICALLY VERIFIED. PRINTED COPIES MUST BE VERIFIED AGAINST THE CAD DOCUMENT PRIOR TO USE. ANY UNAUTHORIZED CHANGES TO THE CAD DOCUMENT WILL BE THE RESPONSIBILITY OF THE PARTY MAKING THE CHANGE.

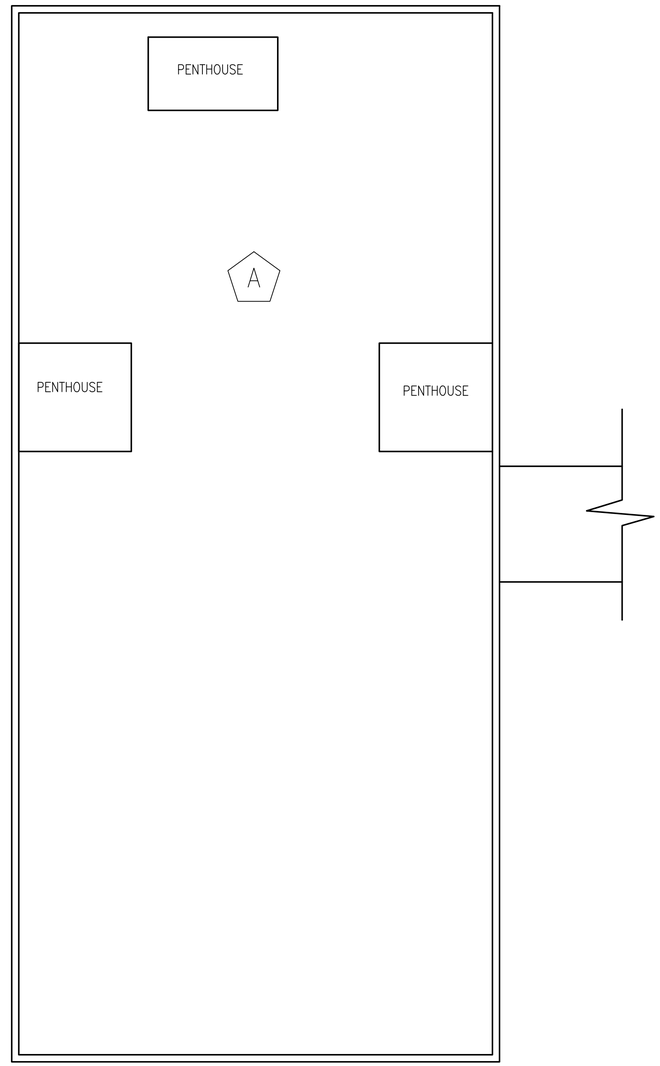
PLUMBING
FIRE PROTECTION
ELECTRICAL
MADE CSI ENGINEERING
918 Breakiron Bldg 236
Fort Benning, GA 31905
706-215-2602B
215 Austin Ave, Ste 204
Lynn, MA 01902-3003
617-233-1425
CONTRACT NO. GS-10F-0016 GSA
ORDER NO. N40085-12-F-0116
INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES TM | DRW TM | CHK JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
BUILDING 153 ELECTRICAL SCHEDULES

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703724
SHEET 271 OF 506
E3.0 153-15-367
DRAWFORM REVISION: 10 OCTOBER 2014



B153 ANTENNA LOCATION - ROOF PLAN

1/16" = 1'-0"

PLAN NORTH

EQUIPMENT	WIRELESS STANDARD	ANTENNA	FREQUENCY	DIMENSIONS	WEIGHT	INPUT POWER	MANUFACTURER	DESIGN BASED ON MODEL
WIRELESS ACCESS POINT	802.11n	INTEGRATED	2.4 GHZ & 5.8 GHZ	9 X 7 X 4 INCHES	5 LBS	AIR-PWRINJ4	CISCO AIRONET	AIR-AP1532I-UXK9

NOTE: PROVIDE POWER INJECTOR FOR POWER OF ETHERNET TO WIRELESS ACCESSS POINT. DESIGN BASED ON CISCO MODEL AIR-PWRINJ4.

GENERAL SHEET NOTES

1. FASTENERS SHALL BE ATTACHED TO MORTAR IN MASONRY BUILDINGS, AVOIDING DAMAGE TO THE BRICK WHEREVER PRACTICAL.
2. EXTERIOR CONDUIT SHALL BE INSTALLED IN SHADOW-LINES OR ADJACENT TO EXISTING CONDUIT; CONDUIT COLOR TO BE COORDINATED WITH CULTURAL RESOURCE MANAGER AND A-E.
3. REFER TO MECHANICAL DRAWINGS FOR JACE LOCATION AND INFORMATION.
4. EXISTING ROOF AND WALL PENETRATIONS SHALL BE USED WHEREVER PRACTICAL.
5. INTERIOR, WINDOW-MOUNTED ACCESS POINTS SHALL BE MOUNTED IN AN OBSCURE LOCATION THAT IS LEAST VISIBLE FROM INTERIOR & EXTERIOR.
6. ACCESS POINT MOUNTS SHALL NOT OBSTRUCT EGRESS, EXISTING WALKWAYS, STAIRWELLS, MECHANICAL EQUIPMENT CLEARANCES, OR OTHER APPURTANANCES.
7. UNLESS OTHERWISE NOTED, ROOFTOP ACCESS POINTS SHALL BE CENTRALIZED ON THE ROOF TO MINIMIZE VISIBILITY FROM GROUND LEVEL.
8. CONTRACTOR TO FIELD-VERIFY COMMUNICATION ACCESS POINTS ARE ALIGNED AND LINE OF SIGHT IS UNOBSTRUCTED.
9. IF A FIELD CHANGE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH CULTURAL RESOURCE MANAGER AND A-E PRIOR TO RELOCATING EQUIPMENT.
10. ANY PROPOSED CHANGES (PENETRATIONS, CONDUIT, ETC.) NOT ALREADY INDICATED ON DRAWINGS MADE TO HISTORIC BUILDINGS OR BUILDINGS LOCATED IN HISTORIC DISTRICT MUST BE REVIEWED AND APPROVED BY SHPO THROUGH NAVFAC CULTURAL RESOURCES DEPARTMENT PRIOR TO INSTALLATION.
11. CONTRACTOR TO VERIFY RF SIGNAL STRENGTH AND CONNECTIVITY FROM/TO ALL ACCESS POINTS.
12. SEE PWD-ME DRAWING NUMBERS;
    - 12.1. 43-15-67 FOR TITLE SHEET
    - 12.2. 43-15-68 FOR LIST OF DRAWINGS
    - 12.3. 43-15-69 FOR GENERAL NOTES AND LEGEND
    - 12.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
    - 12.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORT

(A) NEW WORK KEYNOTES

1. CONTRACTOR SHALL INSTALL NON-PENETRATING ROOF-MOUNT FOR RF ACCESS POINT.
2. CONTRACTOR SHALL ENSURE LINE-OF-SIGHT TO B086A ACCESS POINT.
3. ROOF MOUNT SHALL BE CAPABLE OF WITHSTANDING 100 MPH SUSTAINED WINDS AND 165 MPH WIND GUSTS. MOUNTING HEIGHT TO BE DETERMINED BY CONTRACTOR TO MINIMIZE GROUND-LEVEL VISIBILITY WHILE MAINTAINING ACCESS POINT LINE-OF-SIGHT.
4. CAT5 CABLE SHALL BE ROUTED THROUGH EXISTING ROOF PENETRATION AND ALONG EXISTING PATH TO JACE.

GRAPHIC SCALE

1/16" = 1' 1 6" 0 1 2 3
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
0	90% SUBMISSION	07/15/15	DM
	100% SUBMISSION	07/31/15	

NAVFAC

STATE OF NEW HAMPSHIRE KEITH CHRISTOPHER LICENSED PROFESSIONAL ENGINEER No. 13914
SEAL

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13 WATER ST NEWMARKET NH
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A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES VSL | DRW SRR | CHK KLC
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B153 RF INSTALLATION DETAILS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703725
SHEET 272 OF 506
ET1.0 153-15-368

DRAWFORM REVISION: 10 OCTOBER 2014

B156 HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL PACM (PRESUMED ASBESTOS CONTAINING MATERIAL), LBP (LEAD BASED PAINT), PCB, AND OTHER HAZARDOUS BUILDING MATERIALS MAY NOT BE IDENTIFIED IN THIS SURVEY, PARTICULARLY THOSE HIDDEN IN WALLS, CEILINGS, FLOORS, ETC. AND IN AREAS DESCRIBED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, WHICH WERE INACCESSIBLE DURING THE SURVEY. ASSESSMENT EFFORTS DID INCLUDE, TO THE EXTENT FEASIBLE, ACCESS TO INTERIOR AND EXTERIOR OF THE STRUCTURE. HOWEVER, THE ABSENCE OF ALL PACM, LBP, PCB, AND OTHER HAZARDOUS BUILDING MATERIALS IN HIDDEN OR INACCESSIBLE PORTIONS CANNOT BE DEFINITIVELY ENSURED.
2. RENOVATION AND/OR DEMOLITION ACTIVITIES SHOULD BE MONITORED BY PERSONNEL CAPABLE OF IDENTIFYING PACM, LBP, PCB AND OTHER HAZARDOUS BUILDING MATERIALS. IF PACM, LBP, PCB OR OTHER HAZARDOUS BUILDING MATERIALS ARE ENCOUNTERED, THESE MATERIALS SHOULD BE BULK SAMPLED BY A LICENSED INSPECTOR AND DISPOSED OF IN ACCORDANCE WITH PNSY AND ALL OTHER APPLICABLE REGULATIONS.
3. SEE B156 ASBESTOS, LEAD, PCB, AND TCLP INVENTORY TABLES LOCATED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, DATED JUNE 22, 2015, FOR ADDITIONAL INFORMATION.

HAZARDOUS MATERIAL SAMPLING SUMMARY

SAMPLE ID	ACM	LBP
156-01	ND	NS
156-02	ND	NS
156-03	ND	NS
156-04	ND	NS
156-05	ND	NS
156-06	ND	NS
LBP-153-01	NS	0.065

ACM = ASBESTOS CONTAINING MATERIALS
LBP = LEAD BASED PAINT
<RL = LESS THAN REPORTING LIMIT
ND = NONE DETECTED
NS = NOT SAMPLED
H = EXCEEDS REGULATORY STANDARDS FOR HAZARDOUS CONCENTRATION

NOTE:
REFER TO HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT DATED JUNE 22, 2015 FOR COMPLETE SAMPLING INFORMATION AND DATA.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE
Bradlee Mesquita
9410
LICENSED
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SEAL

Tighe&Bond
Consulting Engineers
177 Corporate Drive
Portsmouth, New Hampshire
(603) 433-8818
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A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE
DES A/E DRW REP CHK BLM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
LEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE
FY 16 ENERGY PROJECT
TASK 1-B-R-22
B156 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703726
SHEET 273 OF 506
H1.0 156-15-225
DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\HazMats\DWG\A1066_2_HZMT_R22.dwg LAYOUT NAME: B156-H1.0 PLOTTED: Friday, August 07, 2015 - 2:36pm USER: REP

HVAC ABBREVIATIONS

°F	DEGREES FAHRENHEIT	ID	INSIDE DIAMETER
°C	DEGREES CELSIUS	IN	INCHES
ø	DIAMETER	INSUL	INSULATION
ACV	AUTOMATIC CONTROL VALVE	KW	KILOWATT
AD	ACCESS DOOR	KVA	KILOVOLT AMPERE
ADJ	ADJUSTABLE	L	LENGTH
ADDL	ADDITIONAL	LB	POUND
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
AFG	ABOVE FINISHED GRADE	LVG	LEAVING
ALT	ALTERNATE	M	ONE THOUSAND
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPS
AS	AIR SEPARATOR	MCC	MOTOR CONTROL CENTER
AVG	AVERAGE	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BFF	BELOW FINISHED FLOOR	MFR	MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BLDG	BUILDING	MTD	MOUNTED
BLR	BOILER	MU	MAKEUP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
BSMY	BASEMENT	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
C	CONVECTOR	NO.	NUMBER
CF	CEILING FAN	NOM	NOMINAL
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	OB	OCTAVE BAND
CO	CLEAN–OUT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPRESSOR	ODP	OPEN DRIP PROOF
CONC	CONCRETE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION	OFOI	OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR	OV	OUTLET VELOCITY
CORR	CORRIDOR	PCF	POUNDS PER CUBIC FOOT
CUF	CUBIC FEET	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	PH	PHASE
CYL	CYLINDER	PLMB	PLUMBING
D	DRAIN	POS	PROVIDED BY OTHER SECTION(S)
DB	DRY BULB TEMPERATURE	PRESS	PRESSURE
DDC	DIRECT DIGITAL CONTROL	PRIM	PRIMARY
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DIM	DIMENSION	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	REP	REPRESENTATIVE
EA	EACH	RET	RETURN
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EFF	EFFICIENCY	REQS	REQUIREMENTS
ECUH	ELECTRIC CABINET UNIT HEATER	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EMER	EMERGENCY	SCH	SCHEDULE
ENT	ENTERING	SOV	SOLENOID OPERATED VALVE
EQUIP	EQUIPMENT	SPECS	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SQFT	SQUARE FEET
FTR	FINNED TUBE RADIATION	SS	STAINLESS STEEL
FCV	FLOW CONTROL VALVE	STD	STANDARD
FG	FIBERGLASS	STDBY	STANDBY
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	SUCT	SUCTION
FLRDR	FLOOR DRAIN	SUP	SUPPLY
FP	FIRE PROTECTION	TA	THROW–AWAY
FPM	FEET PER MINUTE	TAV	THERMOSTATIC AIR VENT
FT	FEET	TEFC	TOTALLY ENCLOSED FAN COOLED
FT/SEC	FEET PER SECOND	TEL	TELEPHONE
FURN	FURNISHED	TEMP	TEMPERATURE
FVNR	FULL VOLTAGE NON–REVERSING	TOD	TOP OF DUCT
GA	GAUGE	TOP	TOP OF PIPE
GAL	GALLONS	TYP	TYPICAL
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	V	VENT
GND	GROUND	VEL	VELOCITY
GPH	GALLONS PER HOUR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
GRD	GRADE (GROUND LEVEL)	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDTH
H	HEIGHT	W/	WITH
HD	HEAD	W/O	WITHOUT
HP	HORSEPOWER	WB	WET BULB TEMPERATURE
HR	HOUR	WF	WIDE FLANGE
HZ	HERTZ	WG	WATER GAUGE
		WRT	WITH RESPECT TO

PIPING LEGEND

- RISE (SINGLE LINE – PLAN VIEW)
- DROP (SINGLE LINE – PLAN VIEW)
- TOP TAKEOFF
- BOTTOM TAKEOFF
- PIPE BREAK (SINGLE LINE)

FLOW DIAGRAM & CONTROL DIAGRAM EQUIP. SYMBOLS

- FILTER BANK
- HEATING COIL
- COOLING COIL
- PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR
- BACKDRAFT DAMPER
- CENTRIFUGAL FAN
- INLINE CENTRIFUGAL FAN
- OPPOSED BLADE DAMPER W/ TWO POSITION ACTUATOR
- OPPOSED BLADE DAMPER W/ MODULATING ACTUATOR
- PARALLEL BLADE DAMPER W/ TWO POSITION ACTUATOR

HVAC SYSTEM TAGS

- AC 1 — AIR CONDITIONING UNIT
- ACCU 1 — AIR COOLED CONDENSING UNIT
- J 1 — JACE BOX

CALL OUT SYMBOLS

- THERMOSTAT
- CONNECT TO EXISTING
- LIMIT OF NEW WORK
- REFER TO DRAWINGS ( ) FOR CONTINUATION
- SYMBOL DESIGNATES ASSOCIATED SYSTEM OR SERVICE (ie LPS)
- DIFFUSER, GRILLE, REGISTER LETTER DESIGNATION (See Schedule for ATD type)
- SA–2 / 200 — DESIGN CFM

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS

EQUIPMENT NOT REQUIRING ELECTRIC SERVICE → TAG NO / TAG DATA DATA → SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS ← TAG NO / TAG DATA DATA ← EQUIPMENT REQUIRING ELECTRIC SERVICE

NOTE:REFER TO SCHEDULES FOR DEFINITION OF EQUIPMENT SPECIFIC DATA LISTED WITHIN TAG BLOCKS

AIR SYSTEM SPECIFIC ABBREVIATIONS

AC	AIR CONDITIONING	LVDR	LOUVERED DOOR
ACD	AUTOMATIC CONTROL DAMPER	OA	OUTSIDE AIR
ACU	AIR CONDITIONING UNIT	OAI	OUTSIDE AIR INTAKE
AF	AIR FOIL	OBD	OPPOSED BLADE DAMPER
AHU	AIR HANDLING UNIT	OED	OPEN END DUCT
ALD	ACOUSTICALLY LINED DUCTWORK	RA	RETURN AIR
ATD	AIR TERMINAL DEVICE	RF	RETURN FAN
AVS	AIR VOLUME TRAVERSE STATION	RG	RETURN GRILLE
BDD	BACKDRAFT DAMPER	RHC	REHEAT COIL
BI	BACKWARD INCLINED	RLF	RELIEF
CC	COOLING COIL	RR	RETURN REGISTER
CD	CEILING DIFFUSER	RV	ROOF VENT
CFM	CUBIC FEET PER MINUTE	SA	SUPPLY AIR
CG	CEILING GRILLE	SATT	SOUND ATTENUATOR
DIFF	DIFFUSER	SCR	SCREEN
DWDI	DOUBLE WIDTH DOUBLE INLET	SD	SMOKE DAMPER
DWSI	DOUBLE WIDTH SINGLE INLET	SDET	SMOKE DETECTOR
DX	DIRECT EXPANSION	SEF	SMOKE EXHAUST FAN
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER WITH ACCESS DOOR
ESP	EXTERNAL STATIC PRESSURE	SG	SUPPLY GRILLE
F	FAN	SM	SHEETMETAL
FC	FORWARD CURVED	SP	STATIC PRESSURE
FA	FREE AREA	SR	SUPPLY REGISTER
FCU	FAN COIL UNIT	SWDI	SINGLE WIDTH DOUBLE INLET
FD	FIRE DAMPER (W/ ACCESS DOOR)	SWSI	SINGLE WIDTH SINGLE INLET
FLTR	FILTER	TE	TOILET EXHAUST
FPI	FINS PER INCH	TF	TRANSFER FAN
FPT	FAN POWERED TERMINAL BOX	TG	TRANSFER GRILLE
GE	GENERAL EXHAUST	TR	TRANSFER
GIH	GRAVITY INTAKE HOOD	TSP	TOTAL STATIC PRESSURE
GRH	GRAVITY RELIEF HOOD	UC	UNDERCUT DOOR
HC	HEATING COIL	VD	VOLUME DAMPER
LAT	LEAVING AIR TEMPERATURE	VV	VARIABLE VOLUME SUPPLY AIR TERMINAL BOX
LD	LINEAR DIFFUSER	WMS	WIRE MESH SCREEN
LUVR	LOUVER		

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS–BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS–BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS, AS WELL AS ROUTING PATHS, IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER, AND SHOULD BE KEPT TO A MINIMUM FOR SYSTEM EFFICIENCIES.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. VERIFY ACCESS IS PROVIDED FOR SERVICING EQUIPMENT AS REQUIRED.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
12. INSTALL NEW THERMOSTATS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ENGINEER.
13. GENERAL CONTRACTOR TO PATCH ALL EFFECTED INTERIOR AND EXTERIOR EXISTING FLOOR, WALL, AND CEILING SURFACES TO MATCH EXISTING. PROVIDE ESCUTCHEON PLATES.
14. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
15. ANY AND ALL WALLS, CEILINGS AND FLOORS THAT ARE ANTICIPATED TO BE DISTURBED DURING THE DEMOLITION OR INSTALLATIONS PROCESS, AS INDICATED ON THE DRAWINGS, SHALL BE TESTED FOR HAZARDOUS MATERIALS PRIOR TO DISTURBING THE SURFACES. ROUTING OF PIPING HAS BEEN INDICATED TO DEPICT THE INTENT OF THE WORK. ACTUAL ROUTING MAY DIFFER IN THE FIELD DUE TO BUILDING CONSTRUCTION. COORDINATE TESTING OF ALL SURFACES TO BE DISTURBED, ALONG THE ACTUAL INSTALLATION ROUTE, WITH THE HAZARDOUS MATERIALS CONTRACTOR. REFER TO EXISTING HAZMAT REPORT FOR TESTING RESULTS.
16. MECHANICAL CONTRACTOR TO REMOVE ALL IDENTIFIED R–22 EQUIPMENT AND ASSOCIATED APPURTENANCES AND REPLACE IN KIND WITH A R410A OR R407C SYSTEM.
17. REFRIGERANT PIPING IS DIAGRAMMATIC, CONTRACTOR TO DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS. ANY EXPOSED PIPING TO BE CONCEALED IN A CHASE. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
18. SEE CIVIL DRAWINGS FOR DEMOLISHED AND NEW CONCRETE PADS.
19. THE MECHANICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE MECHANICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
20. SEE PWD–ME DRAWING;
    43–15–67 FOR TITLE SHEET
    43–15–68 FOR LIST OF DRAWINGS
    43–15–69 FOR GENERAL NOTES & LEGENDS
    43–15–72 FOR CHASE AND SOFFIT DETAILS
    43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
M1.0	BUILDING 156 HVAC LEGEND
MD2.0	BUILDING 156 HVAC FIRST FLOOR DEMOLITION PLAN
M2.0	BUILDING 156 HVAC BASEMENT PART PLAN AND FIRST FLOOR PLAN
M3.0	BUILDING 156 HVAC CONTROLS
M3.1	BUILDING 156 HVAC CONTROLS
M3.2	BUILDING 156 HVAC CONTROLS
M4.0	BUILDING 156 HVAC SCHEDULES

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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STATE OF NEW HAMPSHIRE — DAVID H. MAHONEY No. 12370 — LICENSED PROFESSIONAL ENGINEER — SEAL

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BUILDING 156 HVAC FIRST FLOOR DEMOLITION PLAN

1/8"=1'-0"

PLAN NORTH

GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING ACCU. EXISTING CONCRETE PAD TO REMAIN.
2. REMOVE EXISTING AC UNITS AND ASSOCIATED THERMOSTAT. EXISTING CONDENSATE LINES AND CONTROL WIRING TO REMAIN AND BE DISCONNECTED.
3. ACCESSIBLE EXISTING RS/RL LINES TO BE REMOVED. ANY REMAINING RS/RL CONCEALED TO BE EVACUATED, CAPPED AND ABANDONED IN PLACE.
4. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
5. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
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APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 HVAC FIRST FLOOR DEMOLITION PLAN

EPROJECT NO.: 1350913

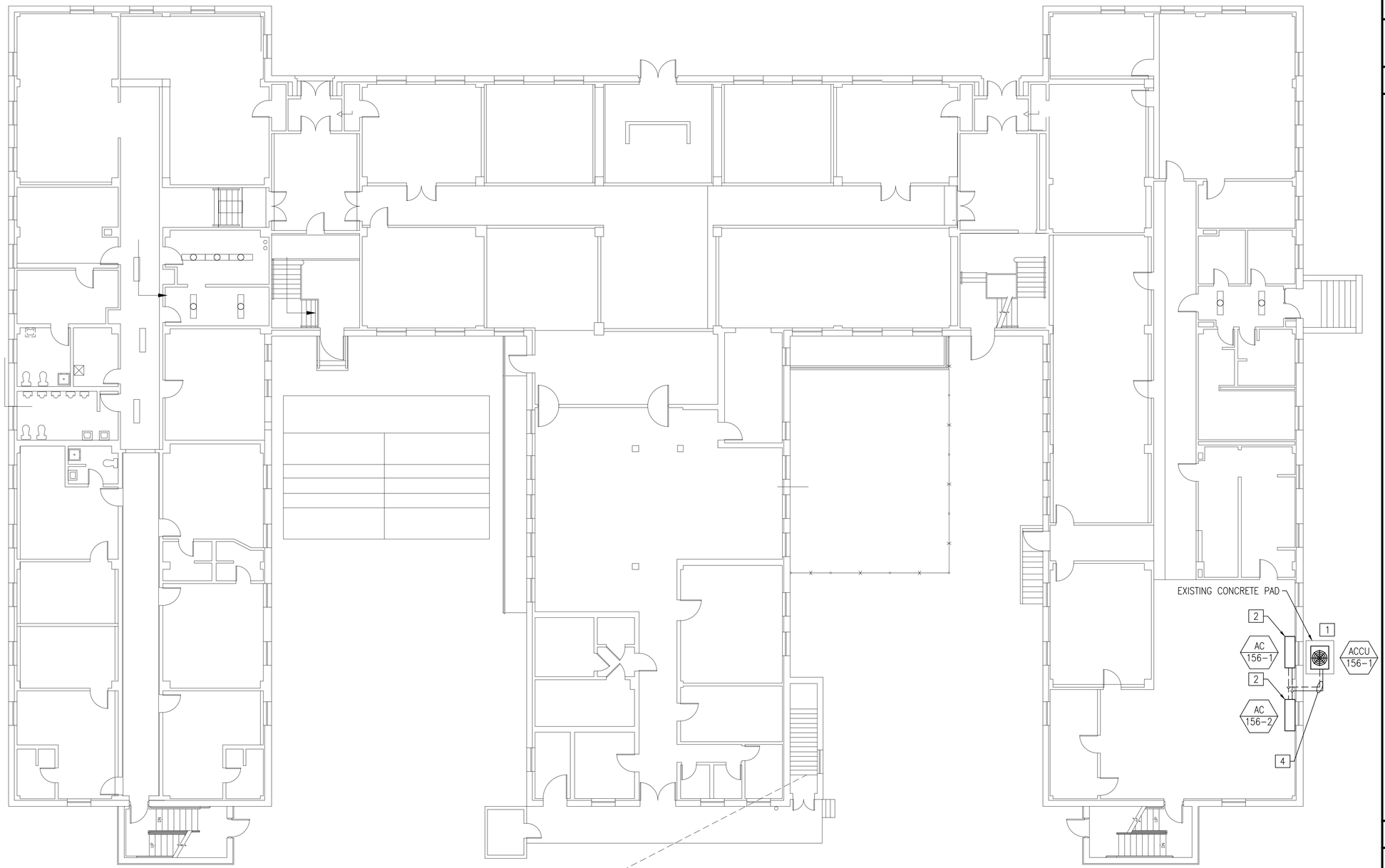
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703728

SHEET 275 OF 506

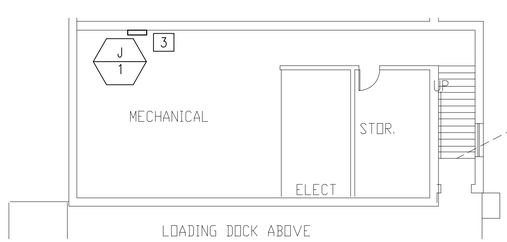
MD2.0 | 156-15-227

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 156 HVAC FIRST FLOOR PLAN
1/8"=1'-0"

PLAN NORTH



BUILDING 156 HVAC BASEMENT PART PLAN
1/8" = 1'-0"

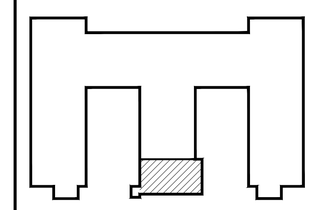
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW ACCU AND IT'S ASSOCIATED RS/RL LINES. NEW ACCU TO BE PLACED ON EXISTING CONCRETE PAD.
2. FURNISH AND INSTALL NEW AC AND CONNECT TO ASSOCIATED RS/RL LINES. EXISTING CONDENSATE LINES AND CONTROL WIRING TO BE RECONNECTED. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.
3. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF NEW DDC JACE BOX WITH NAVFAC.
4. SEE HVAC GENERAL NOTE 17 IN SHEET M1.0 FOR PIPING INFORMATION.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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No. 12370
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CSI ENGINEERING INC
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EXPIRES 06/30/2016

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SATISFACTORY TO DATE

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PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

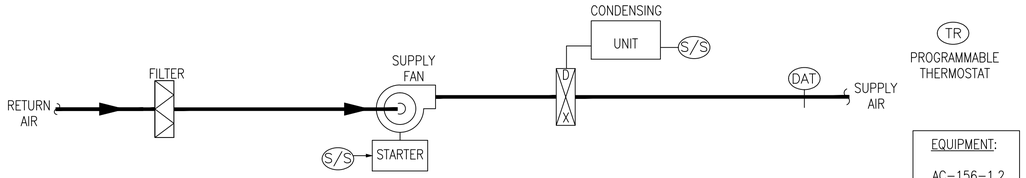
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 HVAC BASEMENT PART PLAN AND FIRST FLOOR PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703729
SHEET 276 OF 506
M2.0 | 156-15-228

DRAWFORM REVISION: 10 OCTOBER 2014



EQUIPMENT:

AC-156-1,2
ACCU-156-1

GENERAL
1. THE EQUIPMENT IS STARTED AND STOPPED VIA DDC THERMOSTAT. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER.

OFF
1. SF DEENERGIZED
2. ACCU DEENERGIZED

UNOCCUPIED COOLING CONTROL

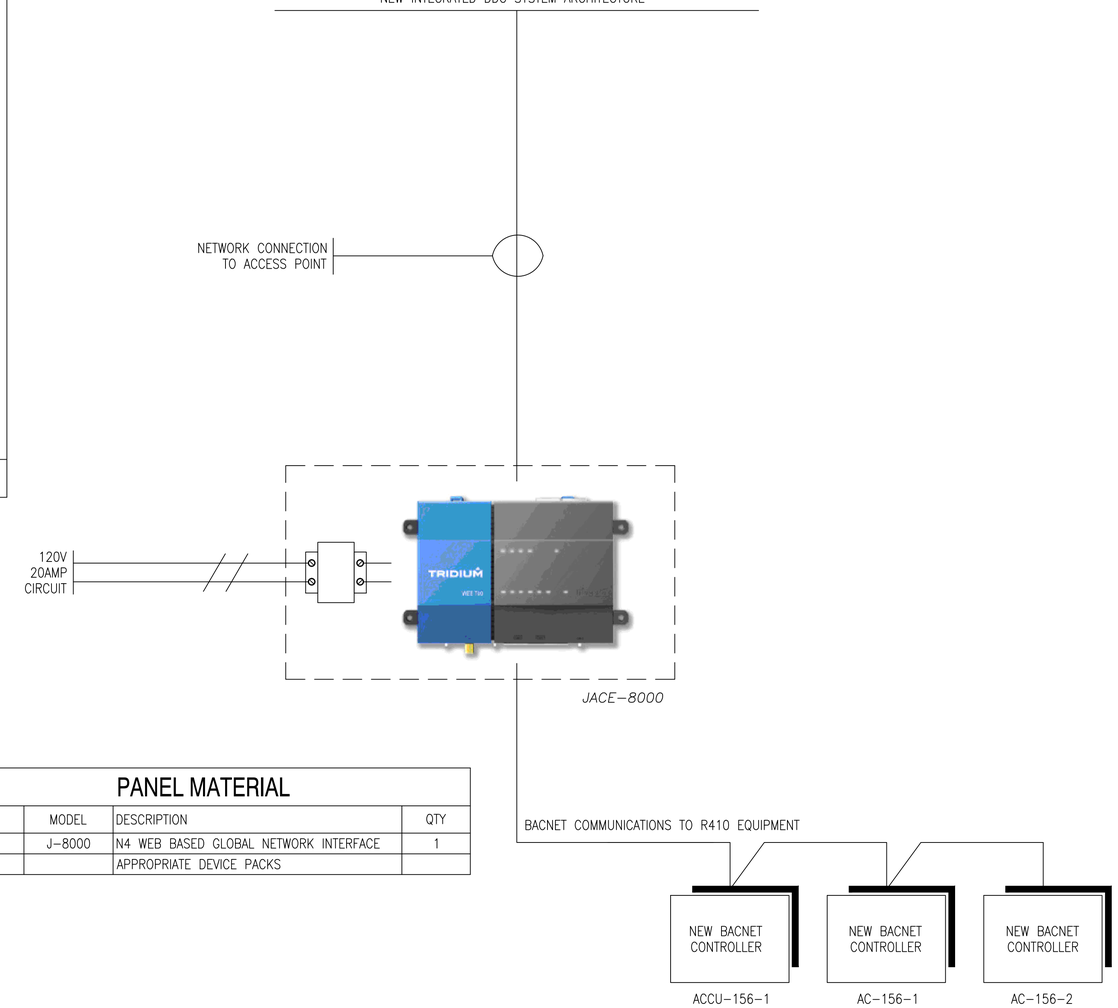
1. SF ENERGIZED
2. ACCU IS STAGED ON TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 80°F(ADJ).
3. DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL LIMIT SUPPLY AIR TO 53°F MINIMUM.

OCCUPIED COOLING CONTROL

1. SF ENERGIZED
2. ACCU IS STAGED ON TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 75°F(ADJ).
3. DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL LIMIT SUPPLY AIR TO 53°F MINIMUM.

AIR CONDITIONER SEQUENCE OF OPERATION

PORTSMOUTH NAVAL SHIPYARD (BUILDING 156_UNACC ENLISTED QUARTERS)
NEW INTEGRATED DDC SYSTEM ARCHITECTURE



PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
		APPROPRIATE DEVICE PACKS	

STM	DESCRIPTION	DATE	APPR.
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0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
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PROJECTION

CSI
CONSULTING ENGINEERS
CSI PROJECT#:
999 Backman Avenue, Suite 206
Portsmouth, NH 03801
TEL: 603-436-8828
FAX: 603-436-8829
W.O. 2015-0114-00
CONTRACT NO. N62470-10-D-3000
DELIVERY ORDER NO. 0029
DATE: 02/23/2015
N. INFO

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ACTIVITY

SATISFACTORY TO DATE

DES: JC DRW: SV CHK: DM

PM/DM: PETER STOCKLESS

BRANCH MANAGER: BRUCE LITALIEN

FEAD/PM&E: AMIN BAHROUR PM&E

FIRE PROTECTION: X

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NAVAL FACILITIES ENGINEERING COMMAND
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PORTSMOUTH NAVAL SHIPYARD

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NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 HVAC CONTROLS

EPROJECT NO.: 1350913

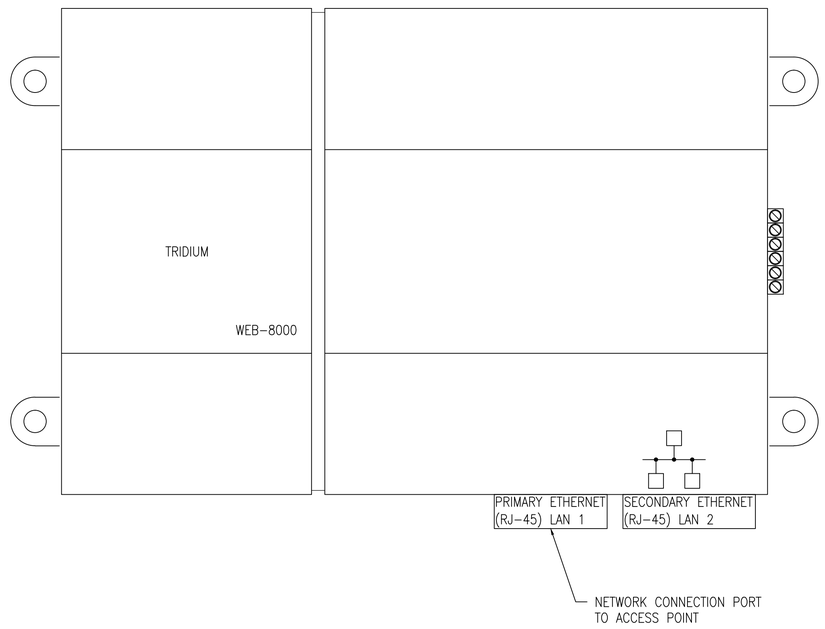
CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703730

SHEET 277 OF 506

M3.0 | 156-15-229

DRAWFORM REVISION: 10 OCTOBER 2014



ETHERNET CONNECTION TO RF ACCESS POINT

STM	DESCRIPTION	DATE	APPR
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No. 12370
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CONTRACT NO. N40085-12-D-1800
DELIVERY ORDER NO. 0029
DAVID H. MAHONEY, P.E.
NH LICENSE NO. 12370
DATE: 2015.08.06

PROJECT MANAGER
CSI ENGINEERING
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A/E INFO

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FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

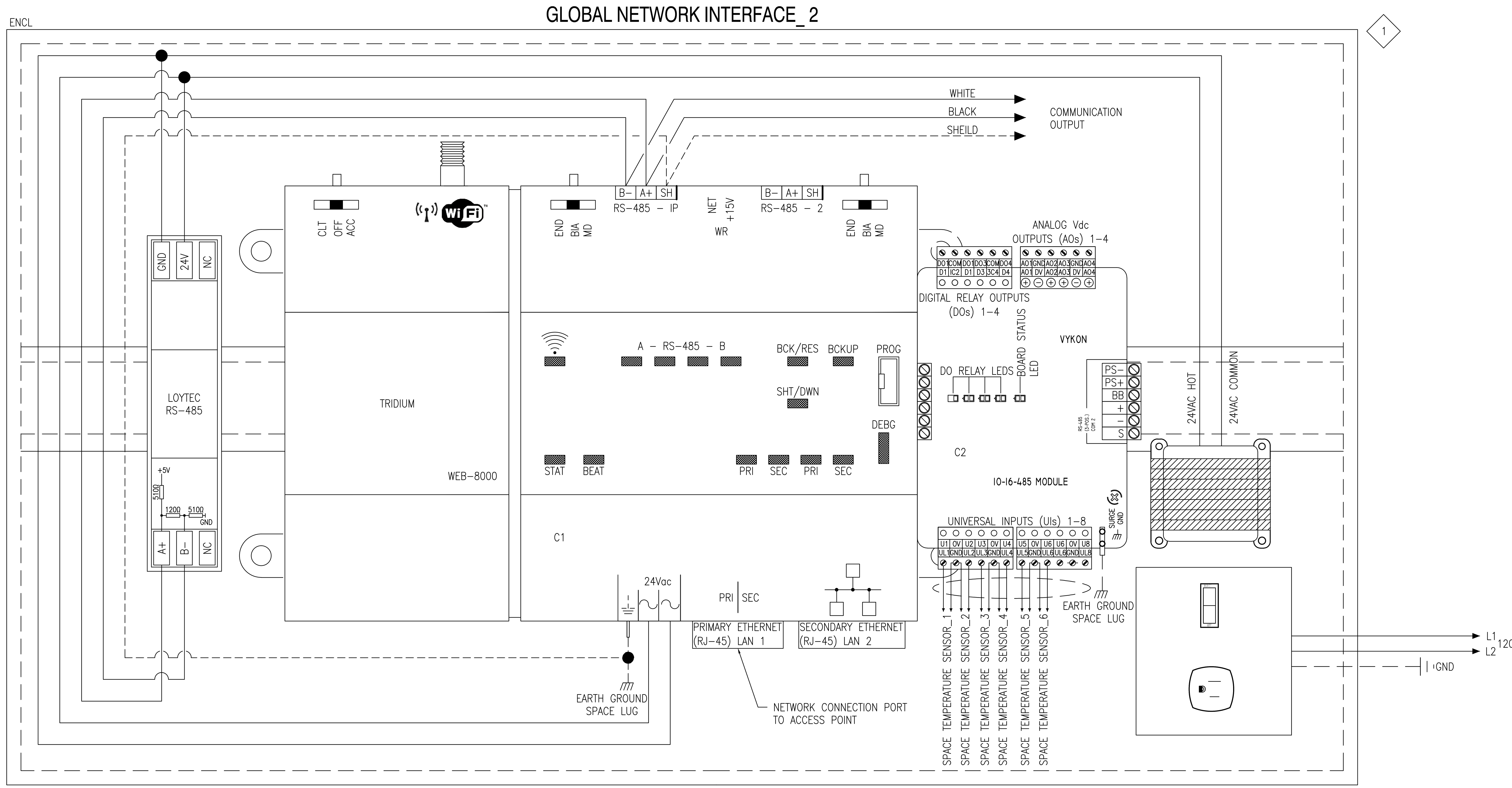
BUILDING 156 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703731
SHEET 278 OF 506

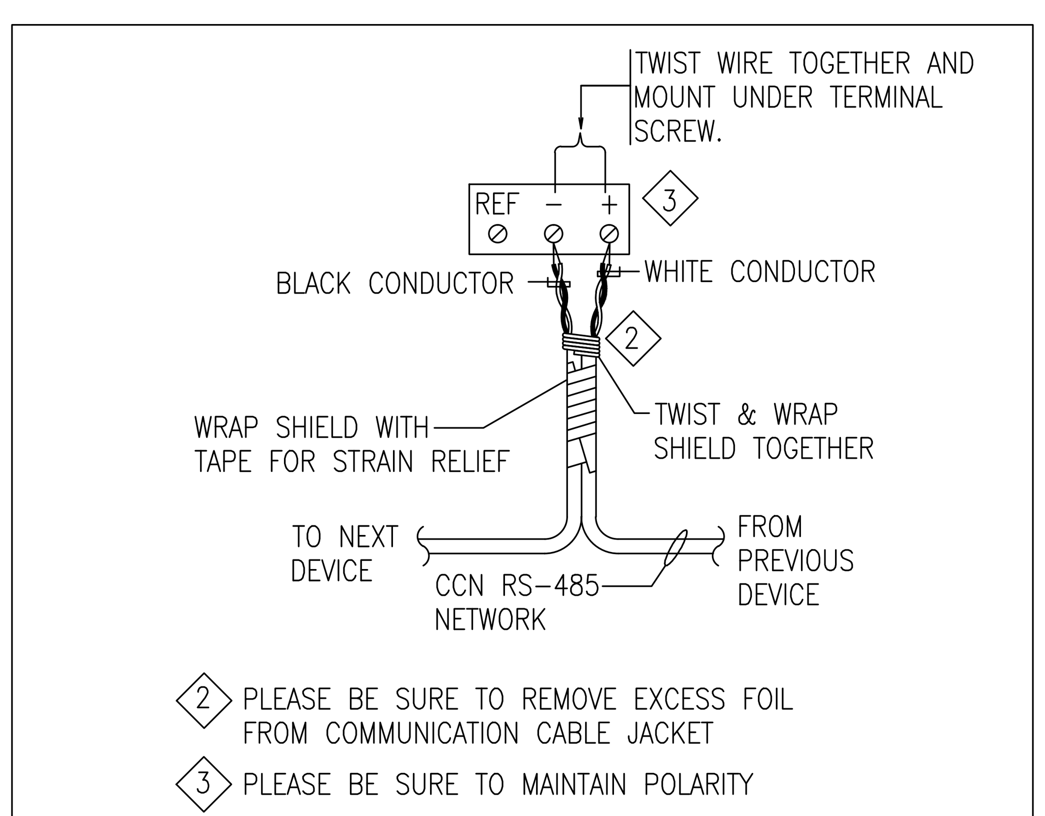
M3.1 | 156-15-230

DRAWFORM REVISION: 10 OCTOBER 2014

GLOBAL NETWORK INTERFACE_ 2



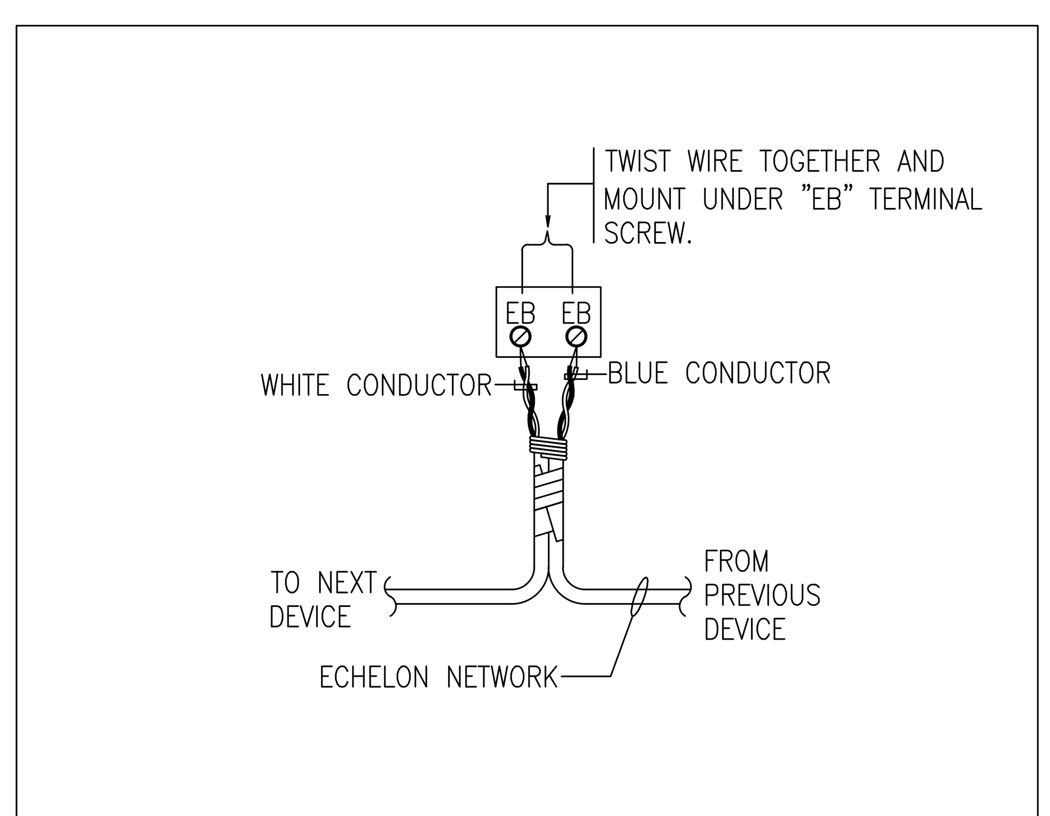
1 LOCATION OF CONTROLLER TO BE FIELD VERIFIED



2 PLEASE BE SURE TO REMOVE EXCESS FOIL FROM COMMUNICATION CABLE JACKET

3 PLEASE BE SURE TO MAINTAIN POLARITY

RS-485 BACNET MS/TP CONNECTION DETAIL



E-BUS CONNECTION DETAIL

PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
C2	IO-16-485	REMOTE I/O MODULE	1
ENCL	ENC-001	12"x18"x4" ENCLOSURE W/ 24V TRANSFORMER	1
EOL1	209541B	END OF LINE RESISTOR	1
LT1	LT-B4	RS-485 NETWORK TERMINATOR	1

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 HVAC CONTROLS

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703732

SHEET 279 OF 506

M3.2 | 156-15-231

DRAWFORM REVISION: 10 OCTOBER 2014

JACE BOX

TAG NO.	LOCATION	ELECTRICAL		DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
		AMP	V		
J-1	SEE PLANS	20	120	JACE 8000	SEE NOTES

NOTES: 1. PROVIDE W/ MEMORY UPGRADE TO 4GB. 2. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT.

INDOOR AIR CONDITIONER SCHEDULE

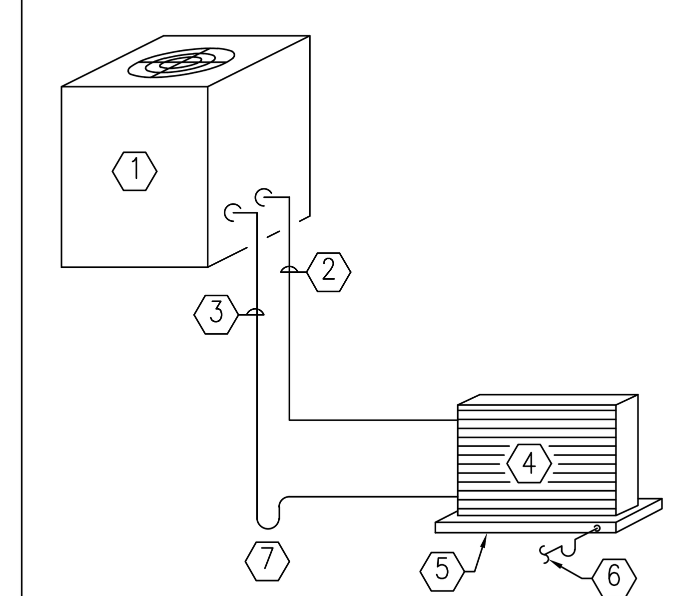
TAG NO.	LOCATION	ASSOCIATED OUTDOOR UNIT	TYPE	INDOOR UNIT: COOLING DATA				FAN DATA	ELECTRICAL DATA				DESIGN BASED ON MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NOTES
				TOTAL MBH	INDOOR TEMP.		OUTDOOR TEMP. DB(°F)	CFM	V	PH	Hz	MCA		
					DB(°F)	WB(°F)								
AC-156-1	BUILDING 156	ACCU-156-1	WALL HUNG	24	75	63	85	570-920	208	1	60	0.63	MITSUBISHI PKFY-P24NKMU-E2	SEE NOTES
AC-156-2	BUILDING 156	ACCU-156-1	WALL HUNG	24	75	63	85	570-920	208	1	60	0.63	MITSUBISHI PKFY-P24NKMU-E2	SEE NOTES

NOTES: 1. PROVIDE WITH 2" THROWAWAY FILTERS. 2. PROVIDE WITH CONDENSATE PUMP. 3. PROVIDE WITH BACNET INTERFACE. 4. PROVIDE WITH WALL THERMOSTAT. 5. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 6. PROVIDE WITH CN24 RELAY KIT. 7. DISABLE HEAT DURING START UP.

AIR COOLED CONDENSING UNIT SCHEDULE

TAG	SERVES	DESIGN BASED ON MANUFACTURER	DESIGN BASED ON MODEL No.	COOLING DATA	ELECTRIC DATA					NOTES
				COOLING (MBH)	VOLTS	HZ	PHASE	MCA	MOCP	
ACCU-156-1	BLDG 156	MITSUBISHI	PUMY-P48NHMU-BS	48	208	60	1	26	40	SEE NOTES

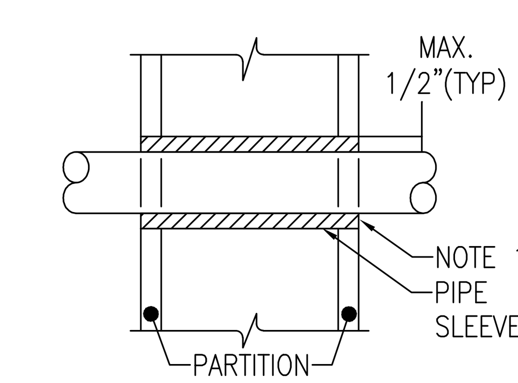
NOTES: 1. PROVIDE WITH SEACOAST MODEL 2. PROVIDE WITH DISCONNECT. 3. PROVIDE WITH LOW AMBIENT COOLING. 4. PROVIDE WITH BACNET INTERFACE. 5. CONTRACTOR SHALL PROVIDE VENDOR AUTHORIZED SOFTWARE & TRAINING FOR EACH PIECE OF EQUIPMENT. 6. PROVIDE WITH AIR OUTLET GUIDE. 7. PROVIDE WITH WIND BAFFLE. 8. PROVIDE WITH DRAIN PAN. 9. DISABLE HEAT DURING START UP.



1. CONDENSING UNIT
2. LIQUID LINE
3. INSULATED SUCTION LINE
4. COOLING COIL
5. DRAIN PAN
6. DRAIN LINE-TRAP & ROUTE TO DRAIN OR CONDENSATE PUMP
7. TRAP

NOTE:
1. PIPE SIZES, CONTROL EQUIPMENT AND TRAPS AS REQUIRED BY UNIT MANUFACTURER (SUBMIT IN SHOP DRAWING).

REFRIGERANT PIPING SMALL COMPONENT SCHEMATIC



NOTES:
1. AT FIRE RATED PARTITIONS ADD LAYER OF FIRE SAFING INSULATION AROUND PENETRATIONS SO AS TO FILL CAVITY.
2. PIPE PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.
3. CONTRACTOR REPSONSIBLE FOR DETERMINING REQUIRED HOUR RATING TO MATCH EXISTING WALL ASSEMBLY.

PIPE PENETRATIONS

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

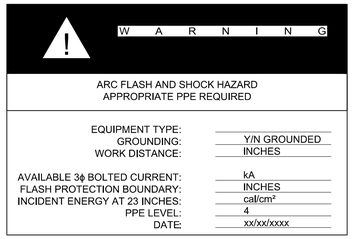
DES JC DRW SV CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 HVAC SCHEDULES

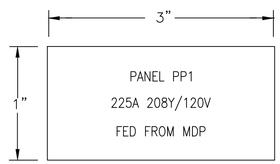
EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703733
SHEET 280 OF 506
M4.0 156-15-232



NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

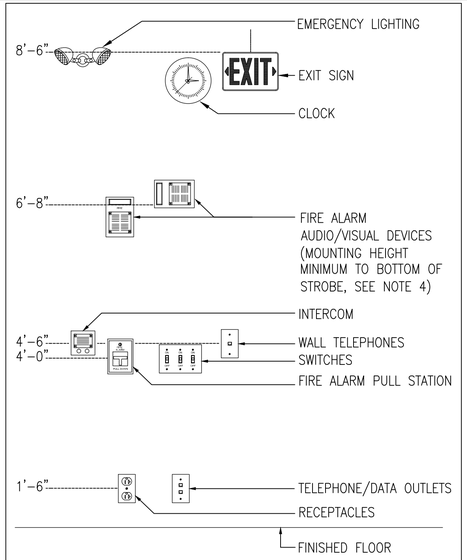
TYPICAL FLASH PROTECTION WARNING LABEL



NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
4. TYPICAL FOR "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

TYPICAL NAMEPLATE DETAIL



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. STROBE HEIGHT ILLUSTRATED AT MAXIMUM HEIGHT. STROBE SHALL BE 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL

ELECTRIC ABBREVIATIONS

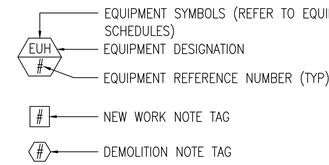
A/AMP	AMPERE	LTG	LIGHTING
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICAN WITH DISABILITIES ACT	MEC	MASSACHUSETTS ELECTRIC CODE
AF	AMPERE FRAME	MH	MANHOLE
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AT	AMPERE TRIP	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWTICH	#	NUMBER
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	PWR	POWER
CATV	CABLE TELEVISION	RGS	RIGID GALVANIZED STEEL
CCTV	CLOSED CIRCUIT TELEVISION	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	TEL	TELEPHONE
CKT	CIRCUIT	TERM	TERMINAL
℄	CENTERLINE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DWG	DRAWING	TSP	TWISTED SHIELDED PAIR
EC	ELECTRICAL CONTRACTOR	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UNO	UNLESS OTHERWISE NOTED
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	UPS	UNINTERRUPTIBLE POWER SUPPLY
GFI	GROUND FAULT INTERRUPTING	UTP	UNSHIELDED TWISTED PAIR
GND	GROUND	V	VOLT
HH	HANDHOLE	VA	VOLT AMPERE
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	W	WATT
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND		
KVA	KILOVOLT – AMPERE		
KW	KILOWATT		

MOTOR & CONTROLS LEGEND

SYMBOL	DESCRIPTION
S_M	MANUAL MOTOR STARTING SWITCH WITH THERMAL OVERLOAD PROTECTION
30AS 3R	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" – INDICATES NEMA TYPE 3R ENCLOSURE "30AS" – INDICATES 30A SWITCH
30AS 15AF	FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "30AS" – INDICATES 30AMP SWITCH "15AF" – INDICATES 15AMP FUSES
	ENCLOSED CIRCUIT BREAKER IN NEMA TYPE 1 ENCLOSURE UNLESS OTHERWISE NOTED.
JCB	DDC CONTROL JACE BOX. PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION.

ELECTRIC SYSTEM TAGS OR CALL OUT SYMBOLS

SYMBOL



POWER DISTRIBUTION LEGEND

SYMBOL	DESCRIPTION
	208Y/120 VOLT PANELBOARD, REFER TO SCHEDULE OF PANELBOARDS
T	DRY TYPE TRANSFORMER

BRANCH CIRCUIT & FEEDER LEGEND

SYMBOL	DESCRIPTION
PP1-(X) PP1-(X)	BRANCH CIRCUIT HOME RUN. TYPICAL 2#12 & 1#12G IN ¾"C MINIMUM. PP1-(1) INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.

EXISTING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
XM	EXISTING EQUIPMENT TO REMAIN
XR	EXISTING EQUIPMENT TO BE REMOVED
XE	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT TO REMAIN FOR INFORMATION ONLY – (XM) INDICATED BY SYMBOL WITH LIGHT OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED – (XN, XL, XE, XR) INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

ELECTRIC GENERAL NOTES

1. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF WORK. DAMAGE SHALL INCLUDE BUT NOT LIMITED TO THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
3. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINT OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY TRADE CONTRACTOR. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED AS SPARE.
4. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE OR TURNED OVER TO OWNER. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
5. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. CIRCUITRY HAS BEEN DETERMINED BASED UPON INFORMATION GATHERED, ASSUMPTIONS, AND INFORMATION OBTAINED FROM NAVFAC. EXACT CIRCUITING, EQUIPMENT SIZES, AND CONDUIT AND WIRING SIZES MAY DIFFER IN THE FIELD FROM WHAT IS SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRACING ALL CIRCUITS BEING DEMOLISHED AND REUSED PRIOR TO DISCONNECTING, VERIFYING EXISTING CIRCUITRY AND EQUIPMENT SIZES, AND SHALL SIZE ALL NEW EQUIPMENT AND BRANCH CIRCUITRY ACCORDINGLY IF ACTUAL CONDITIONS DIFFER FROM WHAT IS SHOWN ON THE DRAWINGS. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
6. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
7. THE ELECTRICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
8. ROUTING IS DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ROUTING IN FIELD AND RE-USE EXISTING PENETRATIONS WHERE POSSIBLE.
9. SEE PWD-ME DRAWING NUMBERS;
   - 9.1. 43-15-67 FOR TITLE SHEET
   - 9.2. 43-15-68 FOR LIST OF DRAWINGS
   - 9.3. 43-15-69 FOR GENERAL NOTES & LEGENDS
   - 9.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
   - 9.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
E1.0	BUILDING 156 ELECTRICAL LEGEND
ED2.0	BUILDING 156 ELECTRICAL BASEMENT PART PLAN AND FIRST FLOOR DEMOLITION PLAN
E2.0	BUILDING 156 ELECTRICAL BASEMENT PART PLAN AND FIRST FLOOR PART PLAN
E3.0	BUILDING 156 ELECTRICAL SCHEDULES

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER – SEAL

CSI ENGINEERING

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: TM DRW: TM CHK: JO

PM/DM: PETER STOCKLESS

BRANCH MANAGER: BRUCE LITALIEN

FEAD/PM&E: AMIN BAHROUR PM&E

FIRE PROTECTION: X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 ELECTRICAL LEGEND

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703734

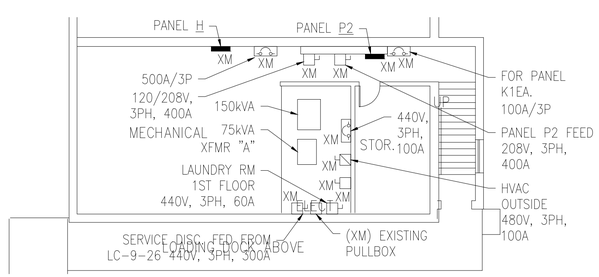
SHEET 281 OF 506

E1.0 | 156-15-233

DRAWFORM REVISION: 10 OCTOBER 2014

BUILDING 156 ELECTRICAL FIRST FLOOR DEMOLITION PLAN

1/8" = 1'-0"



BUILDING 156 ELECTRICAL BASEMENT DEMOLITION PART PLAN

1/8" = 1'-0"

PLAN NORTH

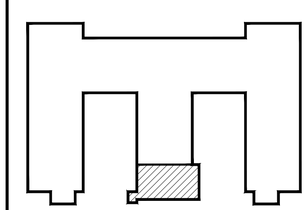
GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FINAL LOW-VOLTAGE CONNECTIONS TO JACE BOX AND FIBER OPTIC SWITCH TO BE MADE BY CONTROLS CONTRACTOR. FIELD COORDINATE EXACT LOCATION OF EQUIPMENT WITH CONTROLS CONTRACTOR AND NAVFAC.
5. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
6. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.
7. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

DEMOLITION KEYNOTES

1. DISCONNECT AND MAKE SAFE FOR REMOVAL EXISTING ACCU AND ASSOCIATED AC UNITS. MAINTAIN EXISTING AC UNIT BRANCH CIRCUITRY, AND CIRCUIT BREAKER FOR REUSE. DEMOLISH EXISTING DISCONNECT IN ITS ENTIRETY.
2. DISCONNECT EXISTING AT&T PHONE CIRCUIT #27 AND PREPARE FOR RELOCATION IN PANEL TO ALLOW FOR NEW ACCU UNIT CIRCUIT BREAKER INSTALLATION.
3. DISCONNECT & MAKE SAFE FOR REMOVAL OF EXISTING ACCU. DEMOLISH ASSOCIATED BRANCH CIRCUITRY IN ITS ENTIRETY. MAINTAIN EXISTING DISCONNECT FOR REUSE. MAINTAIN EXISTING CIRCUIT BREAKER & LABEL AS SPARE FOR REUSE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
SEAL

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PORTLAND, ME 04103
TEL: 207-878-0818
CSI ENGINEERING
215 MARTINS AVE, STE 204
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603-431-9424
CSI ENGINEERING INFO

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ACTIVITY

SATISFACTORY TO DATE

DES TM DRW TM CHK JO

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 ELECTRICAL BASEMENT DEMOLITION PART PLAN
AND FIRST FLOOR DEMOLITION PLAN

EPROJECT NO.: 1350913

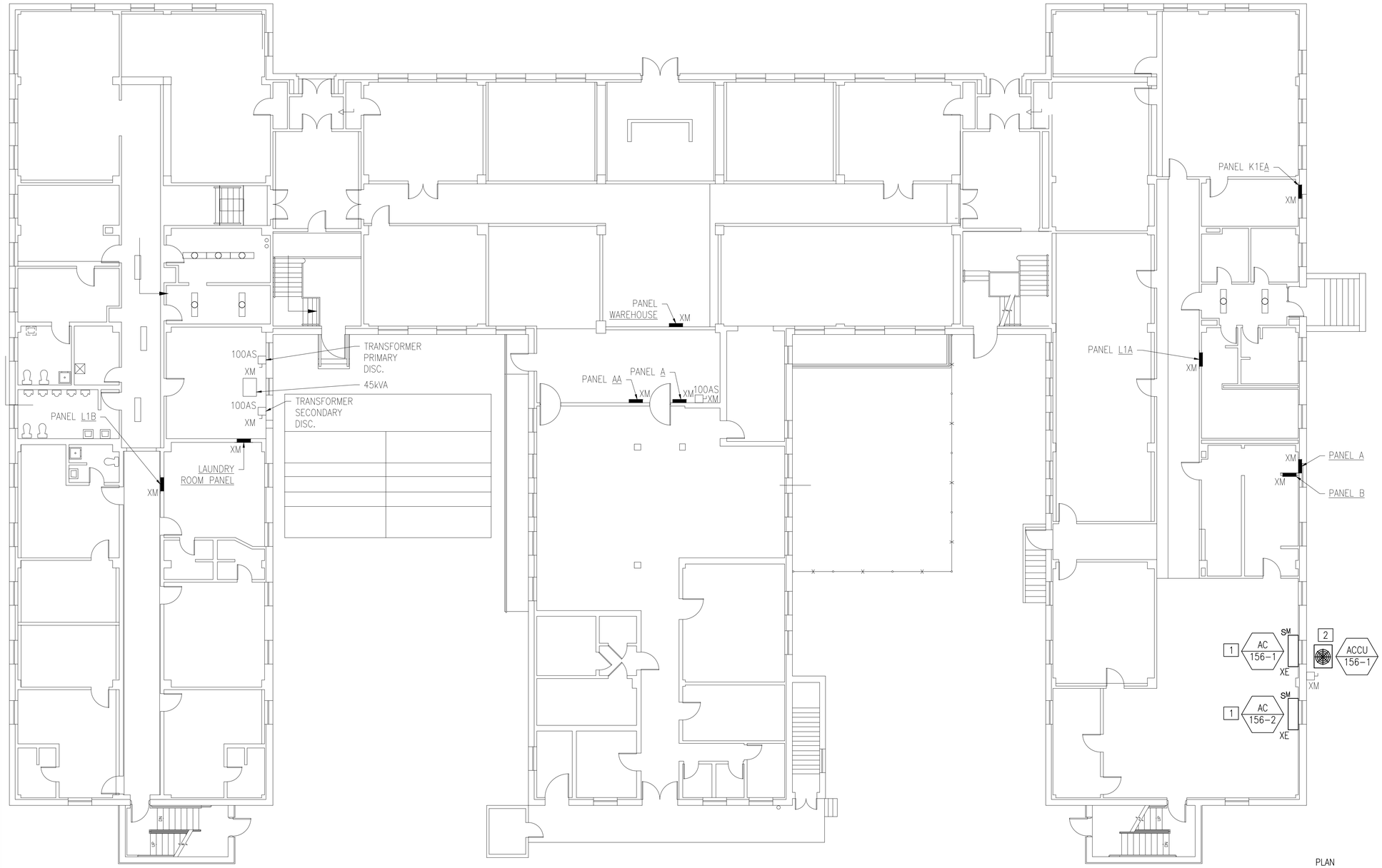
CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703735

SHEET 282 OF 506

ED2.0 | 156-15-234

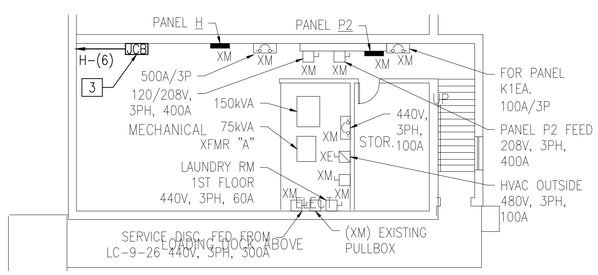
DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 156 ELECTRICAL FIRST FLOOR PLAN

1/8" = 1'-0"

PLAN NORTH



BUILDING 156 ELECTRICAL BASEMENT PART PLAN

1/8" = 1'-0"

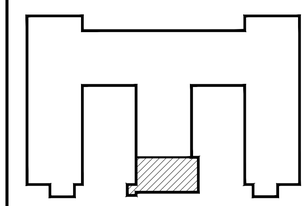
GENERAL SHEET NOTES

1. REFER TO DRAWING E1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. FINAL LOW-VOLTAGE CONNECTIONS TO BE MADE BY CONTROLS CONTRACTOR. FIELD COORDINATE EXACT LOCATION OF EQUIPMENT WITH CONTROLS CONTRACTOR AND NAVFAC.
5. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
6. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.
7. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

NEW WORK KEYNOTES

1. CONNECT NEW AC UNITS TO EXISTING BRANCH CIRCUITRY MAINTAINED DURING DEMOLITION PHASE. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
2. RECONNECT EXISTING AT&T PHONE CIRCUIT TO SPARE 20A/1P CIRCUIT BREAKER IN POLE SPACE 30. REMOVE EXISTING 20A/1P CIRCUIT BREAKERS IN POLE SPACES 27,29 AND PROVIDE NEW CIRCUIT BREAKER FOR NEW ACCU UNIT. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E3.0 FOR ADDITIONAL INFORMATION.
3. NEW JACE BOX PROVIDED BY TRADE CONTRACTOR. FIELD COORDINATE EXACT LOCATION WITH NAVFAC AND CONTROLS CONTRACTOR.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE
CHARLES E. MACE
No. 13078
LICENSED
PROFESSIONAL ENGINEER
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CADD Contractor: CSI Engineering
CADD Contractor Phone: 781-322-0020
CADD Contractor Email: cadd@csiengineering.com

PREPARED BY: CSI ENGINEERING
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INFO

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DES TM | DRW TM | CHK JO
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BRANCH MANAGER BRUCE LITALIEN
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FIRE PROTECTION X

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NAVAL SHIPYARD ~ PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 156 ELECTRICAL BASEMENT PART PLAN AND FIRST FLOOR PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703736
SHEET 283 OF 506
E2.0 | 156-15-235

DRAWFORM REVISION: 10 OCTOBER 2014

PANELBOARD SCHEDULE

PANEL: L1A | VOLTS: 120/ 208 | NEW/EXISTING.: EXISTING
MAIN: MLO | BUS AMPS: 225A | MOUNT.: RECESSED
PH/WIRE: 3ø/4W | AIC: | LOC: 1ST FLOOR MEN'S CLUB CORRIDOR

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	CENTER EM CLUB LTS	0	–		–	0	CENTER EM CLUB LTS	20/1	2
3	20/1	WEST END EM CLUB LTS	0	–		–	0	WEST END EM CLUB LTS	20/1	4
5	20/1	EAST END EM CLUB LTS	0	–		–	0	EAST END EM CLUB LTS	20/1	6
7	20/1	BAR LIGHTS	0	–		–	0	TOILETS LTS & FANS	20/1	8
9	20/1	OFFICE–STOR. RM 109 REC.	0	–		–	0	OFFICE–SOFFIT–LBY, STOR. LT	20/1	10
11	20/1	NEW STOR. RM LTS	0	–		–	0	CENTER COLUMN REC.	20/1	12
13	20/1	STOR. RM REC.	0	–		–	0	EXISTING REC.	20/1	14
15	20/1	LUCKY BAG LTS	0	–		–	0	GLENCO COOLER	20/1	16
17	20/1	LUCKY BAG LTS	0	–		–	0	EXISTING REC.	20/1	18
19	20/1	SIDE ENT. LTS & REC.	0	–		–	0	ST. LTS	20/1	20
21	20/1	REACHIN BEER COOELR	0	–		–	0	SPARE JBOX IN OH DR ENTRY	20/1	22
23	20/1	SPARE	0	–		–	0	SPARE	20/1	24
25	20/1	KEG COOLER	0	–		–	0	AIR CURTAIN REAR	20/1	26
27	30/2	ACCU–156–1	5.41	1		–	0	AIR CURTAIN FRONT	20/1	28
29						2	0	AT&T 110V PHONE	20/1	30
			5.41				0.00	TOTAL CONNECTED kVA:	5.41	
								TOTAL CONNECTED AMPERES:	26.01	

NOTES:
1. PROVIDE NEW CIRCUIT BREAKER SIZED AS INDICATED FOR NEW LOAD.
2. RELOCATE EXISTING CIRCUIT BREAKER TO POLE SPACE INDICATED.
3. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: A | VOLTS: 120/ 208 | NEW/EXISTING.: EXISTING
MAIN: 225A MCB | BUS AMPS: 225A | MOUNT.: RECESSED
PH/WIRE: 3ø/4W | AIC: | LOC: BLDG 156 1ST FLOOR MENS CLUB

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1		SPACE		–		–	0	SMALL FRYER	30/2	2
3	20/1	PLUGMOLD SHELVES ON SIDE	0	–						4
5	30/3	GRILL	0	–		–	0	AIR CONDITIONER	30/2	6
7										8
9						–	0	EXH. FAN RADIO ROOM	20/1	10
11	20/2	AIR CONDITIONER	0	–		–	0	TV REC.	20/1	12
13						–	0	TV REC.	20/1	14
15	20/2	AC–156–1	.131	1		–	0	DATA CAB. QUAD REC.	20/1	16
17						–	0	DATA CAB. QUAD REC.	20/1	18
19	20/2	AC–156–2	.131	1		–	0	EXISTING LOAD	60/3	20
21										22
23	20/1	QUAD REC. WEST WALL	0	–						24
25	20/1	QUAD REC. SOUTH WALL	0	–		–	0	EXISTING LOAD	20/2	26
27	20/1	QUAD REC. EAST WALL	0	–						28
29		SPACE		–		–		SPACE		30
			0.26				0.00	TOTAL CONNECTED kVA:	0.26	
								TOTAL CONNECTED AMPERES:	0.73	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

PANELBOARD SCHEDULE

PANEL: H | VOLTS: 120/ 208 | NEW/EXISTING.: EXISTING
MAIN: MLO | BUS AMPS: 100A | MOUNT.: SURFACE
PH/WIRE: 3ø/4W | AIC: 10K | LOC: BLDG 156 MECAHNICAL BASEMENT

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	NOTE		NOTE	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	BIKE STORAGE UNITS OUTSIDE	0	–		–	0	SIMPLEX	20/1	2
3	20/1	ELEC. CAR CHARGERS.	0	–		–	0	SUMP PUMP	20/1	4
5	60/2	TRAILER AMI EQUIPMENT	0	OFF		1	.02	DDC JACE BOX	20/1	6
7						–	0	EXISTING LOAD	20/1	8
9	60/2	DRY SYSTEM COMPRESSOR	0	–		–	0	EXISTING LOAD	20/1	10
11						–	0	EXISTING LOAD	20/1	12
13		SPACE		–		–		SPACE		14
15		SPACE		–		–		SPACE		16
			0.00				0.02	TOTAL CONNECTED kVA:	0.02	
								TOTAL CONNECTED AMPERES:	0.06	

NOTES:
1. VERIFY AND REUSE EXISTING CIRCUIT BREAKER AS INDICATED FOR NEW LOAD.
2. NEW WORK DENOTED WITH UNDERLINED TEXT. ANY PANELS THAT SHOW NO NEW WORK ARE FOR REFERENCE ONLY.

MECHANICAL EQUIPMENT SCHEDULE

EQUIP TAG	DESCRIPTION	LOAD HP	LOAD KVA	LOAD VOLT	LOAD PH	PANEL SOURCE PANEL	PANEL SOURCE C/B	BRANCH CIRCUIT	CONNECTION FLEX	CONNECTION JB	CONNECTION REC	CONNECTION DISC	NOTES
ACCU 156–1	CONDENSING UNIT	–	5.41	208	1	L1A–(27,29)	30A/2P	(2)#10 & (1)#10G, 3/4"C	X			X	NOTE 13
AC 156–1	AR CONDITIONER	–	.131	208	1	A–(15,17)	15A/2P	–	X			X	NOTE 12
AC 156–2	AR CONDITIONER	–	.131	208	1	A–(19,21)	15A/2P	–	X			X	NOTE 12

NOTES:

1. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION.
2. "FLEX" – DENOTES FINAL THREE FEET (MAXIMUM) OF RACEWAY SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT METAL CONDUIT.
3. "JB" – JUNCTION BOX DENOTES FINAL CONNECTION TO BOX OR CONTROL PANEL PREWIRED TO THE EQUIPMENT.
4. "REC" – PROVIDE RECEPTACLE IN THE NEMA CONFIGURATION NOTED.
5. NOTES 6–9 ARE OPTIONS WHICH SHALL BE SPECIFICALLY NOTED IN REMARKS FOR INCLUSION.
6. DISCONNECT SHALL BE FUSIBLE.
7. DISCONNECT SHALL BE NEMA "3R"
8. DISCONNECT SHALL BE MOTOR–RATED SWITCH WITH THERMAL OVERLOAD ELEMENT.
9. DISCONNECT PROVIDED INTEGRAL (PREWIRED) TO EQUIPMENT BY TRADE CONTRACTOR.
10. INTEGRAL CONVENIENCE RECEPTACLE PROVIDED PREWIRED TO EQUIPMENT BY TRADE CONTRACTOR.
11. EQUIPMENT IS FED FROM TAP OF EXISTING 480V MAIN SERVICE. REFER TO ONE–LINE DIAGRAM FOR ADDITIONAL INFORMATION.
12. REUSE EXISTING BRANCH CIRCUITRY, AND CIRCUIT BREAKER. PROVIDE NEW DISCONNECT AS SHOWN ON DRAWING E2.0.
13. PROVIDE NEW CIRCUIT BREAKER. REUSE EXISTING DISCONNECT.

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	07/10/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	01/20/2015	DM

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STATE OF NEW HAMPSHIRE – CHARLES E. MACE No. 13078 LICENSED PROFESSIONAL ENGINEER – SEAL

The CADD Contractor is responsible for all aspects of this drawing and shall perform all quality control and quality assurance functions to ensure that this drawing conforms to the requirements of the contract and shall affix his/her stamp, initials and date to this drawing to indicate that it has been checked and approved.

PRIMARY CONSULTANT: CSI ENGINEERING
FIRE PROTECTION: 999 Beacon St., Suite 206, Boston, MA 02135, 781-323-0035
ELECTRICAL: 215 Auction Ave, Suite 204, Lewiston, ME 04240, 603-315-9214
A/E INFO.

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES. TM | DRW. TM | CHK. JO
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
LEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

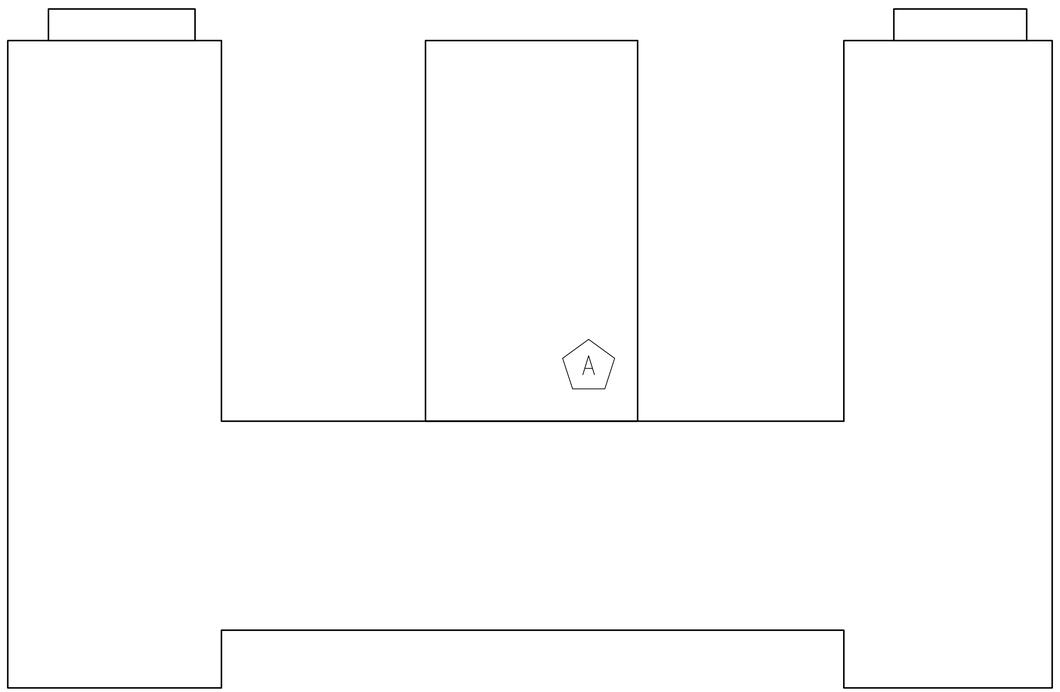
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 156 ELECTRICAL SCHEDULES

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085–XX–C–XXX
NAVFAC DRAWING NO. 12703737
SHEET 284 OF 506
E3.0 | 156-15-236

DRAWFORM REVISION: 10 OCTOBER 2014



B156 ANTENNA LOCATION - ROOF PLAN

1/16" = 1'-0"

PLAN NORTH

EQUIPMENT	WIRELESS STANDARD	ANTENNA	FREQUENCY	DIMENSIONS	WEIGHT	INPUT POWER	MANUFACTURER	DESIGN BASED ON MODEL
WIRELESS ACCESS POINT	802.11n	INTEGRATED	2.4 GHZ & 5.8 GHZ	9 X 7 X 4 INCHES	5 LBS	AIR-PWRINJ4	CISCO AIRONET	AIR-AP1532I-UXK9

NOTE: PROVIDE POWER INJECTOR FOR POWER OF ETHERNET TO WIRELESS ACCESSS POINT. DESIGN BASED ON CISCO MODEL AIR-PWRINJ4.

GENERAL SHEET NOTES

1. FASTENERS SHALL BE ATTACHED TO MORTAR IN MASONRY BUILDINGS, AVOIDING DAMAGE TO THE BRICK WHEREVER PRACTICAL.
2. EXTERIOR CONDUIT SHALL BE INSTALLED IN SHADOW-LINES OR ADJACENT TO EXISTING CONDUIT; CONDUIT COLOR TO BE COORDINATED WITH CULTURAL RESOURCE MANAGER AND A-E.
3. REFER TO MECHANICAL DRAWINGS FOR JACE LOCATION AND INFORMATION.
4. EXISTING ROOF AND WALL PENETRATIONS SHALL BE USED WHEREVER PRACTICAL.
5. INTERIOR, WINDOW-MOUNTED ACCESS POINTS SHALL BE MOUNTED IN AN OBSCURE LOCATION THAT IS LEAST VISIBLE FROM INTERIOR & EXTERIOR.
6. ACCESS POINT MOUNTS SHALL NOT OBSTRUCT EGRESS, EXISTING WALKWAYS, STAIRWELLS, MECHANICAL EQUIPMENT CLEARANCES, OR OTHER APPURTANANCES.
7. UNLESS OTHERWISE NOTED, ROOFTOP ACCESS POINTS SHALL BE CENTRALIZED ON THE ROOF TO MINIMIZE VISIBILITY FROM GROUND LEVEL.
8. CONTRACTOR TO FIELD-VERIFY COMMUNICATION ACCESS POINTS ARE ALIGNED AND LINE OF SIGHT IS UNOBSTRUCTED.
9. IF A FIELD CHANGE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH CULTURAL RESOURCE MANAGER AND A-E PRIOR TO RELOCATING EQUIPMENT.
10. ANY PROPOSED CHANGES (PENETRATIONS, CONDUIT, ETC.) NOT ALREADY INDICATED ON DRAWINGS MADE TO HISTORIC BUILDINGS OR BUILDINGS LOCATED IN HISTORIC DISTRICT MUST BE REVIEWED AND APPROVED BY SHPO THROUGH NAVFAC CULTURAL RESOURCES DEPARTMENT PRIOR TO INSTALLATION.
11. CONTRACTOR TO VERIFY RF SIGNAL STRENGTH AND CONNECTIVITY FROM/TO ALL ACCESS POINTS.
12. SEE PWD-ME DRAWING NUMBERS;
    - 12.1. 43-15-67 FOR TITLE SHEET
    - 12.2. 43-15-68 FOR LIST OF DRAWINGS
    - 12.3. 43-15-69 FOR GENERAL NOTES AND LEGEND
    - 12.4. 43-15-72 FOR CHASE AND SOFFIT DETAILS
    - 12.5. 43-15-74 FOR STRUCTURAL NOTES AND SUPPORT

(A) NEW WORK KEYNOTES

1. CONTRACTOR SHALL ATTACH RF ACCESS POINT AS HIGH AS PRACTICABLE TO EXISTING ACCESS POINT MAST ON LOWER ROOF.
2. CONTRACTOR SHALL ENSURE LINE-OF-SIGHT TO B170 ACCESS POINT.
3. ACCESS POINT MOUNT SHALL BE CAPABLE OF WITHSTANDING 100 MPH SUSTAINED WINDS AND 165 MPH WIND GUSTS. MOUNTING HEIGHT TO BE DETERMINED BY CONTRACTOR TO MINIMIZE GROUND-LEVEL VISIBILITY WHILE MAINTAINING ACCESS POINT LINE-OF-SIGHT.
4. CAT5 CABLE SHALL BE ROUTED ALONG EXTERIOR OF BUILDING TO EXISTING PENETRATION TO BASEMENT MECHANICAL ROOM FOR CONNECTION TO JACE.

GRAPHIC SCALE

1/16" = 1' 1 6" 0 1 2 3
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
0	90% SUBMISSION	07/15/15	DM
	100% SUBMISSION	07/31/15	

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STATE OF NEW HAMPSHIRE KEITH CHRISTOPHER LEWIS No. 13914 LICENSED PROFESSIONAL ENGINEER
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(603) 200-0096 AECGR.COM
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ACTIVITY
SATISFACTORY TO DATE

DES VSL | DRW SRR | CHK KLC
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

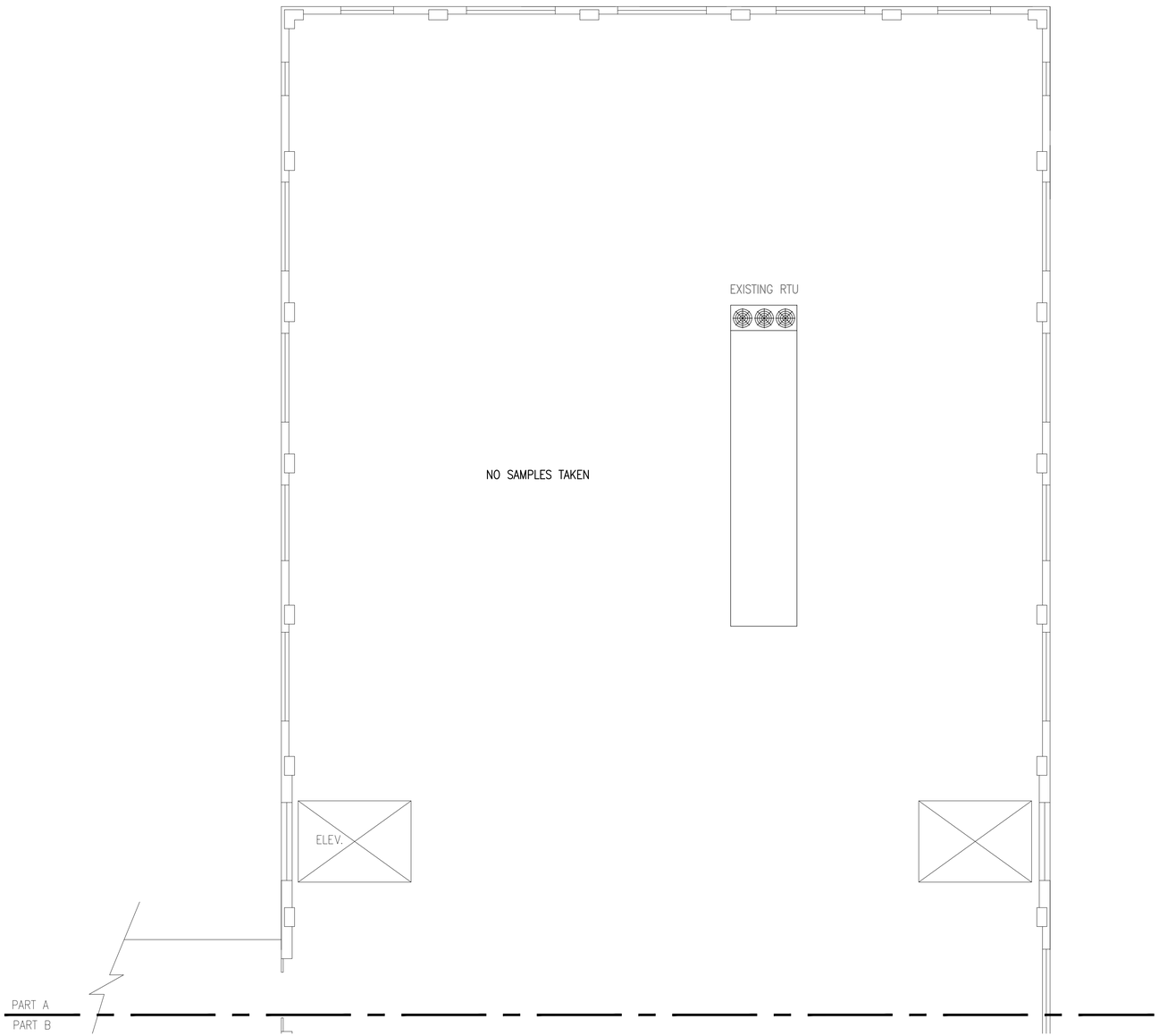
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B156 RF INSTALLATION DETAILS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703738
SHEET 285 OF 506
ET1.0 | 156-15-237

DRAWFORM REVISION: 10 OCTOBER 2014



B170 ROOF PART A HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL PACM (PRESUMED ASBESTOS CONTAINING MATERIAL), LBP (LEAD BASED PAINT), PCB, AND OTHER HAZARDOUS BUILDING MATERIALS MAY NOT BE IDENTIFIED IN THIS SURVEY, PARTICULARLY THOSE HIDDEN IN WALLS, CEILINGS, FLOORS, ETC. AND IN AREAS DESCRIBED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, WHICH WERE INACCESSIBLE DURING THE SURVEY. ASSESSMENT EFFORTS DID INCLUDE, TO THE EXTENT FEASIBLE, ACCESS TO INTERIOR AND EXTERIOR OF THE STRUCTURE. HOWEVER, THE ABSENCE OF ALL PACM, LBP, PCB, AND OTHER HAZARDOUS BUILDING MATERIALS IN HIDDEN OR INACCESSIBLE PORTIONS CANNOT BE DEFINITIVELY ENSURED.

2. RENOVATION AND/OR DEMOLITION ACTIVITIES SHOULD BE MONITORED BY PERSONNEL CAPABLE OF IDENTIFYING PACM, LBP, PCB AND OTHER HAZARDOUS BUILDING MATERIALS. IF PACM, LBP, PCB OR OTHER HAZARDOUS BUILDING MATERIALS ARE ENCOUNTERED, THESE MATERIALS SHOULD BE BULK SAMPLED BY A LICENSED INSPECTOR AND DISPOSED OF IN ACCORDANCE WITH PNSY AND ALL OTHER APPLICABLE REGULATIONS.

3. SEE B170 ASBESTOS, LEAD, PCB, AND TCLP INVENTORY TABLES LOCATED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, DATED JUNE 22, 2015, FOR ADDITIONAL INFORMATION.

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE
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PM/DM PETER STOCKLESS
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FEAD/PM&E AMIN BAHROUR PM&E
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NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B170 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703739
SHEET 286 OF 506
H1.0 | 170-15-718

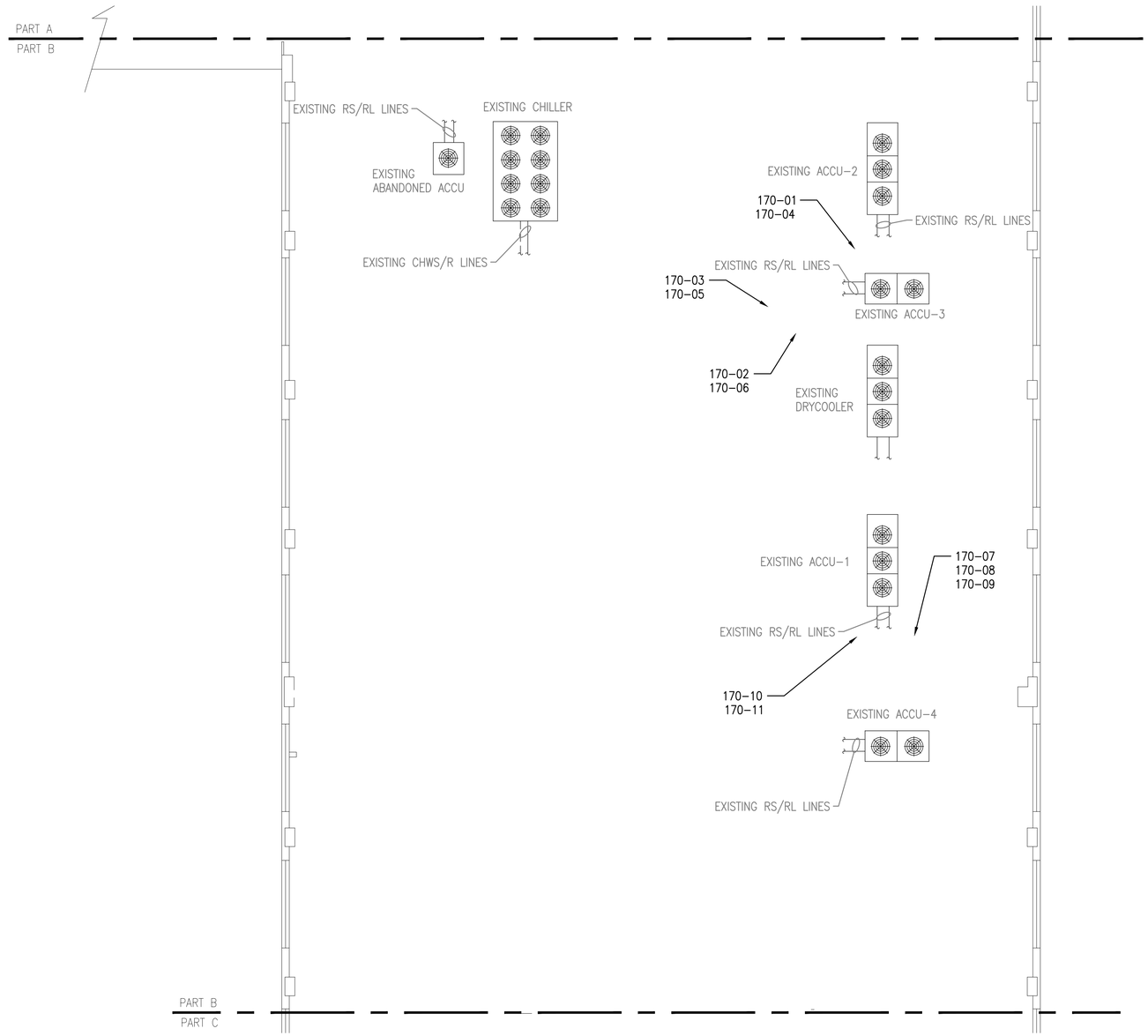
DRAWFORM REVISION: 10 OCTOBER 2014

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

FILE NAME: J:\A\A1066 AEC Subconsulting Support\HazMat\DWG\A1066_2_HZMT_R22.dwg LAYOUT NAME: B170-H1.0 PLOTTED: Friday, August 07, 2015 - 2:36pm USER: REP



B170 ROOF PART B HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL PACM (PRESUMED ASBESTOS CONTAINING MATERIAL), LBP (LEAD BASED PAINT), PCB, AND OTHER HAZARDOUS BUILDING MATERIALS MAY NOT BE IDENTIFIED IN THIS SURVEY, PARTICULARLY THOSE HIDDEN IN WALLS, CEILINGS, FLOORS, ETC. AND IN AREAS DESCRIBED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, WHICH WERE INACCESSIBLE DURING THE SURVEY. ASSESSMENT EFFORTS DID INCLUDE, TO THE EXTENT FEASIBLE, ACCESS TO INTERIOR AND EXTERIOR OF THE STRUCTURE. HOWEVER, THE ABSENCE OF ALL PACM, LBP, PCB, AND OTHER HAZARDOUS BUILDING MATERIALS IN HIDDEN OR INACCESSIBLE PORTIONS CANNOT BE DEFINITIVELY ENSURED.
2. RENOVATION AND/OR DEMOLITION ACTIVITIES SHOULD BE MONITORED BY PERSONNEL CAPABLE OF IDENTIFYING PACM, LBP, PCB AND OTHER HAZARDOUS BUILDING MATERIALS. IF PACM, LBP, PCB OR OTHER HAZARDOUS BUILDING MATERIALS ARE ENCOUNTERED, THESE MATERIALS SHOULD BE BULK SAMPLED BY A LICENSED INSPECTOR AND DISPOSED OF IN ACCORDANCE WITH PNSY AND ALL OTHER APPLICABLE REGULATIONS.
3. SEE B170 ASBESTOS, LEAD, PCB, AND TCLP INVENTORY TABLES LOCATED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, DATED JUNE 22, 2015, FOR ADDITIONAL INFORMATION.

HAZARDOUS MATERIAL SAMPLING SUMMARY

SAMPLE ID	ACM	LBP
170-01	ND	NS
170-02	ND	NS
170-03	ND	NS
170-04	ND	NS
170-05	ND	NS
170-06	ND	NS
170-07	ND	NS
170-08	ND	NS
170-09	ND	NS
170-10	ND	NS
170-11	ND	NS

ACM = ASBESTOS CONTAINING MATERIALS
LBP = LEAD BASED PAINT
<RL = LESS THAN REPORTING LIMIT
ND = NONE DETECTED
NS = NOT SAMPLED
H = EXCEEDS REGULATORY STANDARDS FOR HAZARDOUS CONCENTRATION

NOTE:
REFER TO HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT DATED JUNE 22, 2015 FOR COMPLETE SAMPLING INFORMATION AND DATA.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24 scale feet

CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE Bradlee Mesquita 9410 LICENSED PROFESSIONAL ENGINEER

SEAL

Tighe&Bond
Consulting Engineers
177 Corporate Drive
Portsmouth, New Hampshire
(603) 433-8818
www.tighebond.com

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: A/E DRW: REP CHK: BLM
PM/DM: PETER STOCKLESS
BRANCH MANAGER: BRUCE LITALIEN
FEAD/PM&E: AMIN BAHROUR PM&E
FIRE PROTECTION: X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

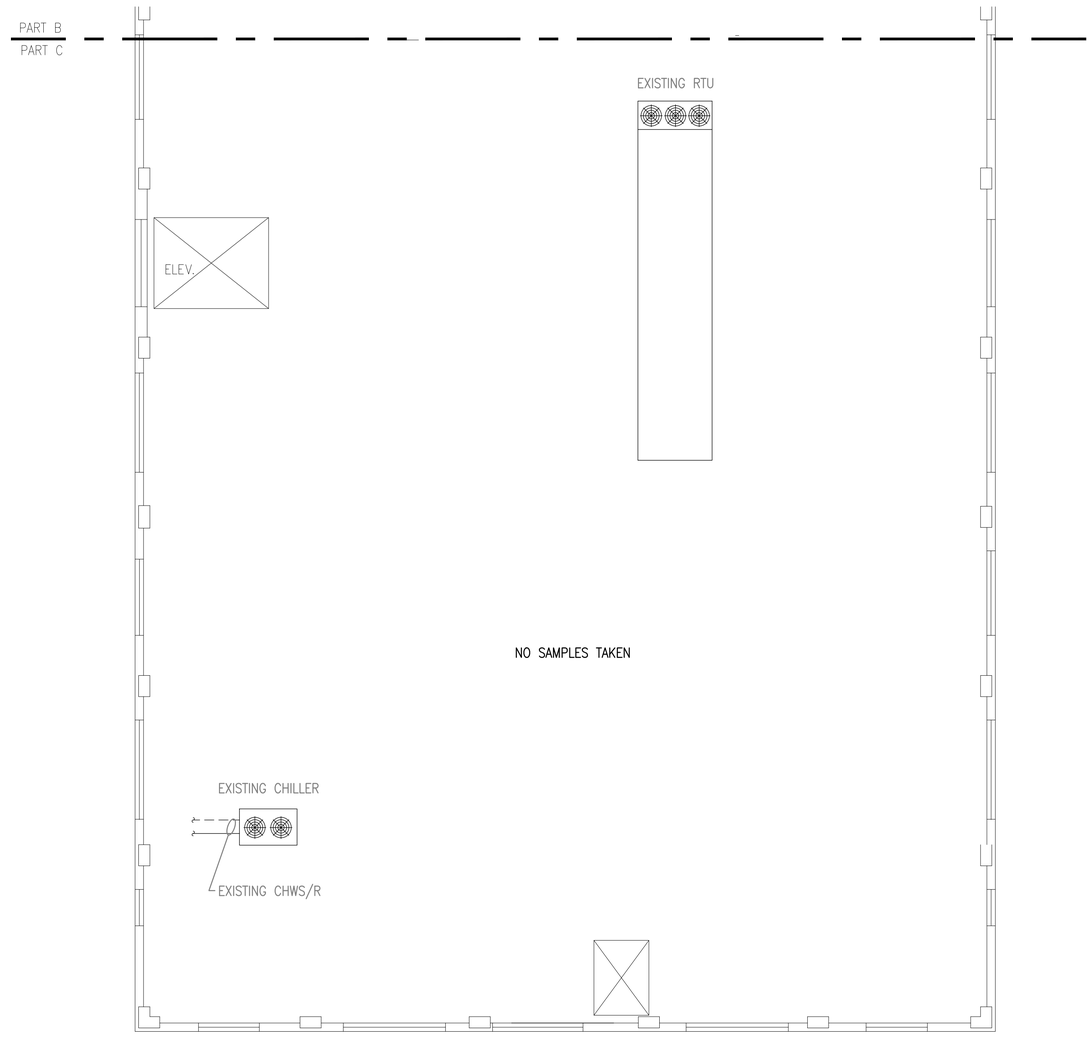
FY 16 ENERGY PROJECT
TASK 1-B-R-22

B170 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703740
SHEET 287 OF 506
H1.1 170-15-719

DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\HazMats\DWG\A1066_2_HZMT_R22.dwg LAYOUT NAME: B170-H1.1 PLOTTED: Friday, August 07, 2015 - 2:36pm USER: REP



B170 ROOF PART C HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GENERAL SHEET NOTES

1. ALL PACM (PRESUMED ASBESTOS CONTAINING MATERIAL), LBP (LEAD BASED PAINT), PCB, AND OTHER HAZARDOUS BUILDING MATERIALS MAY NOT BE IDENTIFIED IN THIS SURVEY, PARTICULARLY THOSE HIDDEN IN WALLS, CEILINGS, FLOORS, ETC. AND IN AREAS DESCRIBED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, WHICH WERE INACCESSIBLE DURING THE SURVEY. ASSESSMENT EFFORTS DID INCLUDE, TO THE EXTENT FEASIBLE, ACCESS TO INTERIOR AND EXTERIOR OF THE STRUCTURE. HOWEVER, THE ABSENCE OF ALL PACM, LBP, PCB, AND OTHER HAZARDOUS BUILDING MATERIALS IN HIDDEN OR INACCESSIBLE PORTIONS CANNOT BE DEFINITIVELY ENSURED.

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3. SEE B170 ASBESTOS, LEAD, PCB, AND TCLP INVENTORY TABLES LOCATED IN THE HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT, DATED JUNE 22, 2015, FOR ADDITIONAL INFORMATION.

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

NAVFAC

STATE OF MAINE
Bradlee Mezquita
9410
LICENSED
PROFESSIONAL ENGINEER
SEAL

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Consulting Engineers
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Portsmouth, New Hampshire
(603) 433-8818
www.tighebond.com

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES A/E	DRW REP	CHK BLM	
PM/DM	PETER STOCKLESS		
BRANCH MANAGER	BRUCE LITALIEN		
FEAD/PM&E	AMIN BAHROUR PM&E		
FIRE PROTECTION	X		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
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NAVAL SHIPYARD – PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

B170 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913

CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703741

SHEET 288 OF 506

H1.2 170-15-720

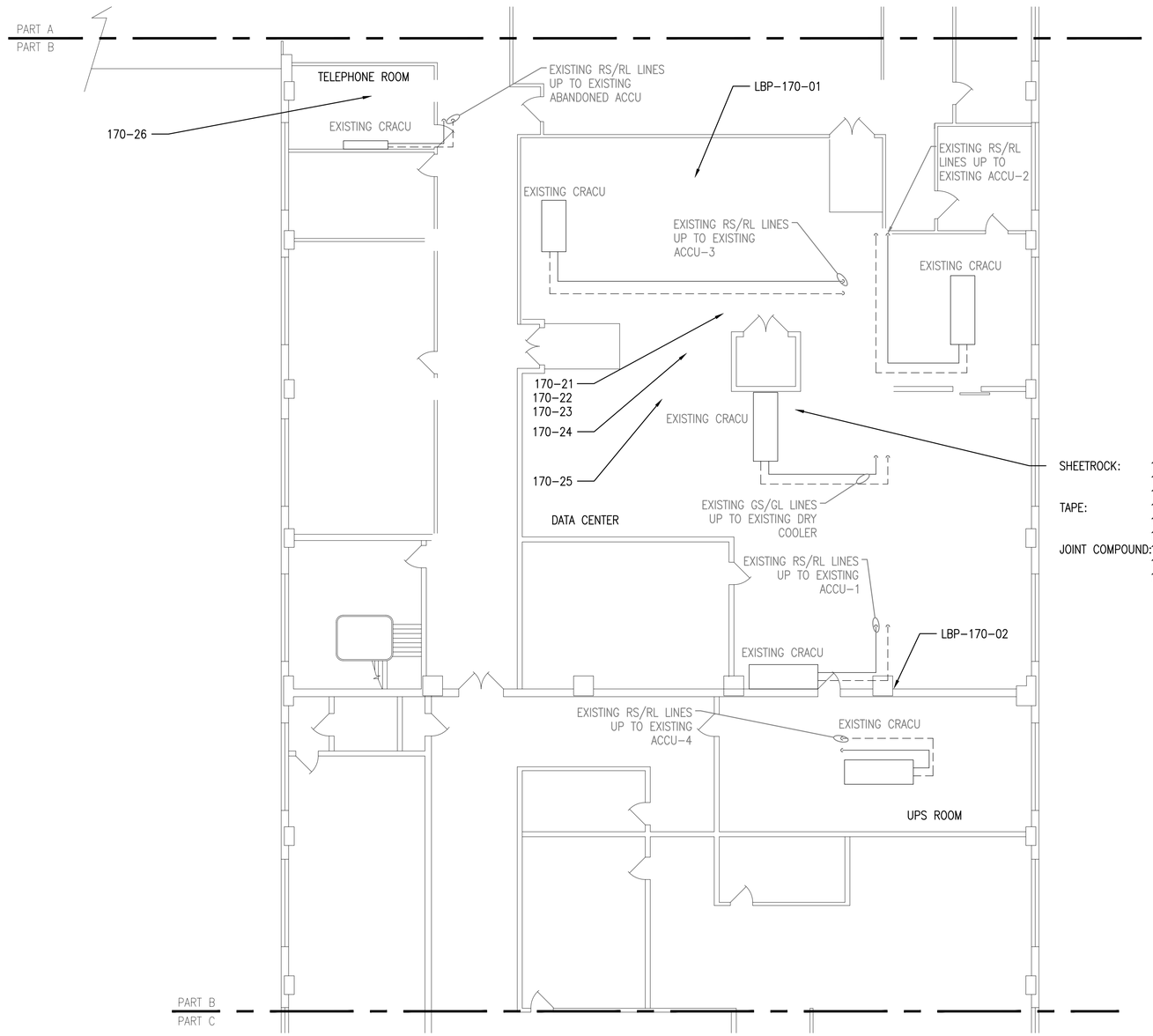
DRAWFORM REVISION: 10 OCTOBER 2014

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet

CHECK GRAPHIC SCALE BEFORE USING

FILE NAME: J:\A\A1066 AEC Subconsulting Support\HazMats\DWG\A1066_2_HZMT_R22.dwg LAYOUT NAME: B170-H1.2 PLOTTED: Friday, August 07, 2015 - 2:36pm USER: REP



SHEETROCK: 170-12, 170-13, 170-14
TAPE: 170-15, 170-16, 170-17
JOINT COMPOUND: 170-18, 170-19, 170-20

B170 6TH FLOOR HAZARDOUS MATERIAL SAMPLING PLAN

SCALE: 1/8" = 1'

PLAN NORTH

GENERAL SHEET NOTES

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HAZARDOUS MATERIAL SAMPLING SUMMARY

SAMPLE ID	ACM	LBP
170-12	ND	NS
170-13	ND	NS
170-14	ND	NS
170-15	ND	NS
170-16	ND	NS
170-17	ND	NS
170-18	ND	NS
170-19	ND	NS
170-20	ND	NS
170-21	ND	NS
170-22	ND	NS
170-23	ND	NS
170-24	ND	NS
170-25	ND	NS
170-26	ND	NS
LBP-170-01	NS	0.74 (H)
LBP-170-02	NS	0.15

ACM = ASBESTOS CONTAINING MATERIALS
LBP = LEAD BASED PAINT
<RL = LESS THAN REPORTING LIMIT
ND = NONE DETECTED
NS = NOT SAMPLED
H = EXCEEDS REGULATORY STANDARDS FOR HAZARDOUS CONCENTRATION

NOTE:
REFER TO HAZARDOUS BUILDING MATERIAL ASSESSMENT REPORT DATED JUNE 22, 2015 FOR COMPLETE SAMPLING INFORMATION AND DATA.

GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
2	100% SUBMISSION	08/07/2015	BLM
1	90% SUBMISSION	06/05/2015	BLM

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ACTIVITY
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DES A/E DRW REP CHK BLM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
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KITTERY, MAINE
PORTSMOUTH NAVAL SHIPYARD
FY 16 ENERGY PROJECT
TASK 1-B-R-22
B170 HAZARDOUS MATERIAL SAMPLING PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703742
SHEET 289 OF 506
H1.3 170-15-721
DRAWFORM REVISION: 10 OCTOBER 2014

FILE NAME: J:\A\A1066 AEC Subconsulting Support\HazMats\DWG\A1066_2_HZMT_R22.dwg LAYOUT NAME: B170-H1.3 PLOTTED: Friday, August 07, 2015 - 2:36pm USER: REP

HVAC ABBREVIATIONS

°F	DEGREES FAHRENHEIT	ID	INSIDE DIAMETER
°C	DEGREES CELSIUS	IN	INCHES
ø	DIAMETER	INSUL	INSULATION
ACV	AUTOMATIC CONTROL VALVE	KW	KILOWATT
AD	ACCESS DOOR	KVA	KILOVOLT AMPERE
ADJ	ADJUSTABLE	L	LENGTH
ADDL	ADDITIONAL	LB	POUND
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
AFG	ABOVE FINISHED GRADE	LVG	LEAVING
ALT	ALTERNATE	M	ONE THOUSAND
AP	ACCESS PANEL	MAX	MAXIMUM
ARCH	ARCHITECT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
ATC	AUTOMATIC TEMPERATURE CONTROL	MCA	MINIMUM CIRCUIT AMPS
AS	AIR SEPARATOR	MCC	MOTOR CONTROL CENTER
AVG	AVERAGE	MECH	MECHANICAL
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BFF	BELOW FINISHED FLOOR	MFR	MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BLDG	BUILDING	MTD	MOUNTED
BLR	BOILER	MU	MAKEUP WATER
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
BSMY	BASEMENT	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
C	CONVECTOR	NO.	NUMBER
CF	CEILING FAN	NOM	NOMINAL
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	OB	OCTAVE BAND
CO	CLEAN–OUT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPRESSOR	ODP	OPEN DRIP PROOF
CONC	CONCRETE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION	OFOI	OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR	OV	OUTLET VELOCITY
CORR	CORRIDOR	PCF	POUNDS PER CUBIC FOOT
CUF	CUBIC FEET	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	PH	PHASE
CYL	CYLINDER	PLMB	PLUMBING
D	DRAIN	POS	PROVIDED BY OTHER SECTION(S)
DB	DRY BULB TEMPERATURE	PRESS	PRESSURE
DDC	DIRECT DIGITAL CONTROL	PRIM	PRIMARY
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
DIM	DIMENSION	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	REP	REPRESENTATIVE
EA	EACH	RET	RETURN
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EFF	EFFICIENCY	REQS	REQUIREMENTS
ECUH	ELECTRIC CABINET UNIT HEATER	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	RM	ROOM
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EMER	EMERGENCY	SCH	SCHEDULE
ENT	ENTERING	SOV	SOLENOID OPERATED VALVE
EQUIP	EQUIPMENT	SPECS	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SQFT	SQUARE FEET
FTR	FINNED TUBE RADIATION	SS	STAINLESS STEEL
FCV	FLOW CONTROL VALVE	STD	STANDARD
FG	FIBERGLASS	STDBY	STANDBY
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	SUCT	SUCTION
FLRDR	FLOOR DRAIN	SUP	SUPPLY
FP	FIRE PROTECTION	TA	THROW–AWAY
FPM	FEET PER MINUTE	TAV	THERMOSTATIC AIR VENT
FT	FEET	TEFC	TOTALLY ENCLOSED FAN COOLED
FT/SEC	FEET PER SECOND	TEL	TELEPHONE
FURN	FURNISHED	TEMP	TEMPERATURE
FVNR	FULL VOLTAGE NON–REVERSING	TOD	TOP OF DUCT
GA	GAUGE	TOP	TOP OF PIPE
GAL	GALLONS	TYP	TYPICAL
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	V	VENT
GND	GROUND	VEL	VELOCITY
GPH	GALLONS PER HOUR	VERT	VERTICAL
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
GRD	GRADE (GROUND LEVEL)	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDTH
H	HEIGHT	W/	WITH
HD	HEAD	W/O	WITHOUT
HP	HORSEPOWER	WB	WET BULB TEMPERATURE
HR	HOUR	WF	WIDE FLANGE
HZ	HERTZ	WG	WATER GAUGE
		WRT	WITH RESPECT TO

PIPING LEGEND

- RISE (SINGLE LINE – PLAN VIEW)
- DROP (SINGLE LINE – PLAN VIEW)
- TOP TAKEOFF
- BOTTOM TAKEOFF
- PIPE BREAK (SINGLE LINE)

FLOW DIAGRAM & CONTROL DIAGRAM EQUIP. SYMBOLS

- FILTER BANK
- HEATING COIL
- COOLING COIL
- CENTRIFUGAL FAN
- PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR
- BACKDRAFT DAMPER

CALL OUT SYMBOLS

- THERMOSTAT
- CONNECT TO EXISTING
- LIMIT OF NEW WORK
- REFER TO DRAWINGS ( ) FOR CONTINUATION
- SYMBOL DESIGNATES ASSOCIATED SYSTEM OR SERVICE (ie LPS)
- DIFFUSER, GRILLE, REGISTER LETTER DESIGNATION (See Schedule for ATD type)
- SA–2 / 200 — DESIGN CFM

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS

EQUIPMENT NOT REQUIRING ELECTRIC SERVICE → TAG NO / TAG DATA DATA → SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS ← TAG NO / TAG DATA DATA ← EQUIPMENT REQUIRING ELECTRIC SERVICE

NOTE:REFER TO SCHEDULES FOR DEFINITION OF EQUIPMENT SPECIFIC DATA LISTED WITHIN TAG BLOCKS

AIR SYSTEM SPECIFIC ABBREVIATIONS

AC	AIR CONDITIONING	LVDR	LOUVERED DOOR
ACD	AUTOMATIC CONTROL DAMPER	OA	OUTSIDE AIR
ACU	AIR CONDITIONING UNIT	OAI	OUTSIDE AIR INTAKE
AF	AIR FOIL	OBD	OPPOSED BLADE DAMPER
AHU	AIR HANDLING UNIT	OED	OPEN END DUCT
ALD	ACOUSTICALLY LINED DUCTWORK	RA	RETURN AIR
ATD	AIR TERMINAL DEVICE	RF	RETURN FAN
AVS	AIR VOLUME TRAVERSE STATION	RG	RETURN GRILLE
BDD	BACKDRAFT DAMPER	RHC	REHEAT COIL
BI	BACKWARD INCLINED	RLF	RELIEF
CC	COOLING COIL	RR	RETURN REGISTER
CD	CEILING DIFFUSER	RV	ROOF VENT
CFM	CUBIC FEET PER MINUTE	SA	SUPPLY AIR
CG	CEILING GRILLE	SATT	SOUND ATTENUATOR
DIFF	DIFFUSER	SCR	SCREEN
DWDI	DOUBLE WIDTH DOUBLE INLET	SD	SMOKE DAMPER
DWSI	DOUBLE WIDTH SINGLE INLET	SDET	SMOKE DETECTOR
DX	DIRECT EXPANSION	SEF	SMOKE EXHAUST FAN
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER
ESP	EXTERNAL STATIC PRESSURE	––	WITH ACCESS DOOR
F	FAN	SG	SUPPLY GRILLE
FC	FORWARD CURVED	SM	SHEETMETAL
FA	FREE AREA	SP	STATIC PRESSURE
FCU	FAN COIL UNIT	SR	SUPPLY REGISTER
FD	FIRE DAMPER (W/ ACCESS DOOR)	SWDI	SINGLE WIDTH DOUBLE INLET
FLTR	FILTER	SWSI	SINGLE WIDTH SINGLE INLET
FPI	FINS PER INCH	TE	TOILET EXHAUST
FPT	FAN POWERED TERMINAL BOX	TF	TRANSFER FAN
GE	GENERAL EXHAUST	TG	TRANSFER GRILLE
HC	HEATING COIL	TSP	TOTAL STATIC PRESSURE
LAT	LEAVING AIR TEMPERATURE	VD	VOLUME DAMPER

HVAC SYSTEM TAGS

- RTU 1 — ROOF TOP UNIT
- ACCU 1 — AIR COOLED CONDENSING UNIT
- J 1 — JACE BOX
- CH 1 — CHILLER
- CRACU 1 — COMPUTER ROOM AC UNIT

HYDRONIC SYSTEM SPECIFIC ABBREVIATIONS

AAV	AUTOMATIC AIR VENT	EWT	ENTERING WATER TEMPERATURE
CH	CHILLER	LWT	LEAVING WATER TEMPERATURE
CHW	CHILLED WATER	MAV	MANUAL AIR VENT
CHWR	CHILLED WATER RETURN	NPSH	NET POSITIVE SUCTION HEAD
CHWS	CHILLED WATER SUPPLY		

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITIONS OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS–BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS–BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS, AS WELL AS ROUTING PATHS, IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER, AND SHOULD BE KEPT TO A MINIMUM FOR SYSTEM EFFICIENCIES.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. VERIFY ACCESS IS PROVIDED FOR SERVICING EQUIPMENT AS REQUIRED.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. ACCESS PANELS SHALL BE PROVIDED TO ALLOW FOR CLEANING OF COILS AND SERVICING OF DAMPERS, HEATERS, VALVES, AND ALL CONCEALED MECHANICAL EQUIPMENT.
12. INSTALL NEW THERMOSTATS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ENGINEER.
13. GENERAL CONTRACTOR TO PATCH ALL EFFECTED INTERIOR AND EXTERIOR EXISTING FLOOR, WALL, AND CEILING SURFACES TO MATCH EXISTING. PROVIDE ESCUTCHEON PLATES.
14. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
15. ANY AND ALL WALLS, CEILINGS AND FLOORS THAT ARE ANTICIPATED TO BE DISTURBED DURING THE DEMOLITION OR INSTALLATIONS PROCESS, AS INDICATED ON THE DRAWINGS, SHALL BE TESTED FOR HAZARDOUS MATERIALS PRIOR TO DISTURBING THE SURFACES. ROUTING OF PIPING HAS BEEN INDICATED TO DEPICT THE INTENT OF THE WORK. ACTUAL ROUTING MAY DIFFER IN THE FIELD DUE TO BUILDING CONSTRUCTION. COORDINATE TESTING OF ALL SURFACES TO BE DISTURBED, ALONG THE ACTUAL INSTALLATION ROUTE, WITH THE HAZARDOUS MATERIALS CONTRACTOR. REFER TO EXISTING HAZMAT REPORT FOR TESTING RESULTS.
16. MECHANICAL CONTRACTOR TO REMOVE ALL IDENTIFIED R–22 EQUIPMENT AND ASSOCIATED APPURTENANCES AND REPLACE IN KIND WITH A R410A OR R407C SYSTEM.
17. REFRIGERANT PIPING IS DIAGRAMMATIC, CONTRACTOR TO DETERMINE ROUTING IN FIELD AND RE–USE EXISTING PENETRATIONS. ANY EXPOSED PIPING TO BE CONCEALED IN A CHASE. CONTRACTOR RESPONSIBLE FOR ROUTING PIPE AND PERFORMING PRESSURE LOSS CALCULATIONS TO SIZE PIPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
18. SEE CIVIL DRAWINGS FOR DEMOLISHED AND NEW CONCRETE PADS.
19. THE MECHANICAL NEW WORK PLANS DO NOT SHOW ALL ACCESSORIES REQUIRED FOR A COMPLETE SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION AMONG TRADES TO DETERMINE ALL ACCESSORIES AND COMPONENTS REQUIRED TO FORM A COMPLETE AND FUNCTIONAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES AND COMPONENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AND SHALL BE RESPONSIBLE TO ENSURE THE INTEGRITY AND SAFETY OF THE SYSTEM AFTER COMPLETION. THE MECHANICAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS AND PROVIDE ALL ADDITIONAL COMPONENTS NEEDED TO ENSURE THE SYSTEM IS SAFE UPON COMPLETION OF THE PROJECT.
20. SEE PWD–ME DRAWING;
    43–15–67 FOR TITLE SHEET
    43–15–68 FOR LIST OF DRAWINGS
    43–15–69 FOR GENERAL NOTES & LEGENDS
    43–15–72 FOR CHASE AND SOFFIT DETAILS
    43–15–74 FOR STRUCTURAL NOTES AND SUPPORTS

SCHEDULE OF DRAWINGS

DWG#	DESCRIPTION
M1.0	BUILDING 170 HVAC LEGEND
MD2.0B	BUILDING 170 HVAC SIXTH FLOOR DEMOLITION PLAN PART B
MD2.1A	BUILDING 170 HVAC ROOF DEMOLITION PLAN PART A
MD2.1B	BUILDING 170 HVAC ROOF DEMOLITION PLAN PART B
MD2.1C	BUILDING 170 HVAC ROOF DEMOLITION PLAN PART C
M2.0B	BUILDING 170 HVAC SIXTH FLOOR PLAN PART B & SIXTH FLOOR PLAN PART C PARTIAL PLAN
M2.1A	BUILDING 170 HVAC ROOF PLAN PART A
M2.1B	BUILDING 170 HVAC ROOF PLAN PART B
M2.1C	BUILDING 170 HVAC ROOF PLAN PART C
M3.0	BUILDING 170 HVAC CONTROLS
M3.1	BUILDING 170 HVAC CONTROLS
M3.2	BUILDING 170 HVAC CONTROLS
M3.3	BUILDING 170 HVAC CONTROLS
M3.4	BUILDING 170 HVAC DETAILS
M4.0	BUILDING 170 HVAC SCHEDULES

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
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1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE — DAVID H. MAHONEY No. 12370 — LICENSED PROFESSIONAL ENGINEER — SEAL

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FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: JC | DRW: SV | CHK: DM

PM/DM: PETER STOCKLESS

BRANCH MANAGER: BRUCE LITALIEN

FEAD/PM&E: AMIN BAHROUR PM&E

FIRE PROTECTION: X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH — KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1–B–R–22

BUILDING 170 HVAC LEGEND

EPROJECT NO.: 1350913

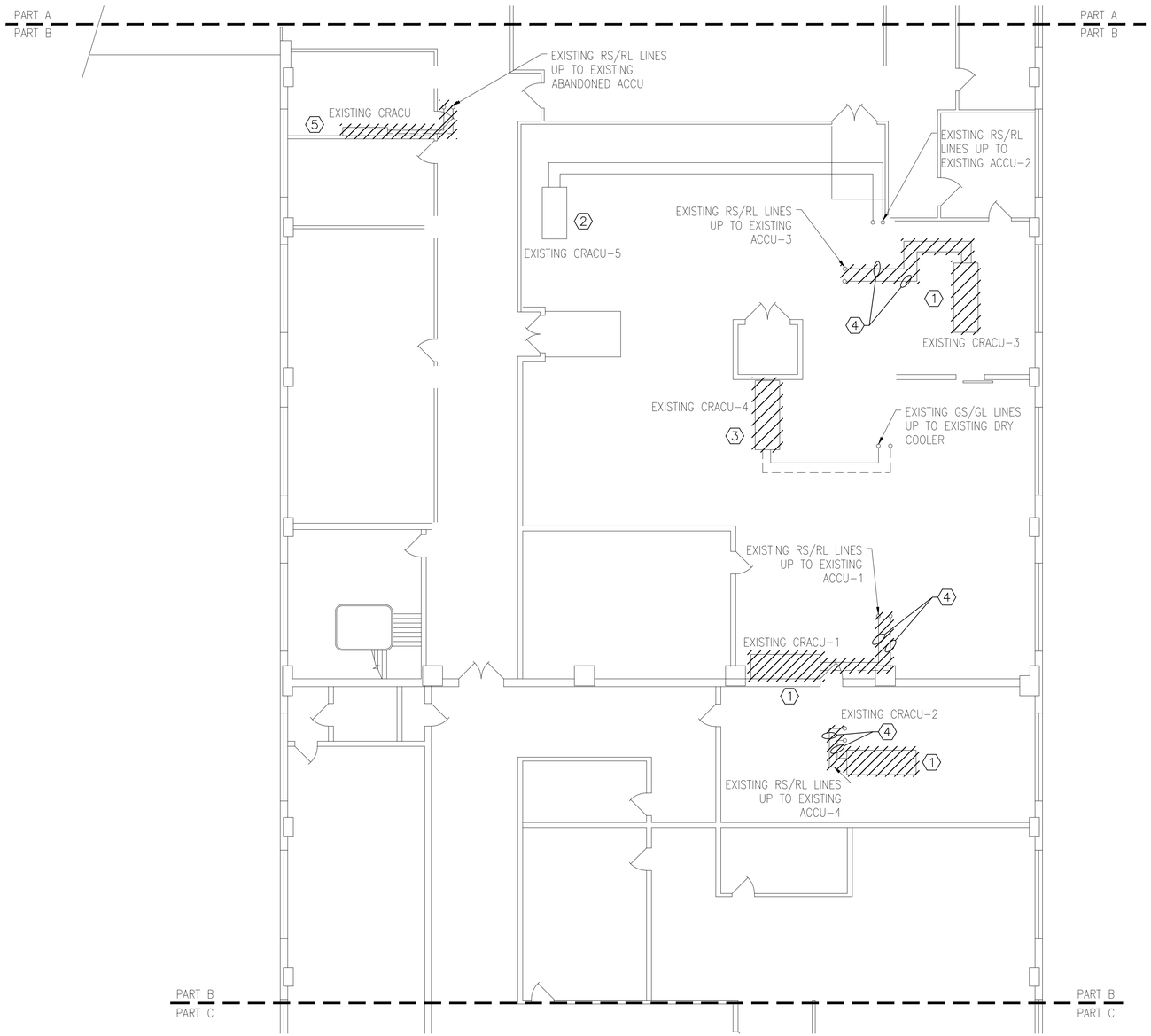
CONSTR. CONTR. NO. N40085–XX–C–XXXX

NAVFAC DRAWING NO. 12703743

SHEET 290 OF 506

M1.0 | 170-15-722

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 SIXTH FLOOR HVAC DEMOLITION PLAN PART B

1/8"=1'-0"

PLAN NORTH

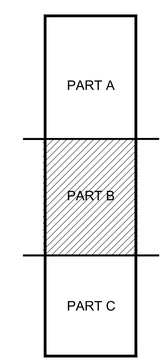
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. EXISTING CRACU-2 IS LOCATED IN HIGH SECURITY UPS ROOM WHICH DOES NOT ALLOW PENETRATIONS OR OPEN DOORS. CONTRACTOR TO DETERMINE MEANS AND METHODS FOR PROVIDING TEMPORARY COOLING DURING INSTALLATION OF NEW EQUIPMENT.
3. SHUTDOWN OF EXISTING SYSTEMS IN THE UPS ROOM REPLACEMENT SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST FIFTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD OF THE UPS ROOM SHALL BE ESTIMATED TO BE TWO WEEKS AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
4. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
5. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING CRAC UNIT AND ASSOCIATED THERMOSTAT. EXISTING CONDENSATE LINES, CONTROL WIRING, AND WATER LINES TO REMAIN AND BE DISCONNECTED.
2. EXISTING CRAC UNIT AND ASSOCIATED RS/RL LINES TO REMAIN.
3. REMOVE EXISTING CRAC UNIT AND ASSOCIATED THERMOSTAT. EXISTING GLYCOL, CONTROL WIRING, CONDENSATE, AND WATER LINES ARE TO REMAIN AND BE DISCONNECTED.
4. ACCESSIBLE EXISTING RS/RL LINES TO BE REMOVED. ANY REMAINING RS/RL CONCEALED TO BE EVACUATED, CAPPED AND ABANDONED IN PLACE.
5. REMOVE EXISTING CRACU AND ALL ASSOCIATED APPURTENANCES.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
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ACTIVITY

SATISFACTORY TO DATE

DES JC	DRW SV	CHK DM	
PM/DM	PETER STOCKLESS		
BRANCH MANAGER	BRUCE LITALIEN		
FEAD/PM&E	AMIN BAHROUR PM&E		
FIRE PROTECTION	X		

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PUBLIC WORKS DEPARTMENT - MAINE
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NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC SIXTH FLOOR DEMOLITION PLAN PART B

EPROJECT NO.: 1350913

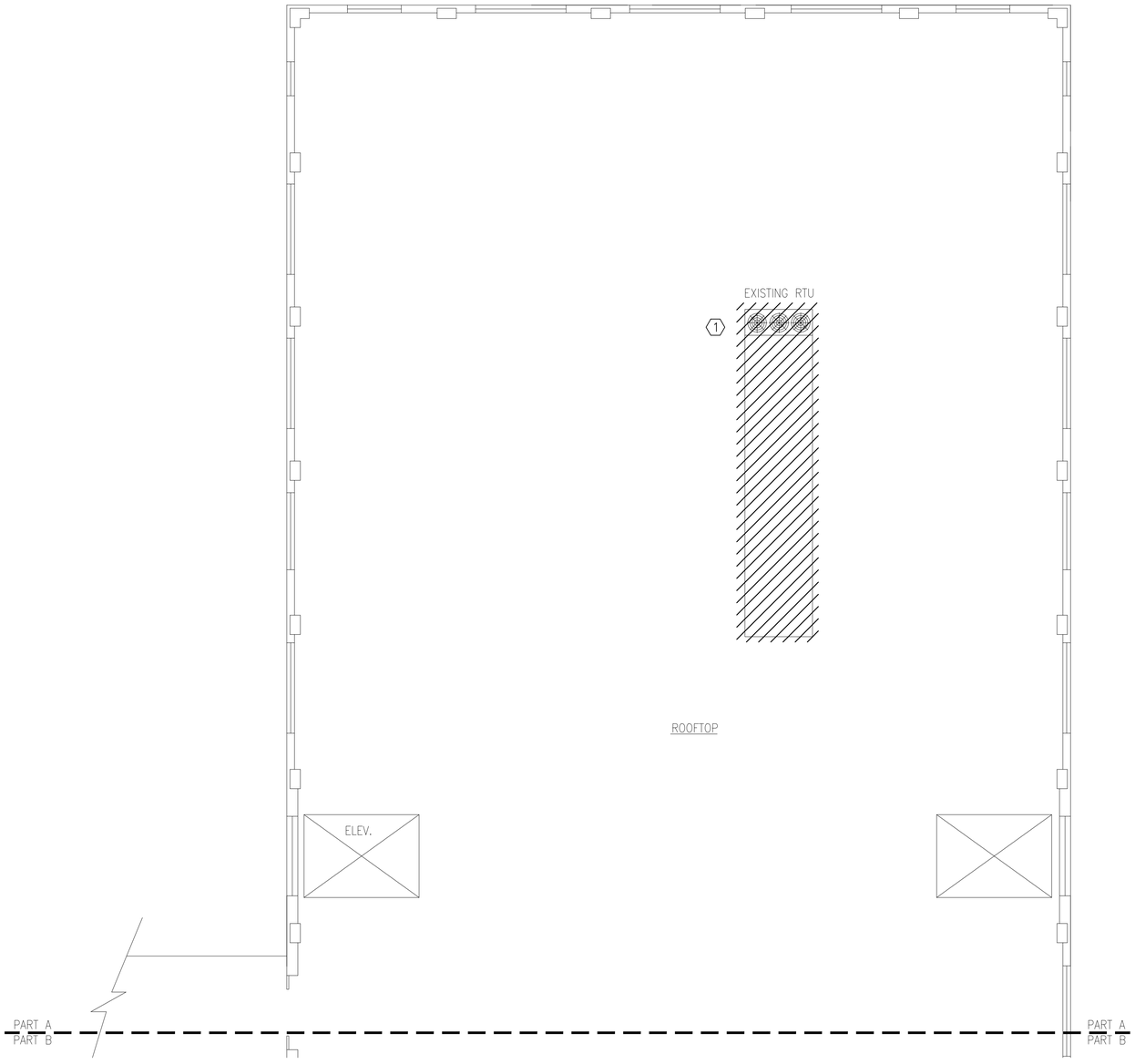
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703744

SHEET 291 OF 506

MD2.0B | 170-15-723

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC ROOF DEMOLITION PLAN PART A

1/8"=1'-0"

PLAN NORTH

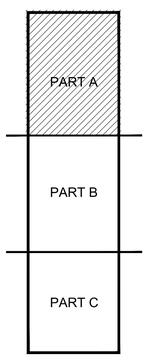
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING RTU AND ASSOCIATED THERMOSTAT. EXISTING DUCTWORK AND CONTROL WIRING TO REMAIN AND BE DISCONNECTED. LICENSED PLUMBING CONTRACTOR TO DISCONNECT GAS AND PREPARE FOR NEW EQUIPMENT.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24

scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
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0	35% SUBMISSION	02/23/2015	DM

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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
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757-825-9424

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PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

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DEPARTMENT OF THE NAVY
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PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD ~ PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC ROOF DEMOLITION PLAN PART A

EPROJECT NO.: 1350913

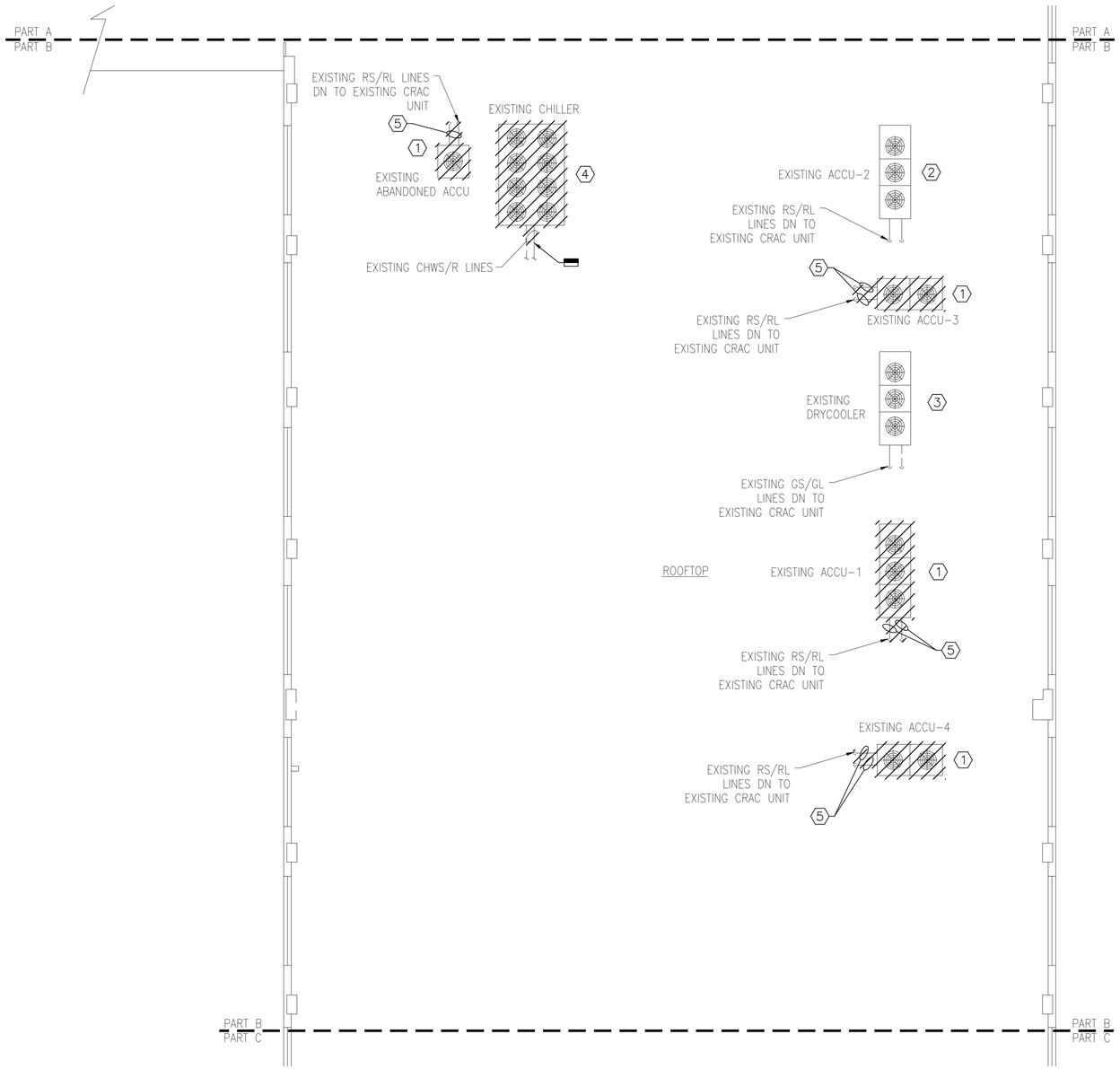
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703745

SHEET 292 OF 506

MD2.1A | 170-15-724

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC ROOF DEMOLITION PLAN PART B

1/8"=1'-0"

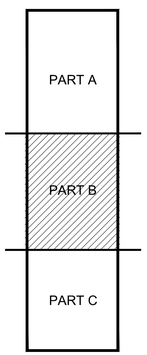
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING ACCU. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.
2. EXISTING ACCU-2 AND ASSOCIATED RS/RL LINES TO REMAIN.
3. EXISTING DRYCOOLER AND ASSOCIATED GLYCOL LINES TO REMAIN.
4. REMOVE EXISTING CHILLER AND ASSOCIATED CHWS/R LINES UP TO POINT OF DEMOLITION. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.
5. ACCESSIBLE EXISTING RS/RL LINES TO BE REMOVED. ANY REMAINING RS/RL CONCEALED TO BE EVACUATED, CAPPED AND ABANDONED IN PLACE.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
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Boston, MA 02111
781-329-2020
25 Ayer Road, Ste. 204
Harvard, MA 01451
978-772-7474
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BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

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NAVAL SHIPYARD ~ PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC ROOF DEMOLITION PLAN PART B

EPROJECT NO.: 1350913

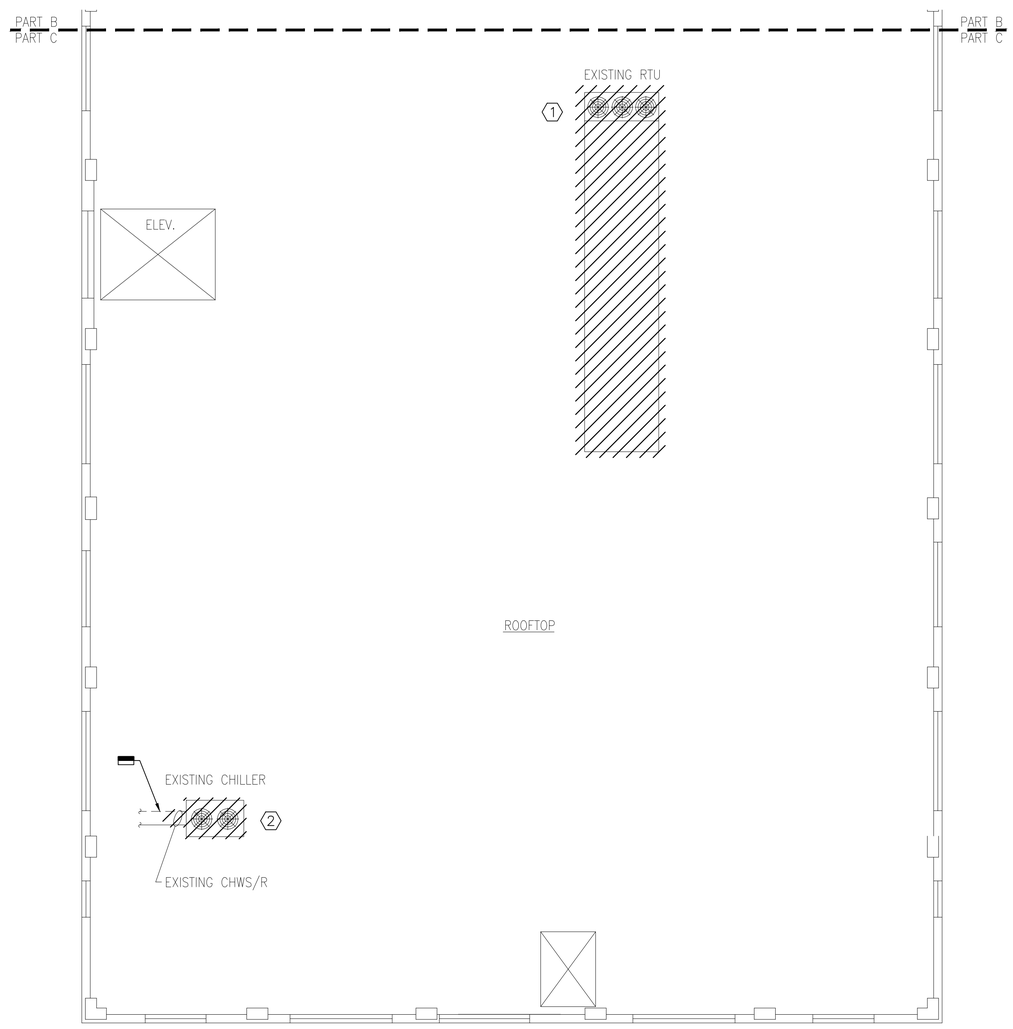
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703746

SHEET 293 OF 506

MD2.1B | 170-15-725

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC ROOF DEMOLITION PLAN PART C

1/8"=1'-0"

PLAN NORTH

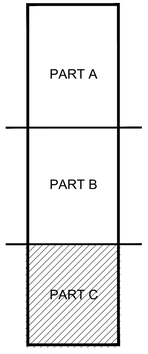
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES. .
2. CONTRACTOR RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL EQUIPMENT AND MATERIALS AT PERMITTED WASTE FACILITY.
3. CONTRACTOR TO COORDINATE R-22 DISPOSAL WITH PSNY ENVIRONMENTAL GROUP.

DEMOLITION KEYNOTES

1. REMOVE EXISTING RTU AND ASSOCIATED THERMOSTAT. EXISTING DUCTWORK AND CONTROL WIRING TO REMAIN AND BE DISCONNECTED. LICENSED PLUMBING CONTRACTOR TO DISCONNECT GAS AND PREPARE FOR NEW EQUIPMENT.
2. REMOVE EXISTING CHILLER AND ASSOCIATED CHWS/R PIPES UP TO POINT OF DEMOLITION AS INDICATED ON THE DRAWING. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
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STATE OF NEW HAMPSHIRE
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No. 12370
LICENSED
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HAMPTON, VA 23666
757-723-7424
N/E INFO

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ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

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NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT - MAINE
PORTSMOUTH NAVAL SHIPYARD

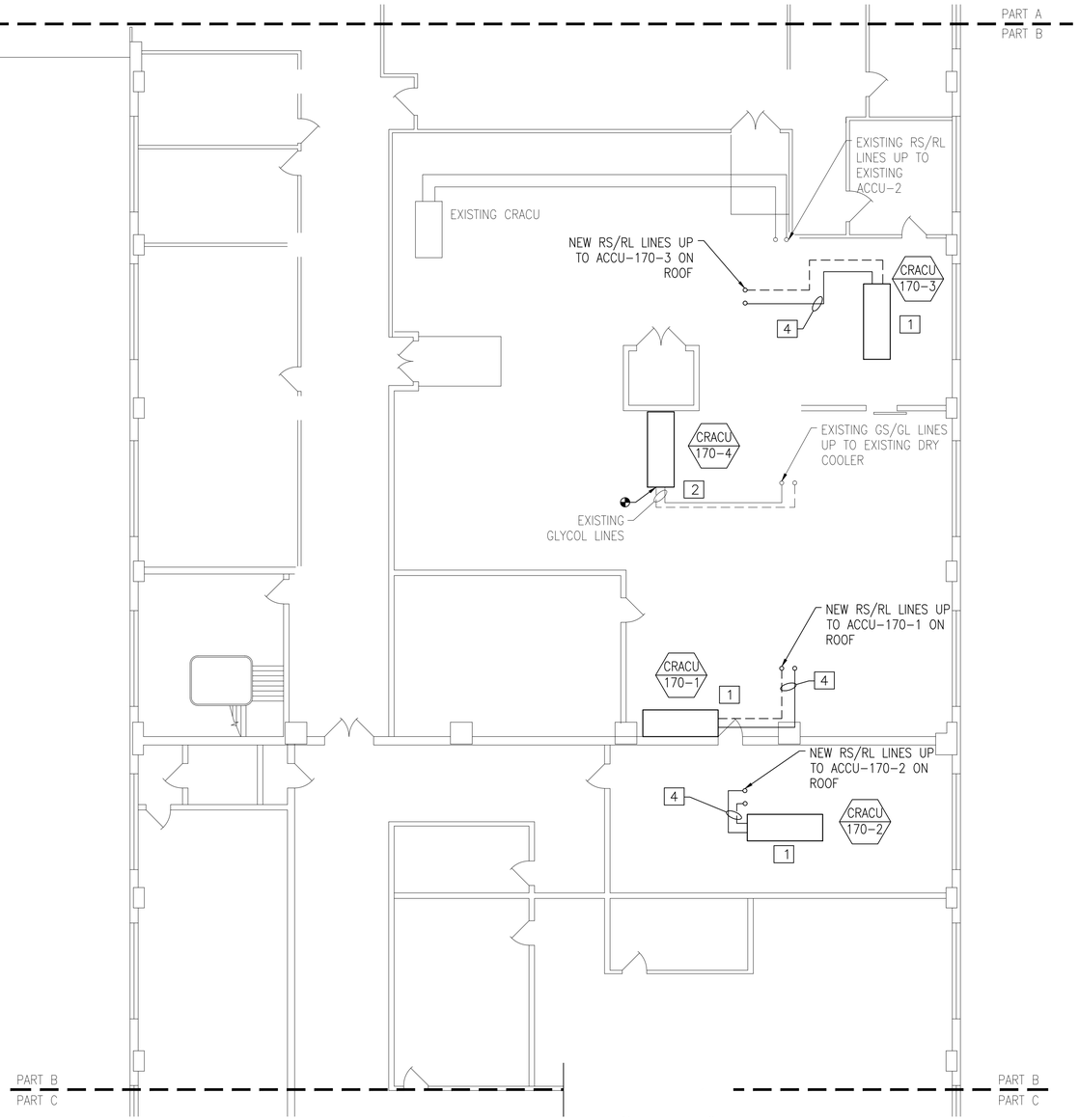
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD - PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC ROOF DEMOLITION PLAN PART C

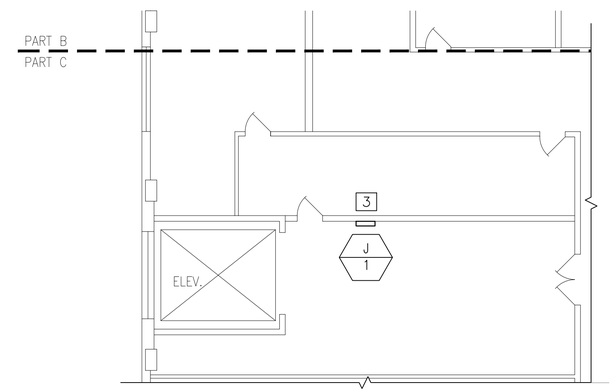
EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703747
SHEET 294 OF 506
MD2.1C | 170-15-726

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC SIXTH FLOOR PLAN PART B
1/8"=1'-0"

PLAN NORTH



BUILDING 170 HVAC SIXTH FLOOR PART C PARTIAL PLAN
1/8"=1'-0"

PLAN NORTH

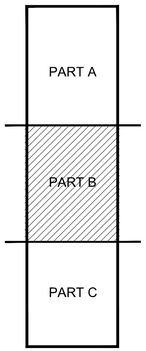
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW CRACU AND ASSOCIATED RS/RL LINES. REFER TO CRAC REFRIGERANT PIPING SMALL COMPONENT SCHEMATIC ON SHEET M3.4. NEW CRACU TO BE CONNECTED TO ASSOCIATED NEW ACCU. EXISTING CONDENSATE LINES, CONTROL WIRING, AND WATER LINES TO BE RECONNECTED. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.
2. FURNISH AND INSTALL NEW CRACU AND RECONNECT TO EXISTING GLYCOL LINES AND DRYCOOLER. REFER TO CRAC GLYCOL PIPING SMALL COMPONENT SCHEMATIC ON SHEET M3.4. EXISTING CONDENSATE LINES, CONTROL WIRING, AND WATER LINES TO BE RECONNECTED. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.
3. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF NEW DDC JACE BOX WITH NAVFAC.
4. SEE HVAC GENERAL NOTE 17 ON SHEET M1.0 FOR PIPING INFORMATION.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
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STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
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919 BANCROFT BLVD, STE 304
CHARLESTON, SC 29407
(843) 571-9214

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES: JC DRW: SV CHK: DM
PM/DM: PETER STOCKLESS
BRANCH MANAGER: BRUCE LITALIEN
FEAD/PM&E: AMIN BAHROUR PM&E
FIRE PROTECTION: X

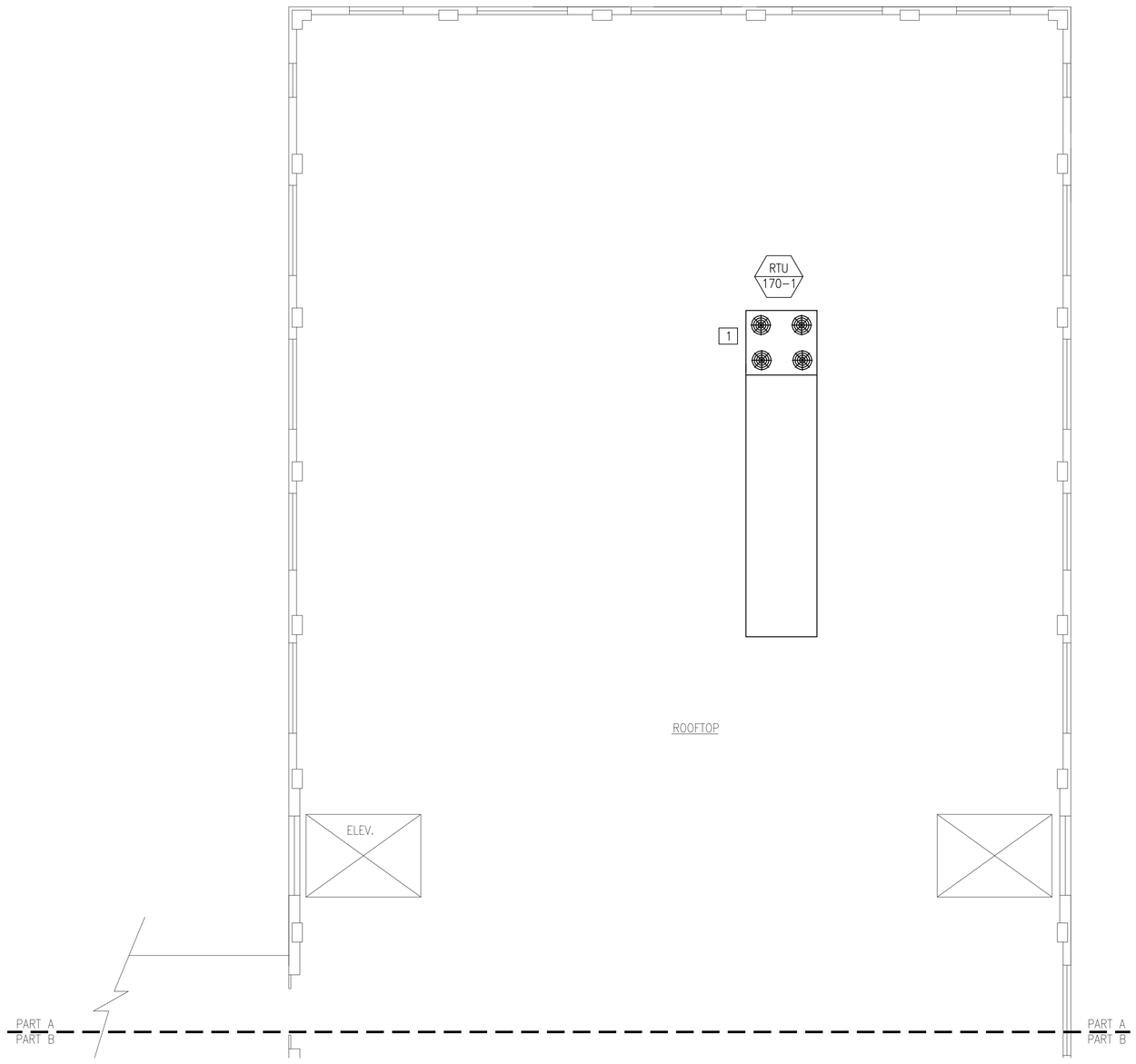
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC SIXTH FLOOR PLAN PART B
& SIXTH FLOOR PLAN PART C PARTIAL PLAN

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703748
SHEET 295 OF 506
M2.0B 170-15-727

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC ROOF PLAN PART A

1/8"=1'-0"

PLAN NORTH

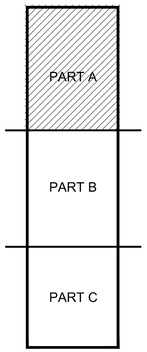
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW RTU. EXISTING DUCTWORK AND CONTROL WIRING TO BE RECONNECTED. PROVIDE WITH NEW DUCTWORK WHERE NECESSARY TO CONNECT TO NEW EQUIPMENT. LICENSED PLUMBING CONTRACTOR TO RECONNECT EXISTING GAS. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24

scale feet

CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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PLUMBING

MECH

CSI ENGINEERING

FIRE PROTECTION

999 BOSCAWEN DRIVE, 204
MANCHESTER, NH 03102
781-323-8835

23 AVIATION AVE, STE 3304
PORTSMOUTH, NH 03801
603-317-9214

X INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES. JC | DRW. SV | CHK. DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC ROOF PLAN PART A

EPROJECT NO.: 1350913

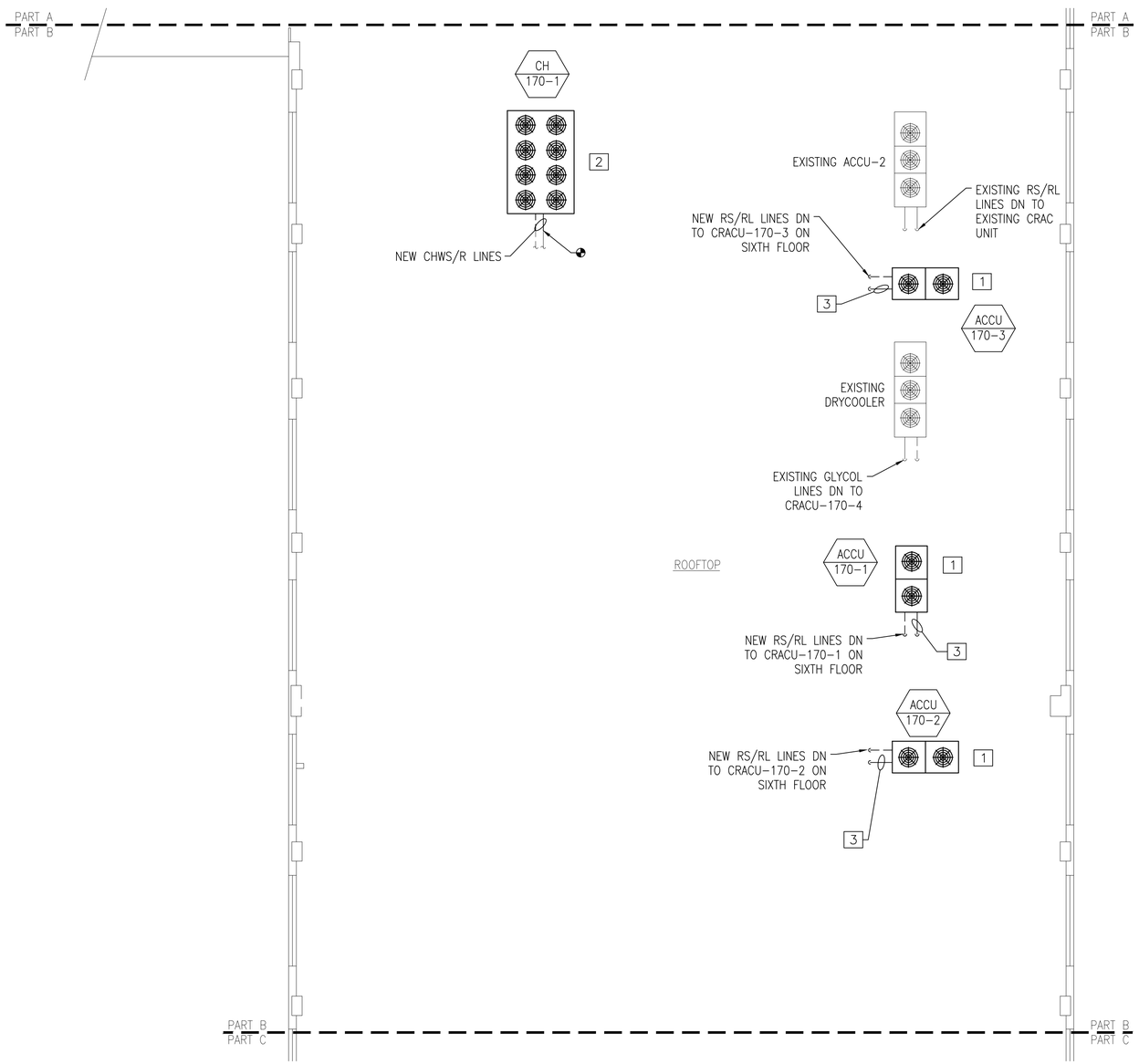
CONSTR. CONTR. NO.
N40085-XX-C-XXXX

NAVFAC DRAWING NO.
12703749

SHEET 296 OF 506

M2.1A | 170-15-728

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC ROOF PLAN PART B

1/8"=1'-0"

PLAN NORTH

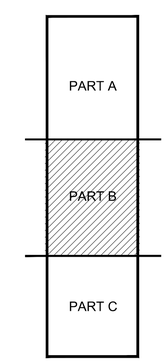
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW ACCU AND IT'S ASSOCIATED RS/RL LINES. NEW ACCU TO BE CONNECTED TO NEW ASSOCIATED CRAC UNIT. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.
2. FURNISH AND INSTALL NEW CHILLER AND CONNECT CHWS/R PIPING TO EXISTING SYSTEM. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.
3. SEE HVAC GENERAL NOTE 17 ON SHEET M1.0 FOR PIPING INFORMATION.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER
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ENGINEER
CSI
CONSULTING SERVICES, INC.
FIRE PROTECTION
919 BRICKYARD WAY, STE 204
SAN JOSE, CA 95123-1000
TEL: 213-8025
25 AVIATION AVE, STE 320
PORTSMOUTH, NH 03801
603-319-2414
N. INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

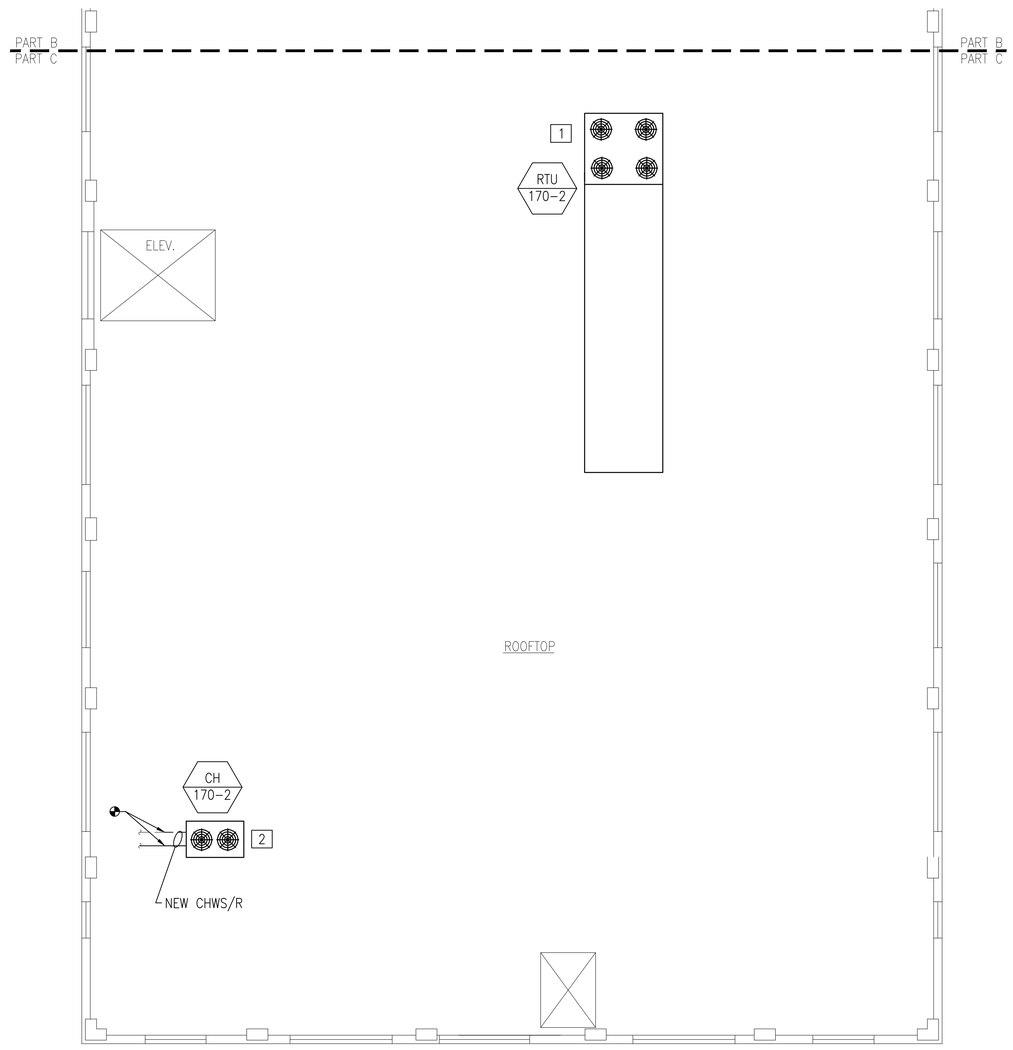
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC ROOF PLAN PART B

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703750
SHEET 297 OF 506
M2.1B | 170-15-729

DRAWFORM REVISION: 10 OCTOBER 2014



BUILDING 170 HVAC ROOF PLAN PART C
1/8"=1'-0"

PLAN NORTH

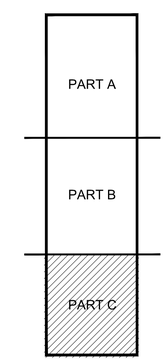
GENERAL SHEET NOTES

1. REFER TO DRAWING M1.0 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

NEW WORK KEYNOTES

1. FURNISH AND INSTALL NEW RTU. EXISTING DUCTWORK AND CONTROL WIRING TO BE RECONNECTED. PROVIDE WITH NEW DUCTWORK WHERE NECESSARY TO CONNECT TO NEW EQUIPMENT. LICENSED PLUMBING CONTRACTOR TO RECONNECT EXISTING GAS. PROVIDE WITH NEW DDC COMPATIBLE THERMOSTAT AND CONNECT TO EXISTING CONTROL WIRING, FIELD COORDINATE EXACT LOCATION WITH NAVFAC.
2. FURNISH AND INSTALL NEW CHILLER AND CONNECT CHWS/R PIPING TO EXISTING SYSTEM. SEE STRUCTURAL DRAWINGS FOR ANY ROOF CURB MODIFICATIONS.

KEY PLAN



GRAPHIC SCALE

1/8" = 1' 8 4 0 8 16 24
scale feet
CHECK GRAPHIC SCALE BEFORE USING

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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PLUMBING
MECH
CSI TECHNICAL
FIRE PROTECTION
999 BROADWAY SUITE 206
SAN DIEGO, CA 92101
619-232-9515
215 AVENTI AVE, STE 304
LAS VEGAS, NV 89123
702-310-9414
A/E INFO

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC | DRW SV | CHK DM
PM/DM PETER STOCKLESS
BRANCH MANAGER BRUCE LITALIEN
FEAD/PM&E AMIN BAHROUR PM&E
FIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC ROOF PLAN PART C

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703751
SHEET 298 OF 506
M2.1C | 170-15-730

DRAWFORM REVISION: 10 OCTOBER 2014

VAV AIR HANDLING UNIT

POINT	AI	DI	DO	AO	STATUS POINT	CONTROL POINT	ALARM POINT
DISCHARGE AIR TEMPERATURE	1				1		1
DISCHARGE AIR TEMPERATURE SET POINT						1	
RETURN AIR TEMPERATURE	1				1		1
MIXED AIR TEMPERATURE	1				1		1
DUCT STATIC PRESSURE	1					1	1
DUCT STATIC PRESSURE SET POINT						1	
SUPPLY FAN START/STOP			1			1	
SUPPLY FAN STATUS		1			1		1
SUPPLY FAN VFD SPEED CONTROL SIGNAL				1		1	
SUPPLY FAN VFD FEEDBACK IN AMPS	1				1		
SUPPLY FAN VFD FAULT		1			1		1
RETURN FAN START/STOP			1			1	
RETURN FAN STATUS		1			1		1
RETURN FAN VFD SPEED CONTROL SIGNAL						1	
RETURN FAN VFD FEEDBACK IN AMPS	1				1		
RETURN FAN VFD FAULT		1			1		1
COOLING STAGE #1 START/STOP			1			1	
COOLING STAGE #2 START/STOP			1			1	
COOLING STAGE #1 STATUS		1			1		1
COOLING STAGE #2 STATUS		1			1		1
CHILLED WATER CONTROL VALVE				1		1	
CHILLED WATER CONTROL VALVE POSITION					1		1
HEATING CONTROL VALVE				1		1	
HEATING CONTROL VALVE POSITION					1		1
MIXED AIR DAMPERS (ECONOMIZER)				1		1	
MIXED AIR DAMPER POSITION					1		1
FREEZESTAT		1			1		1
DUCT SMOKE DETECTOR		1			1		1
DIRTY FILTER SWITCH		1			1		1
HIGH STATIC PRESSURE SWITCH		1			1		1
*** ONLY APPLICABLE IF AHU HAS CHILLED WATER	6	10	4	5	18	12	17

VAV RTU

POINT	AI	DI	DO	AO	STATUS POINT	CONTROL POINT	ALARM POINT
DISCHARGE AIR TEMPERATURE	1				1		1
DISCHARGE AIR TEMPERATURE SET POINT						1	
RETURN AIR TEMPERATURE	1				1		1
MIXED AIR TEMPERATURE	1				1		1
DUCT STATIC PRESSURE	1					1	1
DUCT STATIC PRESSURE SET POINT						1	
SUPPLY FAN START/STOP			1			1	
SUPPLY FAN STATUS		1			1		1
SUPPLY FAN VFD SPEED CONTROL SIGNAL				1		1	
SUPPLY FAN VFD FEEDBACK IN AMPS	1				1		
SUPPLY FAN VFD FAULT		1			1		1
RETURN FAN START/STOP			1			1	
RETURN FAN STATUS		1			1		1
RETURN FAN VFD SPEED CONTROL SIGNAL				1		1	
RETURN FAN VFD FEEDBACK IN AMPS	1				1		
RETURN FAN VFD FAULT		1			1		1
COOLING STAGE #1 START/STOP			1			1	
COOLING STAGE #2 START/STOP			1			1	
COOLING STAGE #1 STATUS		1			1		1
COOLING STAGE #2 STATUS		1			1		1
HEATING CONTROL VALVE				1		1	
HEATING CONTROL VALVE POSITION					1		1
MIXED AIR DAMPERS (ECONOMIZER)				1		1	
MIXED AIR DAMPER POSITION					1		1
FREEZESTAT		1			1		1
DUCT SMOKE DETECTOR		1			1		1
DIRTY FILTER SWITCH		1			1		1
HIGH STATIC PRESSURE SWITCH		1			1		1
*** ONLY APPLICABLE IF AHU HAS CHILLED WATER	6	10	4	4	17	11	16

VARIABLE AIR VOLUME BOX

POINT	AI	DI	DO	AO	STATUS POINT	CONTROL POINT	ALARM POINT
SPACE TEMPERATURE	1				1		1
SPACE TEMPERATURE SET POINT						1	
DISCHARGE AIR TEMPERATURE	1				1		1
AIRFLOW QUANTITY (CFM)					1		
VAV MIN/MAX AIRFLOW SETPOINT (ADJUSTABLE)						1	
VAV DAMPER CONTROL				1			
VAV DAMPER POSITION					1		1
VAV REHEAT COIL CONTROL VALVE CONTROL				1		1	
VAV REHEAT COIL CONTROL VALVE POSITION					1		1
ONLY APPLICABLE IF UNIT IS EQUIPPED WITH A REHEAT COIL	2	0	0	2	5	3	5

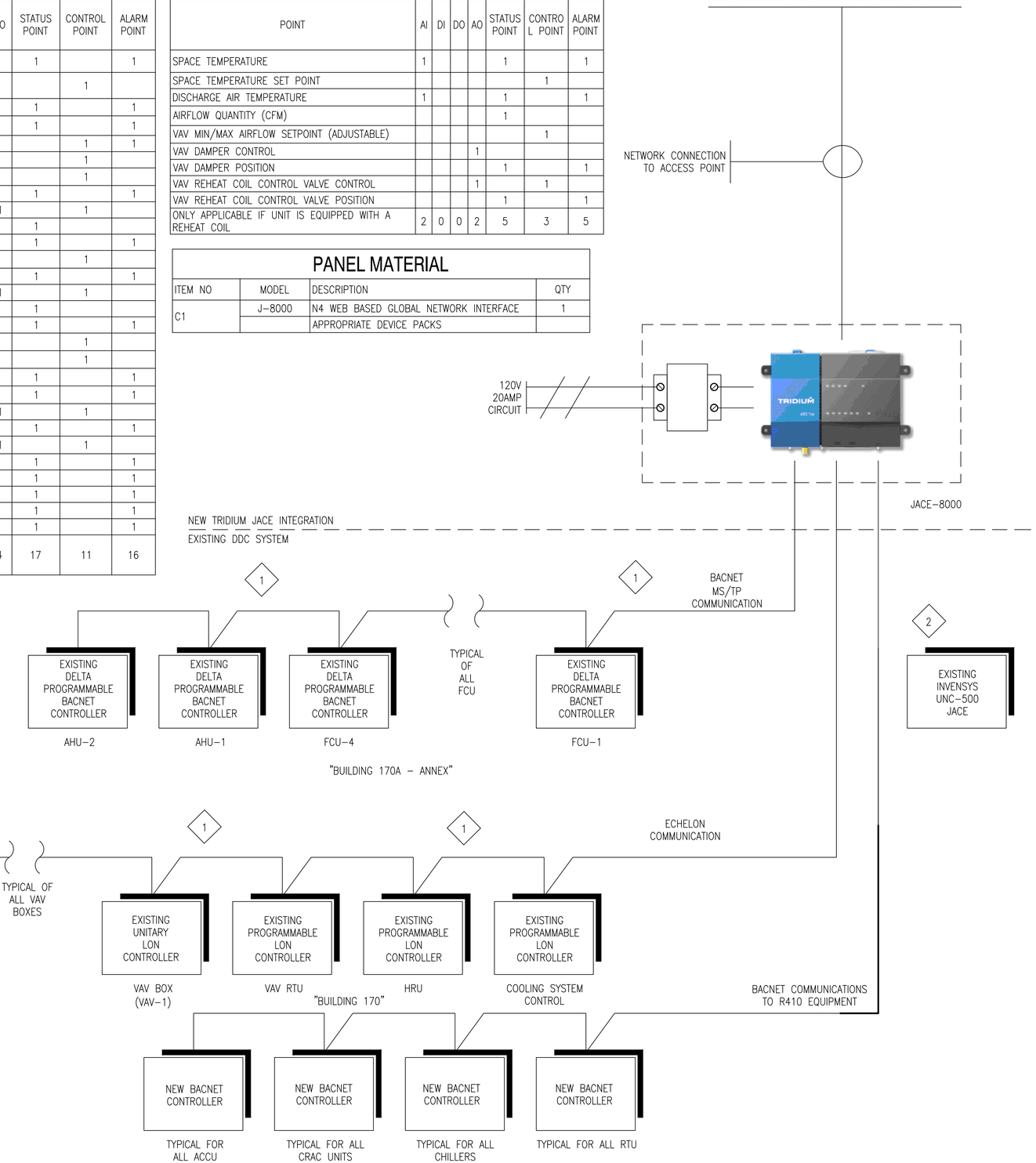
PANEL MATERIAL

ITEM NO	MODEL	DESCRIPTION	QTY
C1	J-8000	N4 WEB BASED GLOBAL NETWORK INTERFACE	1
		APPROPRIATE DEVICE PACKS	

UNIT HEATER

POINT	AI	DI	DO	AO	STATUS POINT	CONTROL POINT	ALARM POINT
SPACE TEMPERATURE	1				1		1
SPACE TEMPERATURE SET POINT						1	
SUPPLY FAN START/STOP			1			1	
SUPPLY FAN STATUS		1			1		1
VALVE OPEN/CLOSED			1		1	1	1
VALVE POSITION					1		1
	1	1	2	0	4	3	4

PORTSMOUTH NAVAL SHIPYARD (BUILDING 170_STORAGE OFFICES)
EXISTING INTEGRATED DDC SYSTEM ARCHITECTURE



1 IT IS CRITICAL THAT THE COMMUNICATION BUS IS WIRED IN A CONTINUOUS DAISY CHAIN FASHION.

2 REPLACE EXISTING R2 JACE WITH NEW JACE

SYM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE DAVID H. MAHONEY No. 12370 LICENSED PROFESSIONAL ENGINEER SEAL

PROJECT MANAGER: CSI ENGINEERING, 999 Bellevue Drive, Ste 204, Fairbanks, AK 99709, 907-452-2688, 813 Avenida Ave, Ste 204, San Clemente, CA 92672, 949-361-3200

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES JC DRW SV CHK DM

PM/DM PETER STOCKLESS

BRANCH MANAGER BRUCE LITALIEN

FEAD/PM&E AMIN BAHROUR PM&E

EIRE PROTECTION X

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
PUBLIC WORKS DEPARTMENT - MAINE NAVAL SHIPYARD - PORTSMOUTH, NH
PORTSMOUTH NAVAL SHIPYARD KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22-DDL

BUILDING 170 HVAC CONTROLS

EPROJECT NO.: 1350913

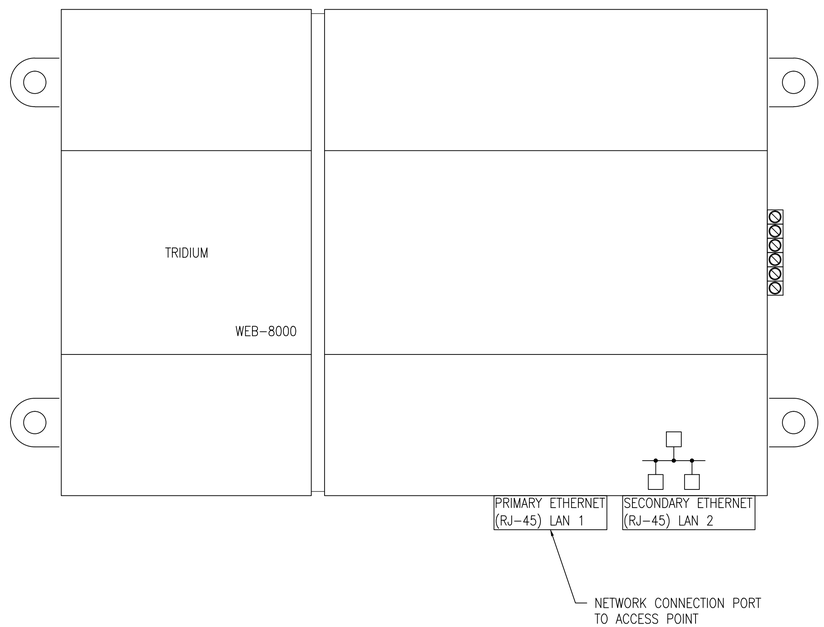
CONSTR. CONTR. NO. N40085-XX-C-XXXX

NAVFAC DRAWING NO. 12703752

SHEET 299 OF 506

M3.0 | 170-15-731

DRAWFORM REVISION: 10 OCTOBER 2014



ETHERNET CONNECTION TO RF ACCESS POINT

STM	DESCRIPTION	DATE	APPR
4	100% SUBMISSION	08/07/2015	DM
3	100% REVIEW SUBMISSION	07/24/2015	DM
2	90% SUBMISSION	06/04/2015	DM
1	80% SUBMISSION	04/24/2015	DM
0	35% SUBMISSION	02/23/2015	DM

NAVFAC

STATE OF NEW HAMPSHIRE
DAVID H. MAHONEY
No. 12370
LICENSED
PROFESSIONAL ENGINEER
SEAL

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ENGINEER
CSI ENGINEERING
FIRE PROTECTION
999 Bedford Street, 7th Floor
Stamford, CT 06905
781-323-2655
25 Ayer Road, Ste 2324
Harvard, MA 01451
978-772-7700

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE

DES JC	DRW SV	CHK DM	
PM/DM	PETER STOCKLESS		
BRANCH MANAGER	BRUCE LITALIEN		
FEAD/PM&E	AMIN BAHROUR PM&E		
FIRE PROTECTION	X		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
PUBLIC WORKS DEPARTMENT – MAINE
PORTSMOUTH NAVAL SHIPYARD

NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
NAVAL SHIPYARD – PORTSMOUTH, NH
KITTERY, MAINE

FY 16 ENERGY PROJECT
TASK 1-B-R-22

BUILDING 170 HVAC CONTROLS

EPROJECT NO.: 1350913
CONSTR. CONTR. NO. N40085-XX-C-XXXX
NAVFAC DRAWING NO. 12703753
SHEET 300 OF 506
M3.1 | 170-15-732

DRAWFORM REVISION: 10 OCTOBER 2014