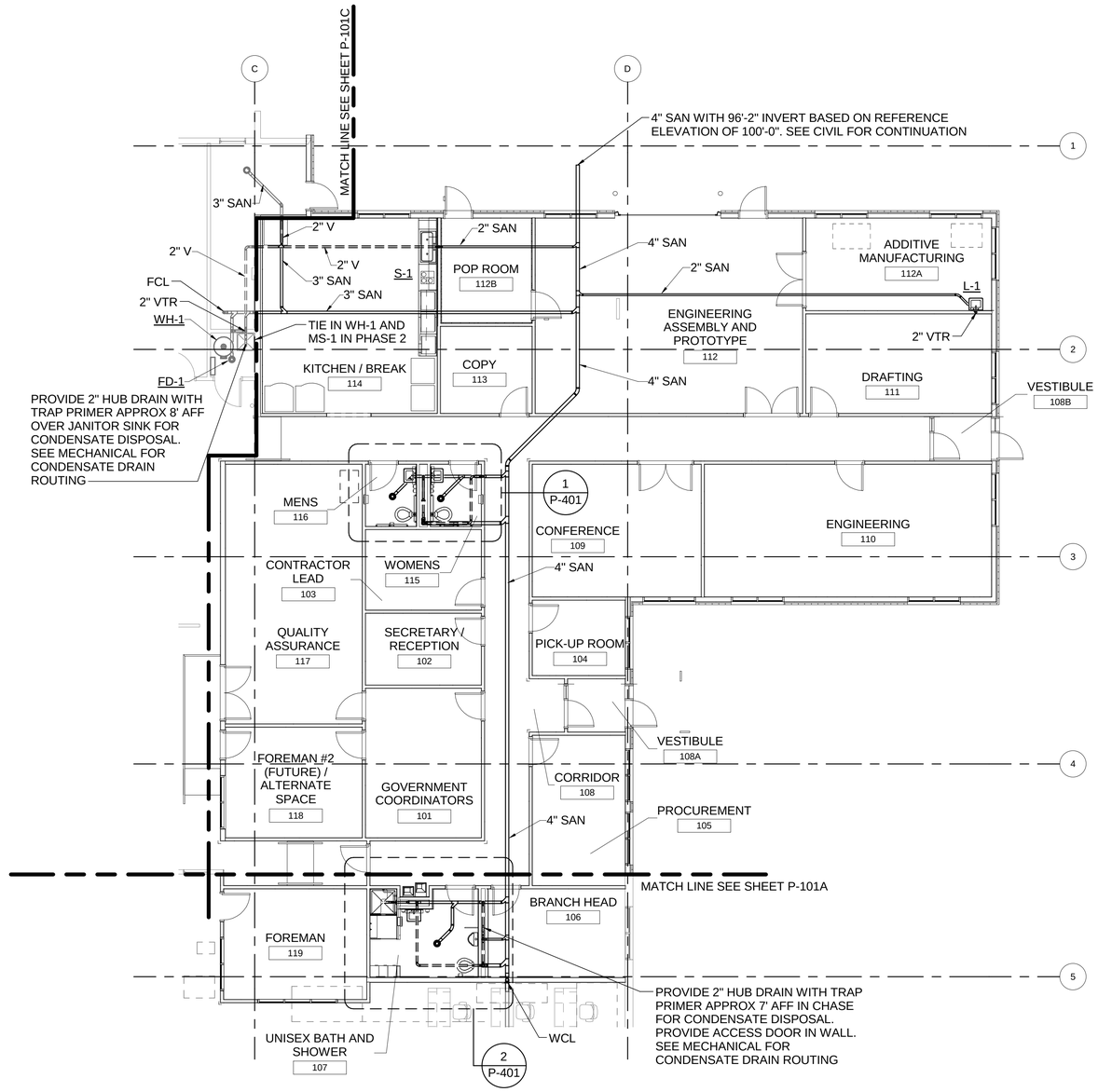
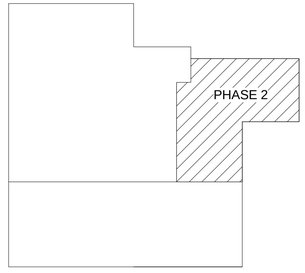


SANITARY FLOOR PLAN - PHASE 2

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

SANITARY FLOOR PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078408
SHEET 124 OF 180

P-101B

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_P_Cent_Andrew Boehm 6697.rvt
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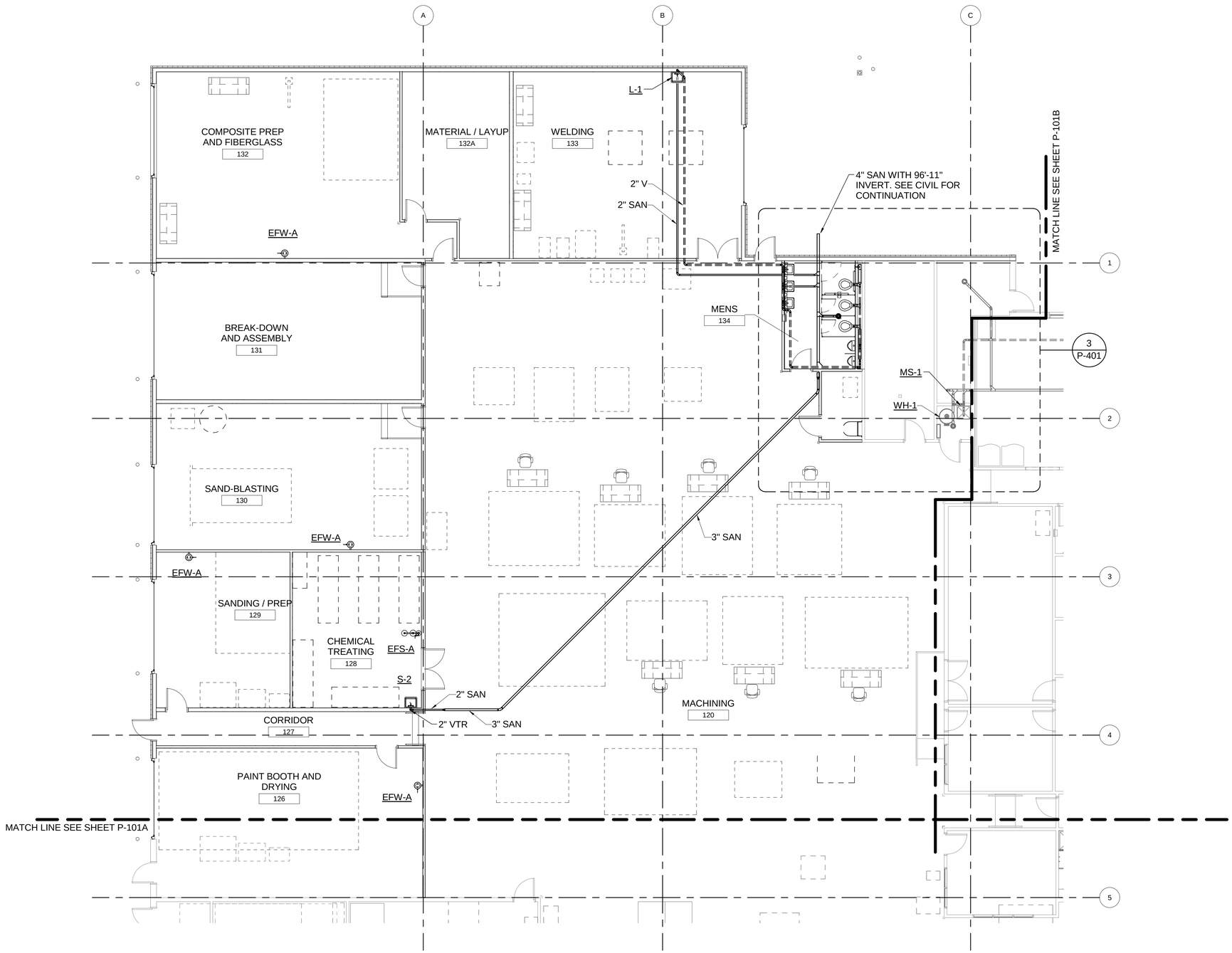
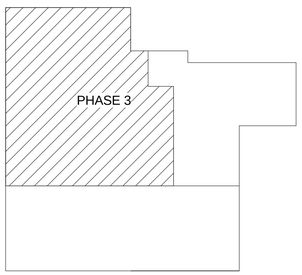


PLAN NORTH

SANITARY FLOOR PLAN - PHASE 3

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

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JOINT VENTURE

A/E INFO

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FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES. AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

SANITARY FLOOR PLAN - PHASE 3

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078409
SHEET 125 OF 180

P-101C

DRAWFORM REVISION: 10 MAY 2014

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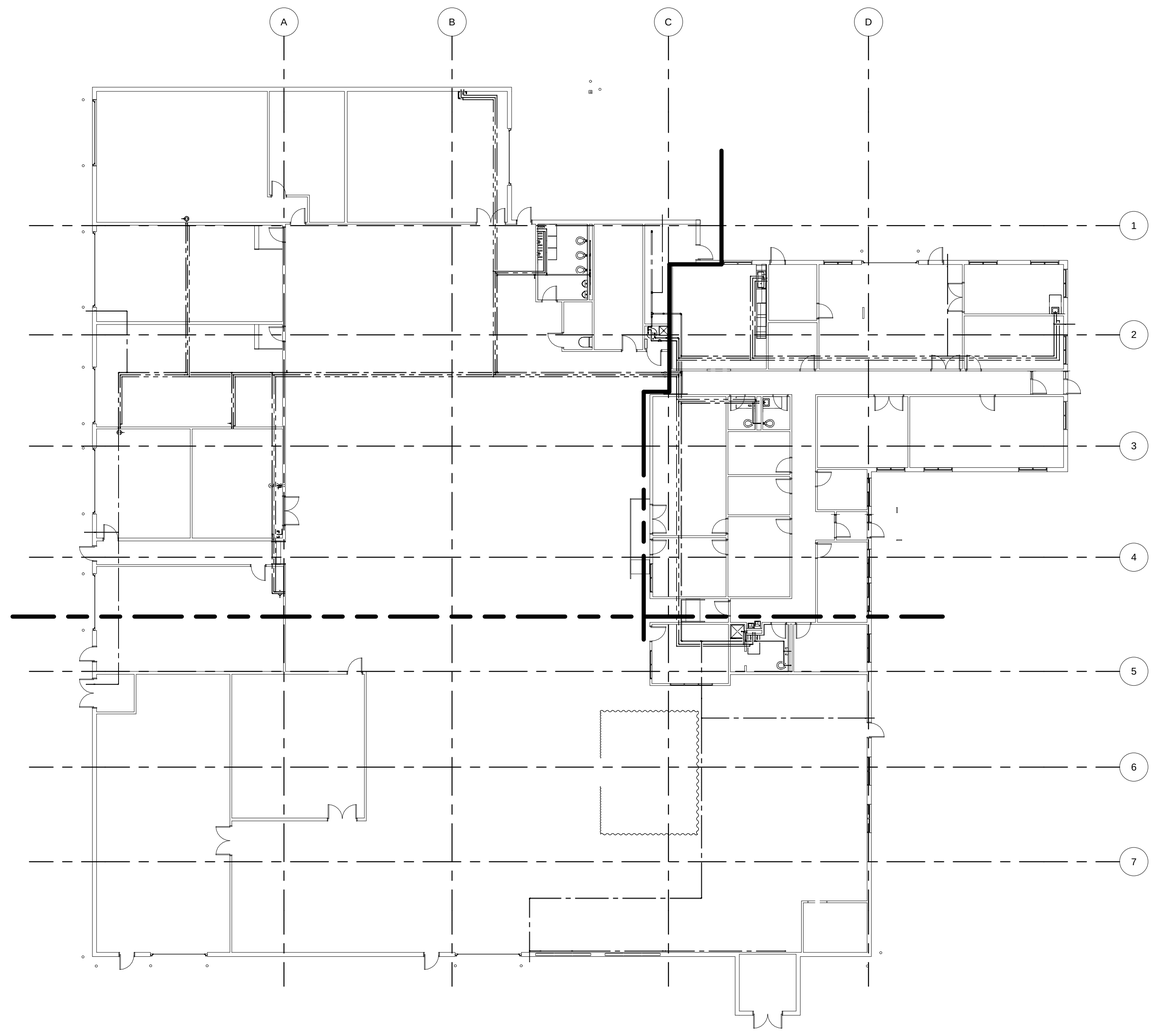
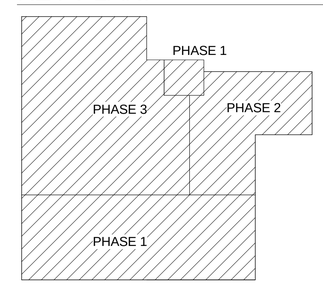


PLAN NORTH

OVERALL DOMESTIC WATER FLOOR PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0"

0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
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JOINT VENTURE

A/E INFO

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ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

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ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

OVERALL DOMESTIC WATER FLOOR PLAN

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078410

SHEET 126 OF 180

P-200

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_P_Cent_Andrew Boehm 6697.rvt

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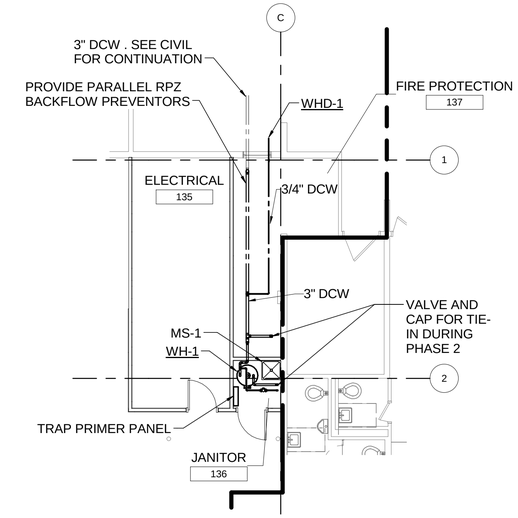
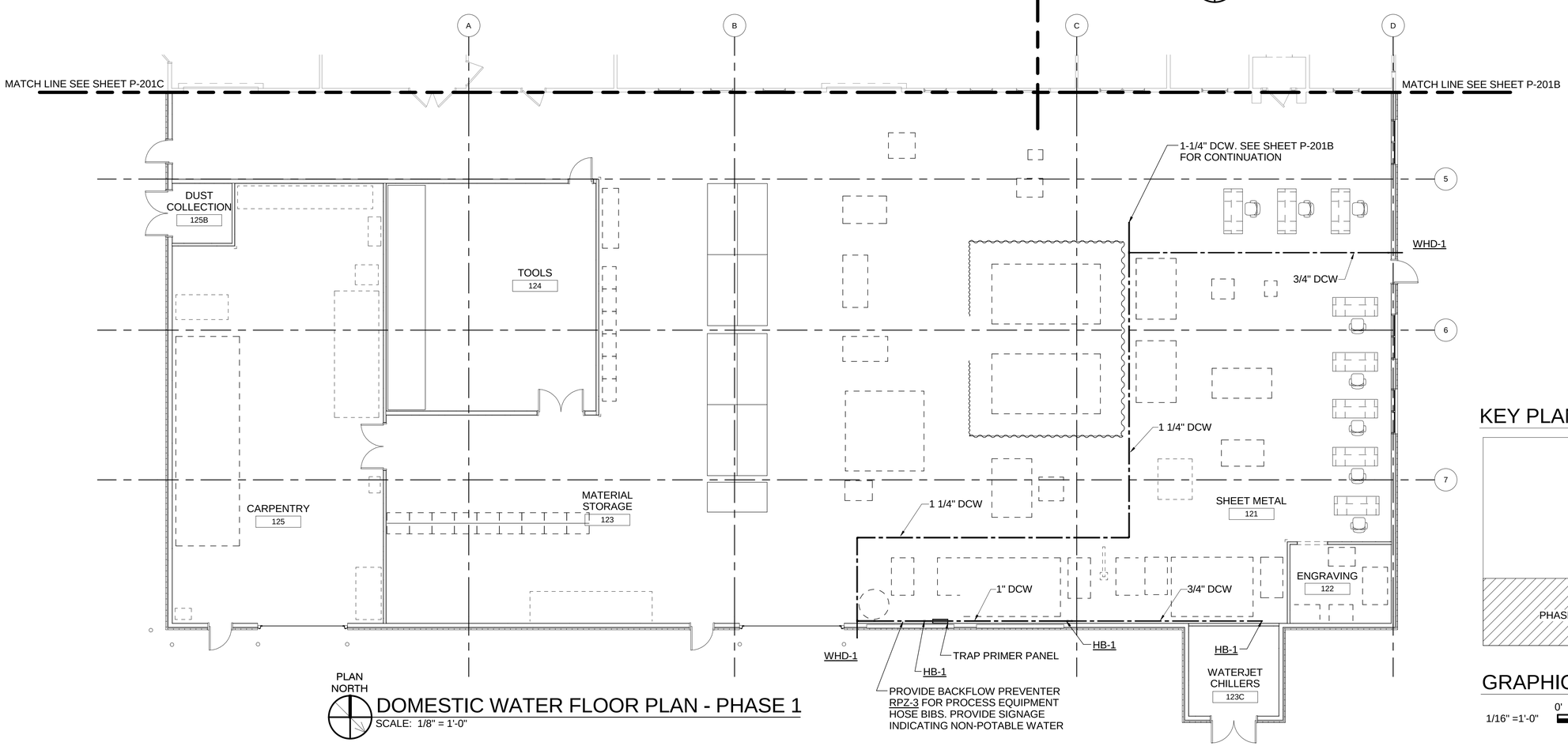


PLAN NORTH

PARTIAL DOMESTIC WATER FLOOR PLAN - PHASE 1

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

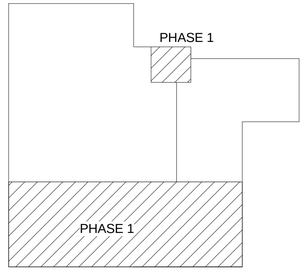


PLAN NORTH

DOMESTIC WATER FLOOR PLAN - PHASE 1

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0" 0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

DOMESTIC WATER FLOOR PLAN - PHASE 1

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078411

SHEET 127 OF 180

P-201A

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_P_Cent_Andrew Boehm 6697.rvt

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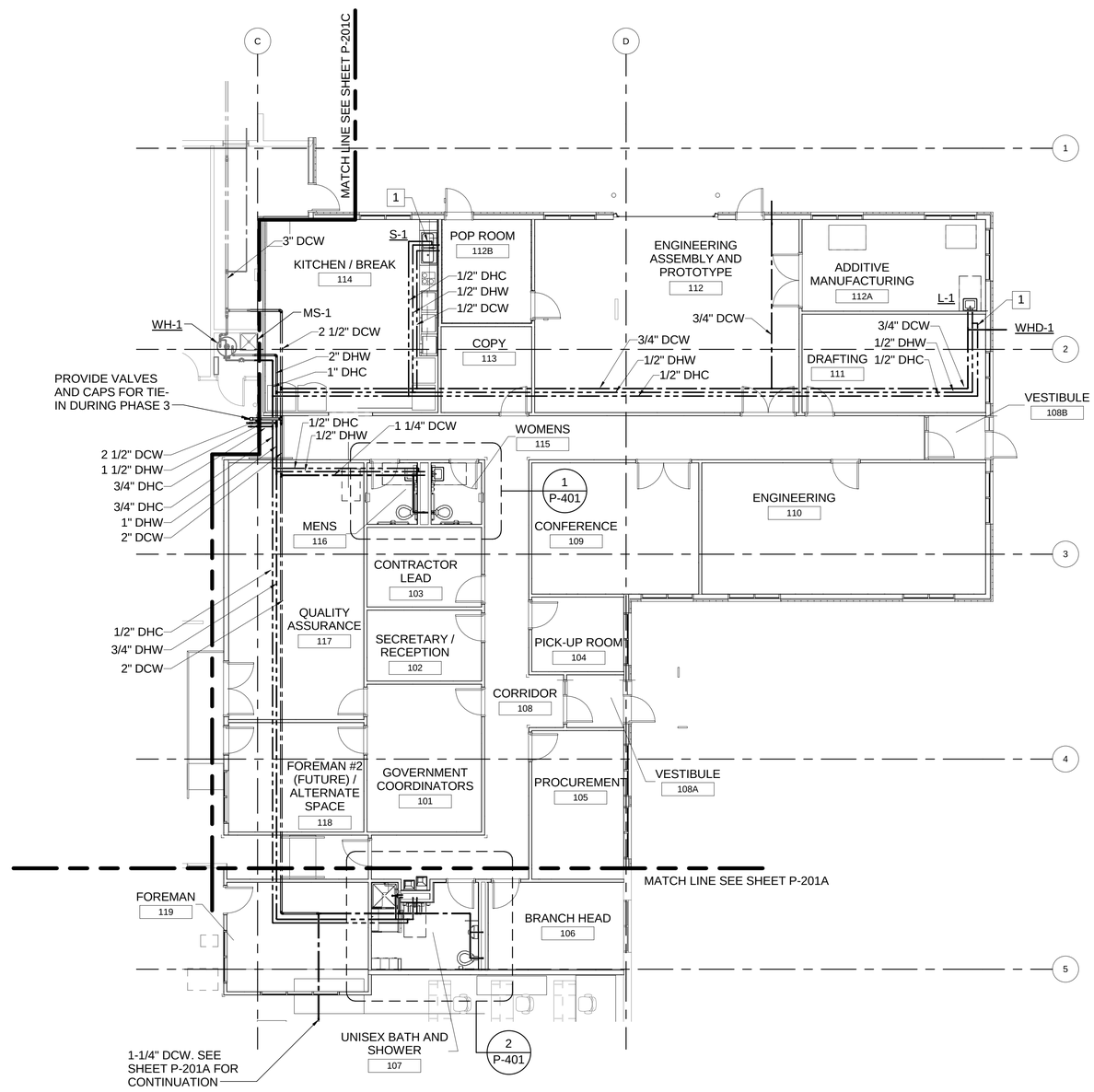


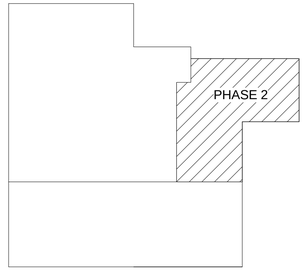
DOMESTIC WATER FLOOR PLAN - PHASE 2

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

KEY NOTES

1. PROVIDE 1/2" DHC BALANCING VALVE AND BALANCE TO .33 GPM

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
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A/E INFO

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FOR COMMANDER NAVFAC / B.L.T.L.
ACTIVITY
SATISFACTORY TO DATE
DES AEB | DRW SWL | CHK JPC
PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
DOMESTIC WATER FLOOR PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078412
SHEET 128 OF 180
P-201B

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_P_Cent_Andrew Boehm 6697.rvt
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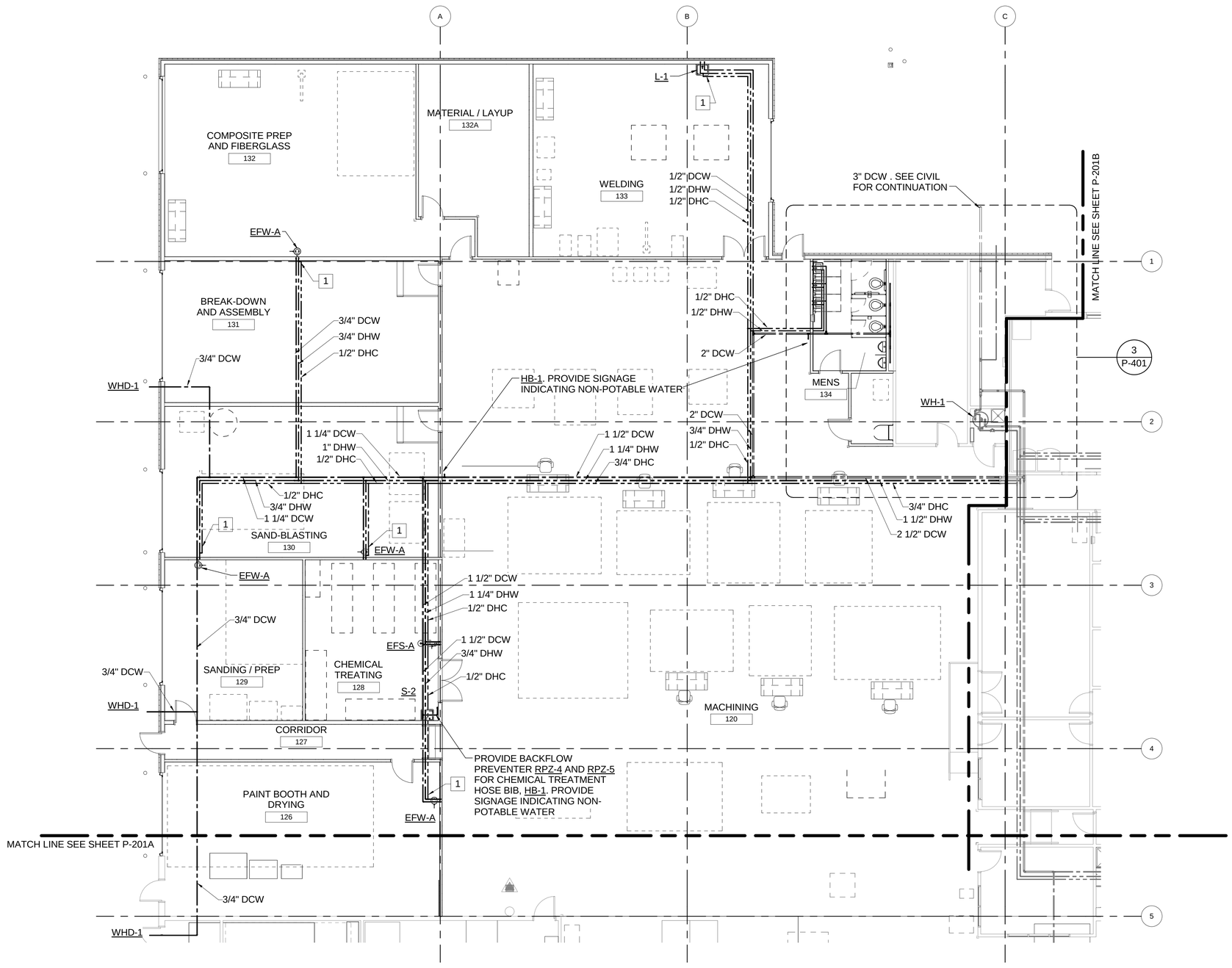


PLAN NORTH

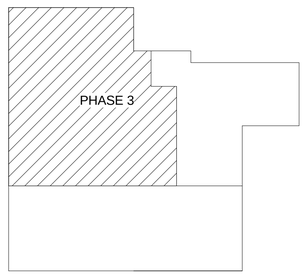
DOMESTIC WATER FLOOR PLAN - PHASE 3

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

KEY NOTES

1. PROVIDE 1/2" DHC BALANCING VALVE AND BALANCE TO .33 GPM

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

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JOINT VENTURE

A/E INFO

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FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEB	DRW SWL	CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

DOMESTIC WATER FLOOR PLAN - PHASE 3

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078413

SHEET 129 OF 180

P-201C

DRAWFORM REVISION: 10 MAY 2014

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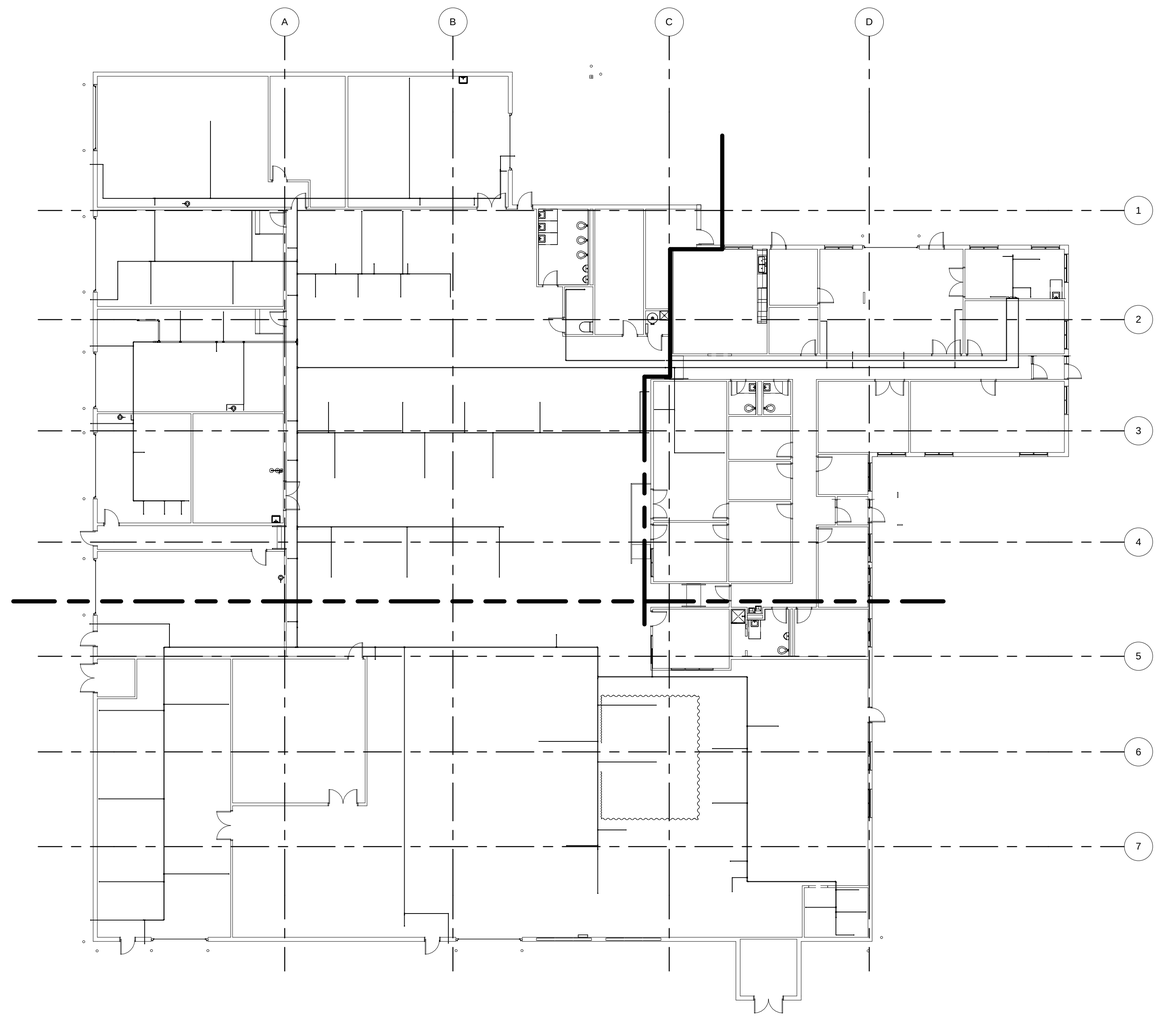
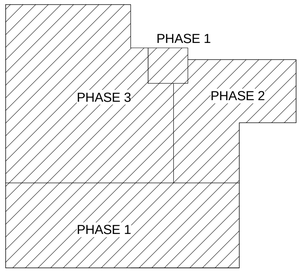


PLAN NORTH

OVERALL COMPRESSED AIR FLOOR PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0"

0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES. AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

OVERALL COMPRESSED AIR FLOOR PLAN

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078414

SHEET 130 OF 180

P-300

DRAWFORM REVISION: 10 MAY 2014

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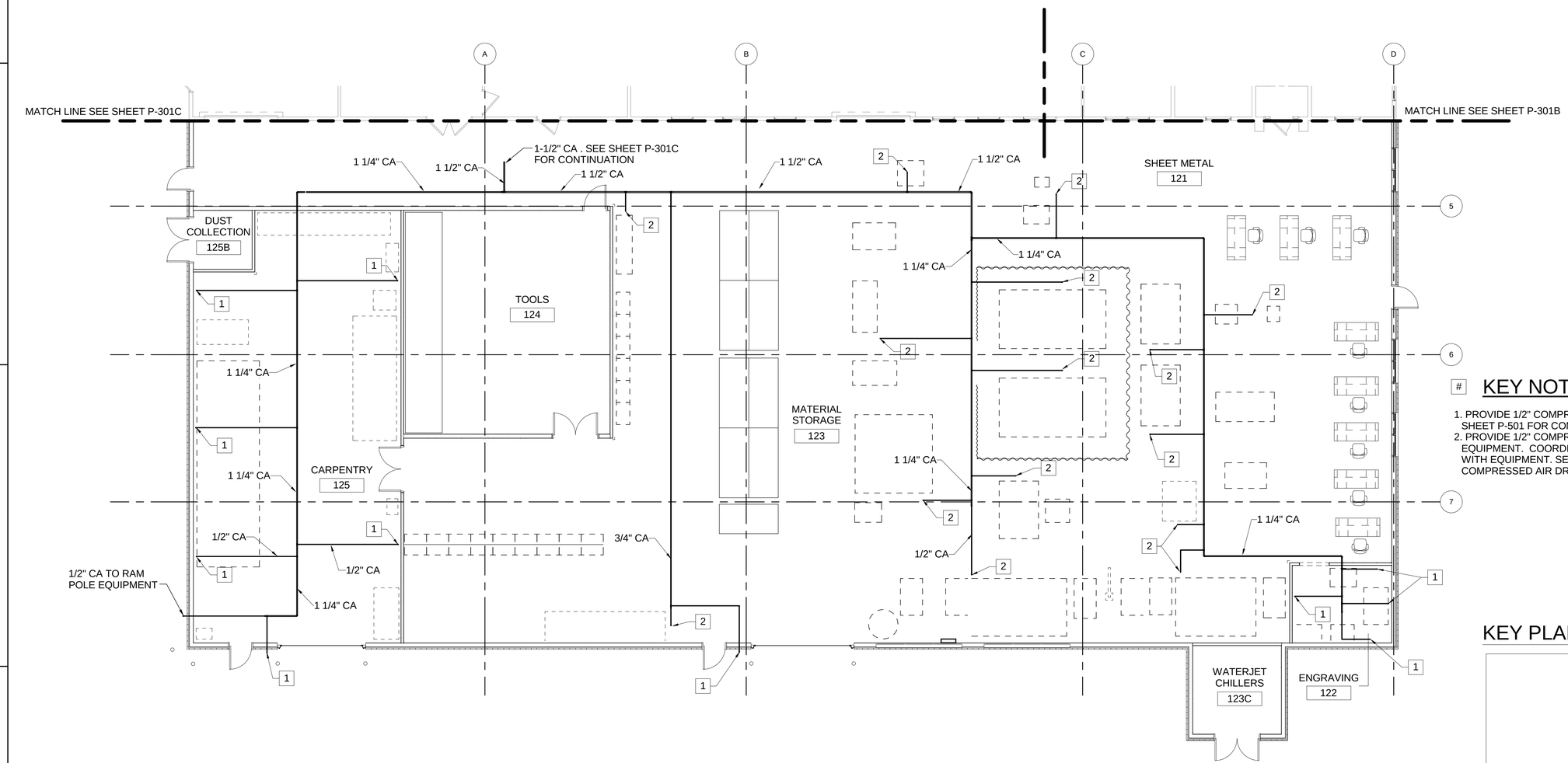


PLAN NORTH

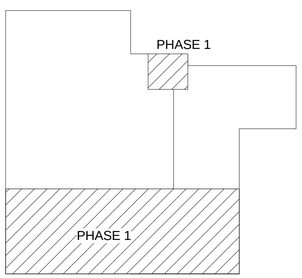
COMPRESSED AIR FLOOR PLAN - PHASE 1

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

KEY NOTES

1. PROVIDE 1/2" COMPRESSED AIR DROP. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.
2. PROVIDE 1/2" COMPRESSED AIR DROP FOR EQUIPMENT. COORDINATE EXACT DROP LOCATION WITH EQUIPMENT. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO.

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FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES	AEB	DRW	SWL	CHK	JPC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

COMPRESSED AIR FLOOR PLAN - PHASE 1

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078415
SHEET 131 OF 180

P-301A

DRAWFORM REVISION: 10 MAY 2014

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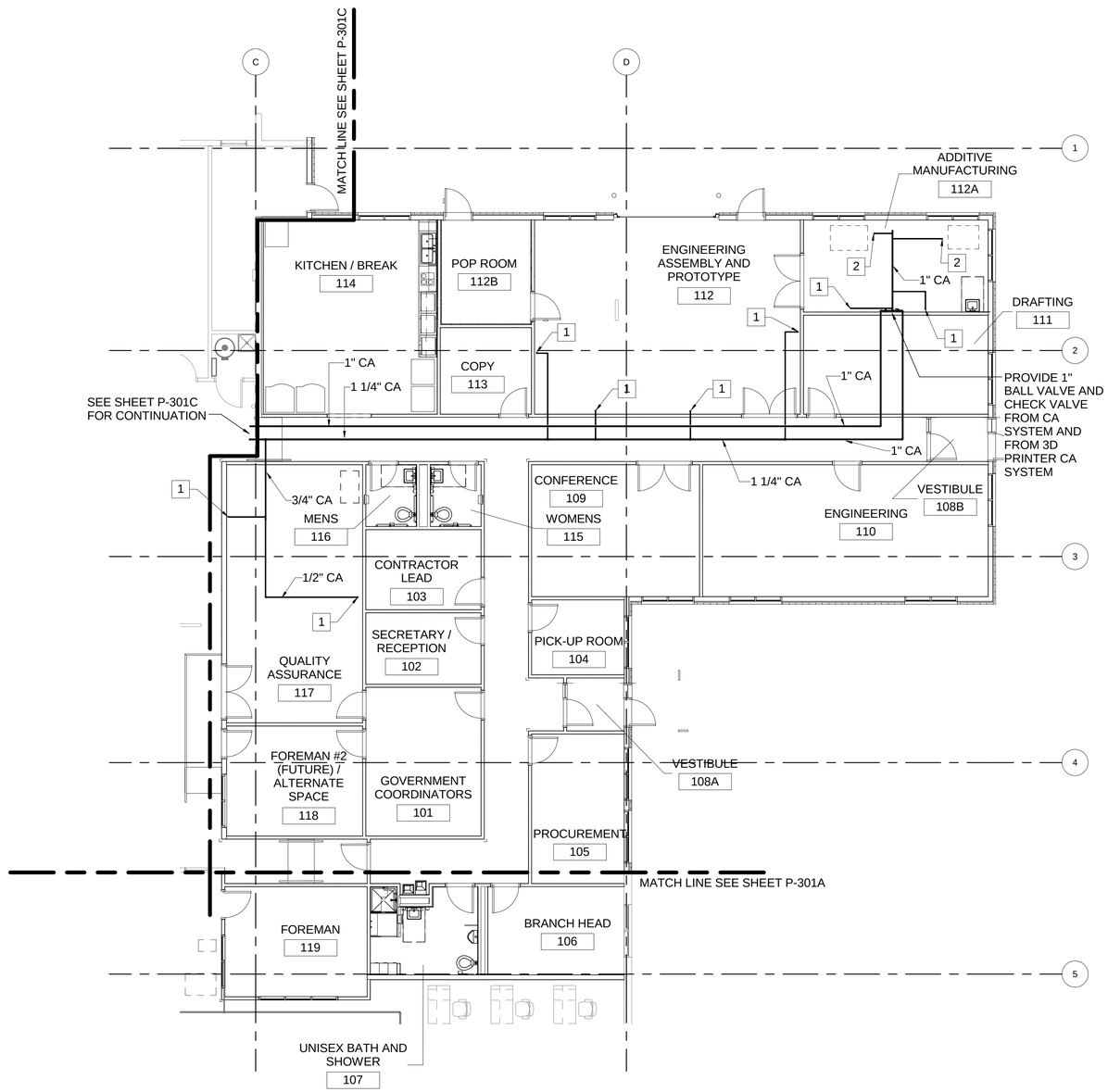


PLAN NORTH

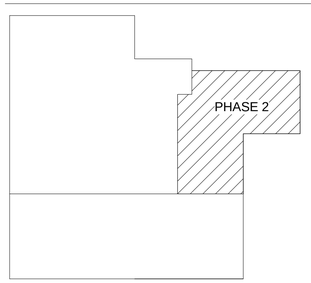
COMPRESSED AIR FLOOR PLAN - PHASE 2

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

KEY NOTES

1. PROVIDE 1/2" COMPRESSED AIR DROP. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.
2. PROVIDE 1/2" COMPRESSED AIR DROP FOR EQUIPMENT. COORDINATE EXACT DROP LOCATION WITH EQUIPMENT. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEN	DRW SWL	CHK JPC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
COMPRESSED AIR FLOOR PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078416
SHEET 132 OF 180
P-301B

DRAWFORM REVISION: 10 MAY 2014

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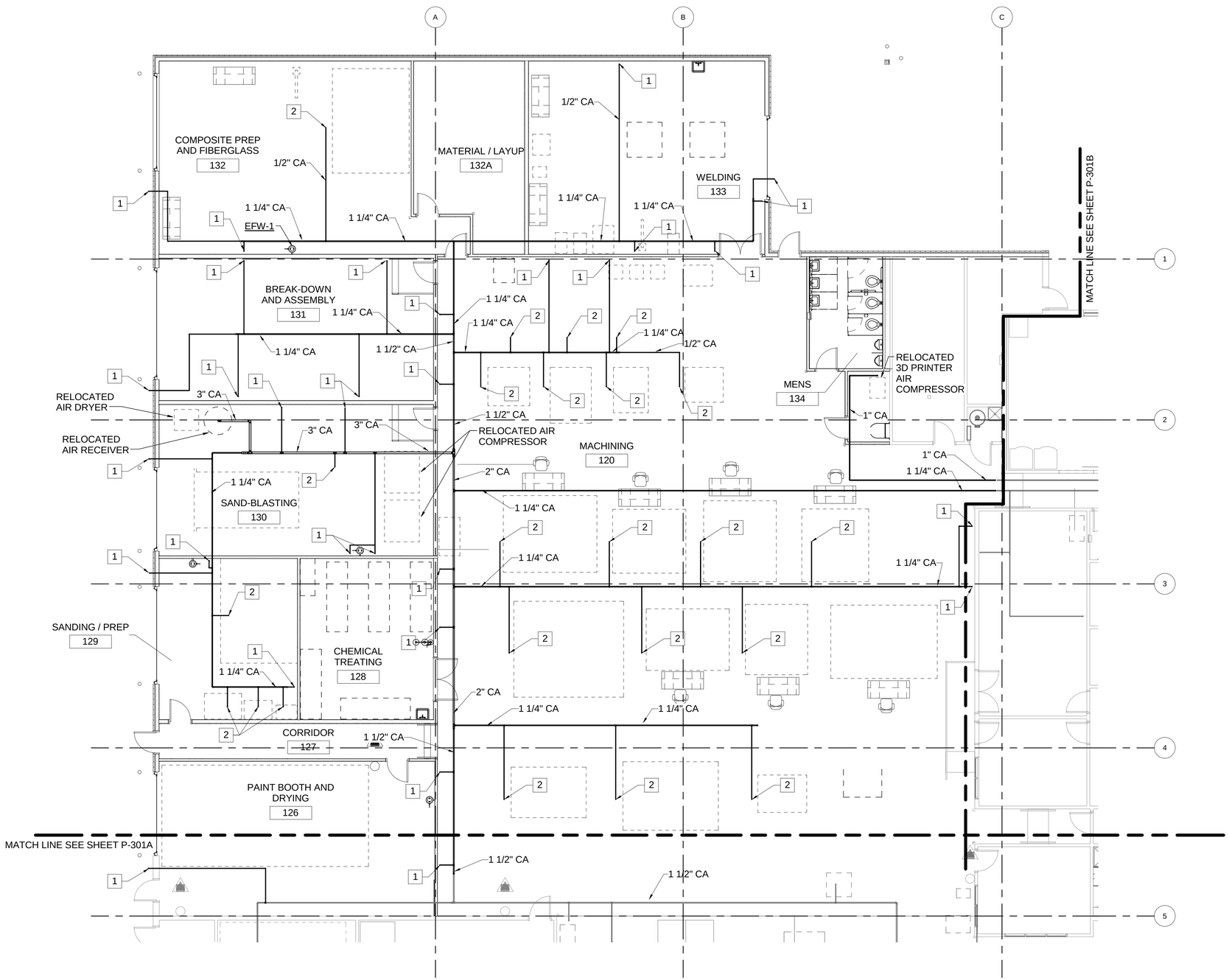


PLAN NORTH

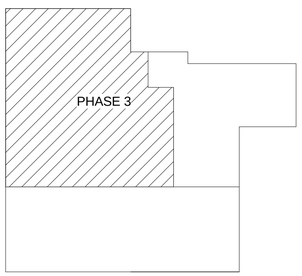
COMPRESSED AIR FLOOR PLAN - PHASE 3

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

KEY NOTES

1. PROVIDE 1/2" COMPRESSED AIR DROP. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.
2. PROVIDE 1/2" COMPRESSED AIR DROP FOR EQUIPMENT. COORDINATE EXACT DROP LOCATION WITH EQUIPMENT. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
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ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

COMPRESSED AIR FLOOR PLAN - PHASE 3

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078417

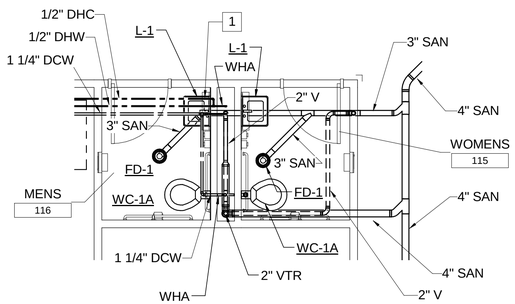
SHEET 133 OF 180

P-301C

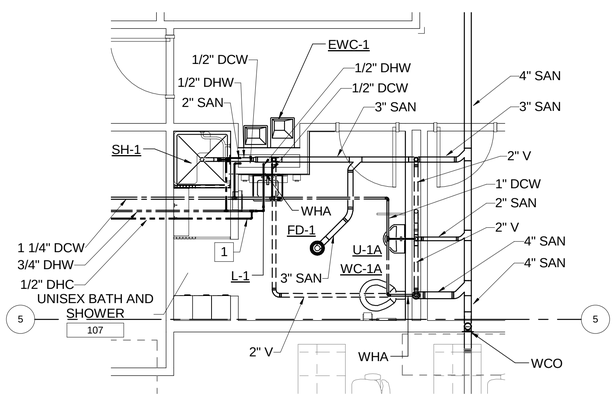
DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_P_Cent_Andrew Boehm 6697.rvt

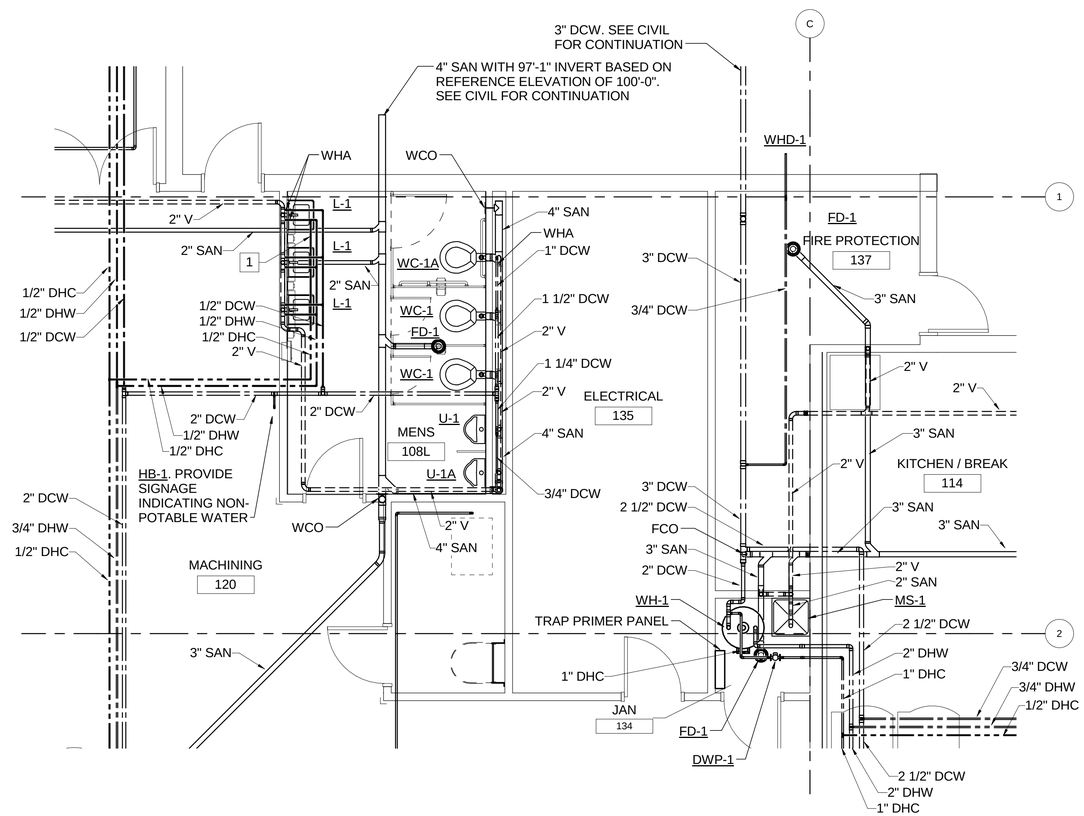
REV/DATE: 3/18/2016 1:45:20 AM



1 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"



2 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"



3 ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

KEY NOTES

1. PROVIDE 1/2" DHC BALANCING VALVE AND BALANCE TO .33 GPM

GRAPHIC SCALE:

1/4" =1'-0" 0' 2' 4' 8'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND – WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
ENLARGED PLUMBING PLANS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078418
SHEET 134 OF 180

P-401

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_P_Cent_Andrew Boehm 6697.rvt
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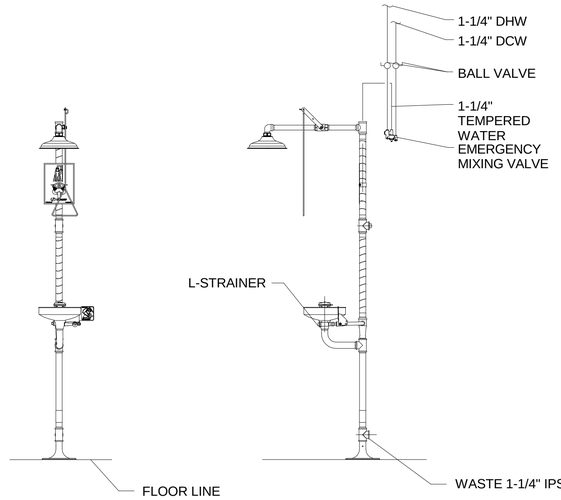
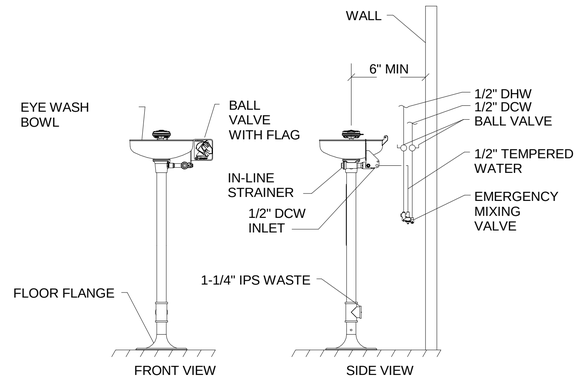


EMERGENCY SHOWER AND EYE/FACE WASH DETAIL

SCALE: NONE

NOTES:

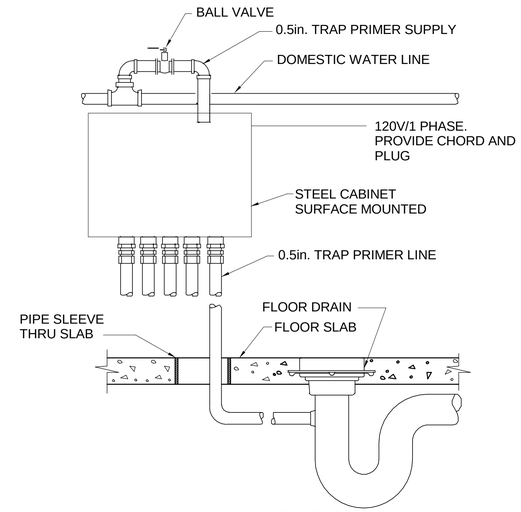
1. TO COMPLY WITH ANSI Z358.1-2009 FOR EMERGENCY EYEWASH OR EYE/FACE WASH AND SHOWER EQUIPMENT:
- UNIT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ACCEPTABLE PLUMBING PRACTICES.
- EYEWASH OR EYE/FACE WASH SHALL BE POSITIONED WITH NOZZLES NOT LESS THEN 33 IN AND NO GREATER THAN 45 IN FROM SURFACE ON WHICH USER STANDS AND 6 IN MINIMUM FROM WALL OR NEAREST OBSTRUCTION.
- SHOWER SHALL BE POSITIONED SO THAT SHOWER HEAD IS NOT LESS THAN 82 IN NOR MORE THAN 96 IN FROM SURFACE ON WHICH USER STANDS.
- SHOWER SPRAY PATTERN SHALL HAVE A MINIMUM DIAMETER OF 20 IN AT 60 IN ABOVE SURFACE ON WHICH USER STANDS, AND CENTER OF SPRAY PATTERN SHALL BE LOCATED AT LEAST 16 IN FROM ANY OBSTRUCTION.



EMERGENCY EYE AND FACE WASH DETAIL

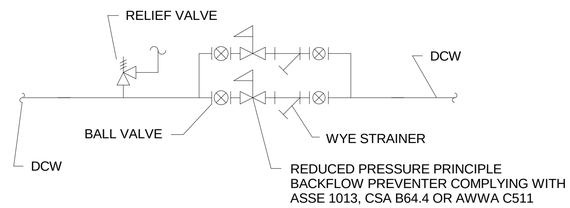
SCALE: NONE

NOTES:
1. EMERGENCY EYEWASH SHALL COMPLY WITH ANSI Z358.1-2009 FOR EMERGENCY EYEWASH AND EYE/FACE WASH.
2. UNIT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ACCEPTABLE PLUMBING PRACTICES.
3. EYEWASH OR EYE/FACE WASH SHALL BE POSITIONED WITH NOZZLES NOT LESS THAN 33" AND NO GREATER THAN 45" FROM SURFACE ON WHICH USER STANDS AND 6" MINIMUM FROM WALL OR NEAREST OBSTRUCTION.



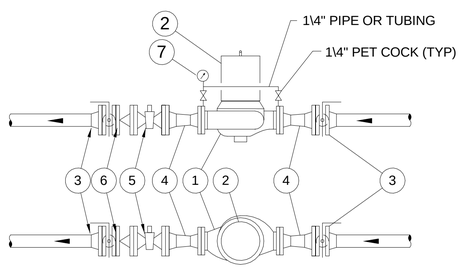
TRAP PRIMER SYSTEM DETAIL

SCALE: NONE



PARALLEL BACKFLOW PREVENTER DETAIL

SCALE: NONE

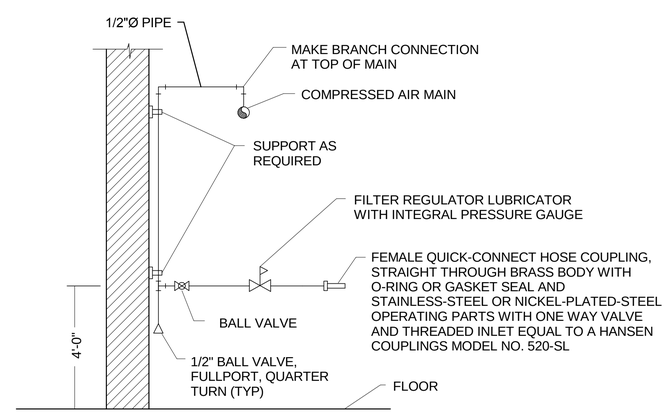


1. IN-LINE CIRCULATOR PUMP
2. MOTOR
3. BALL VALVE
4. CONCENTRIC REDUCER
5. BALANCING VALVE
6. SPRING CHECK VALVE
7. PRESSURE GAUGES

NOTE:
1. EXTERNAL GAGE TAPS ON PIPES SHALL NOT BE REQUIRED WHEN PUMP IS PROVIDED WITH FLANGE GAGE CONNECTOR.

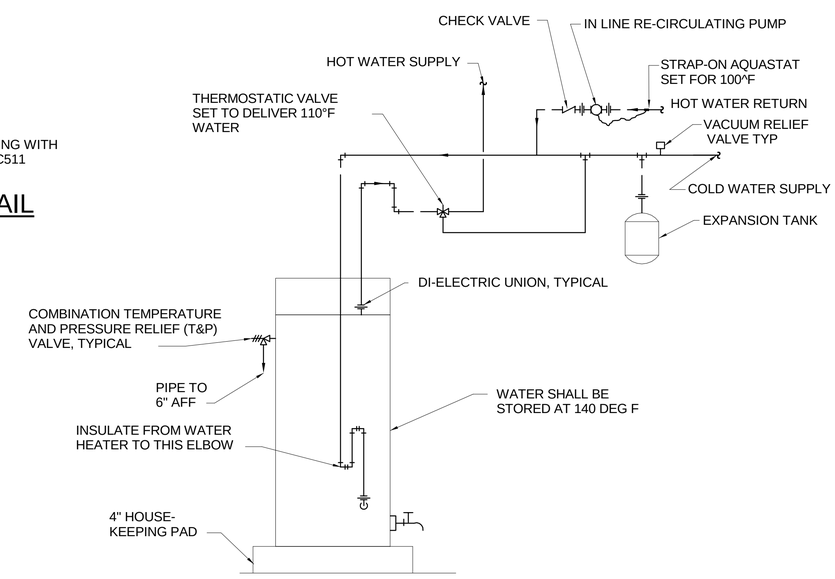
DOMESTIC HOT WATER PUMP DETAIL

SCALE: NONE



TYPICAL COMPRESSED AIR DROP DETAIL

NOT TO SCALE



ELECTRIC WATER HEATER DETAIL

SCALE: NONE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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CHIEF ENG/ARCH

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NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

DETAILS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078419
SHEET 135 OF 180

P-501

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\2151335R15_P_Cent_Andrew Boehm 6697.rvt
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DOMESTIC WATER HEATER SCHEDULE

DESIGNATION	WH-1
LOCATION	- -
STORAGE (GALLONS)	119
GPH AT 90 DEG F RISE	54
INPUT UPPER/LOWER (KW)	6/6
VOLTS	208
PHASE	3
FREQUENCY (Hz)	60
REMARKS	1 & 2
REMARKS LEGEND:	
1. PROVIDE SIMULTANEOUS ELEMENT OPERATION.	
2. PROVIDE ALL BRONZE CONSTRUCTION HOT WATER CIRCULATION PUMP, 10 GPM AT 10 FT. HEAD, 120V, 60 Hz.	

FIXTURE SCHEDULE

DESIGNATION	FIXTURE	MODEL	MATERIAL	FLUSH VALVE	SUPPLY FITTINGS AND STOPS	TRAP	CARRIER	CONNECTION SIZES				NOTES
								WASTE	VENT	HOT	COLD	
WC-1	WATER CLOSET	-	VITREOUS CHINA	1" SUPPLY, 1.28 GPF MAX	1 1/2" TOP SPUD ANGLE STOP	INTEGRAL	WALL	4"	2"	-	1/2"	HARDWIRED AUTOMATIC SENSOR TYPE FLUSH VALVE
WC-1A	WATER CLOSET	ADA	VITREOUS CHINA	1" SUPPLY, 1.28 GPF MAX	1 1/2" TOP SPUD ANGLE STOP	INTEGRAL	WALL	4"	2"	-	1/2"	HARDWIRED AUTOMATIC SENSOR TYPE FLUSH VALVE. RIM HEIGHT AT 17" AFF
U-1	URINAL	-	VITREOUS CHINA	3/4" SUPPLY, 0.125 GPF MAX	3/4" TOP SPUD ANGLE STOP	INTEGRAL	WALL	2"	1 1/2"	-	3/4"	HARDWIRED AUTOMATIC SENSOR TYPE FLUSH VALVE
U-1A	URINAL	ADA	VITREOUS CHINA	3/4" SUPPLY, 0.125 GPF MAX	3/4" TOP SPUD ANGLE STOP	INTEGRAL	WALL	2"	1 1/2"	-	3/4"	HARDWIRED AUTOMATIC SENSOR TYPE FLUSH VALVE. RIM HEIGHT AT 17" AFF
L-1	LAVATORY	ADA	VITREOUS CHINA	-	ANGLE STOPS	1 ½"	WALL MOUNTED	2"	2"	1/2"	1/2"	HARDWIRED AUTOMATIC SENSOR TYPE FAUCET
SH-1	SHOWER	-	FULL HEIGHT SOLID SURFACE	-	INTEGRAL SERVICE STOPS	1 ½"	FLOOR	1 1/2"	1 1/2"	1/2"	1/2"	1.5 GPM SHOWER HEAD
S-1	KITCHEN SINK	-	STAINLESS STEEL	-	ANGLE STOPS	1 ½"	COUNTERTOP	2"	2"	1/2"	1/2"	TWO BASIN SINK WITH MANUAL LEVER FAUCET AND PULL DOWN SPRAY HEAD
S-2	CHEM TREATMENT SINK	-	THERMOPLASTIC	-	ANGLE STOPS	1 ½"	FLOOR	2"	2"	1/2"	1/2"	SINGLE BASIN SINK WITH ADJUSTABLE LEG LEVELERS
MS-1	MOP SINK	-	MOLDED STONE	-	WALL MOUNTED UTILITY FAUCET	2"	WALL	2"	1 1/2"	1/2"	1/2"	PROVIDE WITH STAINLESS STEEL RIM GAURD
EWC-1	BI-LEVEL ELECTRIC WATER COOLER	ADA	STAINLESS STEEL	-	INTEGRAL SERVICE STOPS	1 1/4"	WALL	1 1/2"	1 1/2"	-	1/2"	-

DOMESTIC HOT WATER CIRCULATING PUMP SCHEDULE

DESIGNATION	DWP-1
FLOW RATE (GPM)	3
HEAD (FT)	15
TYPE	IN-LINE CENTRIFUGAL
MAXIMUM RPM	2650
INLET SIZE (IN)	1
OUTLET SIZE (IN)	1
VOLTS	120
PHASE	1
FREQUENCY (Hz)	60
MOTOR HORSE POWER	1/12
REMARKS	1
REMARKS LEGEND:	
PROVIDE AQUASTAT CONTROL WITH TIME CLOCK.	

DRAINS AND TRAPS SCHEDULE

DESIGNATION	AREA SERVED	DESCRIPTION
FD-1	VARIOUS	3" CAST IRON FLOOR DRAIN WITH TRAP PRIMER. PROVIDE STANDARD SEAL TRAPS WITH TRAP PRIMER CONNECTIONS.
FD-2	VARIOUS	4" CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS AND "TYPE 1" POLISHED NICKEL BRONZE STRAINER WITH RAISED FLANGE. FLOOR DRAINS ARE FOR EQUIPMENT DISCHARGE ONLY. INSTALL RAISED FLANGE TO PREVENT ENTRY OF FLOOR WASTE. PROVIDE FUNNEL CONVERTING ASSEMBLY.

HYDRANT SCHEDULE

DESIGNATION	FIXTURE TYPE	CONNECTION TYPE	DESCRIPTION
WHD-1	ENCASED WALL HYDRANT	3/4"	ENCASED ANTI-SIPHON AUTOMATIC DRAINING WALL HYDRANT FOR FLUSH INSTALLATION, NON-FREEZE TYPE INTEGRAL BACKFLOW PREVENTER, BRONZE CASING, ALL BRONZE INTERIOR PARTS, NON-TURNING OPERATING ROD WITH FREE-FLOATING COMPRESSION CLOSURE VALVE, REPLACEABLE BRONZE SEAT AND SEAT WASHER, NICKEL BRONZE BOX AND HINGED COVER WITH OPERATING KEY LOCK. ZURN MODEL Z1300 OR SIMILAR.
HB-1	EXPOSED HOSE BIB	3/4"	EXPOSED ANTI-SIPHON, WALL FAUCET WITH EXTERNAL VACUUM BREAKER, ALL BRONZE INTERIOR COMPONENTS, VANDAL-RESISTANT OPERATING STEM, ROUGH BRONZE EXTERIOR, AND 3/4" MALE HOSE CONNECTION. PROVIDE WITH OPTIONAL LOOSE KEY HANDLE. PROVIDE SIGN INDICATING NON-POTABLE WATER FOR HOSE BIBS LOCATED IN SHOP AREAS.

BACKFLOW PREVENTER SCHEDULE

DESIGNATION	LOCATION	SERVICE	SIZE (IN)	DESCRIPTION
RPZ-1	MECH ROOM	GENERAL SERVICE	3"	REDUCED PRESSURE ZONE TYPE. LOCATE APPROXIMATELY 3' AFF
RPZ-2	MECH ROOM	GENERAL SERVICE	3"	REDUCED PRESSURE ZONE TYPE. LOCATE APPROXIMATELY 3' AFF
RPZ-3	MECH ROOM	PROCESS EQUIPMENT	1"	REDUCED PRESSURE ZONE TYPE. LOCATE APPROXIMATELY 6' AFF
RPZ-4	MECH ROOM	CHEMICAL TREATMENT	3/4"	REDUCED PRESSURE ZONE TYPE. LOCATE APPROXIMATELY 8' AFF
RPZ-5	MECH ROOM	CHEMICAL TREATMENT	3/4"	REDUCED PRESSURE ZONE TYPE. LOCATE APPROXIMATELY 8' AFF

EMERGENCY EYE AND FACE WASH SCHEDULE

DESIGNATION	EFW-A	EFS-A
TYPE	PEDESTAL MOUNT	PEDESTAL MOUNT
MINIMUM FLOW RATE (GPM)	3	20
SELECTION BASED ON	HAWS	HAWS
MODEL	7261-7271	8300CRP
REMARKS	1 & 2	1 & 2
REMARKS LEGEND:		
1. PRODUCT MUST COMPLY WITH ANSI Z358.1.		
2. PROVIDE EMERGENCY THERMOSTATIC TEMPERING VALVE.		
3. PROVIDE A WATER FLOW-INITIATED ALARM. PROVIDE LOCAL AUDIBLE SIGNAL DEVICE, A SILENCING SWITCH, AND A FLASHING STROBE LIGHT FOR EACH UNIT. COMPLY WITH UFC 3-420-01 INCLUDING CHANGE 10, OCTOBER 26, 2015 APPENDIX D.		

PIPE CONSTRUCTION AND INSULATION SCHEDULE

SERVICE	CONFIGURATION	SIZE	INSULATION	THICKNESS	DUCT/PIPE MATERIAL
DOMESTIC COLD WATER PIPING	ABOVE GROUND	ALL	FLEXIBLE ELASTOMERIC	1"	TYPE L COPPER WITH SOLDERED WROUGHT COPPER FITTINGS
DOMESTIC COLD WATER PIPING	BELOW GROUND	ALL	--	--	TYPE K COPPER
DOMESTIC HOT WATER PIPING	ABOVE GROUND	ALL	FLEXIBLE ELASTOMERIC	1"	TYPE L COPPER WITH SOLDERED WROUGHT COPPER FITTINGS
SANITARY WASTE AND VENT PIPING	ABOVE GROUND	ALL	--	--	HUBLESS CAST IRON
SANITARY WASTE AND VENT PIPING	BELOW GROUND	ALL	--	--	HUB AND SPIGOT CAST IRON

SYM	DESCRIPTION	DATE	APPR

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ACTIVITY

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PROJECT MANAGER

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CHIEF ENG/ARCH

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WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

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ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

SCHEDULES

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078420
SHEET 136 OF 180

P-601

DRAWFORM REVISION: 10 MAY 2014

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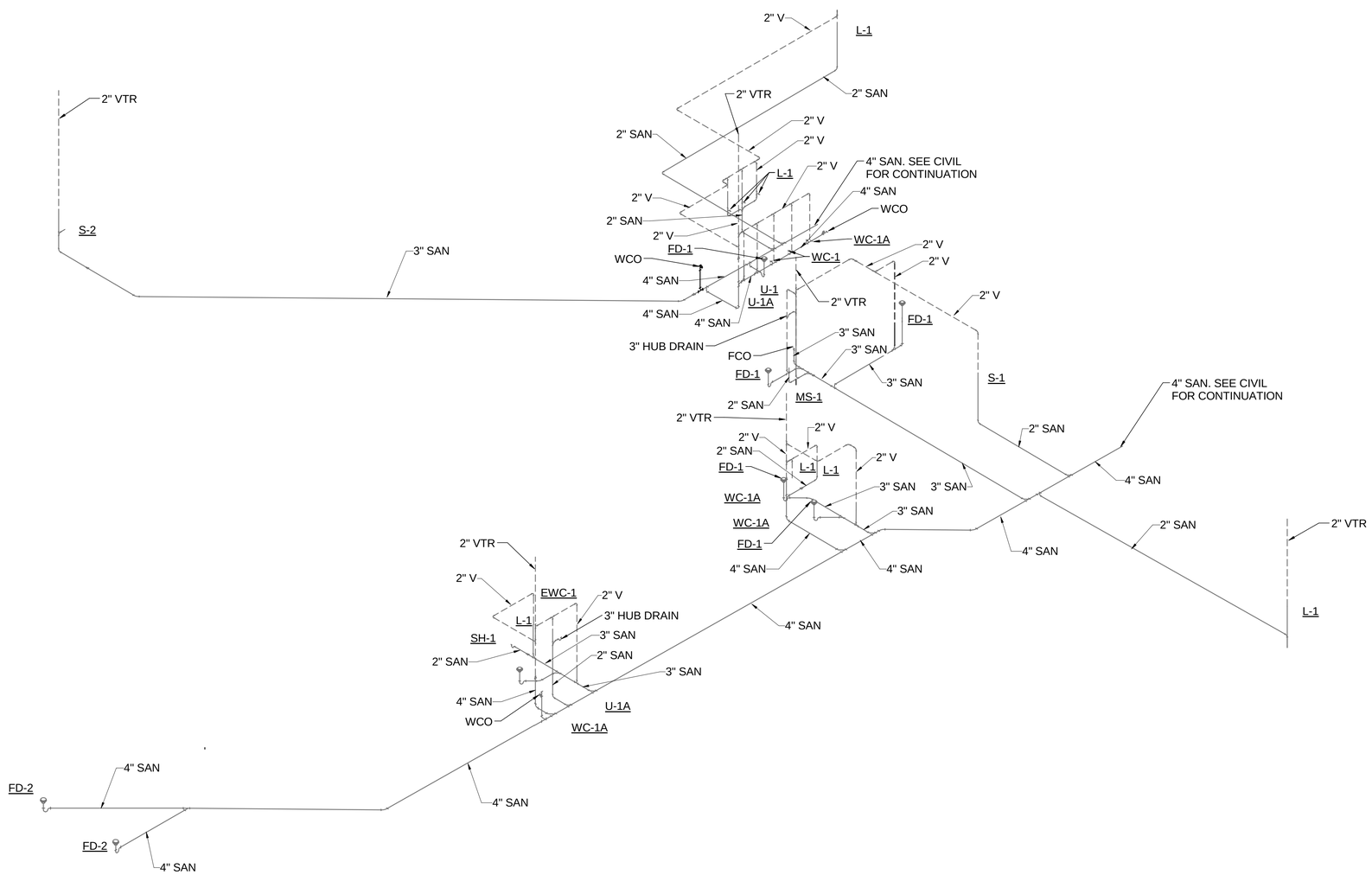

1 SANITARY WASTE RISER DIAGRAM

SCALE: NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

SANITARY RISER DIAGRAM

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078421

SHEET 137 OF 180

P-801

DRAWFORM REVISION: 10 MAY 2014

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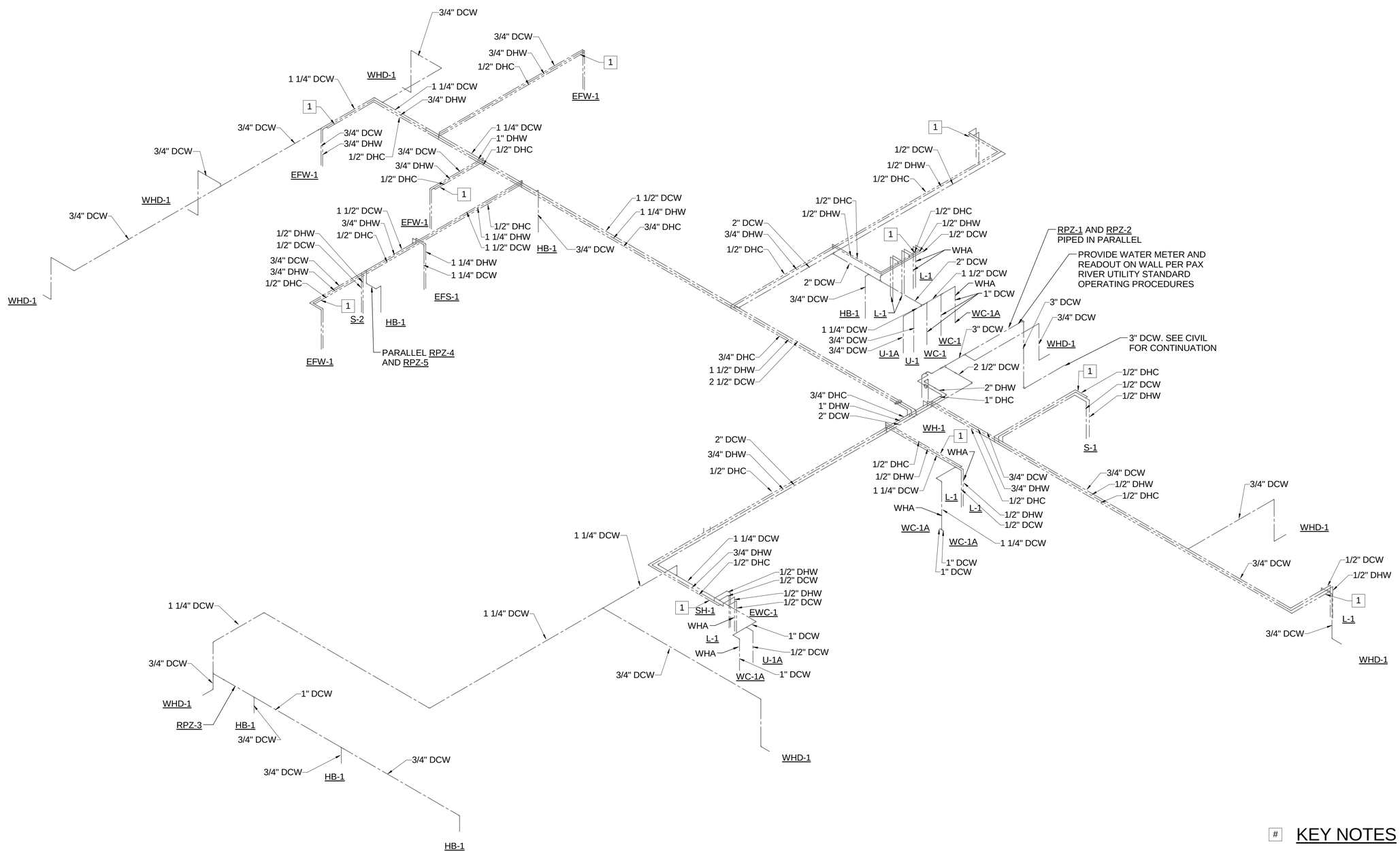

1 DOMESTIC WATER RISER DIAGRAM

SCALE: NOT TO SCALE

KEY NOTES

1. PROVIDE 1/2" DHC BALANCING VALVE AND BALANCE TO .33 GPM

SYM	DESCRIPTION	DATE	APPR

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

DOMESTIC WATER RISER DIAGRAM

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078422

SHEET 138 OF 180

P-802

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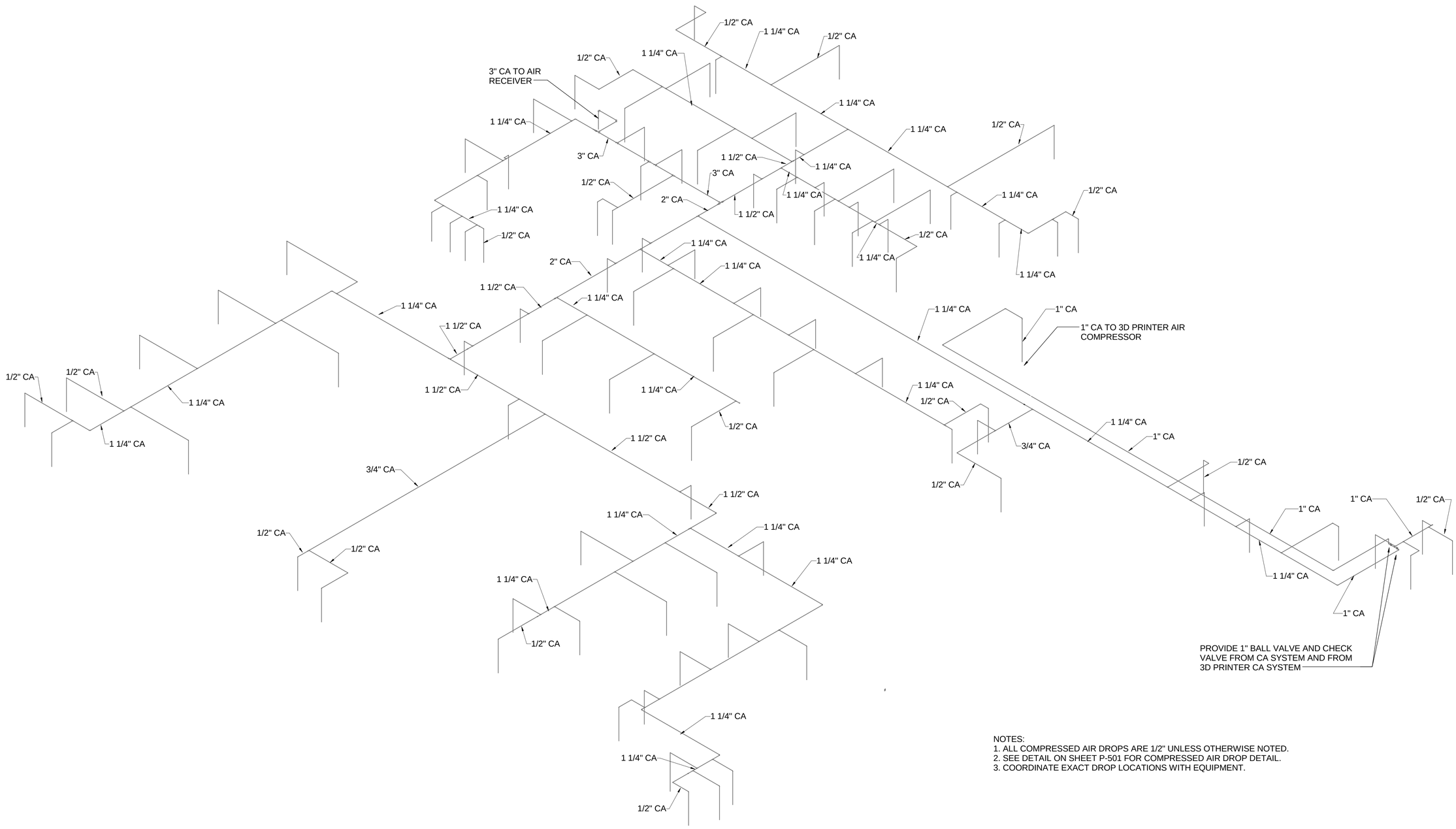

NOTES:
1. ALL COMPRESSED AIR DROPS ARE 1/2" UNLESS OTHERWISE NOTED.
2. SEE DETAIL ON SHEET P-501 FOR COMPRESSED AIR DROP DETAIL.
3. COORDINATE EXACT DROP LOCATIONS WITH EQUIPMENT.

1 COMPRESSED AIR RISER DIAGRAM
SCALE: NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

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ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
COMPRESSED AIR RISER DIAGRAM

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078423
SHEET 139 OF 180
P-803

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MECHANICAL ABBREVIATIONS

(E)	EXISTING (EQUIPMENT, DUCT, PIPE, ETC.) TO REMAIN.
ACC	AIR COOLED CHILLER
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
ATC	AUTOMATIC TEMPERATURE CONTROL(S)
BEL	BELLMOUTH FITTING
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CA	COMPRESSED AIR
CFM	CUBIC FEET PER HOUR
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CO	CLEAN OUT
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREES
DI	DIGITAL INPUT
DIA	DIAMETER
DN	DOWN
DO	DIGITAL OUTPUT
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EL OR ELEV	ELEVATION
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F OR ºF	DEGREES FARENHEIT
FCU	FAN COIL UNIT
FT	FOOT OR FEET
GAL	GALLON (U.S.)
GPM	GALLONS PER HOUR
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
OA	OUTSIDE AIR
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RLF	RELIEF AIR
RRU	ROOF TOP UNIT
SA	SUPPLY AIR
TB	TERMINAL BOX
TSTAT	THERMSOSTAT
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB

HVAC LEGEND

PHASES
- EXISTING TO REMAIN
- DEMOLITION WORK
- TEMPORARY WORK
- NEW WORK
- POINT OF DISCONNECTION
- POINT OF CONNECTION

DUCT SYSTEMS
- DUCT SYSTEM -
- DUCT SYSTEM - RETURN AIR
- DUCT SYSTEM - EXHAUST AIR

AIR TERMINALS
- CEILING DIFFUSER - SUPPLY AIR
- CEILING GRILLE - RETURN AIR
- CEILING GRILLE - EXHAUST AIR

AIR TERMINAL TAGS

S2C
150
- S=SUPPLY,R=RETURN,E=EXHAUST
- NUMBER = UNIT DESIGNATION A=6", B=8", C=10"
- NUMBER = AIRFLOW

R-1
WxH
S2C
- S=SUPPLY,R=RETURN,E=EXHAUST
- NUMBER = UNIT DESIGNATION
- SIZE: WIDTH x HEIGHT
- NUMBER = AIRFLOW

DUCT ACCESSORIES & FITTINGS
- DAMPER, MANUAL BALANCING
- DAMPER, MOTORIZED CONTROL (M, M)
- DAMPER, BACKDRAFT
- DUCT ELBOW, RECTANGULAR, MITERED WITH TURNING VANES
- DUCT ELBOW, ROUND / RECTANGULAR, RADIUS BEND.
- DUCT ELBOW, FLAT OVAL, GORED / MITERED BEND.
- FLEXIBLE DUCT, ROUND / RECTANGULAR
- DUCT TRANSITIONS: RECTANGLE TO RECTANGLE; RECTANGLE TO ROUND; ROUND TO OVAL. (RECTANGLE, OVAL, ROUND)

SENSORS
- T — THERMOSTAT
- TH — COMBINED THERMOSTAT/HUMIDISTAT

MECHANICAL PIPING LEGEND

PHASES
- EXISTING TO REMAIN
- DEMOLITION WORK
- TEMPORARY
- NEW WORK
- POINT OF CONNECTION
- POINT OF DISCONNECT

PIPING SYSTEMS
- CD — PIPE SYSTEM - CONDENSATE DRAIN

PIPE ACCESSORIES & FITTINGS
- PIPE TURN UP
- PIPE TURN DOWN
- PIPE CONCENTRIC REDUCER

MECHANICAL GENERAL NOTES

INTENT

1. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND INDICATE THE GENERAL AND APPROXIMATE LOCATION OF EQUIPMENT, PIPING AND DUCTWORK. THEY ARE NOT INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE HEATING, VENTILATING AND AIR CONDITIONING SYSTEM (HVAC) BE PROVIDED WITH ALL NECESSARY EQUIPMENT, APPURTENANCES AND CONTROLS. THE CONTRACTOR SHALL CAREFULLY REVIEW ALL THE CONTRACT DOCUMENTS AND COORDINATE BETWEEN ALL TRADES PRIOR TO SUBMITTING SHOP DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL SIZES, MATERIALS, TEMPERATURE AND PRESSURE RATINGS BEFORE ORDERING OR INSTALLING ANY MATERIALS OR EQUIPMENT. THE CONTRACTOR SHALL PREPARE INSTALLATION INSTRUCTIONS AND FABRICATION DRAWINGS PRIOR TO ACTUAL INSTALLATION.
2. REFER TO EACH DRAWING FOR NOTES SPECIFIC TO THAT DRAWING SHEET.
3. DO NOT SCALE FOR DUCT, PIPE ORE EQUIPMENT LOCATIONS.

WORK SAFETY AND QUALITY

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S PERSONNEL EMPLOYED ON THIS PROJECT AND IN PARTICULAR, WHEN WORKING IN CONFINED SPACES. THE CONTRACTOR SHALL COMPLY WITH ALL OCCUPATIONAL SAFETY HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.
2. ALL MISCELLANEOUS MATERIAL REQUIRED TO ENSURE PROPER INSTALLATION AND IS SHOWN IN DETAILS FOR PIPING, DUCTS, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
3. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN A MANNER WHICH MINIMIZES NOISE AND VIBRATION.

COORDINATION WITH OTHER TRADES

1. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF WORK WITH THE WORK OF OTHER TRADES. MINOR DEVIATIONS FROM THE PLANS MAY BE MADE TO AVOID CONFLICTS.
2. COORDINATE DUCTWORK AND PIPING WITH ELECTRICAL, STRUCTURE, AND PLUMBING. MAKE OFFSETS AND TRANSITIONS TO COORDINATE WITH OTHER TRADES WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
3. COORDINATE MECHANICAL EQUIPMENT AND MATERIAL LOCATIONS WITH ELECTRICAL, PLUMBING, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL PLANS TO AVOID CONFLICTS.
4. COORDINATE THE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH DIVISION 26 (ELECTRICAL CONTRACT DOCUMENTS) PRIOR TO ORDERING. PROVIDE WRITTEN VERIFICATION OF COORDINATION WITH DIVISION 26 PRIOR TO INSTALLATION OF EQUIPMENT.
5. REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATION OF ALL LOUVERS, VENTS, DUCTS, AND PIPING THAT PENETRATE EXTERIOR WALLS.
6. PROVIDE OPENINGS IN BUILDING CONSTRUCTION FOR PASSAGE OF PIPING AND DUCTWORK. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL.
7. ALL NECESSARY ALLOWANCES AND PROVISIONS SHALL BE MADE BY THIS CONTRACTOR FOR BEAMS, COLUMNS, TRUSSES OR OTHER OBSTRUCTIONS OF THE BUILDING OR THE WORK OF OTHER CONTRACTORS, WHETHER OR NOT SAME IS INDICATED. WHERE NECESSARY TO AVOID OBSTRUCTIONS, THE DUCTS SHALL BE TRANSFORMED, DIVIDED, OFFSET, RAISED OR LOWERED WITH THE REQUIRED FREE AREA BEING MAINTAINED.

DUCTWORK

1. DUCT SIZES ARE SHOWN AS INSIDE CLEAR DIMENSIONS. WHERE INTERNAL INSULATION IS CALLED FOR, DIMENSIONS SHALL BE INCREASED FOR THE THICKNESS OF THE INSULATION. SEE SPECIFICATION FOR THICKNESS.
2. ALL BRANCH DUCTWORK SHALL BE SIZED TO MATCH THE TERMINAL CONNECTION SERVED UNLESS NOTED OTHERWISE. FLEXIBLE DUCT TO DIFFUSERS SHALL BE INSTALLED FREE OF KINKS AND SAGS. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 6'-0". ALL RUNOUT AND BRANCH DUCTS SHALL CONTAIN A MANUAL VOLUME DAMPER FOR BALANCING.
3. ALL DUCT TRANSITIONS FROM SQUARE TO ROUND SHALL BE SMOOTH SQUARE TO ROUND TRANSITIONS.
4. ALL DIFFUSERS SHALL HAVE FOUR-WAY BLOW UNLESS NOTED OTHERWISE.
5. SEE REFLECTED CEILING PLANS FOR EXACT LOCATION OF AIR DEVICES.
6. ALL DAMPERS, DAMPER OPERATORS, AND FANS SHALL BE ACCESSIBLE. LOCATE ALL EQUIPMENT OR APPURTENANCES IN AREAS WITH ACCESSIBLE CEILINGS. THE CONTRACTOR MAY UTILIZE ACCESS PANELS FOR THOSE AREAS NOT EASILY ACCESSIBLE. ALL ACCESS PANEL LOCATIONS SHALL BE COORDINATED WITH THE CONTRACT DOCUMENTS AND APPROVED BY THE OWNER PRIOR TO INSTALLATION OF EQUIPMENT.
7. ALL OPEN ENDED DUCTS SHALL BE REINFORCED WITH STEEL ANGLES (1-1/2" X 1-1/2" X 1/8") BOLTED OR RIVETED 6" ON CENTER (MAXIMUM) ALL AROUND THE PERIMETER OF THE DUCT MINIMUM 2 PER SIDE.
8. ALL DUCTWORK SHALL BE SLEEVED THROUGH WALL PENETRATIONS.
9. PROVIDE AIR TURNING DEVICES IN DUCTWORK AT ANY CHANGES INDIRECTION OF 30 DEGREES OR GREATER.
10. PROVIDE CONICAL TEES FOR ROUND AND FLAT OVAL DUCT TAKE-OFFS.

PIPING

1. SLOPE CONDENSATE DRAINS AT 1/8 INCHES FALL PER FOOT MINIMUM IN THE DIRECTION OF FLOW. PROVIDE DRAINAGE TYPE FITTINGS.
2. ALL PIPING SHALL BE SLEEVED THROUGH WALL PENETRATIONS.
3. SIZE AND ROUTE REFRIGERANT PIPING PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

EQUIPMENT

1. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
2. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER SO THAT ALL FILTERS, VALVES, MOTORS, DAMPERS, ETC., ARE COMPLETELY ACCESSIBLE AND SERVICEABLE, INCLUDING ACCESS DOORS IF REQUIRED.
3. COMPLETE AND PROPER INSTALLATION OF THERMOSTATS AND ALL OTHER NECESSARY FIELD MOUNTED CONTROL COMPONENTS SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THE EQUIPMENT MANUFACTURERS SHALL FURNISH COMPLETE WIRING CONTROLS. ALL CONTROL WIRING SHALL BE IN CONDUIT AND INSTALLED PER DIVISION 26 OF THE SPECIFICATIONS.
4. PROVIDE FLEXIBLE CONNECTIONS BETWEEN HVAC EQUIPMENT AND SHEET METAL DUCTWORK.

CONTROLS

1. PROVIDE THERMOSTATS OR HUMIDISTATS WHERE SHOWN ON THE DRAWINGS. MOUNT DEVICES AT THE SAME ELEVATION AS LIGHT SWITCH UNLESS NOTED OTHERWISE.

RENOVATION WORK

1. THIS PROJECT IS A RENOVATION OF AN EXISTING FACILITY, AND PREVIOUS RECORD DRAWINGS FORM THE BASIS FOR MANY OF THESE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR PURCHASE OF EQUIPMENT, MATERIALS, AND ASSEMBLIES. THERE MAY EXIST FIELD CONDITIONS WHICH DIFFER FROM THOSE SHOWN ON THESE DRAWINGS. ANY SUCH DEVIATIONS SHALL BE BROUGHT TO THE ATTENTION OF OWNER FOR RESOLUTION BEFORE PROCEEDING WITH ANY CONSTRUCTION, FABRICATION, OR MATERIAL/EQUIPMENT PURCHASE WHICH WOULD BE UNUSABLE UNDER THOSE CIRCUMSTANCES.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.
ACTIVITY
SATISFACTORY TO DATE
DES AEB | DRW SWL | CHK JPC
PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND – WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
LEGEND AND ABBREVIATIONS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078424
SHEET 140 OF 180
M-001

DRAWFORM REVISION: 10 MAY 2014

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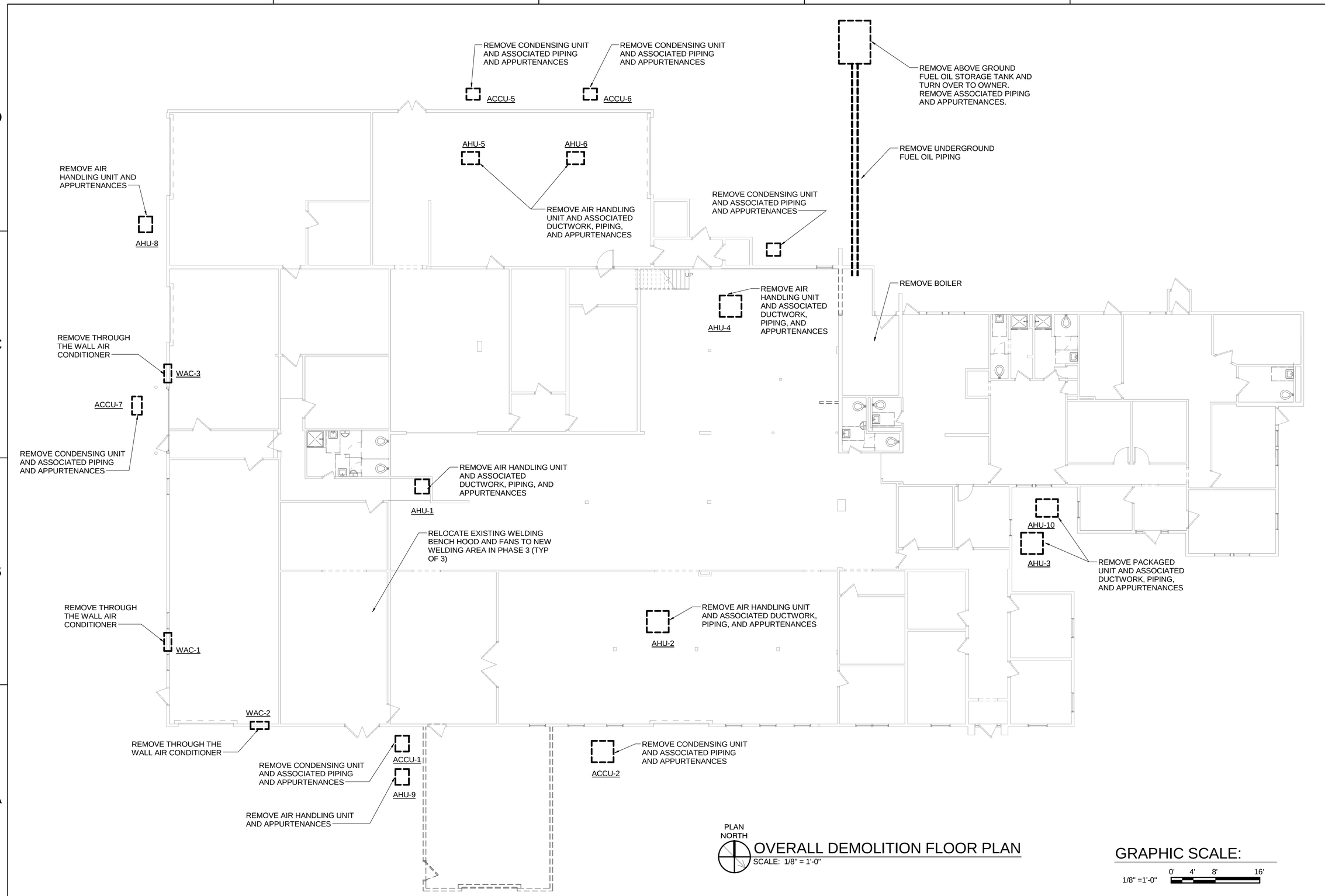

OVERALL DEMOLITION FLOOR PLAN

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

GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

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NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
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NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
OVERALL DEMOLITION FLOOR PLAN

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078425
SHEET 141 OF 180
MD101

DRAWFORM REVISION: 10 MAY 2014

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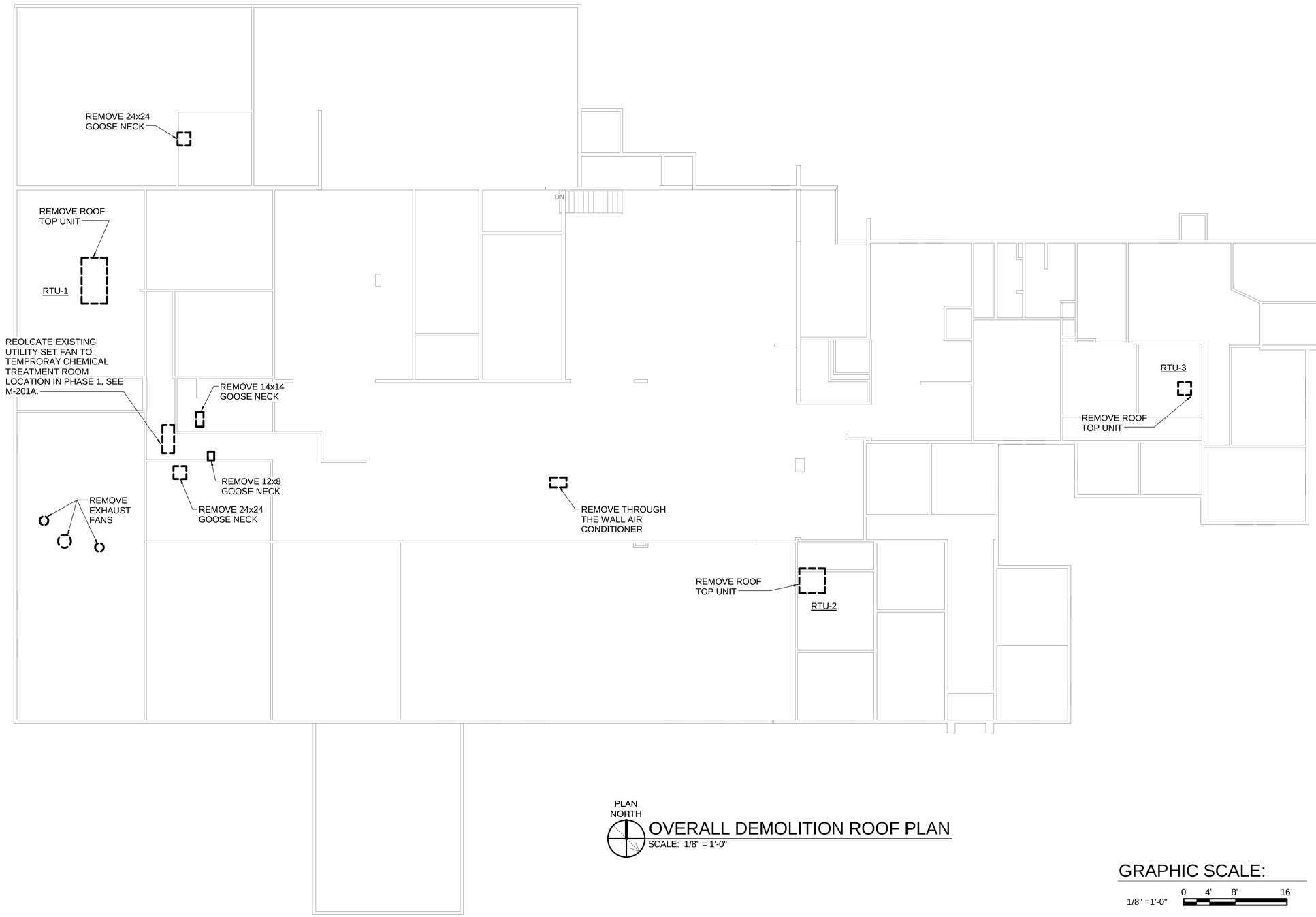

OVERALL DEMOLITION ROOF PLAN

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

GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
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JOINT VENTURE

A/E INFO

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ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

OVERALL DEMOLITION ROOF PLAN

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078426
SHEET 142 OF 180
MD102

DRAWFORM REVISION: 10 MAY 2014

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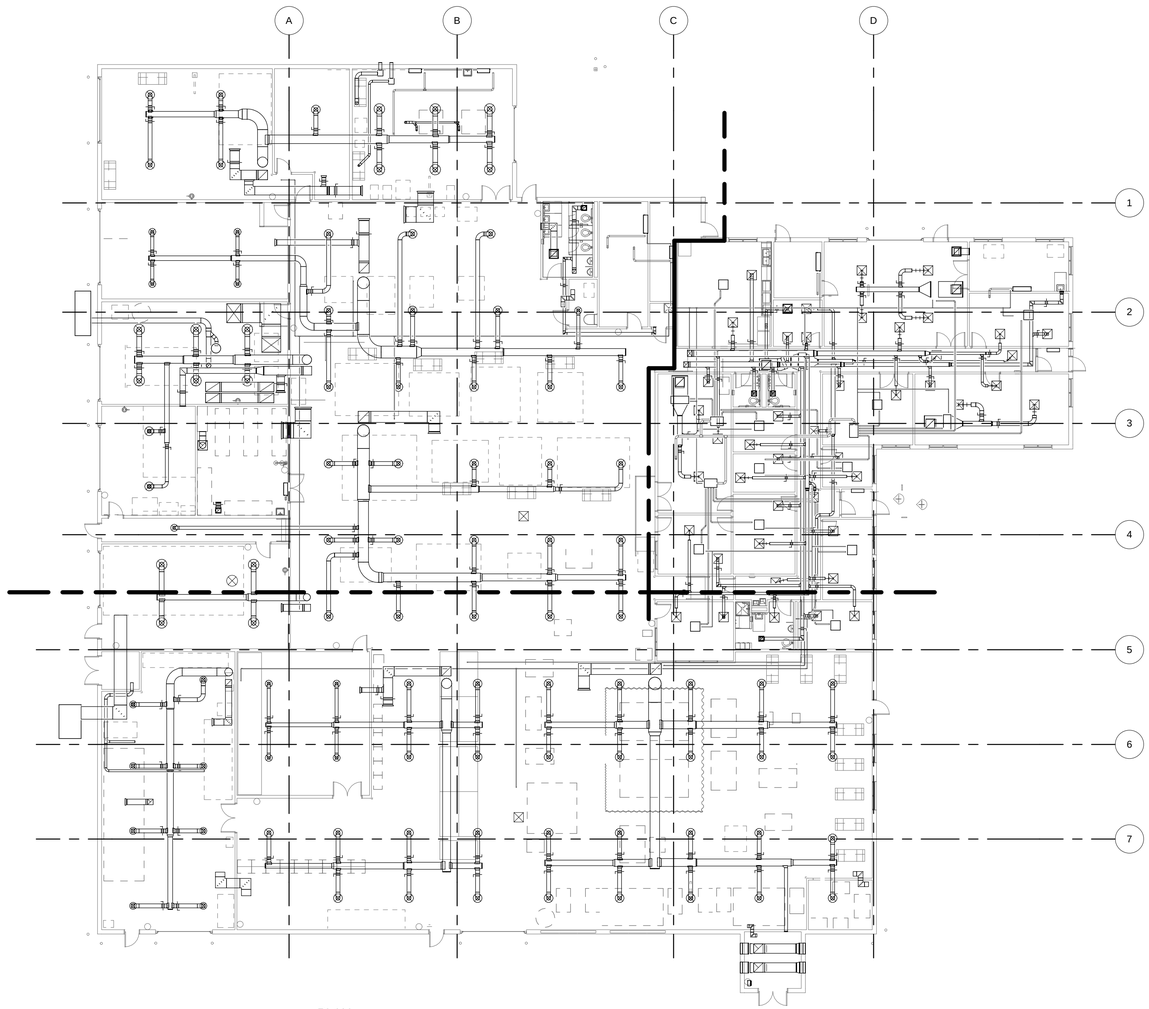
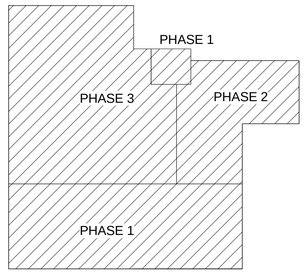


PLAN NORTH

OVERALL HVAC PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0"

0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
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DES	AEB	DRW	SWL	CHK	JPC

PROJECT MANAGER

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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

OVERALL HVAC FLOOR PLAN

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078427

SHEET 143 OF 180

M-100

DRAWFORM REVISION: 10 MAY 2014

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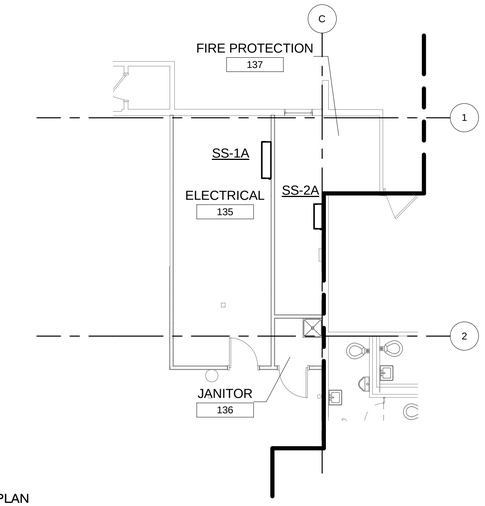
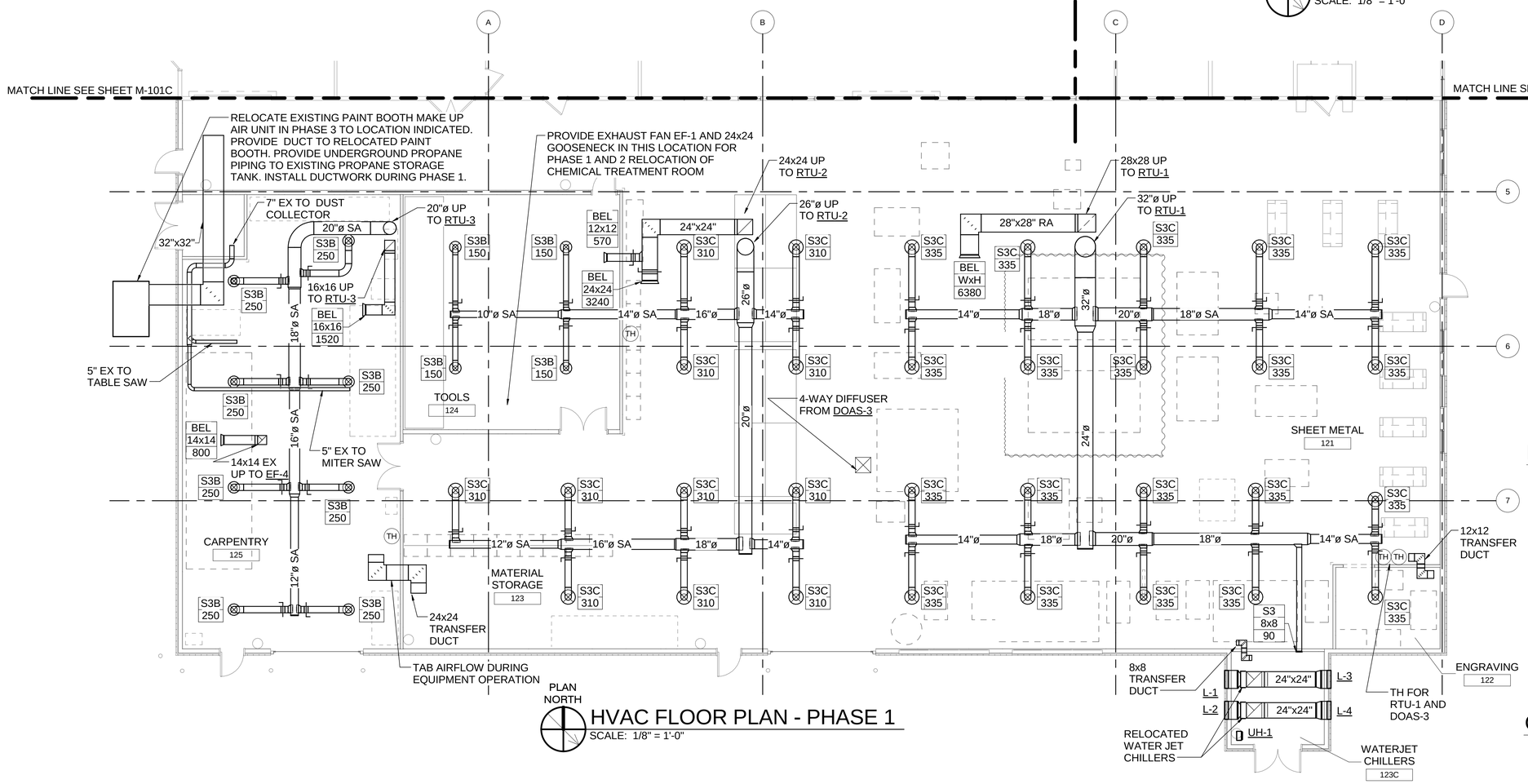


PLAN NORTH

PARTIAL HVAC FLOOR PLAN - PHASE 1

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

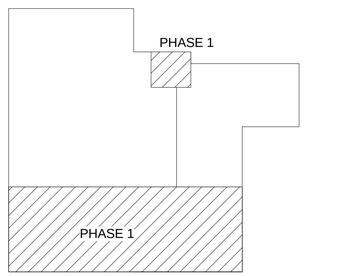


PLAN NORTH

HVAC FLOOR PLAN - PHASE 1

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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ACTIVITY

SATISFACTORY TO DATE

DES	AEB	DRW	SWL	CHK	JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

HVAC FLOOR PLAN - PHASE 1

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078428
SHEET 144 OF 180

M-101A

DRAWFORM REVISION: 10 MAY 2014

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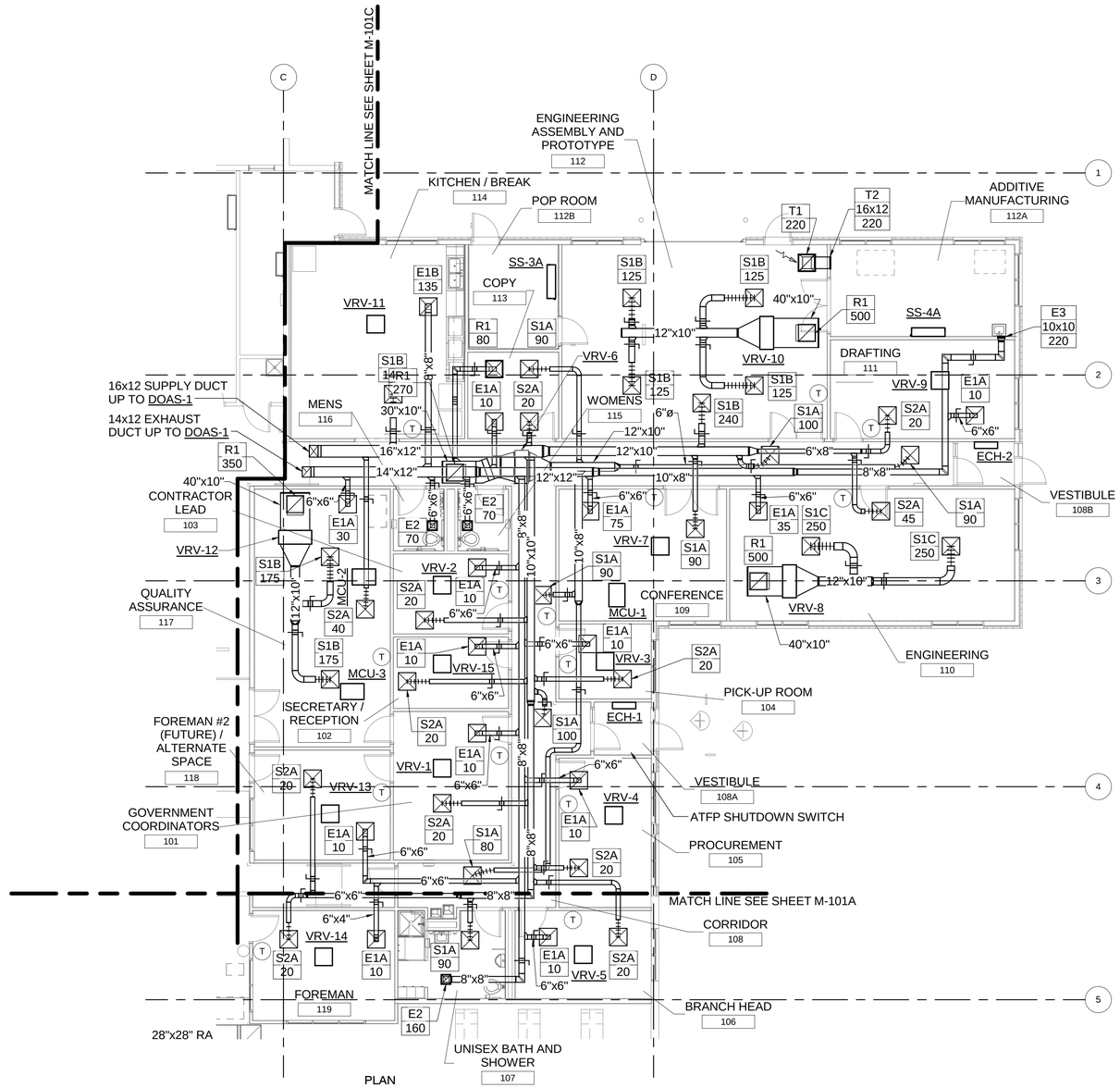
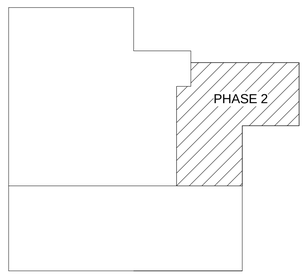


HVAC FLOOR PLAN - PHASE 2

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

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ACTIVITY

SATISFACTORY TO DATE

DES	AEB	DRW	SWL	CHK	JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

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NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

HVAC FLOOR PLAN - PHASE 2

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078429

SHEET 145 OF 180

M-101B

DRAWFORM REVISION: 10 MAY 2014

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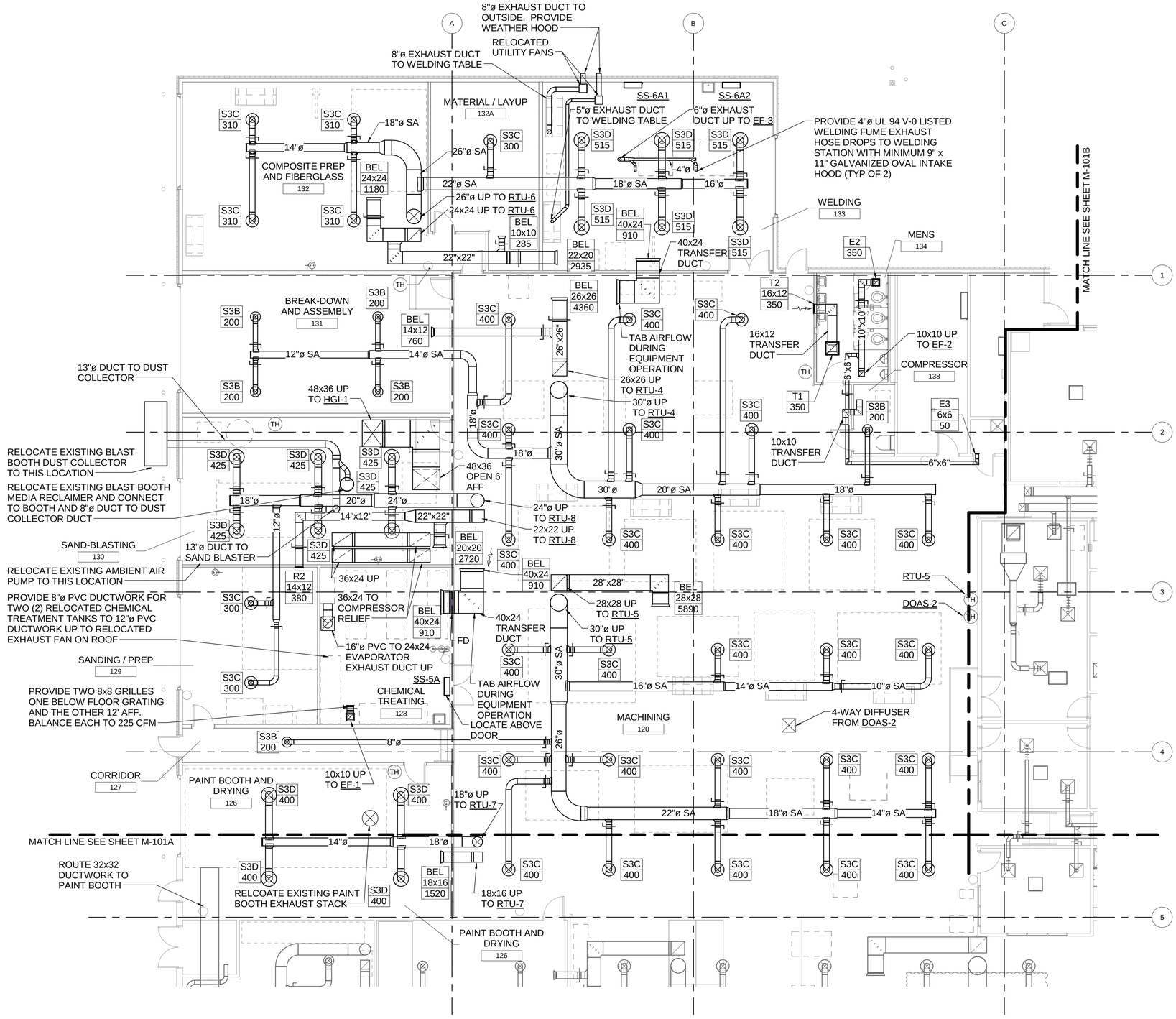
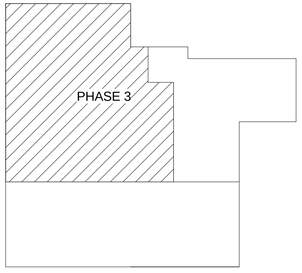


PLAN NORTH

HVAC FLOOR PLAN - PHASE 3

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
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JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
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WEBSTER FIELD, NAS PATUXENT RIVER

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NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

HVAC FLOOR PLAN - PHASE 3

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078430

SHEET 146 OF 180

M-101C

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt

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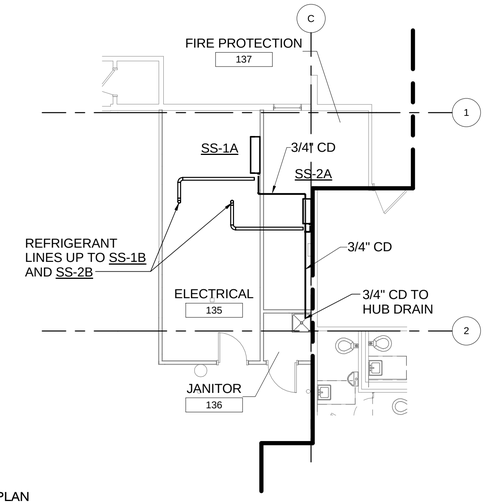
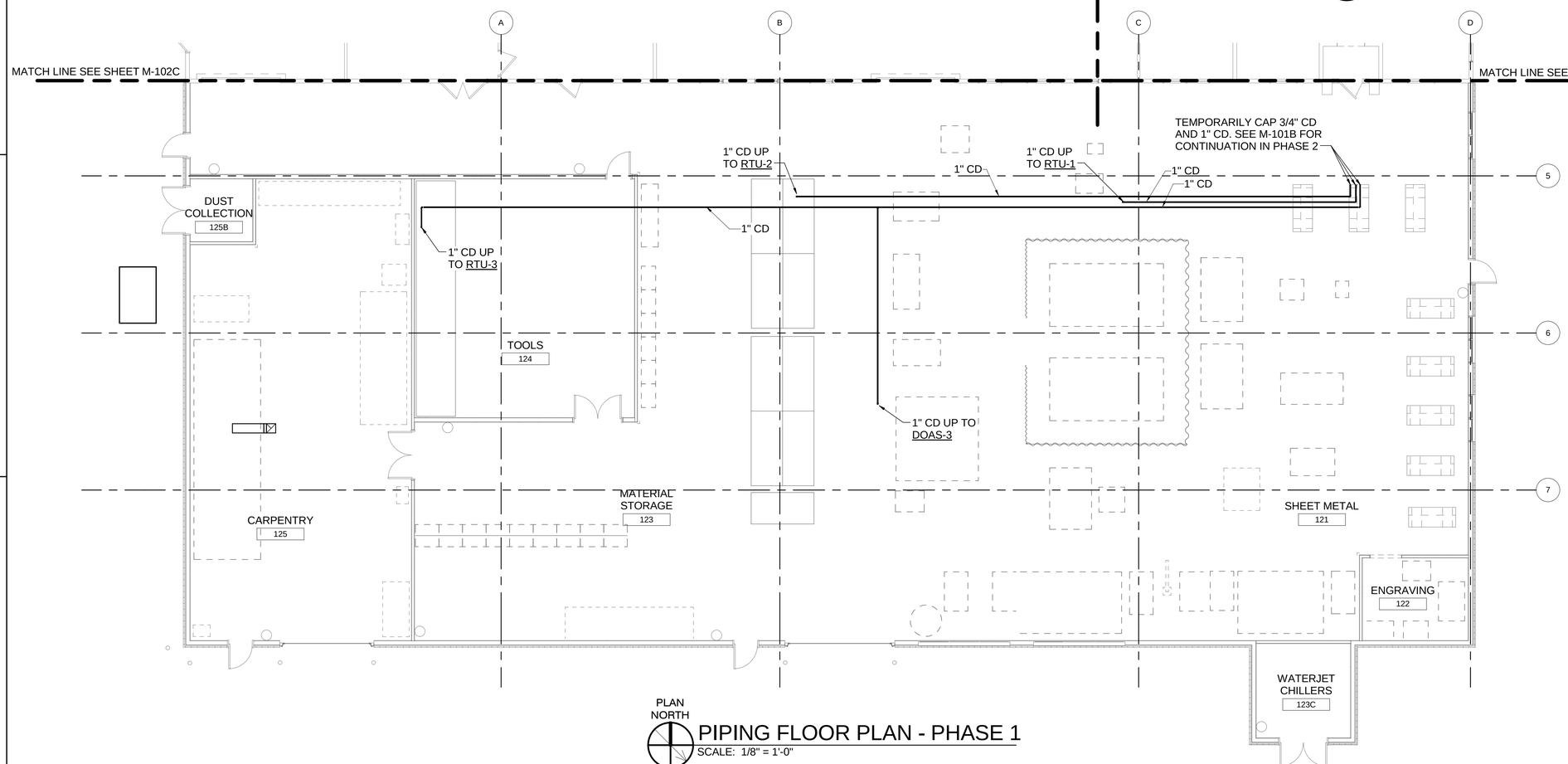


PLAN NORTH

PARTIAL PIPING FLOOR PLAN - PHASE 1

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

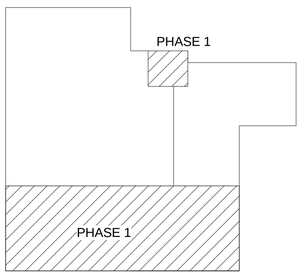


PLAN NORTH

PIPING FLOOR PLAN - PHASE 1

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

KEY PLAN:



GRAPHIC SCALE:

1/8" =1'-0"

0' 4' 8' 16'

SYM	DESCRIPTION	DATE	APPR

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JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES	AEB	DRW	SWL	CHK	JFC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

PIPING FLOOR PLAN - PHASE 1

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078431

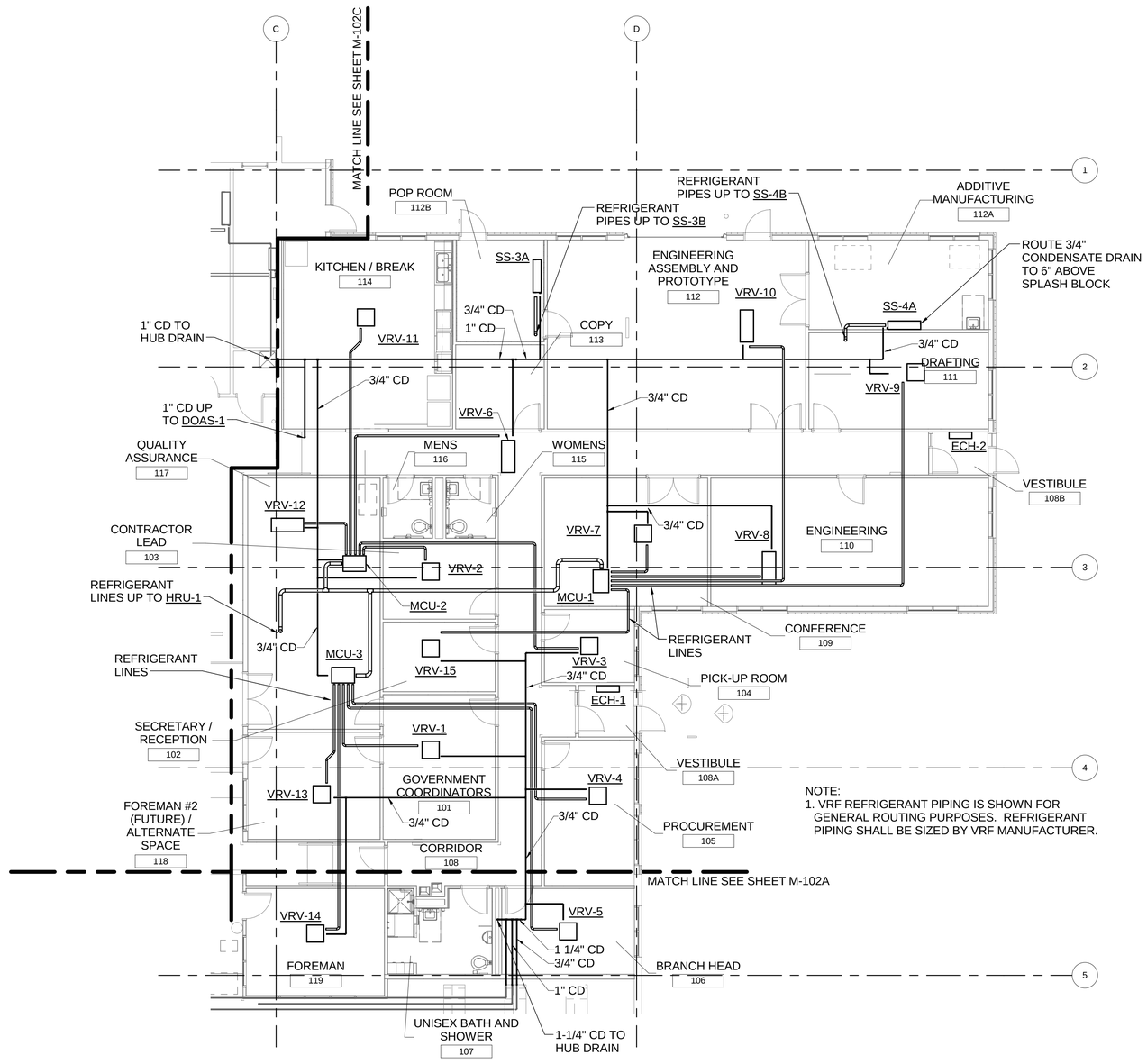
SHEET 147 OF 180

M-102A

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt

REVDATE: 3/17/2016 5:21:33 PM



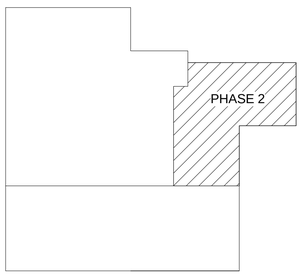
NOTE:
1. VRF REFRIGERANT PIPING IS SHOWN FOR GENERAL ROUTING PURPOSES. REFRIGERANT PIPING SHALL BE SIZED BY VRF MANUFACTURER.

PLAN NORTH

PIPING FLOOR PLAN - PHASE 2

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.
ACTIVITY
SATISFACTORY TO DATE

DES AEB	DRW SWL	CHK JFC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
PIPING FLOOR PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078432
SHEET 148 OF 180
M-102B

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt
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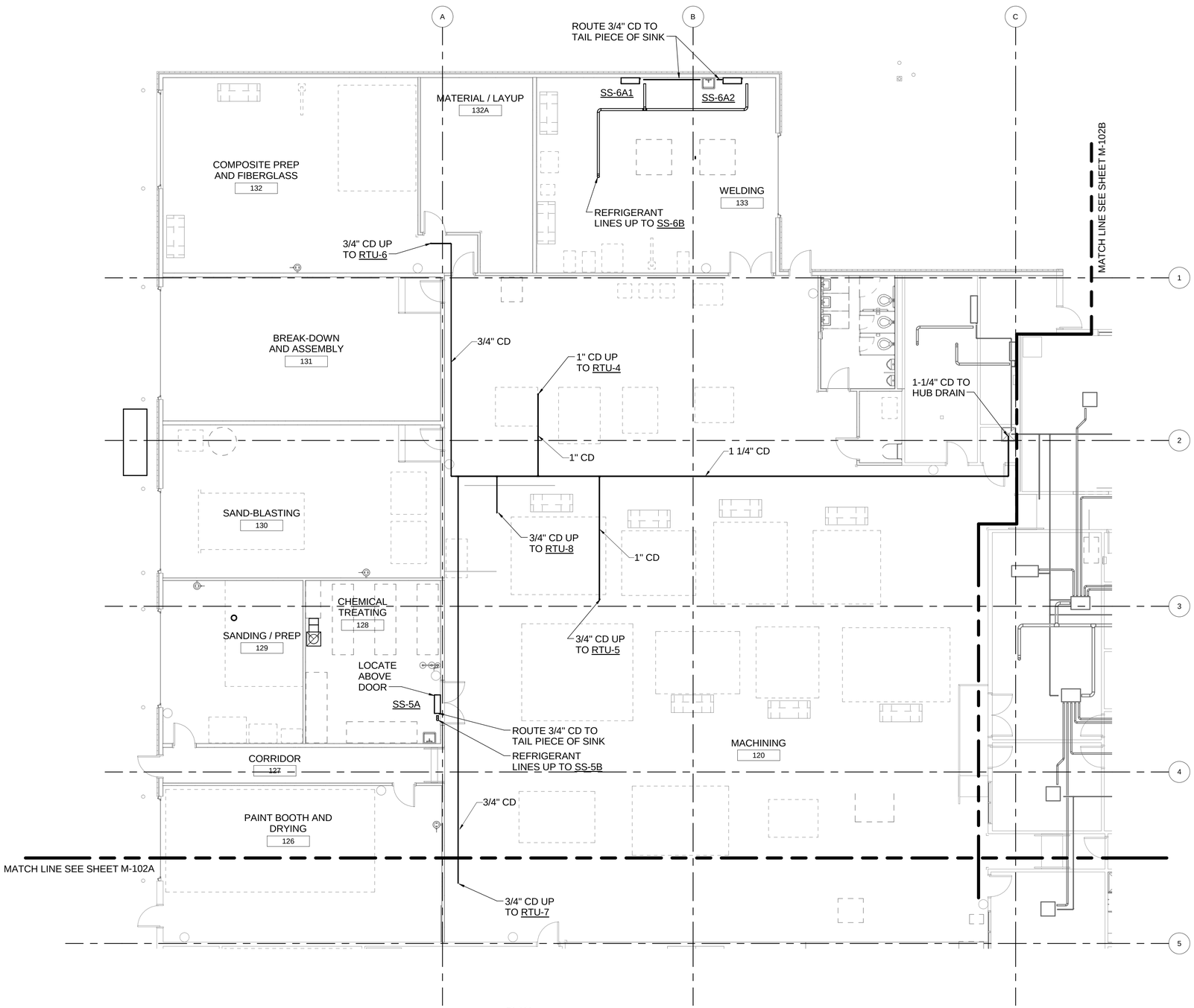
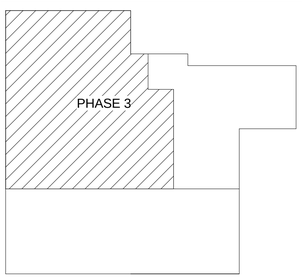


PLAN NORTH

PIPING FLOOR PLAN - PHASE 3

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

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SATISFACTORY TO DATE

DES	AEB	DRW	SWL	CHK	JFC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND – WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

PIPING FLOOR PLAN - PHASE 3

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078433

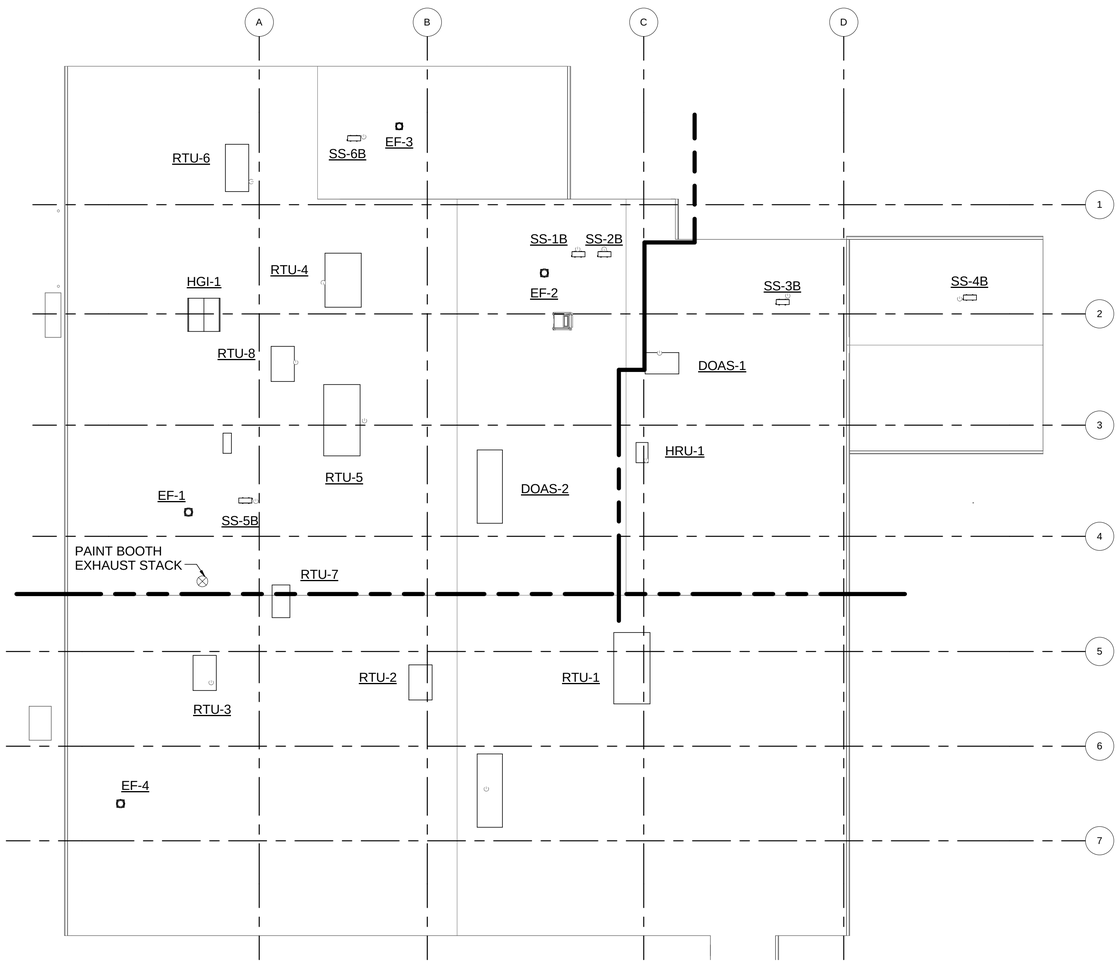
SHEET 149 OF 180

M-102C

FILE NAME: C:\Users\Public\Documents\Revit 2015\2215135\R15_M_Cent_Andrew Boehm 6697.rvt

REVDATE: 3/17/2016 5:21:38 PM

DRAWFORM REVISION: 10 MAY 2014

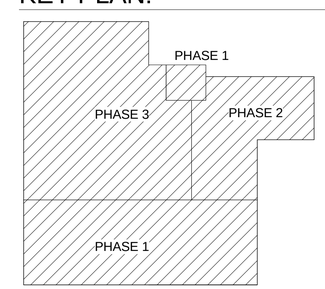


PLAN NORTH

OVERALL HVAC ROOF PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0"

0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

OVERALL HVAC ROOF PLAN

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078434

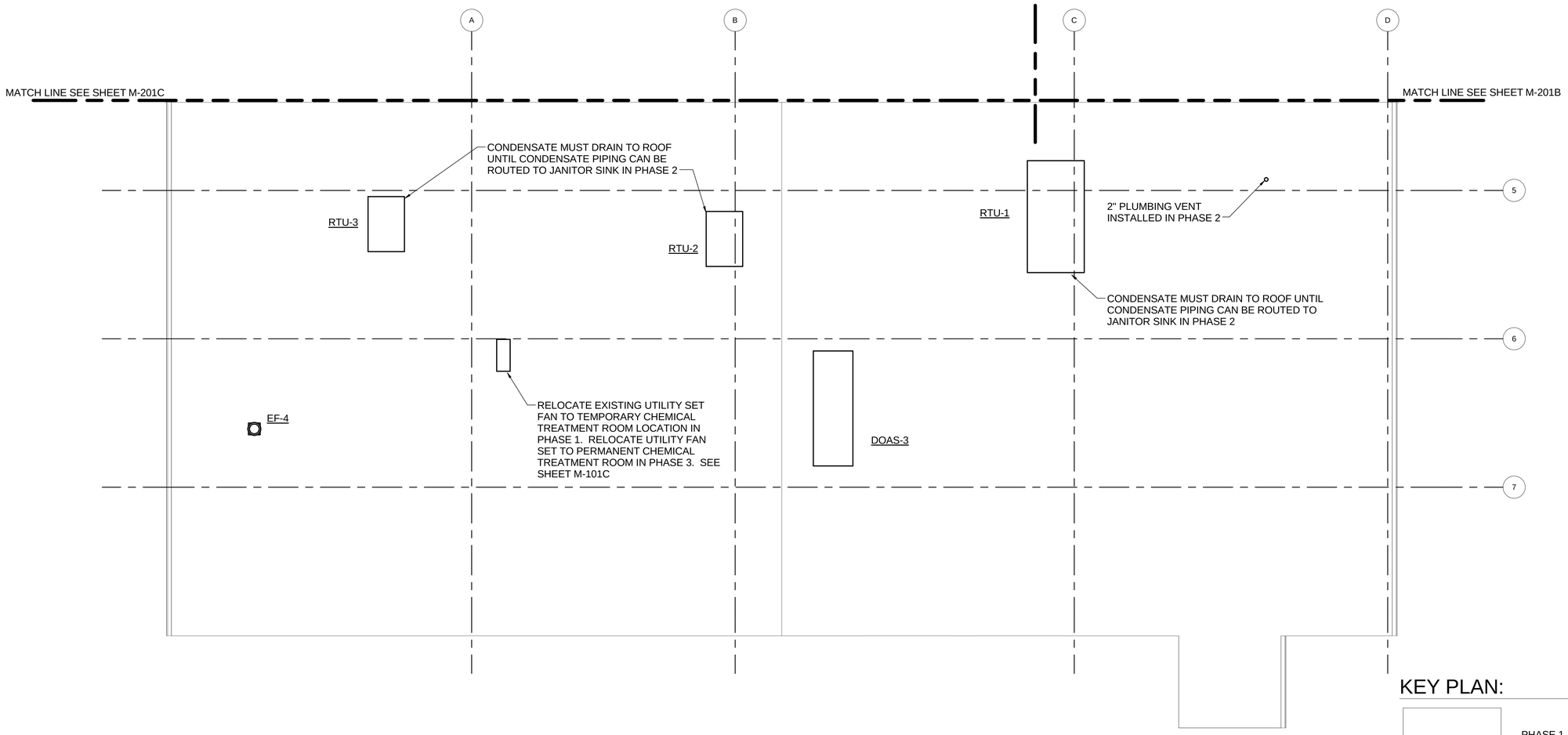
SHEET 150 OF 180

M-200

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6687.rvt

REVDATE: 3/17/2016 5:21:39 PM



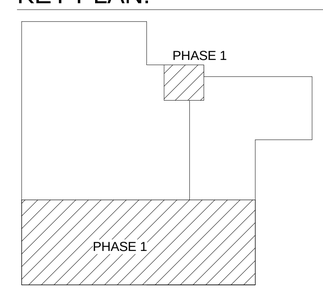
PLAN NORTH

HVAC ROOF PLAN - PHASE 1

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

NOTES:
1. ENSURE ALL OUTSIDE AIR INTAKES ARE MORE THAN 10 FEET AWAY FROM BUILDING EXHAUST OUTLETS AND PLUMBING VENTS.

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

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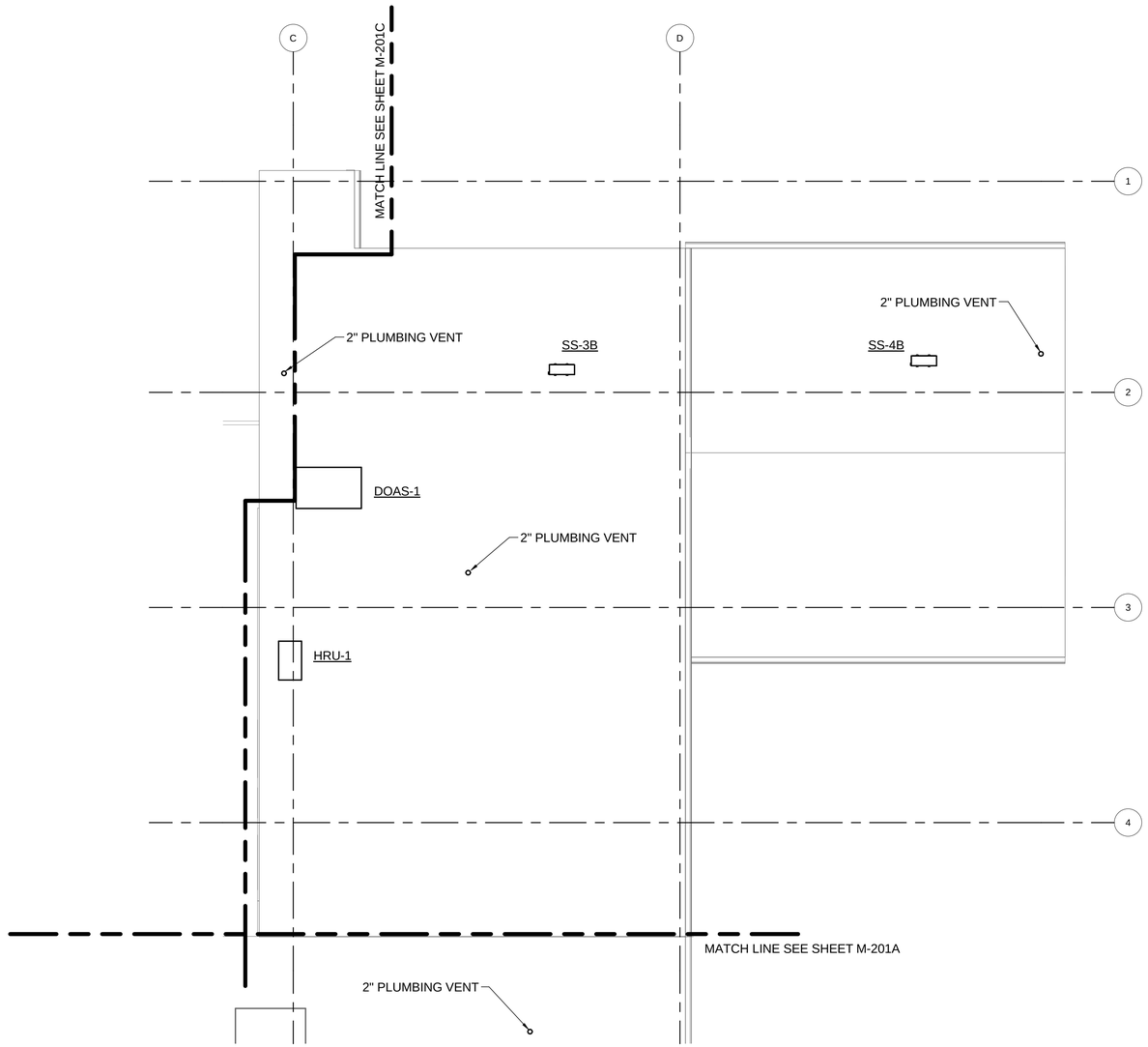
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
HVAC ROOF PLAN - PHASE 1

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078435
SHEET 151 OF 180
M-201A

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt
REV/DATE: 3/17/2016 5:21:41 PM



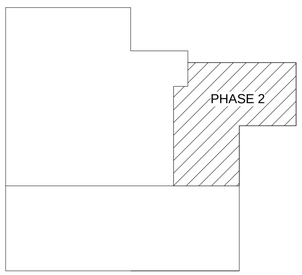
PLAN NORTH

HVAC ROOF PLAN - PHASE 2

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

NOTES:
1. ENSURE ALL OUTSIDE AIR INTAKES ARE MORE THAN 10 FEET AWAY FROM BUILDING EXHAUST OUTLETS AND PLUMBING VENTS.

KEY PLAN:



GRAPHIC SCALE:

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

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ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
HVAC ROOF PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078436
SHEET 152 OF 180
M-201B

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt
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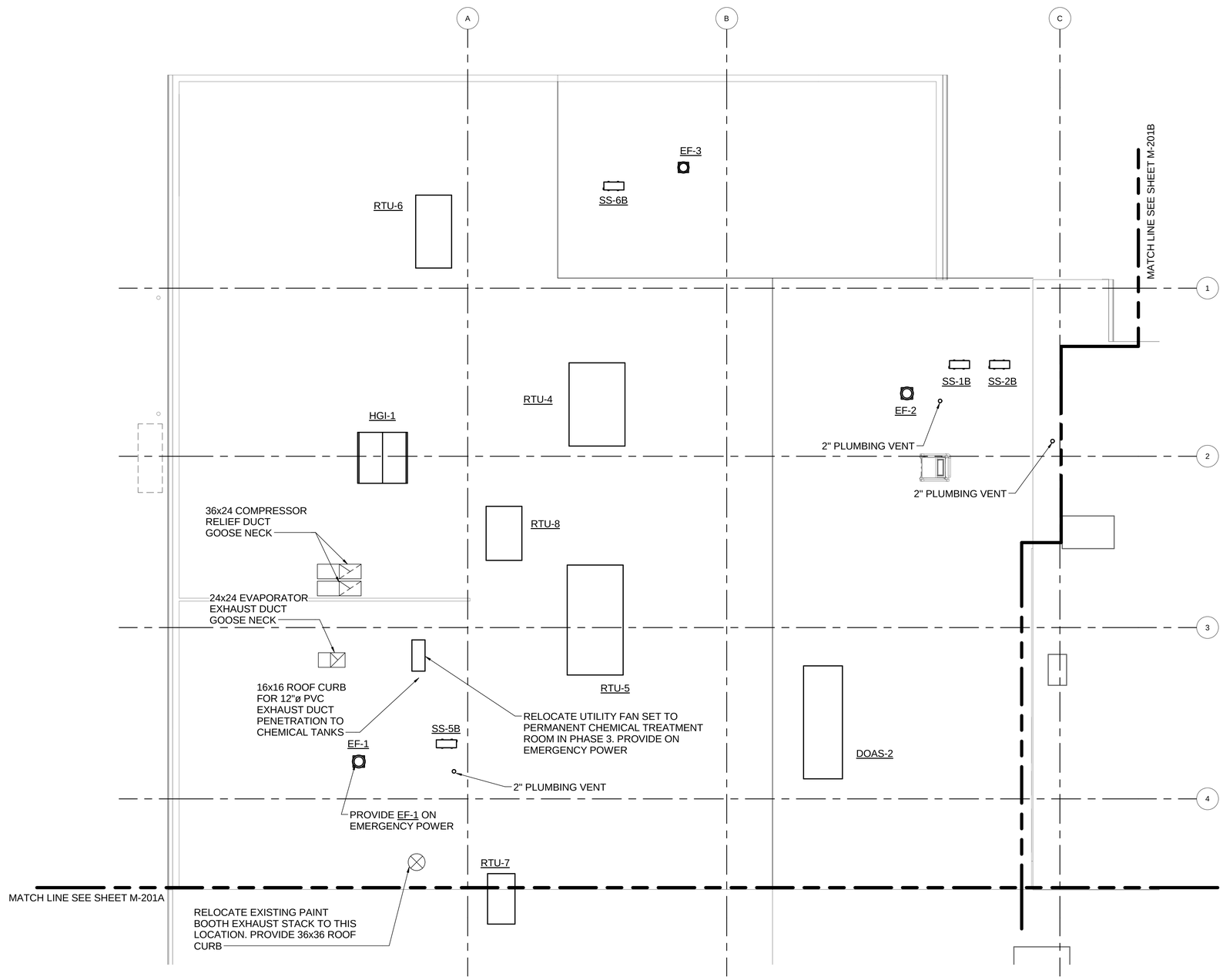


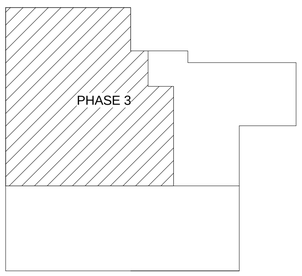
PLAN NORTH

HVAC ROOF PLAN - PHASE 3

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

NOTES:
1. ENSURE ALL OUTSIDE AIR INTAKES ARE MORE THAN 10 FEET AWAY FROM BUILDING EXHAUST OUTLETS AND PLUMBING VENTS.

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

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ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

HVAC ROOF PLAN - PHASE 3

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078437
SHEET 153 OF 180

M-201C

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt
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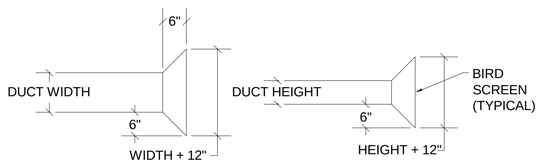
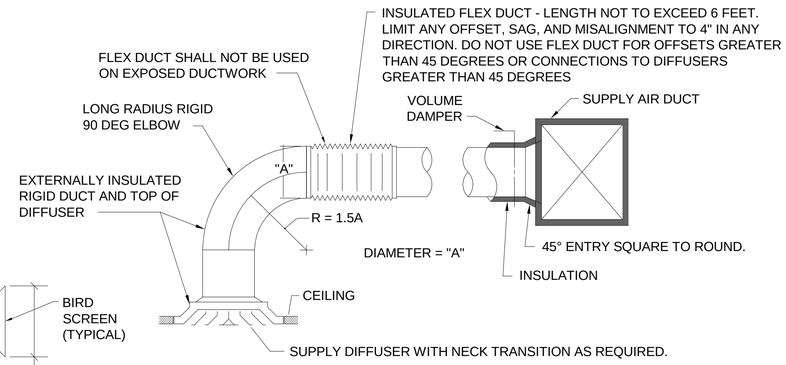


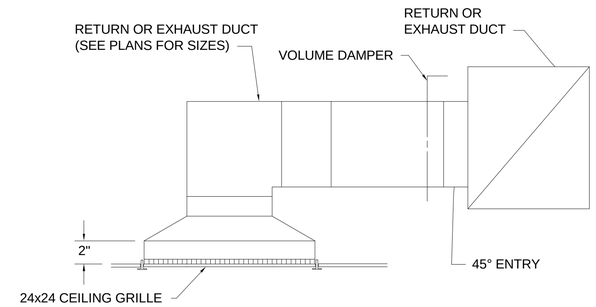
BELLMOUTH FITTING CONSTRUCTION

SCALE: NONE



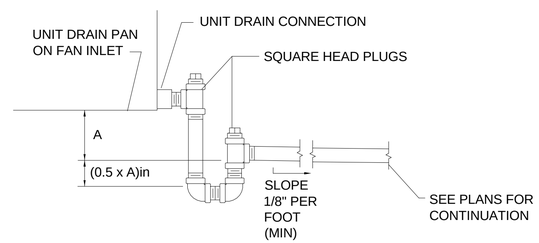
TYPICAL CEILING SUPPLY DIFFUSER CONNECTION

SCALE: NONE



CEILING RETURN/EXHAUST GRILLE

SCALE: NONE

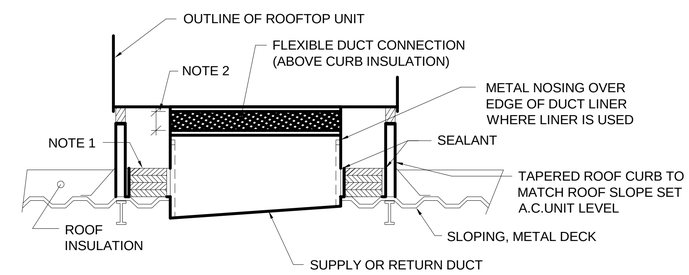


"A" = SYSTEM STATIC PRESSURE IN INCHES, AT DRAIN POINT.

NOTE: CONDENSATE DRAIN PIPE SIZE SHALL BE UNIT DRAIN CONNECTION SIZE (MINUMUM 1").

AIR HANDLING UNIT DRAIN FOR NEGATIVE PRESSURE DRAIN PAN

SCALE: NONE



NOTES:
1. 6" THICKNESS, 6LB. PER CU. FT. DENSITY RIGID BOARD INSULATION. APPLY IN MULTIPLE LAYERS WITH JOINTS TIGHTLY BUTTED AND STAGGERED BETWEEN LAYERS. APPLY NON-HARDENING SEALANT BETWEEN DUCT & INSULATION AND BETWEEN INSULATION & CURB TO SEAL ALL GAPS.
2. PROVIDE A MINIMUM OF 3" CLEAR DURING UNIT OPERATION.

TYPICAL ROOF CURB

SCALE: NONE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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SATISFACTORY TO DATE

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WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
DETAILS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078438
SHEET 154 OF 180
M-501

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt
REVDATE: 3/17/2016 5:21:44 PM

DUCTLESS SPLIT SYSTEM SCHEDULE

INDOOR UNIT DESIGNATION		SS-1A	SS-2A	SS-3A	SS-4A	SS-5A	SS-6A1	SS-6A2
OUTDOOR UNIT DESIGNATION		SS-1B	SS-2B	SS-3B	SS-4B	SS-5B	SS-6B	
ROOM SERVED		135 - ELECTRICAL	136 - FIRE PROTECTION	112B - POP ROOM	112A - ADDITIVE MFG	125 - CHEMICAL TREATMENT	133 - WELDING	133 - WELDING
INDOOR UNIT	AIRFLOW (LOW/MEDIUM/HIGH)	290/335/380	290/335/380	705/810/920	705/810/920	705/810/920	643/494/350	643/494/350
	RATED TOTAL COOLING CAPACITY (MBH)	18	18	34.2	34.2	34.2	24	24
	RATED HEATING CAPACITY AT 47 DEG F (MBH)	18	18	37	37	37	27	27
	VOLTAGE (V)	208	208	208	208	208	208	208
	PHASE	1	1	1	1	1	1	1
	FREQUENCY (Hz)	60	60	60	60	60	60	60
REFRIGERANT		R410A	R410A	R410A	R410A	R410A	R410A	
OUTDOOR UNIT	RATED TOTAL COOLING CAPACITY (MBH)	18	18	34.2	34.2	34.2	48	
	MINIMUM SEER	15.3	15.3	14	14	14	18.8	
	RATED HEATING CAPACITY AT 47 DEG F (MBH)	18	18	37	37	37	54	
	RATED HEATING CAPACITY AT 14 DEG F (MBH)	12	12	25	25	25	- -	
	MINIMUM COP AT 47 DEG F	3	3	3	3	3	3	
	MINIMUM COP AT 14 DEG F	2	2	2	2	2	- -	
	AMBIENT DESIGN TEMPERATURE (DEG F)	95	95	95	95	95	95	
	MINIMUM CIRCUIT AMPACITY (A)	13	13	25	25	25	25	
	MAXIMUM OVERCURRENT PROTECTION (A)	15	15	30	30	30	30	
	VOLTAGE (V)	208	208	208	208	208	208	
	PHASE	1	1	1	1	1	1	
	FREQUENCY (Hz)	60	60	60	60	60	60	
REMARKS		1, 2 & 3	1, 2 & 3	1, 2, 3 & 4	1, 2, 3 & 4	1, 2, 3 & 4	1, 2, 3 & 4	

REMARKS LEGEND:

1. POWER FROM OUTDOOR UNIT, OUTDOOR UNIT POWER INCLUDES EVAPORATOR POWER. INSTALL PER MANUFACTURER'S INSTRUCTIONS, ADJUST CHARGE AS NEEDED FOR REFRIGERANT PIPE LENGTH.
2. PROVIDE 3/4" CONDUIT BETWEEN INDOOR AND OUTDOOR UNIT.
3. PROVIDE LOW AMBIENT OPERATION DOWN TO 0 DEG F OUTSIDE AIR.
4. PROVIDE CONDENSATE PUMP. SEE CONDENSATE PUMP SCHEDULE ON THIS SHEET.

ROOF TOP UNIT SCHEDULE

DESIGNATION		RTU-1	RTU-2	RTU-3	RTU-4	RTU-5	RTU-6	RTU-7	RTU-8
SUPPLY FAN	TOTAL FAN AIRFLOW (CFM)	6,790	4,010	2,000	5,600	6,200	4,630	1,600	3,250
	OUTSIDE AIR (CFM)	1,165	340	520	1,260	450	740	330	400
	DRIVE TYPE	BELT	BELT	BELT	BELT	BELT	BELT	BELT	BELT
	SUPPLY FAN MOTOR POWER (HP)	7.5	3.0	2	5.0	7.5	5	1.5	3
	EXTERNAL STATIC PRESSURE (IN. WG)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
COOLING CAPACITY	ENTERING AIR TEMPERATURE DB/WB (DEG F)	76.4/65.5	75.7/64.0	77.1/66.9	76.4/65.5	75.0/63.0	76.2/65.1	76.7/66.0	76.0/64.7
	LEAVING AIR TEMPERATURE DB/WB (DEG F)	53.3/52.9	55.2/54.1	54.2/53.0	55.8/55.2	50.5/50.0	54.1/53.6	55.6/54.9	55.0/54.5
	TOTAL CAPACITY (MBH)	254.0	117.5	84.7	177.3	252.8	155.1	54.5	99.9
	SENSIBLE CAPACITY (MBH)	167.8	88.7	49.5	124.8	160.8	107.9	36.4	73.8
	MINIMUM EER AT AHRI CONDITIONS	9.5	11	11.5	10.6	9.5	11	14	11
HEATING CAPACITY	HEAT PUMP CAPACITY AT 47 DEG F (MBH)	240	102	75	164	240	135	51.5	90.5
	HEAT PUMP CAPACITY AT 17 DEG F (MBH)	146	58	43	100	146	90	30	53
	MINIMUM COP AT 47 DEG F	3.2	3.3	3.35	3.25	3.2	3.20	3.35	3.35
	MINIMUM COP AT 17 DEG F	2.0	2.2	2.20	2.05	2.0	2.05	2.14	2.25
ELECTRIC AUXILIARY HEAT CAPACITY (KW)		54	24	18	36	54	36	10	24
COMPRESSOR	TYPE	SCROLL	SCROLL	SCROLL	SCROLL	SCROLL	SCROLL	SCROLL	SCROLL
	QUANTITY	2	2	2	2	2	2	1	2
	REFRIGERANT TYPE	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
FILTER TYPE		MERV 8	MERV 8	MERV 8/13	MERV 8	MERV 8	MERV 8/13	MERV 8	MERV 8
ELECTRICAL	MINIMUM CIRCUIT AMPACITY	89.6	65.9	51.5	70.3	89.6	91.6	32.7	62.5
	MAXIMUM OVER CURRENT PROTECTION (A)	100	70	60	80	100	100	35	70
	VOLTS (V)	480	480	480	480	480	480	480	480
	PHASE	3	3	3	3	3	3	3	3
	FREQUENCY (Hz)	60	60	60	60	60	60	60	60
UNIT WEIGHT (LBS)		2,855	1,266	1,207	2,340	2,855	1,538	673	1,268
REMARKS		1, 2, 3, & 4	1, 2, 3, & 4	1, 2, 3, 4, & 5	1, 2, 3, & 4	1, 2, 3, & 4	1, 2, 3, 4, & 5	2, 3,& 4	1, 2, 3, & 4

REMARKS LEGEND:

1. PROVIDE MINIMUM OF 2 STAGES OF COOLING.
2. PROVIDE SINGLE POINT POWER CONNECTION.
3. PROVIDE FACTORY INSTALLED CONTINUOUS CAPACITY MODULATION DEVICE SUCH AS RAWAL APR VALVE OR SIMILAR.
4. PROVIDE FACTORY AIR SIDE ECONOMIZER.
5. PROVIDE MERV 8 PRE-FILTER AND MERV 13 FINAL FILTER

EXHAUST FAN SCHEDULE

DESIGNATION	EF-1	EF-2	EF-3	EF-4
USAGE	EXHAUST	EXHAUST	EXHAUST	EXHAUST
SERVES ROOM(S)	CHEMICAL TREATING ROOM	BATHROOMS	WELDING	WOOD WORKING
DESCRIPTION	CABINET INLINE	CENTRIFUGAL ROOF FAN	CENTRIFUGAL ROOF FAN	CENTRIFUGAL ROOF FAN
FAN DATA	- -	- -	- -	- -
AIRFLOW (SCFM)	450	400	600	800
TOTAL SP (IN-H2O)	0.25	0.25	2.5	0.125
RPM	1521	1604	2202	1650
DRIVE TYPE	DIRECT	DIRECT	BELT	DIRECT
MOTOR DATA	- -	- -	- -	- -
HORSEPOWER	1/6	1/6	3/4	1/6
RPM	1,725	1725	1725	1725
VOLTS	115	115	208	115
PHASE	1	1	3	1
HERTZ	60	60	60	60
FULL LOAD AMPS	3.4	3.4	1.6	2.6
MAXIMUM dBA AT 5 FEET	54	58	67	56
REMARKS	1 & 2	1 & 2	1	1 & 2

REMARKS LEGEND:

1. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.
2. PROVIDE FAN WITH ELECTRONICALLY COMMUTATED MOTOR (ECM) AND ADJUSTABLE SPEED.

HOODED GRAVITY INTAKE SCHEDULE

DESIGNATION	HGI-1
USAGE	INTAKE
AIRFLOW (CFM)	7,200
STATIC PRESSURE (IN H2O)	0.048
THROAT WIDTH (IN)	48
THROAT LENGTH (IN)	48
THROAT AREA (SF)	16
THROAT VELOCITY (FPM)	450
OVERAL LENGTH (IN)	82
OVERAL WIDTH (IN)	84
OVERAL HEIGHT (IN)	25
REMARKS	1

REMARKS LEGEND:

1. PROVIDE BIRD SCREEN.

CONDENSATE PUMP SCHEDULE

DESIGNATION	CDP-1	CDP-2	CDP-3
ASSOCIATED UNIT	SS-3A	SS-4A	SS-5A
TYPE	VERTICAL	VERTICAL	VERTICAL
PUMP CAPACITY - GPH	2.5	2.5	2.5
PUMP HEAD (FT-H2O)	2	2	2
DISHCHARGE DIA (IN)	5/32	5/32	5/32
MOTOR POWER (WATTS)	19	19	19
VOLTAGE	115	115	115
PHASE	1	1	1
FREQUENCY (Hz)	60	60	60
AMPS	0.24	0.24	0.24

DUCT AND PIPE MATERIAL AND INSULATION SCHEDULE

SERVICE	CONFIGURATION	SIZE	INSULATION	THICKNESS	FINISH	DUCT/PIPE MATERIAL	REMARKS
LOW PRESSURE SUPPLY DUCT	CONCEALED IN CONDITIONED SPACE	--	FIBERGLASS BLANKET FOR SQUARE DUCT, BLANKET FOR ROUND	2"	FSK	GALV. STEEL	1 & 3
LOW PRESSURE SUPPLY DUCT	EXPOSED IN CONDITIONED SPACE	--	FIBERGLASS BLANKET FOR SQUARE DUCT, BLANKET FOR ROUND	2"	FSK	GALV. STEEL	3
LOW PRESSURE SUPPLY DUCT	EXPOSED IN UNCONDITIONED SPACE (MECHANICAL ROOM)	--	FIBERGLASS BOARD FOR SQUARE DUCT, BLANKET FOR ROUND	2"	FSK	GALV. STEEL	1 & 3
RETURN AIR DUCT	CONCEALED IN CONDITIONED SPACE	--	--	--	--	GALV. STEEL	2
RETURN AIR DUCT	EXPOSED IN CONDITIONED SPACE	--	--	--	--	GALV. STEEL	2
RETURN AIR DUCT	EXPOSED IN UNCONDITIONED SPACE	--	FIBERGLASS BOARD WITH WHITE SURFACE SUITABLE FOR PAINTING	1-1/2"	--	GALV. STEEL	--
EXHAUST AIR DUCT	CONCEALED IN CONDITIONED SPACE	--	--	--	--	GALV. STEEL	2
EXHAUST AIR DUCT	EXPOSED IN CONDITIONED SPACE	--	--	--	--	GALV. STEEL	2
EXHAUST AIR DUCT	EXPOSED IN UNCONDITIONED SPACE	--	FIBERGLASS BOARD WITH WHITE SURFACE SUITABLE FOR PAINTING	1-1/2"	--	GALV. STEEL	--
CONDENSATE PIPING	INDOOR	ALL	FLEXIBLE ELASTOMERIC	1"	--	COPPER	--
CONDENSATE PIPING	OUTDOOR	ALL	FLEXIBLE ELASTOMERIC WITH ALUMINUM JACKET	1"	--	COPPER	--
REFRIGERANT SUCTION PIPING	INDOOR	ALL	FLEXIBLE ELASTOMERIC	1"	--	COPPER	--
REFRIGERANT SUCTION PIPING	OUTDOOR	ALL	FLEXIBLE ELASTOMERIC WITH ALUMINUM JACKET	1"	--	COPPER	--
REFRIGERANT LIQUID PPING	ALL	ALL	FLEXIBLE ELASTOMERIC WITH ALUMINUM JACKET	1"	--	COPPER	--

REMARKS LEGEND:

1. DUCT WRAP INSULATION MUST BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS. THE MANUFACTURER INSTRUCTIONS INCLUDE STAPLES 6" O.C. PRESSURE SENSITIVE TAPE. MECHANICAL FASTENERS AND SPEED CLIPS ARE TO BE USED ON THE BOTTOMS 18" O.C. FOR DUCT 24" OR GREATER. NO ADDITIONAL ADHESIVE IS REQUIRED.
2. INSULATION NOT REQUIRED PER ASHRAE 90.1
3. INSULATE THE BACKS OF ALL SUPPLY AIR DIFFUSERS WITH BLANKET FLEXIBLE MINERAL FIBER INSULATION.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.
ACTIVITY
SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JPC
PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
SCHEDULES

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078439
SHEET 155 OF 180
M-601

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VRF INDOOR UNITS

DESIGNATION	VRV-1	VRV-2	VRV-3	VRV-4	VRV-5	VRV-6	VRV-7	VRV-8	VRV-9	VRV-10	VRV-11	VRV-12	VRV-13	VRV-14	VRV-15
LOCATION	101	103	104	105	106	102, 107, 108, 113, 115, 116	109	110	111	112	114	117	118	119	102
TYPE	4-WAY CASSETTE	4-WAY CASSETTE	4-WAY CASSETTE	4-WAY CASSETTE	4-WAY CASSETTE	MEDIUM STATIC DUCTED	4-WAY CASSETTE	MEDIUM STATIC DUCTED	4-WAY CASSETTE	MEDIUM STATIC DUCTED	4-WAY CASSETTE	MEDIUM STATIC DUCTED	4-WAY CASSETTE	4-WAY CASSETTE	4-WAY CASSETTE
EVAPORATOR DATA	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
FAN AIR FLOW (CFM) (HIGH/MED/LOW)	353	353	353	353	353	353	353	512	353	512	371	318	353	353	353
EXT. S.P. (IN.-H2O)	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.00	0.50	0.00	0.50	0.00	0.00	0.00
NOMINAL TOTAL COOLING CAPACITY (BTU/HR)	9,500	9,500	9,500	9,500	9,500	12,000	9,500	18,000	9,500	18,000	12,000	9,500	9,500	9,500	9,500
NOMINAL SENSIBLE COOLING CAPACITY (BTU/HR)	6,800	6,800	6,800	6,800	6,800	9,100	6,800	13,800	6,800	13,800	9,300	7,400	6,800	6,800	6,800
NOMINAL HEATING CAPACITY (BTU/HR)	10,500	10,500	10,500	10,500	10,500	13,500	10,500	20,000	10,500	20,000	13,500	10,500	10,500	10,500	10,500
RATED TOTAL COOLING CAPACITY (BTU/HR)	7,400	7,400	7,400	7,400	7,400	9,200	7,400	14,100	7,400	14,100	9,200	7,400	7,400	7,400	7,400
RATED SENSIBLE COOLING CAPACITY (BTU/HR)	6,100	6,100	6,100	6,100	6,100	7,700	6,100	12,000	6,100	12,000	8,300	6,400	6,100	6,100	6,100
RATED HEATING CAPACITY (BTU/HR)	10,000	10,000	10,000	10,000	10,000	12,700	10,000	18,900	10,000	18,900	12,700	10,000	10,000	10,000	10,000
FILTER (MERV)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
ELECTRICAL DATA	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
MCA (AMPS)	1.8	0.6	1.6	0.6	0.6	0.6	0.6	0.6	2.3	0.6	0.6	3.4	0.6	0.6	0.6
VOLTS	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208
PHASE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HERTZ	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
REFRIGERANT	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
ASSOCIATED MODE CHANGE UNIT	MCU-3	MCU-2	MCU-2	MCU-3	MCU-3	MCU-2	MCU-1	MCU-1	MCU-1	MCU-1	MCU-2	MCU-2	MCU-3	MCU-3	MCU-1
REMARKS	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2

REMARKS LEGEND:

1. PROVIDE HIGH LIMIT FLOAT SWITCH IN INDOOR UNIT DRAIN PAN TO SHUT DOWN VRF FAN COIL ON PRIMARY CONDENSATE DRAIN BLOCKAGE.
2. PROVIDE INTEGRAL CONDENSATE PUMP.

VRF OUTDOOR UNIT

DESIGNATION	HRU-1
TYPE	HEAT RECOVERY
TOTAL NOMINAL COOLING CAPACITY (BTU/HR)	144,000
TOTAL RATED COOLING CAPACITY (BTU/HR)	138,000
TOTAL NOMINAL HEATING CAPACITY (BTU/HR)	162,000
TOTAL RATED HEATING CAPACITY (BTU/HR)	154,000
MINIMUM TURNDOWN CAPACITY (BTU/HR)	7,513
AMBIENT SUMMER DESIGN TEMPERATURE (DEG F)	90
AMBIENT ROOFTOP SUMMER DESIGN TEMPERATURE (DEG F)	95
AMBIENT WINTER DESIGN TEMPERATURE (DEG F)	21
MINIMUM ENERGY EFFICIENCY RATIO (EER)	12.0
MINIMUM INTEGRATED ENERGY EFFICIENCY RATIO (IEER)	26.5
MINIMUM SIMULTANEOUS HEATING AND COOLING EFFICIENCY (SCHE)	2.55
MINIMUM HEATING COP AT 47 DEG F	27.5
VOLTAGE (V)	208
PHASE	3
FREQUENCY (Hz)	60
MAXIMUM CIRCUIT BREAKER (A)	70
MINIMUM CIRCUIT AMPACITY (MCA)	52.6
REFRIGERANT	R-410A
SELECTION BASED ON	--
MODEL	--
REMARKS	1 & 2

REMARKS LEGEND:

1. PROVIDE LOW AMBIENT OPERATION DOWN TO 5 DEG F AND WIND/HAIL GUARDS
2. PROVIDE FACTORY BACNET GATEWAY

VRF MODE CHANGE UNIT SCHEDULE

DESIGNATION	MCU-1	MCU-2	MCU-3
WIDTH (IN)	32.0	32.0	32.0
HEIGHT (IN)	8.0	8.0	8.0
DEPTH (IN)	18.0	18.0	18.0
TOTAL PORTS	5	6	6
ELECTRICAL DATA	- -	- -	- -
MCA (AMPS)	0.4	0.4	0.4
MOP (AMPS)	15	15	15
VOLTS	208	208	208
PHASE	1	1	1
HERTZ	60	60	60
SELECTION BASED ON	--	--	--
MODEL	--	--	--
REMARKS	1	1	1

REMARKS LEGEND:

1. PROVIDE MANUFACTURER'S MINIMUM CLEARANCES, 1" OD DRAIN CONNECTION REQUIRED

ELECTRIC UNIT HEATER SCHEDULE

DESIGNATION	ECH-1	ECH-2	UH-1
LOCATION	VESTIBULE - 108A	VESTIBULE - 108B	WATERJET CHILLERS - 126C
AIRFLOW (CFM)	250	250	250
UNIT TYPE	CABINET CONSOLE	CABINET CONSOLE	CEILING HUNG HORIZONTAL FLOW
MOUNTING TYPE	SURFACE	SURFACE	SURFACE
MINIMUM CAPACITY (KW)	2.0	2.0	2.0
ENTERING AIR TEMPERATURE (DEG F)	55	55	55
UNIT VOLTAGE (V)	208	208	208
PHASE	1	1	1
FREQUENCY (HZ)	60	60	60
REMARKS	1 & 2	1 & 2	1 & 2

REMARKS LEGEND:

1. PROVIDE BUILT-IN THERMOSTAT.
2. PROVIDE INTEGRAL DISCONNECT

LOUVER SCHEDULE

DESIGNATION	L-1	L-2	L-3	L-4
USAGE	INTAKE	INTAKE	EXHAUST	EXHAUST
DESCRIPTION	DRAINABLE BLADE	DRAINABLE BLADE	DRAINABLE BLADE	DRAINABLE BLADE
DEPTH (IN)	6	6	6	6
FRAME TYPE	CHANNEL	CHANNEL	CHANNEL	CHANNEL
WIDTH (IN)	28	28	28	28
HEIGHT (IN)	28	28	28	28
AIRFLOW (CFM)	1,100	1,100	1,100	1,100
FREE AREA (SF)	2.57	2.57	2.57	2.57
FREE AREA VELOCITY (FPM)	429	429	429	429
PRESSURE DROP (IN H2O)	0.03	0.03	0.03	0.03
SELECTION BASED ON	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL	ESD-603	ESD-603	ESD-603	ESD-603
REMARKS	1	1	1	1

REMARKS LEGEND:

1. PROVIDE BIRD SCREEN.

DUCT CONSTRUCTION AND LEAKAGE SCHEDULE

SYSTEM	DUCT PRESSURE CLASS				SUPPLY				RETURN/ OUTSIDE AIR		REMARKS
	INCHES OF WATER COLUMN				ROUND/OVAL		RECTANGULAR				
	SUPPLY DUCT	RETURN DUCT	EXHAUST DUCT	OUTSIDE AIR DUCT	DUCT SEAL CLASS	DUCT LEAK CLASS	DUCT SEAL CLASS	DUCT LEAK CLASS	DUCT SEAL CLASS	DUCT LEAK CLASS	
PACKAGED ROOFTOP - CV	1.5	- -	- -	- -	A	12	A	12	- -	- -	1
	- -	-1	- -	- -	- -	- -	- -	- -	A	24	1
DUCTED VRF FAN COILS	1	- -	- -	- -	A	12	A	12	- -	- -	1
	- -	-1	- -	- -	- -	- -	- -	- -	A	24	1
EXHAUST DUCT	- -	- -	-1	- -	- -	- -	A	24	- -	- -	1

REMARKS LEGEND:

1. PROVIDE DUCT LEAKAGE TESTING FOR ALL DUCTWORK.

SYM | DESCRIPTION | DATE | APPR

NAVFAC

COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
3/18/16
PROFESSIONAL ENGINEER
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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
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DEDICATED OUTSIDE AIR UNIT SCHEDULE

		DOAS-1	DOAS-2	DOAS-3
DESIGNATION		DOAS-1	DOAS-2	DOAS-3
AREAS SERVED		ADMIN AREA	MACHINING	MACHINING
EER AT OPERATION CONDITIONS		12.1	14.2	14.2
SUPPLY FAN	TOTAL FAN AIRFLOW (CFM)	1,050	2,000	2,000
	CONTROL TYPE	ECM	CONSTANT	CONSTANT
	EXTERNAL STATIC PRESSURE (IN. WG)	0.5	1.25	1.25
	SUPPLY FAN MOTOR SPEED (RPM)	2,013	1,631	1,631
	DRIVE TYPE	DIRECT	BELT	BELT
EXHAUST FAN	TOTAL FAN AIRFLOW (CFM)	895	- -	- -
	CONTROL TYPE	ECM	- -	- -
	EXTERNAL STATIC PRESSURE (IN. WG)	0.85	- -	- -
	EXHAUST FAN MOTOR SPEED (RPM)	1,733	- -	- -
	DRIVE TYPE	DIRECT	- -	- -
ENTHALPY WHEEL	OPERATING OUTSIDE AIRFLOW	1,050	- -	- -
	OPERATING EXHAUST AIRFLOW	895	- -	- -
	OUTDOOR EAT DB/WB (COOLING)	90.0/76.0	- -	- -
	OUTDOOR EAT DB (HEATING)	21.0/18.0	- -	- -
	EXHAUST EAT DB/WB (COOLING)	78.0/63.5	- -	- -
	EXHAUST EAT DB (HEATING)	68	- -	- -
	DELIVERED CONDITIONS DB/WB (COOLING)	82.1/68.6	- -	- -
	EFFECTIVENESS SUMMER (TOTAL/SENSIBLE)	71%/75%	- -	- -
	DELIVERED CONDITIONS DB/WB (HEATING)	50.9/39.8	- -	- -
	EFFECTIVENESS WINTER (TOTAL/SENSIBLE)	73%/75%	- -	- -
COOLING COIL	AIR FLOW (CFM)	1,050	2,000	2,000
	TOTAL NET CAPACITY (BTU/HR)	47,876	163,800	163,800
	SENSIBLE NET CAPACITY (BTU/HR)	32,107	85,400	85,400
	ENTERING AIR TEMPERATURE DB/WB (DEG F)	82.1/68.6	90/76	90/76
	LEAVING AIR TEMPERATURE DB/WB (DEG F)	54.1/54.1	51.7/51.7	51.7/51.7
	FACE VELOCITY (FPM)	147.9	285	285
	AIR PRESSURE DROP (IN W.G.)	0.23	0.36	0.36
HOT GAS REHEAT SECTION	HEAT TYPE	MODULATING HOT GAS	MODULATING HOT GAS	MODULATING HOT GAS
	HEATING AIRFLOW (CFM)	1,050	2,000	2,000
	TOTAL CAPACITY (BTU/HR)	18,091	47,775	47,775
	ENTERING AIR TEMPERATURE DB (DEG F)	54.1	51.7	51.7
	LEAVING AIR TEMPERATURE DB (DEG F)	70.0	73.7	73.7
HEATING SECTION	HEAT TYPE	SCR ELECTRIC	HEAT PUMP	HEAT PUMP
	HEATING AIRFLOW (CFM)	1,050	2,000	2,000
	TOTAL CAPACITY	12 KW	20 KW PREHEAT	20 KW PREHEAT
	TOTAL CAPACITY (BTU/HR)	40,956	83,800	83,800
	ENTERING AIR TEMPERATURE DB/WB (DEG F)	50.9/39.8	31.5	31.5
	LEAVING AIR TEMPERATURE DB/WB (DEG F)	87.3/55.1	69.4	69.4
FILTERS	PREFILTER SUPPLY (MERV)	2" MERV 8	- -	- -
	FINAL FILTER SUPPLY (MERV)	2" MERV 13	2" MERV 8	2" MERV 8
	PREFILTER EXHAUST (MERV)	2" MERV 8	- -	- -
ELECTRICAL	VOLTS (V)	208	480	480
	PHASE	3	3	3
	FREQUENCY (Hz)	60	60	60
	MCA (AMPS)	48.6	27.0	27.0
	MCOP (AMPS)	50	35	35
	SUPPLY FAN MOTOR POWER (HP)	1.3	1.5	1.5
	EXHAUST FAN MOTOR POWER (HP)	1.3	- -	- -
DISCHARGE LW (63/125/250/500/1000/2000/4000/8000) (dB) MAX		61/62/68/68/72/71/69/64	61/62/68/68/72/71/69/64	61/62/68/68/72/71/69/64
RETURN LW (63/125/250/500/1000/2000/4000/8000) (dB) MAX		61/59/65/63/66/65/61/56	61/59/65/63/66/65/61/56	61/59/65/63/66/65/61/56
REMARKS		1, 2, & 3	1, 2, 3, 4, & 5	1, 2, 3, 4, & 5

REMARKS LEGEND:

1. EXTERNAL STATIC PRESSURES SHOWN DO NOT INCLUDE DIRTY FILTER LOSS.
2. PROVIDE UNIT WITH MODULATING HOT GAS RE-HEAT.
3. PROVIDE PRE-MANUFACTURED ACOUSTIC VIBRATION ISOLATION ROOF CURB WITH 2" DEFLECTION SPRING ISOLATOR RAIL. PROVIDE KINETICS MODEL KSCR-2 CURB OR EQUAL.
4. PROVIDE DIGITAL SCROLL COMPRESSORS.
5. PROVIDE 20 KW SCR CONTROL ELECTRIC PREHEAT COIL UPSTREAM OF EVAPORATOR. PROVIDE SEPARATE POWER CONNECTION FOR ELECTRIC PREHEAT COIL. PREHEAT COIL MCA IS 30.1A AND MCOP IS 35A.

DIFFUSER SCHEDULE

TAG NUMBER	S1	S2	S3	R1	R3	E1	E2	E3	T1	T2
DESCRIPTION	SUPPLY	SUPPLY	SUPPLY	RETURN	RETURN	EXHAUST	EXHAUST	EXHAUST	TRANSFER	TRANSFER
TYPE	3-CONE	3-CONE	ROUND 3-CONE	EGGCRATE	SIDEWALL	EGGCRATE	EGGCRATE	SIDEWALL	EGGCRATE	SIDEWALL
NECK SIZE	A=6"	A=6"	A=6"	24 x 24	SEE PLANS	A=6"	12 x 12	SEE PLANS	24 x 24	SEE PLANS
	B=8"	B=8"	B=8"			B=8"				
	C=10"	C=10"	C=10"			C=10"				
	D=12"	D=12"	D=12"			D=12"				
FRAME STYLE	LAY-IN	LAY-IN	EXPOSED	LAY-IN	SURFACE MOUNT	LAY-IN	SURFACE MOUNT	SURFACE MOUNT	LAY-IN	SURFACE MOUNT
FRAME SIZE	24x24	12x12	VARIOUS	24x24	SEE PLANS	24x24	12x12	SEE PLANS	24x24	SEE PLANS
AIR PATTERN	4-WAY	4-WAY	4-WAY	- -	- -	- -	- -	- -	- -	- -
MAX PRESSURE DROP	0.075	0.075	0.075	0.05	0.075	0.05	0.05	0.075	0.05	0.075
MAX NC RATING	25	25	25	25	25	25	25	25	25	25
MATERIAL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
FINISH	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL
REMARKS	- -	1	- -	2	- -	- -	- -	- -	- -	- -

REMARKS LEGEND:

1. PROVIDE EXTENDED PANEL TO FIT IN 2'x2' CEILING GRID.
1. PROVIDE RETURN GRILLE WITH INTEGRAL FILTER.

OUTDOOR DESIGN CONDITIONS SCHEDULE

OUTDOOR TEMPERATURE DESIGN CONDITIONS (1%) - SUMMER (DEG F DB)	OUTDOOR WET BULB DESIGN CONDITIONS MCWB (1%) - SUMMER (DEG F WB)	OUTDOOR HUMIDITY DESIGN CONDITIONS (1%) - SUMMER (DEG F DB)	OUTDOOR HUMIDITY DESIGN CONDITIONS (1%) - SUMMER (GRAINS/LB)	OUTDOOR TEMPERATURE DESIGN CONDITIONS (99%) - WINTER (DEG F DB)	OUTDOOR TEMPERATURE DESIGN CONDITIONS (99%) - WINTER (DEG F WB)	OUTDOOR ROOFTOP CONDENSER TEMPERATURE DESIGN CONDITIONS (1%) - SUMMER (DEG F DB)
90	76	83	132	21	18	95

INDOOR DESIGN CONDITIONS SCHEDULE

ROOM DESCRIPTION	INDOOR TEMPERATURE DESIGN CONDITIONS - SUMMER (DEG F DB)	INDOOR DEW POINT DESIGN CONDITIONS - SUMMER (DEG F DP)	INDOOR SETBACK TEMPERATURE DESIGN CONDITIONS - SUMMER (DEG F DB)	INDOOR TEMPERATURE DESIGN CONDITIONS - WINTER (DEG F DB)	INDOOR SETBACK TEMPERATURE DESIGN CONDITIONS - WINTER (DEG F DB)
ADMINISTRATION	78	55	85	68	55
QA ROOM	72	55	72	68	68
TECHNICAL SPACES	75	55	85	68	55
FIRE PROTECTION	90	55	90	55	55
ELECTRICAL ROOM	90	55	90	55	55
POP ROOM	75	55	75	68	68

LOW LEAKAGE MOTORIZED DAMPER SCHEDULE

DESIGNATION	MD-1	MD-2	MD-3	MD-4	MD-5	MD-6	MD-7	MD-8	MD-9	MD-10	MD-11	MD-12	MD-13
USAGE	RTU-1 RETURN	RTU-2 RETURN	RTU-3 RETURN	RTU-4 RETURN	RTU-5 RETURN	RTU-6 RETURN	RTU-7 RETURN	RTU-8 RETURN	EF-1	EF-2	EF-3	EF-4	CHEM TRANSFER
DESCRIPTION	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE	LOW LEAKAGE
WIDTH (IN)	28	24	16	26	48	24	18	22	10	10	6" DIA	14	40
HEIGHT (IN)	28	24	16	26	20	24	16	22	10	10	--	14	24
AIRFLOW (CFM)	6,700	4,010	2,000	5,600	6,200	4,400	1,600	3,250	450	400	600	800	3,350
VELOCITY (FPM)	1231	1003	1125	1193	930	1100	800	967	648	576	3056	588	503
PRESSURE DROP (IN H2O)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.01	0.01
REMARKS	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, & 3	1, 2, 3, & 4

REMARKS LEGEND:

1. PROVIDE ACCESS DOOR.
2. PROVIDE LOW LEAKAGE DAMPERS AT A MAXIMUM LEAKAGE RATE OF 3 CFM/SQ. FT AT 1.0 INCH WG STATIC.
3. PROVIDE POWERED OPEN SPRING CLOSE ACTUATORS WITH A MAXIMUM CLOSE TIME OF 30 SECONDS.
4. PROVIDE CONTROL PANEL TO RELEASE DAMPER TO CLOSE ON SHUTDOWN OF BOTH EF-1 AND TANK EXHAUST FAN AND SIGNAL LOCAL ALARM.

SYM	DESCRIPTION	DATE	APPR

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COMMONWEALTH OF VIRGINIA
ANDREW EDWARD BOEHM
Lic. No. 043884
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A/E INFO.

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FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES AEB | DRW SWL | CHK JFC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
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NAVAL FACILITIES ENGINEERING COMMAND – WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

SCHEDULES

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078441

SHEET 157 OF 180

M-603

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\PublicDocuments\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt

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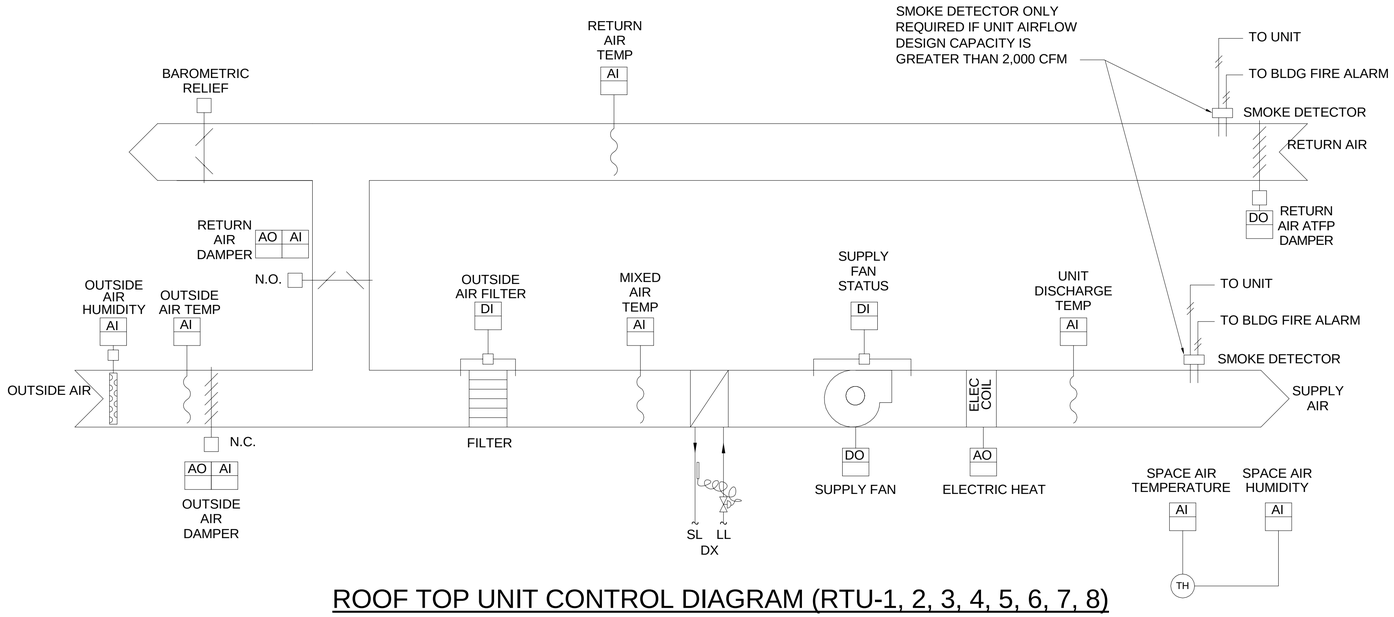


ROOF TOP UNIT CONTROL DIAGRAM (RTU-1, 2, 3, 4, 5, 6, 7, 8)

SEQUENCE OF OPERATIONS

SHUT DOWN MODE:
DURING THE SHUT DOWN MODE THE UNIT SHALL REMAIN OFF. ALL DAMPERS WILL BE CLOSED, AND THE SUPPLY FAN SHALL BE OFF.

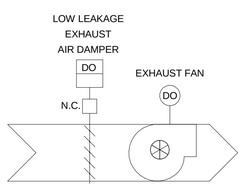
SUPPLY FAN START/STOP:
THE SUPPLY FAN WILL BE STARTED ACCORDING TO THE ADJUSTABLE OCCUPANCY SCHEDULE. IF THE SUPPLY FAN STATUS DOES NOT MATCH THE COMMANDED VALUE, THEN AN ALARM WILL BE GENERATED WHEN THE SUPPLY FAN STATUS INDICATES THAT THE FAN IS STARTED, THE CONTROL SEQUENCE WILL BE ENABLED.

OCCUPIED MODE OF OPERATION:
THE HEAT PUMP (HP) HAS AN INTEGRATED DIGITAL CONTROL PANEL WHICH WILL MONITOR AND CONTROL THE UNIT. THE CONTROL POINTS SHOWN INTERNAL TO THE HP IN THE DIAGRAM AND WILL BE MONITORED AND CONTROLLED BY THE FACTORY PROVIDED CONTROLLER.

THE FACTORY PROVIDED CONTROLLER SHALL CONTROL THE UNIT TO PROVIDE ROOM TEMPERATURE CONDITIONS IN THE SUMMER OF 75 DEG F (ADJ.) AND 68 DEG F (ADJ.) IN THE WINTER. THE ROOM TEMPERATURE AND HUMIDITY CONTROLLER SHALL DISPLAY FAULT CODES INCLUDING ECONOMIZER FAULT CODES.

UNOCCUPIED MODE:
DURING UNOCCUPIED MODE, OUTSIDE AIR DAMPER SHALL REMAIN CLOSED THE UNIT SHALL OPERATE THE SAME AS OCCUPIED MODE TO MAINTAIN ROOM TEMPERATURE SETPOINTS.

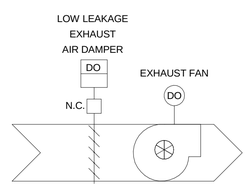
SAFETY:
ALL OF THE SAFETY DEVICES ARE MANUAL RESET. THE DEVICE THAT HAS TRIPPED MUST BE MANUALLY RESET BEFORE RESTARTING THE AIR HANDLING UNIT. WHERE A UNIT DUCT SMOKE DETECTOR IS REQUIRED, THE SUPPLY FAN WILL BE SHUTDOWN WHEN THE PRODUCTS OF COMBUSTION ARE DETECTED. SMOKE DETECTOR AUXILIARY CONTACTS SHALL BE WIRED INTO FACILITY FIRE ALARM SYSTEM. A CENTRAL AIR DISTRIBUTION EMERGENCY SHUTDOWN SWITCH SHALL BE HARD WIRED INTO THE UNIT SAFETY CIRCUIT TO PROVIDE SHUTDOWN ON SWITCH ACTIVATION WHICH SHUTS OUTSIDE AIR AND RETURN AIR DAMPERS AND ON UNIT AND FIELD INSTALLED RETURN AIR ATFP DAMPER ON RETURN DUCT.



EXHAUST FAN CONTROL DIAGRAM (EF-1 & 3)

SCALE: NONE

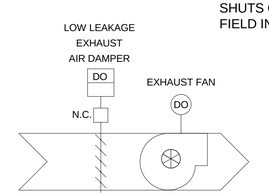
SEQUENCE OF OPERATION:
WALL FANS SHALL BE OPERATED MANUALLY BY WALL MOUNTED STARTER WITH PILOT LIGHT INDICATING FAN OPERATION. LOW LEAKAGE DAMPER ACTUATOR SHALL BE SPRING CLOSED POWERED OPEN AND INTERLOCKED WITH FAN TO OPEN WHEN FAN IS ENERGIZED. EF-1 SHALL BE OPERATED CONTINUOUSLY.



EXHAUST FAN CONTROL DIAGRAM (EF-2)

SCALE: NONE

SEQUENCE OF OPERATION:
TOILET EXHAUST FAN EF-2 SHALL BE INTERLOCKED WITH RTU-5 TO OPERATE ONLY DURING OCCUPIED HOURS. LOW LEAKAGE DAMPER ACTUATOR SHALL BE SPRING CLOSED POWERED OPEN AND INTERLOCKED WITH FAN TO OPEN WHEN FAN IS ENERGIZED.



EXHAUST FAN CONTROL DIAGRAM (EF-4)

SCALE: NONE

SEQUENCE OF OPERATION:
WOOD WORKING EXHAUST FAN EF-4 SHALL BE INTERLOCKED WITH RTU-3 TO OPERATE ONLY DURING OCCUPIED HOURS AND WHEN DUST COLLECTOR IS NOT IN OPERATION. LOW LEAKAGE DAMPER ACTUATOR SHALL BE SPRING CLOSED POWERED OPEN AND INTERLOCKED WITH FAN TO OPEN WHEN FAN IS ENERGIZED.

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

CONTROLS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078442
SHEET 158 OF 180

M-701

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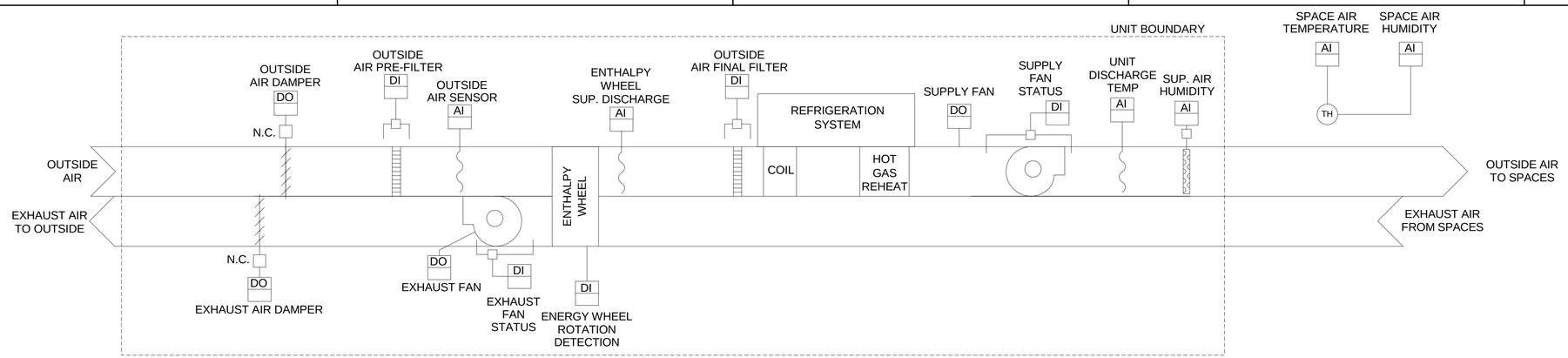


DEDICATED OUTSIDE AIR HANDLING UNIT DIAGRAM - DOAS-1

NO SCALE

SHUT DOWN MODE:
DURING THE SHUT DOWN MODE THE UNIT SHALL REMAIN OFF. THE OUTSIDE AIR AND EXHAUST AIR DAMPERS WILL BE CLOSED, THE WHEEL SHALL NOT ROTATE, AND BOTH THE SUPPLY AND THE EXHAUST FAN SHALL BE OFF. THE REFRIGERATION SYSTEM SHALL BE DISABLED.

START-UP MODE:
A START SIGNAL SHALL BE SENT FROM THE DIGITAL CONTROLLER TO THE AHU CONTROL PANEL. UPON RECEIPT OF THE START SIGNAL, DDC SHALL OPEN THE EXHAUST AND OUTSIDE AIR DAMPERS, START THE SUPPLY AND EXHAUST FANS FANS AND ENABLE THE REFRIGERATION SYSTEM WHILE INITIATING ROTATION OF THE WHEEL. THE INTEGRATED CONTROL PANEL SHALL THEN BEGIN THE REFRIGERATION CIRCUIT TO MAINTAIN THE DISCHARGE AIR TEMPERATURE ACCORDING TO THE SPECIFIC MODE OF OPERATION.

MORNING WARM-UP CYCLE :
WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 60 DEG F (ADJUSTABLE), 2 HOURS (ADJUSTABLE) BEFORE TRANSITION FROM UNOCCUPIED TO OCCUPIED MODE THE MORNING WARM-UP CYCLE SHALL BE ENABLED. THE AHU SHALL CONTROL THE SAME WAY AS THE OCCUPIED MODE. THE UNIT REMAINS IN THIS MODE UNTIL THE SPACE AIR TEMPERATURE REACHES SETPOINT. UPON REACHING THIS SETPOINT, THE AIR HANDLING UNIT ENTERS ITS NORMAL OCCUPIED MODE OF OPERATION.

MORNING COOL-DOWN CYCLE :
WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 80 DEG F (ADJUSTABLE), 2 HOURS (ADJUSTABLE) BEFORE TRANSITION FROM UNOCCUPIED TO OCCUPIED MODE THE MORNING COOL-DOWN CYCLE SHALL BE ENABLED. THE AHU SHALL CONTROL THE SAME WAY AS THE OCCUPIED MODE. THE UNIT REMAINS IN THIS MODE UNTIL THE SPACE AIR TEMPERATURE REACHES SETPOINT. UPON REACHING THIS SETPOINT, THE AIR HANDLING UNIT ENTERS ITS NORMAL OCCUPIED MODE OF OPERATION.

UNOCCUPIED MODE:
THE AHU SHALL REVERT TO THE SHUT DOWN MODE.

OCCUPIED MODE OF OPERATION:

TEMPERATURE AND HUMIDITY CONTROL:

THE DEDICATED OUTSIDE AIR SYSTEM (DOAS) HAS A FACTORY INTEGRATED DIGITAL CONTROL PANEL WHICH WILL MONITOR AND CONTROL THE HEATING AND COOLING CYCLES OF THE DOAS. THE INTEGRATED PANEL SHALL CONTROL THE MAIN COIL AND THE HOT GAS REHEAT COIL TO MAINTAIN THE DISCHARGE TEMPERATURE AND HUMIDITY SET POINTS.

THE FACTORY INTEGRATED DIGITAL CONTROLLER PANEL SHALL ENABLE AND CONTROL THE ENTHALPY WHEEL.

GENERAL:
PROVIDE A COMMON FAN FAILURE ALARM FOR THE SUPPLY AND EXHAUST FANS FROM THE FACTORY UNIT CONTROLLER.

PROVIDE A LOCAL CONTROL PANEL TO DISPLAY AND CONTROL SETPOINTS AND INDICATE ALARMS. INTERLOCK WITH THE VRF SYSTEM TO SET THE OCCUPIED AND UNOCCUPIED SCHEDULES.

ALARMS:

EXHAUST FAN ALARM:
IF PROOF OF FAN OPERATION IS NOT VERIFIED WITHIN 3 MINUTES AFTER BEING COMMANDED ON, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

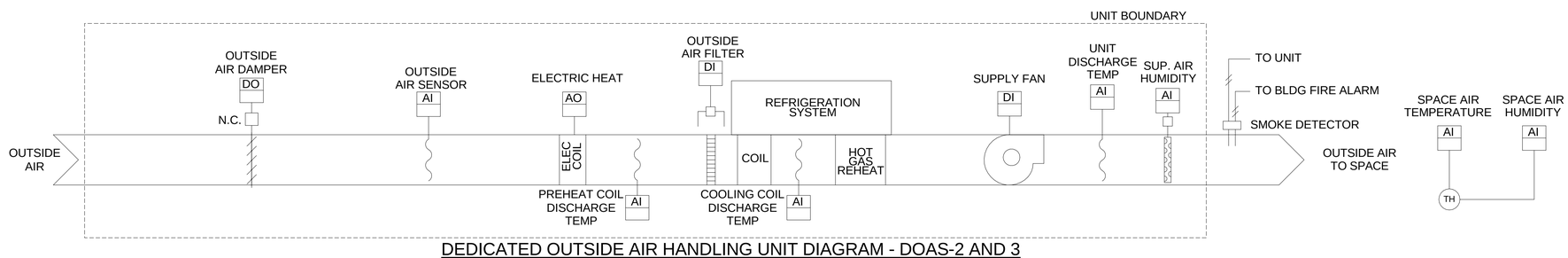
SUPPLY FAN ALARM:
IF PROOF OF FAN OPERATION IS NOT VERIFIED WITHIN 3 MINUTES AFTER BEING COMMANDED ON, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

WHEEL ROTATION ALARM:
IF PROOF OF WHEEL ROTATION IS NOT VERIFIED WITHIN 2 MINUTES AFTER BEING COMMANDED ON, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

OUTSIDE AIR PRE-FILTER ALARM:
IF THE DIFFERENTIAL PRESSURE SENSOR DETECTS A PRESSURE DROP OF 0.75 IN-WC, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

FINAL FILTER ALARM:
IF THE DIFFERENTIAL PRESSURE SENSOR DETECTS A PRESSURE DROP OF 1.5 IN-WC, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

A CENTRAL AIR DISTRIBUTION EMERGENCY SHUTDOWN SWITCH SHALL BE HARD WIRED INTO THE UNIT SAFETY CIRCUIT TO PROVIDE UNIT SHUTDOWN ON SWITCH ACTIVATION AND CLOSE THE OUTSIDE AIR AND EXHAUST AIR DAMPERS.



DEDICATED OUTSIDE AIR HANDLING UNIT DIAGRAM - DOAS-2 AND 3

NO SCALE

SHUT DOWN MODE:
DURING THE SHUT DOWN MODE THE UNIT SHALL REMAIN OFF. THE OUTSIDE AIR DAMPER WILL BE CLOSED, THE SUPPLY FAN SHALL BE OFF. THE REFRIGERATION SYSTEM SHALL BE DISABLED.

START-UP MODE:
A START SIGNAL SHALL BE SENT FROM THE DIGITAL CONTROLLER TO THE AHU CONTROL PANEL. UPON RECEIPT OF THE START SIGNAL, THE UNIT CONTROLLER SHALL OPEN THE OUTSIDE AIR DAMPER, START THE SUPPLY FAN AND ENABLE THE REFRIGERATION SYSTEM. THE INTEGRATED CONTROL PANEL SHALL THEN BEGIN THE REFRIGERATION CIRCUIT TO MAINTAIN THE DISCHARGE AIR TEMPERATURE ACCORDING TO THE SPECIFIC MODE OF OPERATION.

MORNING WARM-UP CYCLE :
WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 60 DEG F (ADJUSTABLE), 2 HOURS (ADJUSTABLE) BEFORE TRANSITION FROM UNOCCUPIED TO OCCUPIED MODE THE MORNING WARM-UP CYCLE SHALL BE ENABLED. THE AHU SHALL CONTROL THE SAME WAY AS THE OCCUPIED MODE. THE UNIT REMAINS IN THIS MODE UNTIL THE SPACE AIR TEMPERATURE REACHES SETPOINT. UPON REACHING THIS SETPOINT, THE AIR HANDLING UNIT ENTERS ITS NORMAL OCCUPIED MODE OF OPERATION.

MORNING COOL-DOWN CYCLE :
WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 80 DEG F (ADJUSTABLE), 2 HOURS (ADJUSTABLE) BEFORE TRANSITION FROM UNOCCUPIED TO OCCUPIED MODE THE MORNING COOL-DOWN CYCLE SHALL BE ENABLED. THE AHU SHALL CONTROL THE SAME WAY AS THE OCCUPIED MODE. THE UNIT REMAINS IN THIS MODE UNTIL THE SPACE AIR TEMPERATURE REACHES SETPOINT. UPON REACHING THIS SETPOINT, THE AIR HANDLING UNIT ENTERS ITS NORMAL OCCUPIED MODE OF OPERATION.

UNOCCUPIED MODE:
THE AHU SHALL REMAIN IN OCCUPIED MODE OPERATION AT ALL TIMES TO PROVIDE SPACE HUMIDITY CONTROL, PRESSURIZATION, AND MAKE UP AIR FOR CHEMICAL TREATMENT ROOM EXHAUST.

OCCUPIED MODE OF OPERATION:
TEMPERATURE AND HUMIDITY CONTROL:

THE DEDICATED OUTSIDE AIR SYSTEM (DOAS) HAS A FACTORY INTEGRATED DIGITAL CONTROL PANEL WHICH WILL MONITOR AND CONTROL THE HEATING AND COOLING CYCLES OF THE DOAS. THE INTEGRATED PANEL HALL CONTROL THE MAIN COIL AND THE HOT GAS REHEAT COIL TO MAINTAIN THE DISCHARGE TEMPERATURE AND HUMIDITY SET POINTS.

GENERAL:
PROVIDE A COMMON FAN FAILURE ALARM FOR THE SUPPLY AND EXHAUST FANS FROM THE FACTORY UNIT CONTROLLER.

PROVIDE A LOCAL CONTROL PANEL TO DISPLAY AND CONTROL SETPOINTS AND INDICATE ALARMS. INTERLOCK WITH THE SYSTEM TO SET THE SCHEDULES.

ALARMS:
SUPPLY FAN ALARM:
IF PROOF OF FAN OPERATION IS NOT VERIFIED WITHIN 3 MINUTES AFTER BEING COMMANDED ON, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

FILTER ALARM:
IF THE DIFFERENTIAL PRESSURE SENSOR DETECTS A PRESSURE DROP OF 1.5 IN-WC, AN ALARM SHALL BE SENT TO THE DIGITAL CONTROLLER.

WHERE A UNIT DUCT SMOKE DETECTOR IS REQUIRED, THE SUPPLY FAN WILL BE SHUTDOWN WHEN THE PRODUCTS OF COMBUSTION ARE DETECTED. SMOKE DETECTOR AUXILIARY CONTACTS SHALL BE WIRED INTO FACILITY FIRE ALARM SYSTEM.

A CENTRAL AIR DISTRIBUTION EMERGENCY SHUTDOWN SWITCH SHALL BE HARD WIRED INTO THE UNIT SAFETY CIRCUIT TO PROVIDE UNIT SHUTDOWN ON SWITCH ACTIVATION CLOSING THE OUTSIDE AIR DAMPER.

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ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
CONTROLS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078443
SHEET 159 OF 180
M-702

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: C:\Users\Public\Documents\Revit 2015\215135R15_M_Cent_Andrew Boehm 6697.rvt
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VRF CONTROLLER OPERATIONS

SYSTEM CONTROL SHALL BE WIRED TO ENABLE/DISABLE THE DEDICATED OUTSIDE AIR SYSTEM TO OPERATE DURING OCCUPIED HOURS.

CONTROLLER SHALL CONTROL THE FOLLOWING GROUP OPERATIONS:

A. ON/OFF, OPERATION MODE (COOL, HEAT, FAN, DRY AND AUTO), AND INDEPENDENT COOLING AND HEATING SETPOINTS IN THE OCCUPIED MODE

B, INDEPENDENT COOLING SETUP AND HEATING SETBACK SETPOINTS IN THE UNOCCUPIED MODE

C. FAN SPEED

D. THE CONTROLLER SHALL BE ABLE TO LIMIT THE USER ADJUSTABLE SETPOINT RANGES INDIVIDUALLY FOR COOLING AND HEATING IN THE OCCUPIED PERIOD

E. LOCK OUT KEY SETTINGS

F. INDOOR UNIT GROUP ASSIGNMENT

G. CLOCK (12/24 HOUR) AND DAY DISPLAY

PROGRAMMABILITY:

CONTROLLER SHALL SUPPORT SCHEDULE SETTINGS WITH SELECTABLE WEEKLY PATTERN OPTIONS.

A. 7-DAY

B. WEEKDAY + WEEKEND

C. WEEKDAY + SATURDAY + SUNDAY

D. THE SCHEDULE SHALL SUPPORT UNIT ON/OFF

E. INDEPENDENTLY SETTABLE COOLING AND/OR HEATING SETPOINTS WHEN UNIT IS ON (OCCUPIED)

F. SETUP (COOLING) AND SETBACK (HEATING) SETPOINTS WHEN UNIT IS OFF (UNOCCUPIED)

G. A MAXIMUM OF 5 OPERATIONS CAN BE SCHEDULABLE PER DAY

H. TIME SETTING IN 1-MINUTE INCREMENTS

THE CONTROLLER SHALL SUPPORT AUTO-CHANGEOVER MODE FOR BOTH HEAT PUMP AND HEAT RECOVERY SYSTEMS ALLOWING THE OPTIMAL ROOM TEMPERATURE TO BE MAINTAINED BY AUTOMATICALLY SWITCHING THE INDOOR UNIT'S MODE BETWEEN COOL AND HEAT ACCORDING TO THE ROOM TEMPERATURE AND TEMPERATURE SETPOINT.

A. CHANGEOVER TO COOLING MODE SHALL OCCUR AT COOLING SETPOINT + 1 DEG F (0.5 DEG C)

B. CHANGEOVER TO HEATING MODE SHALL OCCUR AT HEATING SETPOINT - 1 DEG F (0.5 DEG C)

THE CONTROLLER SHALL SUPPORT AN AUTO OFF TIMER FOR TEMPORARILY ENABLING INDOOR UNIT OPERATION DURING THE UNOCCUPIED PERIOD.

A. WHEN THE OFF TIMER IS ENABLED AND WHEN THE UNIT IS MANUALLY TURNED ON AT THE REMOTE CONTROLLER

B. THE CONTROLLER SHALL SHUT OFF THE UNIT AFTER A SET TIME PERIOD

C. THE TIME PERIOD SHALL BE CONFIGURABLE IN THE CONTROLLER MENU WITH A RANGE OF 30-180 MINUTES IN 10 MINUTE INCREMENTS

THE ROOM TEMPERATURE SHALL BE SENSED AT THE REMOTE CONTROLLER.

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EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
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SHEET 160 OF 180
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ELECTRICAL LEGEND

CONDUIT OR MC CABLE RUN CONCEALED. WITH PHASE, NEUTRAL AND GROUND CONDUCTOR UNLESS NOTED OTHERWISE. PROVIDE 2,3 OR 4 WAY SWITCH LEG CONDUCTORS PER SWITCH TYPE INDICATED ON PLAN. TIC MARKS INDICATE MORE THEN 3 WIRES. PROVIDE 3#12 IN 1/2"C UNO.

HOMERUN RUN CONCEALED. PROVIDE 3#12 IN 1/2"C UNO.

SURFACE MOUNT BRANCH CIRCUIT PANELBOARD. SIZE AND DESCRIPTION AS SCHEDULED. TOP: +6'-0" AFF.

RECESSED MOUNT BRANCH CIRCUIT PANELBOARD. SIZE AND DESCRIPTION AS SCHEDULED. TOP: +6'-0" AFF.

ELECTRIC MOTOR. SIZE IN HORSEPOWER AS INDICATED OR SCHEDULED.

DISCONNECT SWITCH. POLES, AMPS, VOLTS, NON-FUSED NEMA 1 ENCLOSURE TYPE UNO. TOP: +5'-0" AFF.

DISCONNECT SWITCH. POLES, AMPS, VOLTS, FUSED NEMA 1 ENCLOSURE TYPE UNO. FUSE DISCONNECT PER CONNECTED EQUIPMENT NAME PLATE RECOMMENDATION TOP: +5'-0" AFF.

RECESSED 120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX RECEPTACLE. MOUNTING HEIGHT: CENTER +42" AFF ALONG THE COUNTER IN THE BREAK AREA +18" AFF ELSEWHERE UNO. SURFACE MOUNTED IN UNFINISHED/SHOP SPACES.

M — RECESSED 120 VOLT MICROWAVE, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX RECEPTACLE. MOUNTING HEIGHT: CENTER +72" AFF UNO. SURFACE MOUNTED IN UNFINISHED/SHOP SPACES.

F — RECESSED 120 VOLT REFRIGERATOR, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX RECEPTACLE. MOUNTING HEIGHT: CENTER +42" AFF UNO.SURFACE MOUNTED IN UNFINISHED/SHOP SPACES.

GFCI — RECESSED 120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE. MOUNTING HEIGHT: CENTER +42" AFF UNO. SURFACE MOUNTED IN UNFINISHED/SHOP SPACES.

WP — 120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE WITH DUAL HINGED WEATHERPROOF GASKETED COVER. MOUNTING HEIGHT: CENTER +18" AFF UNO.

RECESSED 120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DOUBLE DUPLEX RECEPTACLE. MOUNTING HEIGHT: CENTER +18". SURFACE MOUNTED IN UNFINISHED/SHOP SPACES.

J (J) — 4"X4"X2"D SCREW COVER JUNCTION BOX

COMMUNICATION WALL DOUBLE GANG OUTLET BOX WITH 2-1" EMT CONDUIT TO COMMUNICATION ROOM, PROVIDE ONE PHONE, AND THREE DATA OUTLETS. PROVIDE PULL STRING. MOUNTING HEIGHT: +18" AFF UNO.

$ — SINGLE POLE, 20 AMP, 120/277 VOLT WALL SWITCH. MOUNTING HEIGHT: CENTER +48" AFF. "D" INDICATES THE SWITCH IS A LED DIMMER SWITCH.

$3 — THREE WAY, 20 AMP, 120/277 VOLT WALL SWITCH. MOUNTING HEIGHT: CENTER +48" AFF.

$4 — FOUR WAY, 20 AMP, 120/277 VOLT WALL SWITCH. MOUNTING HEIGHT: CENTER +48" AFF.

M — SINGLE POLE, 20 AMP, 120/277 VOLT CEILING MOUNTED HALLWAY OCCUPANCY SENSOR WITH 75' LENGTH COVERANGE AND MOUNTING HEIGHT +84" AFF.

$VS — SINGLE POLE, 20 AMP, 120/277 VOLT WALL VACANCY SENSOR SWITCH. MOUNTING HEIGHT: +48" AFF.

TP — AC FIRE RATED PLYWOOD COMMUNICATION PANEL INSTALLED ON ALL WALLS OF COMM ROOMS WHERE INDICATED. TOP: +8'-4" AFF BOTTOM +4" AFF.

GROUND BUS, COPPER BAR, 1/4"X2"X12" UNO, MOUNT 72" AFF UNO.

3/4" X 10'-0" LONG COPPER CLAD GROUND ROD TOP: 30" BELOW GRADE.

GROUND TEST WELL.

GROUNDING SYSTEM, MECHANICAL CONNECTIONS TO EQUIPMENT AND EXOTHERMIC WELDS BELOW GRADE.

G — #3/0 BARE COPPER GROUND WIRE WITH BOLTED CONNECTION TO EQUIPMENT GROUND BUS AND EXOTHERMIC WELD TO GROUND ROD BELOW GRADE.

3/8" ROUND X 24" HIGH SOLID COPPER LIGHTNING PROTECTION SYSTEM ROOF MOUNTED AIR TERMINAL.

G — #3/0 BARE GROUNDING CONDUCTOR INSTALLED 30" BELOW GRADE.

LP — #2 AWG STRANDED BARE ALUMINUM LIGHTNING PROTECTION SYSTEM CABLE INSTALLED ON ROOF.

LP — #2 AWG STRANDED BARE ALUMINUM TO BARE COPPER LIGHTNING PROTECTION SYSTEM DOWN CONDUCTOR TURNED DOWN INSIDE EXTERIOR WALL IN 3/4" PVC CONDUIT FROM ROOF TO BUILDING GROUNDING SYSTEM BELOW GRADE.

TMGB — 1/4"X4"X12" POP ROOM COPPER GROUND BUS BAR MOUNTED ON STANDOFF INSULATORS 12" ABOVE FINISHED FLOOR.

1' X 4' INDUSTRIAL WRAP OR VAPOR TIGHT LED LIGHT FIXTURE OF TYPE INDICATED.

2' X 2' RECESSED LED LIGHT FIXTURE OF TYPE INDICATED.

2' X 4' RECESSED LED LIGHT FIXTURE OF TYPE INDICATED.

RECESSED LED DOWNLIGHT FIXTURE OF TYPE INDICATED.

UNIVERSAL MOUNT LED EXIT SIGN WITH 90 MIN BATTERY AND ARROWS AS INDICATED. EXIT SIGNS SHALL BE CIRCUITED AHEAD OF THE SWITCH.

ELECTRICAL...

A	AMPERES
ACSR	ALUMINUM CONDUCTOR STEEL REINFORCED
AF	AMPERE FRAME OR AMPERE FUSE
AFD	ADJUSTABLE FREQUENCY MOTOR DRIVE UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	AMPERE SWITCH
AT	AMPERE TRIP OR AIR TERMINAL
AWG	AMERICAN WIRE GUAGE
B	BOILER
C	CONDUIT
CATV	CABLE TELEVISION
CCTV	CLOSED CIRCUIT TELEVISION
CH	CHILLER
CKT	CIRCUIT
CKT BKR	CIRCUIT BREAKER
COMM	COMMUNICATIONS
C.L	CURRENT LIMITING
CPDB	CABLE PUNCH DOWN BLOCK
CR	CONTROL RELAY OR CARD READER
CT	CABLE TRAY
DB	DECIBEL
DDC	DIRECT DIGITAL CONTROLS
DISC SW	DISCONNECT SWITCH
DPDB	DATA PUNCH DOWN BLOCK
DN	DOWN
DS	DISCONNECT SWITCH OR DISTRIBUTION SECTION
E OR EXIST	EXISTING
EA	EACH
EF	EXHAUST FAN
EM	EMERGENCY
ENCL	ENCLOSURE
EPN	EXTERNAL PORT NETWORK SWITCH
EPO	EMERGENCY POWER OFF
ERU	ENERGY RECOVERY UNIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM GRAPHIC ANNUNCIATOR
FO	FIBER OPTIC CABLE
FOTB	FIBER OPTIC TERMINAL BLOCK
FPS	FIRE ALARM REMOTE POWER SUPPLY
FTL	FEED THRU LUGS
FUS	FUSE

ELECTRICAL...

FVNR	FULL VOLTAGE NON-REVERSING
G	GROUND
GFI	GROUND FAULT INTERRUPTING
GP	GENERAL PURPOSE OR RECEPTACLE GROUNDING POINT
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HT	HEAT TRACE
IPC	INTEGRATED POWER CENTER
IDS	INTRUSION DETECTION SYSTEM
JB	JUNCTION BOX
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LA	LIGHTING ARRESTOR
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LP	LIGHTNING PROTECTION
M	MAIN OR METER
MCB	MAIN CIRCUIT BREAKER
MCCB	MOLDED CASE CIRCUIT BREAKER
MH	METAL HALIDE, MANHOLE, OR MOUNTING HEIGHT TO CENTER OF DEVICE
MLO	MAIN LUGS ONLY
MNS	MASS NOTIFICATION SYSTEM
MP SW	MOTOR PROTECTIVE SWITCH
MS	MAGNETIC STARTER
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTR	METER METER
MUA	MAKE UP AIR
N	NEUTRAL
NC	NORMALLY CLOSED
NE	NORTHEAST
NEC	NATIONAL ELECTRICAL CODE
NETA	NATIONAL ELECTRICAL TESTING ASSOCIATION
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NON LINEAR, OR NIGHT LIGHT
NO	NORMALLY OPEN
O.C.	ON CENTER
P	POLE OR PRIMARY
PC	PHOTOELECTRIC CELL
PET	PROTECTED ENTRANCE TERMINAL

ELECTRICAL...

PH	PHASE
PNL	PANEL
PVC	POLYVINYL CLORIDE
PWR	POWER
RCPT	RECEPTACLE
S	SECONDARY OR SURFACE
SC	SHORT CIRCUIT
SCC	SHORT CIRCUIT CURRENT
SE	SOUTHEAST
SHT	SHEET
S/O	SPACE ONLY SPACE ONLY
SPD	SURGE PROTECTIVE DEVICE
STCB	SHUNT TRIP CIRCUIT BREAKER
SW	SWITCH
SYM	SWITCH SYMMETRICAL
T	THICK
TB	TERMINAL BOX
TP	COMMUNICATION PANEL
TR	COMMUNICATIONS ROOM
TS	TAMPER SWITCH
TSP	TWISTED, SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL \
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTC	UNDERGROUND TELECOMMUNICATIONS CONDUIT
UTP	UNSHEILDED TWISTED PAIR
UTVC	UNDERGROUND CABLE TELEVISION CONDUIT
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE OR WATT
WAP	WIRELESS INTERNET ACCESS POINT
WH	WATER HEATER
WP	WEATHERPROOF
XFMR OR T	TRANSFORMER
XMTR	TRANSMITTER
Y	WYE CONNECTED
YDCT	WYE DELTA CLOSED TRANSITION

Lighting Fixture Schedule

Type Mark	Description	Manufacturer	Model	Lamp	Initial Color Temperature	Wattage	Voltage	Inital Lumens	Comments
A	2'x4' Recessed LED	Metalux	24EN-LD1-45-UNV-L835-CD1-U	LED	3500 K	47 W	277 V	4277 lm	
A2	2'x4' Recessed LED	Metalux	24EN-LD1-54-UNV-L835-CD1-U	LED	3500 K	54 W	277 V	4950 lm	
A3	2'x4' Recessed LED	Metalux	24EN-LD1-67-UNV-L835-CD1-U	LED	3500 K	70 W	277 V	6388 lm	
B	2'x2' Recessed LED	Metalux	22EN-LD1-25-UNV-L835-CD1-U	LED	3500 K	26 W	277 V	1632 lm	
B2	2'x2' Recessed LED	Metalux	22EN-LD1-34-UNV-L835-CD1-U	LED	3500 K	35 W	277 V	2234 lm	
C	2'x2' Recessed LED	Metalux	22GR-LD4-32-F1-UNV-L835-CD1-U	LED	3500 K	33 W	277 V	2106 lm	
D	Recessed LED Downlight	Metalux	LD6A10D010TE ERM6A10835 6LM1H	LED	3500 K	14 W	277 V	972 lm	
E	1'x2' Pendant LED Wrap	Metalux	2WNLED-LD1-27-F-UNV-L835-CD1-U	LED	3500 K	33 W	277 V	2939 lm	MH: 11'-0" AFF
E2	1'x4' Pendant LED Wrap	Metalux	4WNLED-LD1-41-F-UNV-L835-CD1-U	LED	3500 K	48 W	277 V	4284 lm	MH: 11'-0" AFF
E3	1'x4' Pendant LED Wrap	Metalux	4WNLED-LD1-54-F-UNV-L835-CD1-U	LED	3500 K	66 W	277 V	5851 lm	MH: 11'-0" AFF
E4	1'x4' Pendant LED Wrap	Metalux	4WNLED-LD1-70-F-UNV-L835-CD2-U	LED	3500 K	87 W	277 V	7748 lm	MH: 11'-0" AFF
F	1'x4' Pendant Vaportight LED	Metalux	4VT2-LD4-4-DR-UNV-L835-CD1-U	LED	3500 K	48 W	277 V	4284 lm	
W	Exterior Wallpack	McGraw-Edison	ISS-E02-LED-E1-BL4	LED	4000 K	59 W	277 V	5225 lm	See elevation for MH
X	LED Exit Sign	Sure-Lite	EEX Series	LED		10 W	277 V		Arrows as indicated

*FIXTURES MARKED WITH AN "E" INDICATE AN EMERGENCY FIXTURE WITH A 90 MIN BATTERY BACKUP DRIVER.
FIXTURES LISTED ARE FOR BASIS OF DESIGN ONLY, CONTRACTOR SHALL NOT BE LIMITED TO MANUFACTURER OR MODEL NUMBER LISTED.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Mandell
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3/18/16
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Wiley|Wilson | BURNS & McDONNELL
JOINT VENTURE

A/E INFO.

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES	BWY	DRW	BWY	CHK	JCC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

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ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

LEGEND ABBREVIATION AND GENERAL NOTES

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078445
SHEET 161 OF 180

E-001

DRAWFORM REVISION: 10 MAY 2014

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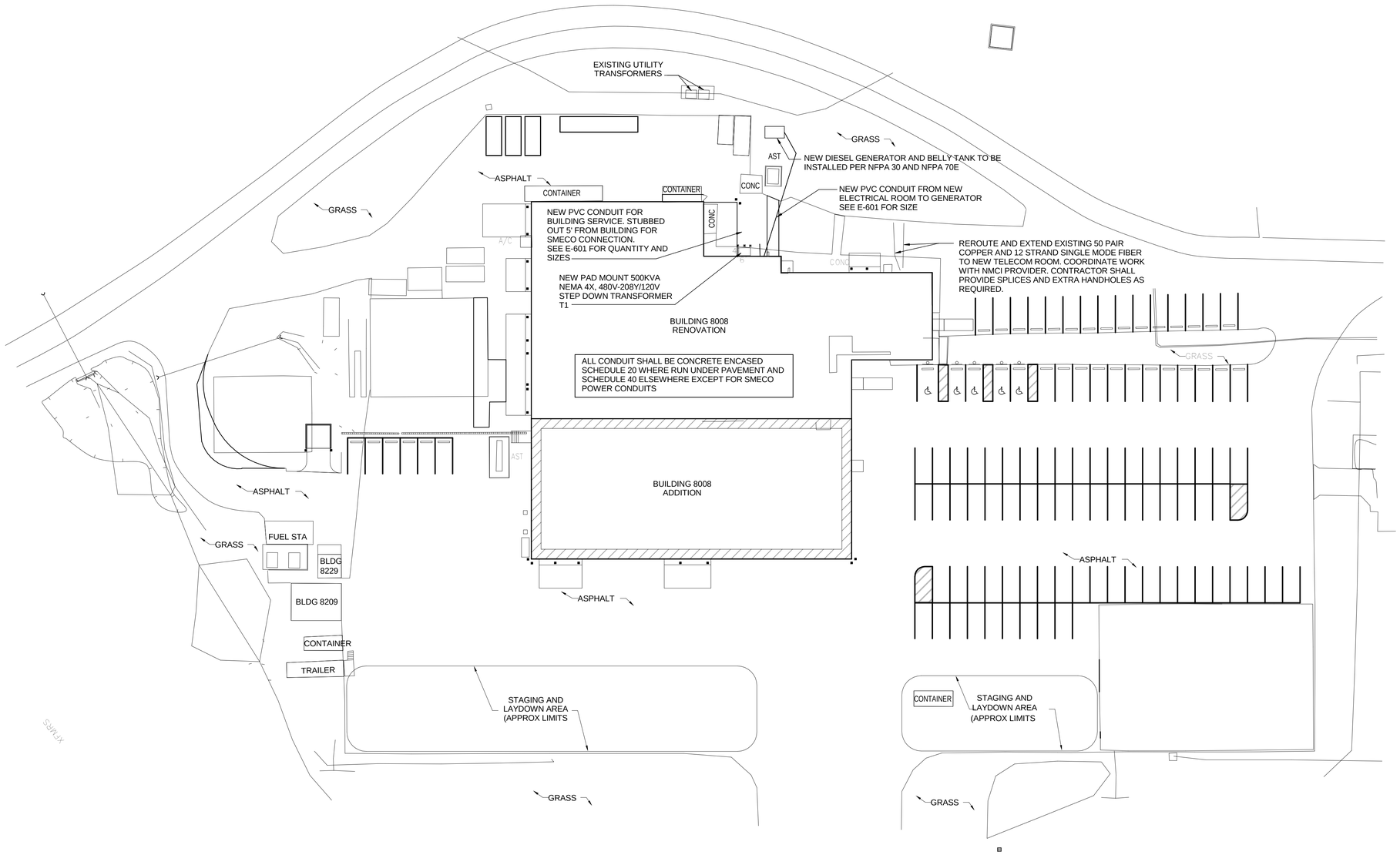

PLAN NORTH

Site Plan

SCALE: 1" = 30'-0"

GRAPHIC SCALE:

1" =30' 0' 15' 30' 60'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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JOINT VENTURE

A/E INFO.

APPROVED

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ACTIVITY

SATISFACTORY TO DATE

DES BWY | DRW BWY | CHK JCC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

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NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
SITE PLAN

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078446

SHEET 162 OF 180

E-010

DRAWFORM REVISION: 10 MAY 2014

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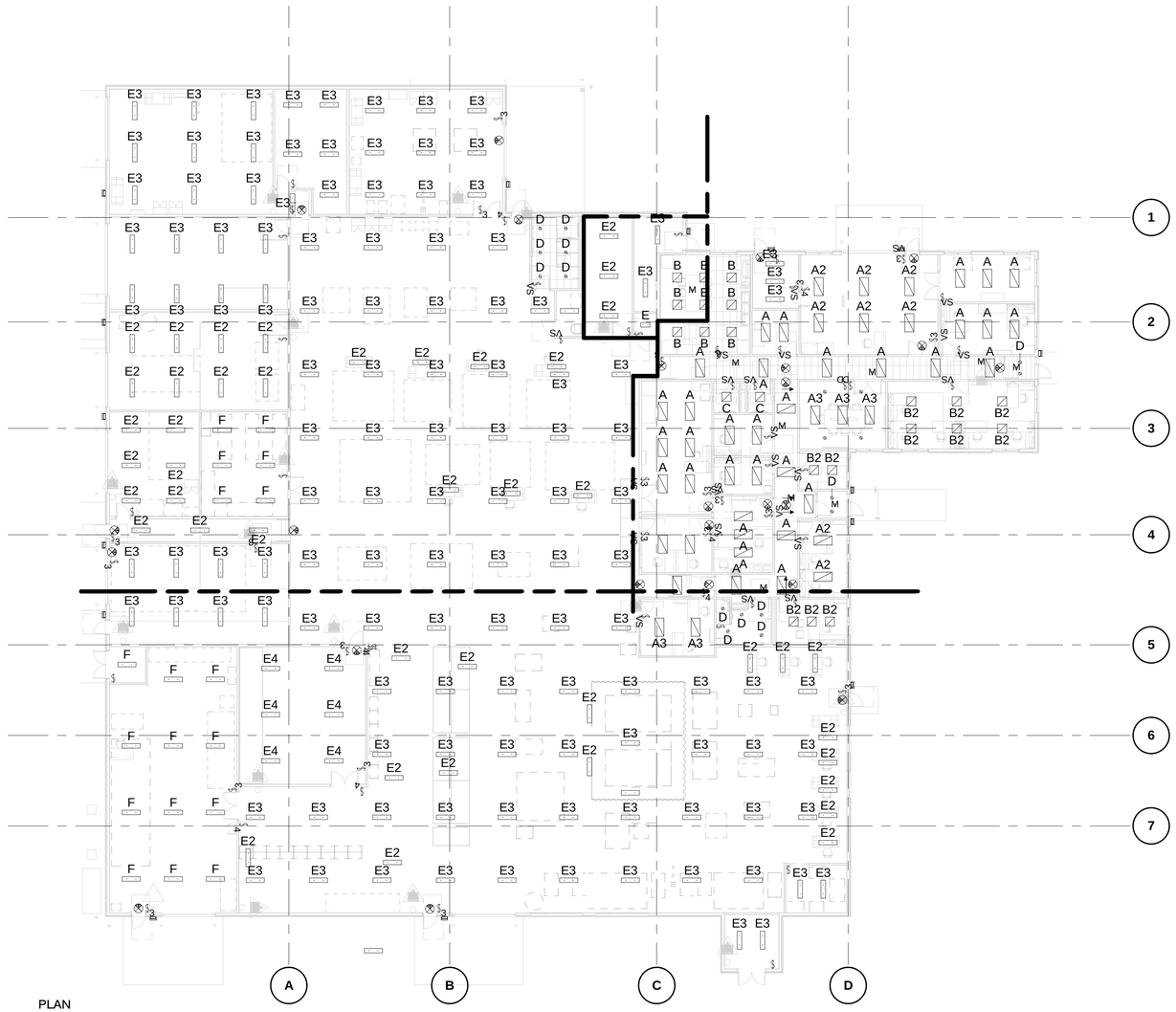
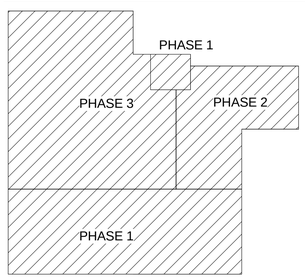


PLAN NORTH

OVERALL LIGHTING PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0"

0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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JOINT VENTURE

A/E INFO.

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FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES Designer | DRW Author | CHK Checker

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

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NAVAL AIR STATION PATUXENT RIVER

ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

OVERALL LIGHTING PLAN

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078447

SHEET 163 OF 180

E-101

DRAWFORM REVISION: 10 MAY 2014

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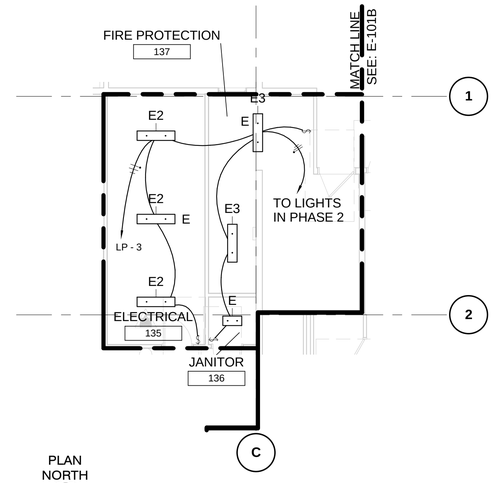
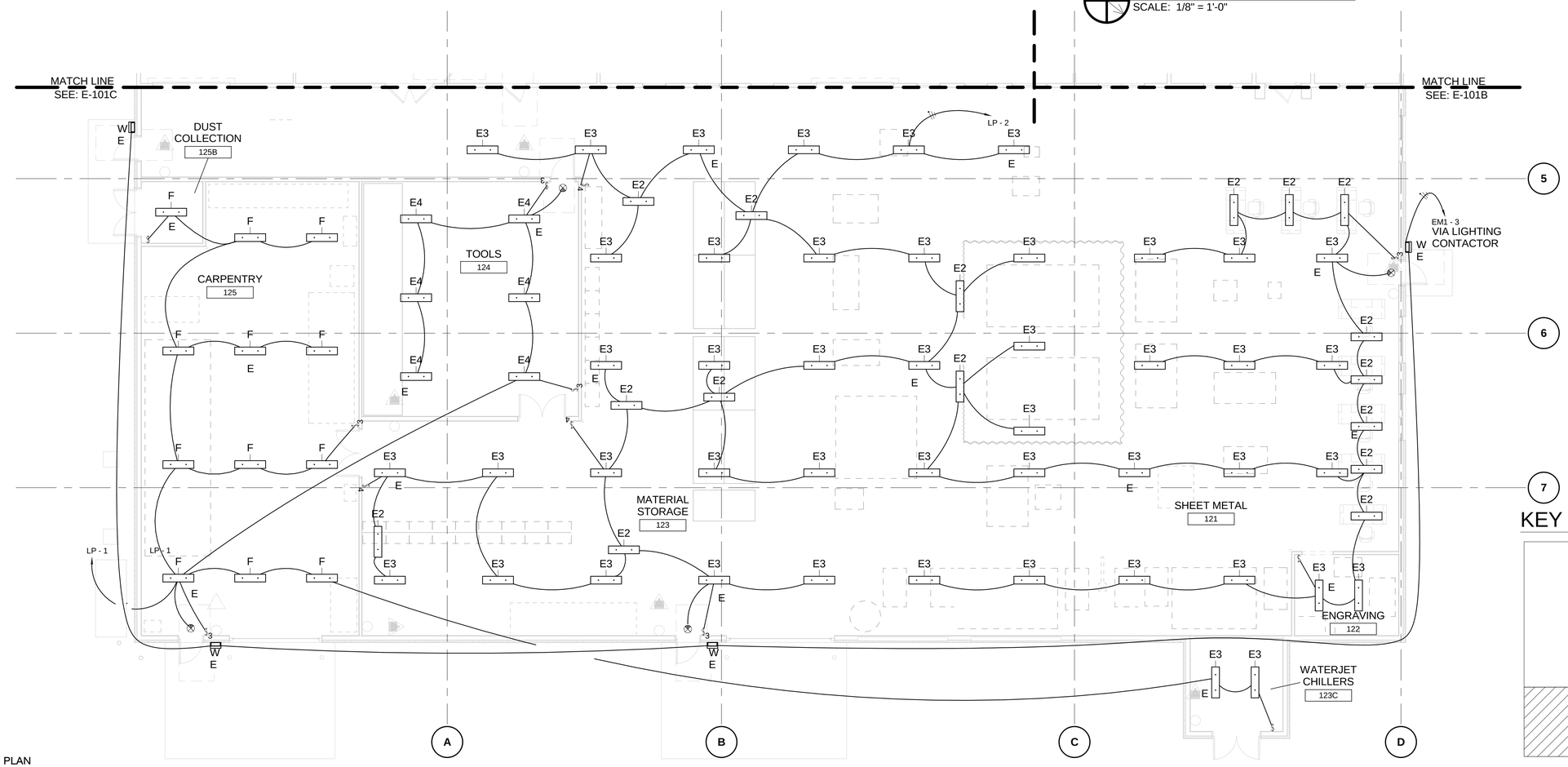


PLAN NORTH

PARTIAL LIGHTING PLAN - PHASE 1

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

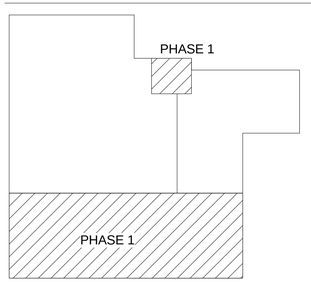


PLAN NORTH

LIGHTING PLAN - PHASE 1

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

KEY PLAN:



GRAPHIC SCALE:

1/8" =1'-0"

0' 4' 8' 16'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO.

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES	BWY	DRW	BWY	CHK	JCC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

LIGHTING PLAN - PHASE 1

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078448

SHEET 164 OF 180

E-101A

DRAWFORM REVISION: 10 MAY 2014

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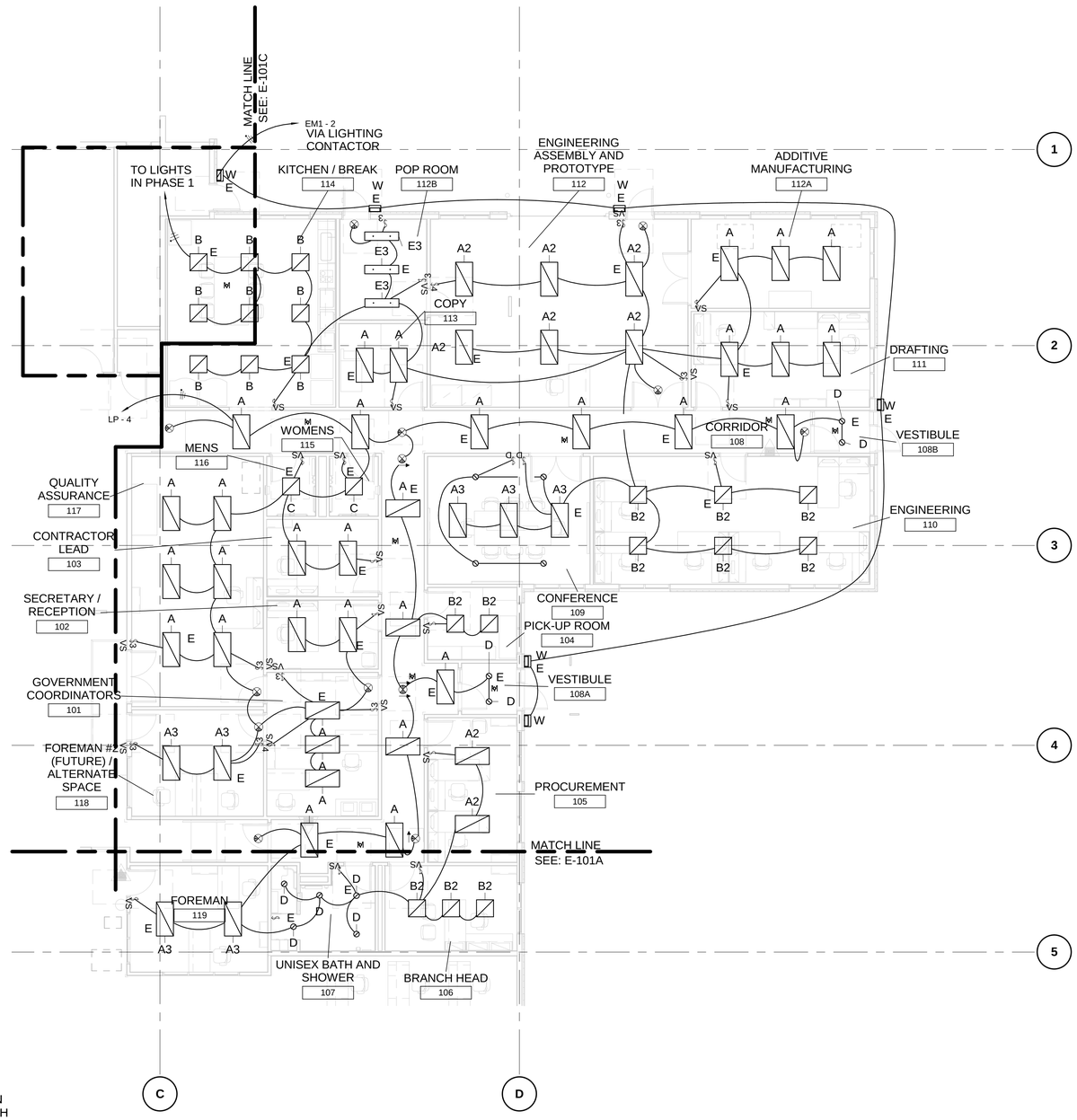
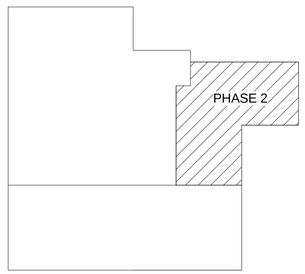


PLAN NORTH

LIGHTING PLAN - PHASE 2

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

KEY PLAN:



GRAPHIC SCALE:

1/8" =1'-0"

0' 4' 8' 16'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L

ACTIVITY

SATISFACTORY TO DATE

DES BWY | DRW BWY | CHK JCC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

LIGHTING PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078449
SHEET 165 OF 180

E-101B

DRAWFORM REVISION: 10 MAY 2014

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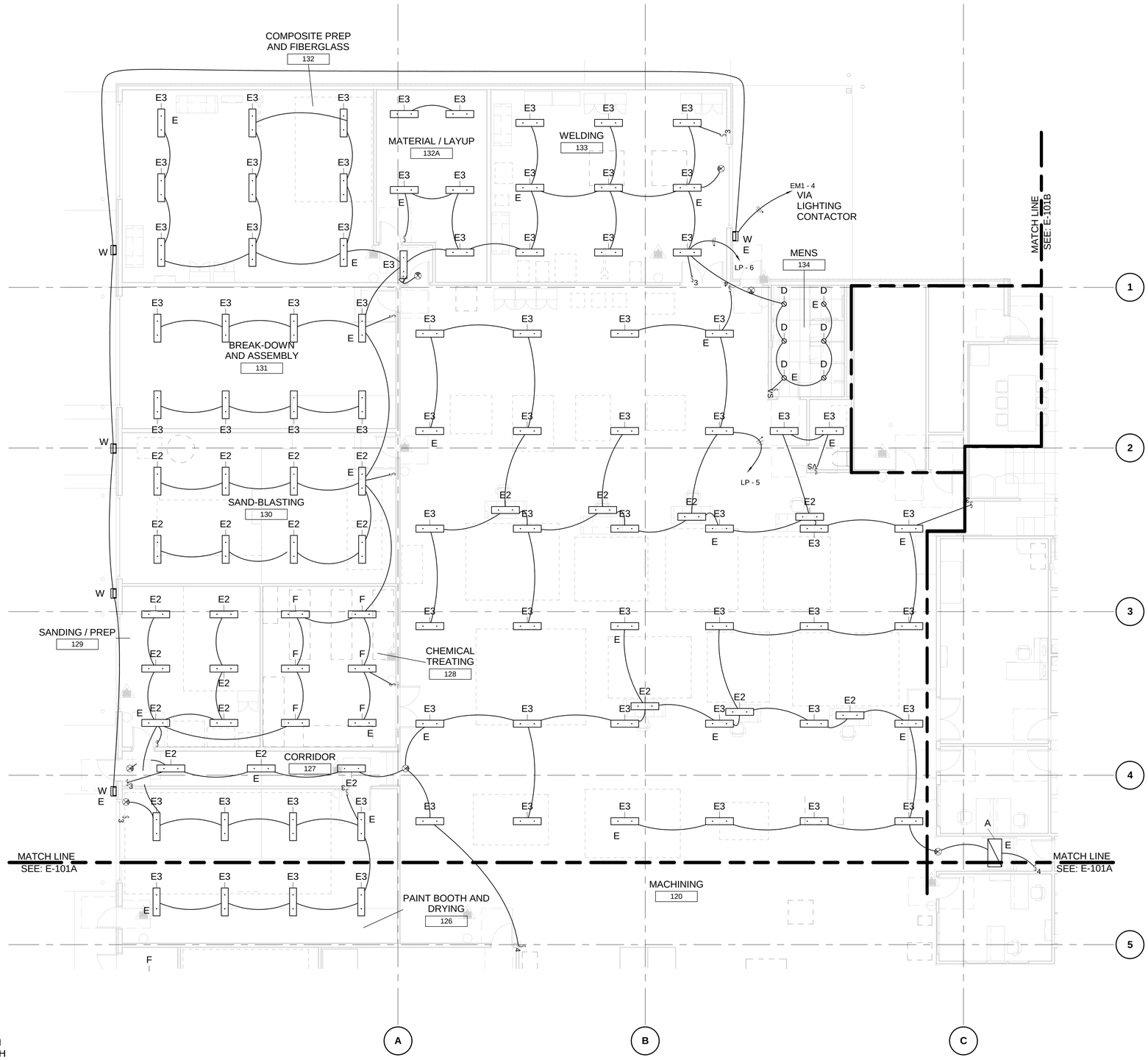
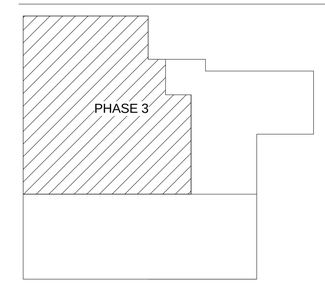


LIGHTING PLAN - PHASE 3

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Manuel
Brian W. Manuel
Lic. No. 047903
3/18/16
PROFESSIONAL ENGINEER
SEAL

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JOINT VENTURE

A/E INFO.

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES BWY | DRW BWY | CHK JCC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

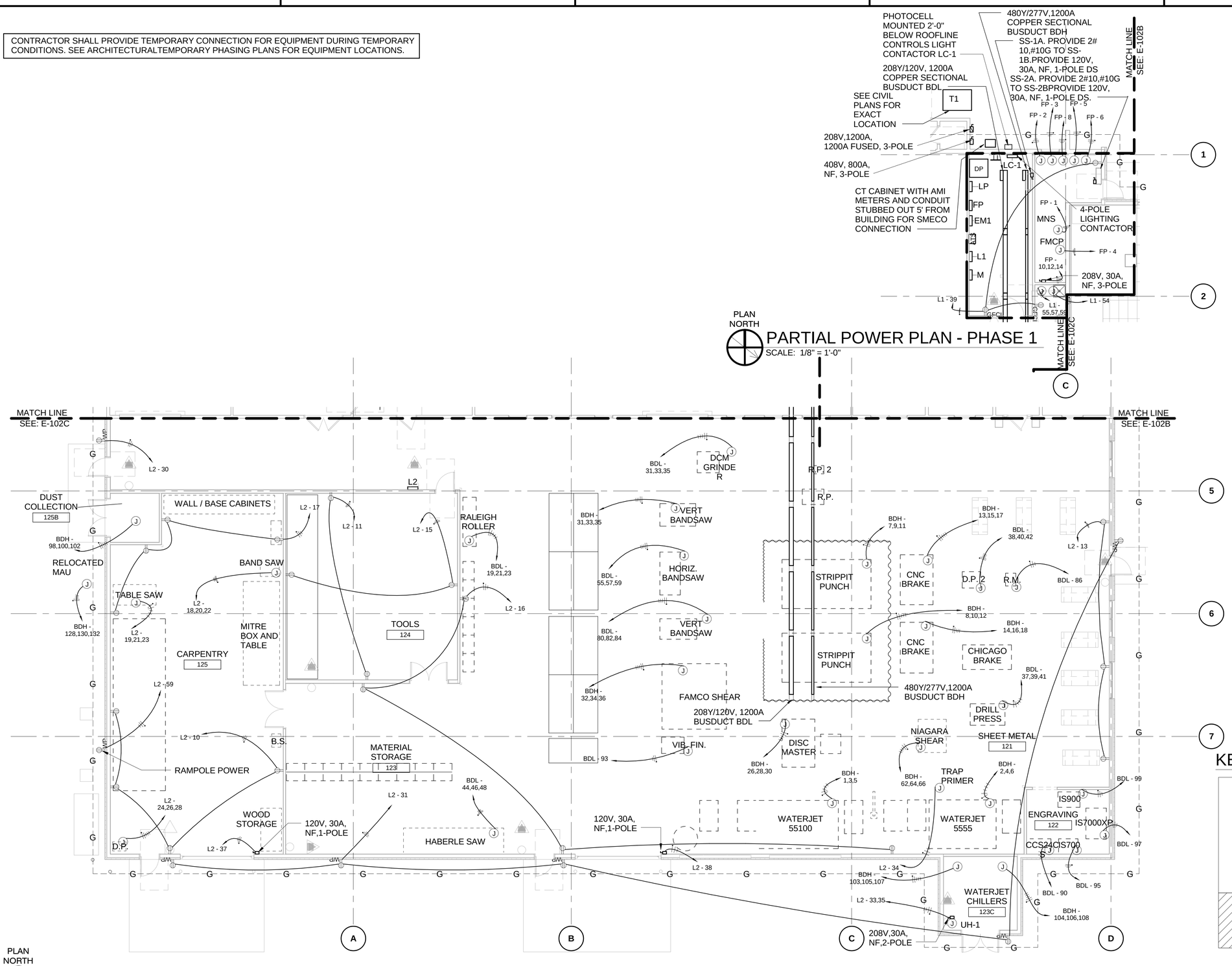
LIGHTING PLAN - PHASE 3

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078450
SHEET 166 OF 180
E-101C

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt
REVDATE: 3/18/2016 8:12:38 AM

CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTION FOR EQUIPMENT DURING TEMPORARY CONDITIONS. SEE ARCHITECTURALTEMPORARY PHASING PLANS FOR EQUIPMENT LOCATIONS.



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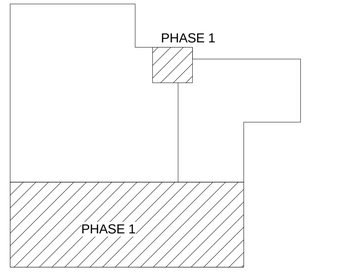


GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Manuel
Brian W. Manuel
Lic. No. 047903
3/18/16
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE
DES BWY | DRW BWY | CHK JCC
PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

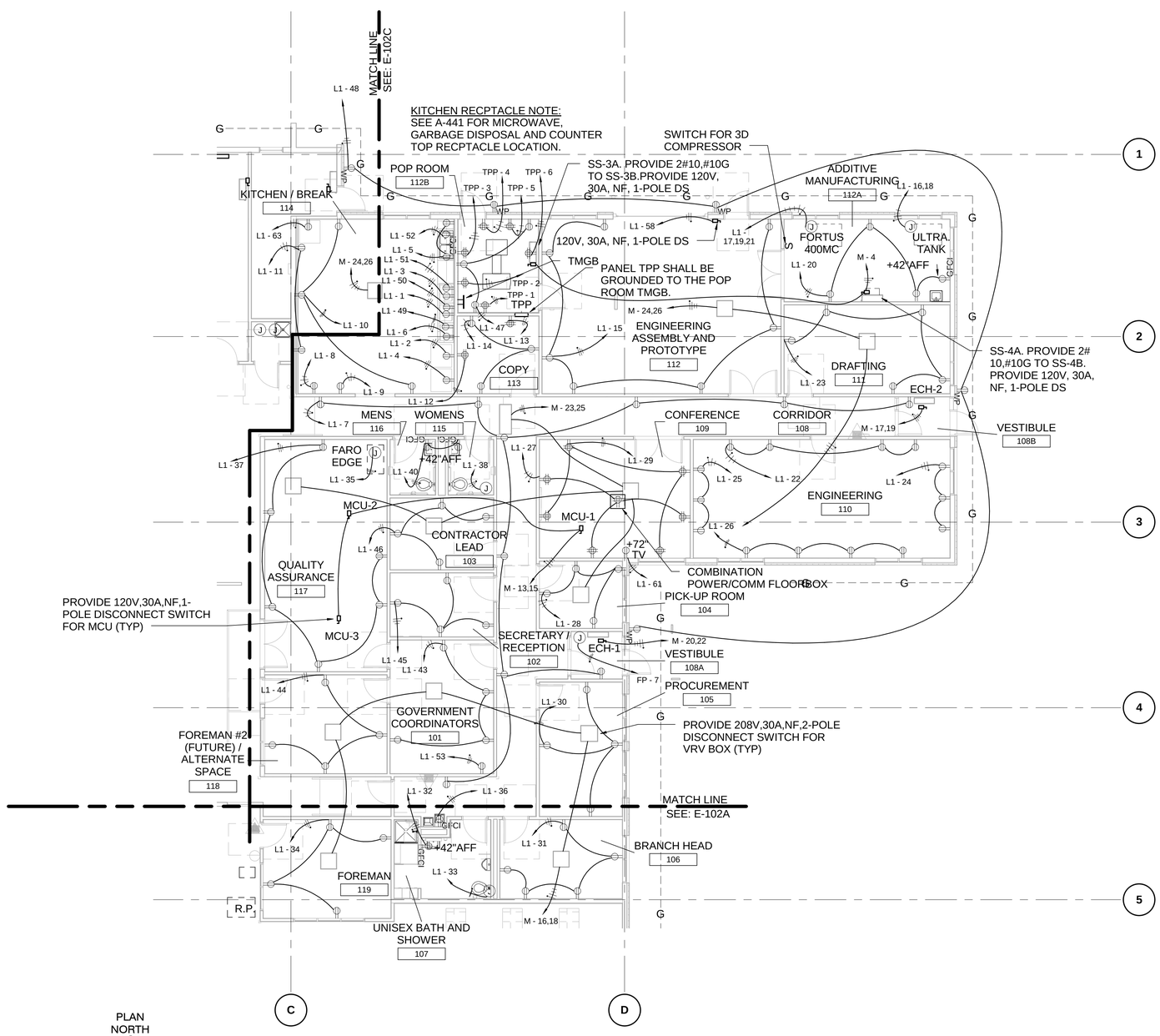
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND – WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
POWER PLAN - PHASE 1

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078451
SHEET 167 OF 180
E-102A

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt
REVDATE: 3/18/2016 8:12:41 AM

CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTION FOR EQUIPMENT DURING TEMPORARY CONDITIONS. SEE ARCHITECTURALTEMPORARY PHASING PLANS FOR EQUIPMENT LOCATIONS.

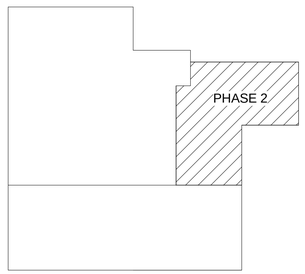


PLAN NORTH

POWER PLAN - PHASE 2

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Yarnell Lic. No. 047903 3/18/16 PROFESSIONAL ENGINEER COMMONWEALTH OF VIRGINIA SEAL

Wiley|Wilson BURNS McDONNELL JOINT VENTURE

A/E INFO

APPROVED

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ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

POWER PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078452
SHEET 168 OF 180
E-102B

DRAWFORM REVISION: 10 MAY 2014

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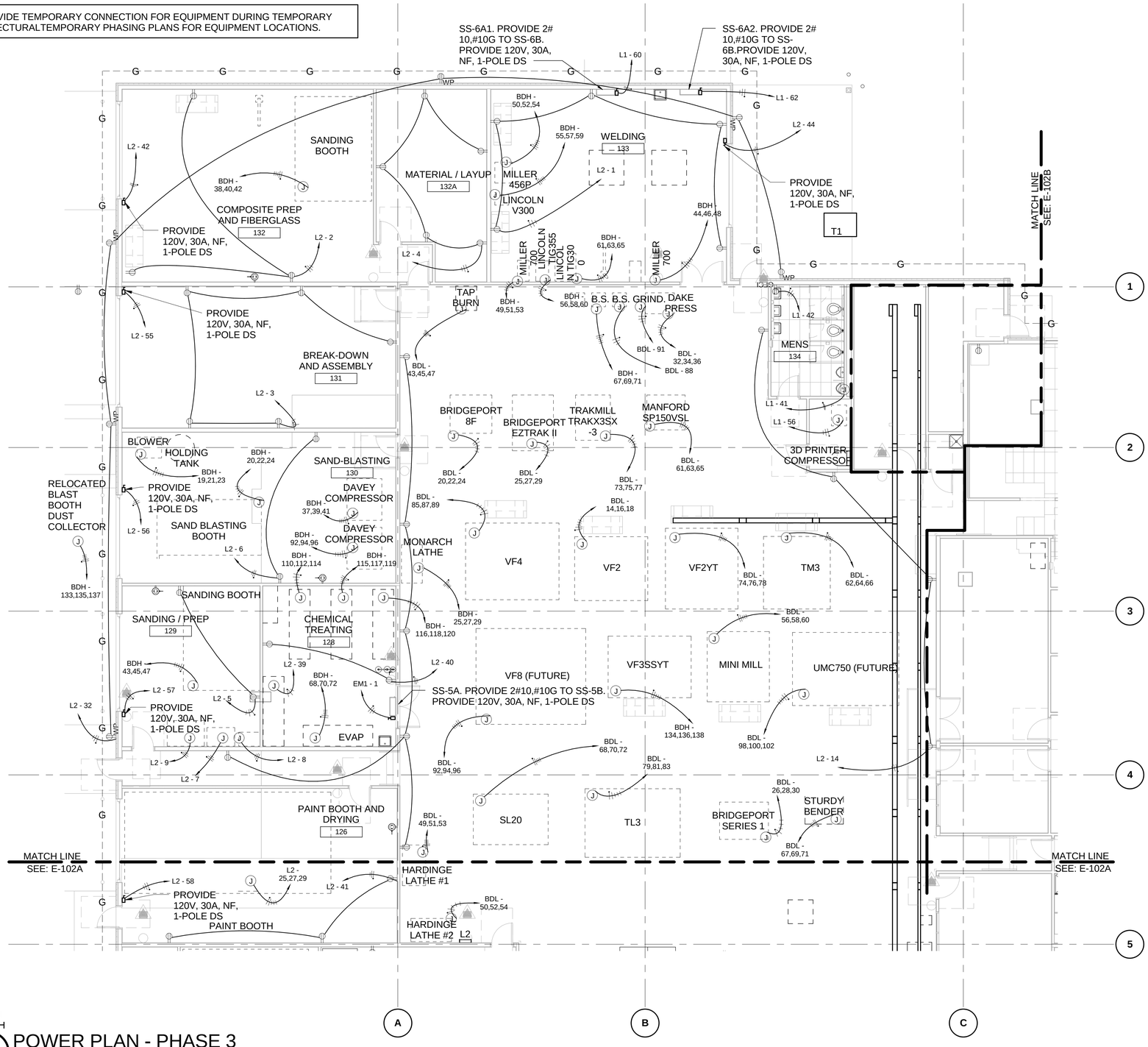
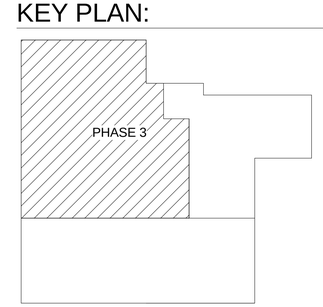


PLAN NORTH

POWER PLAN - PHASE 3

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Marrett Lic. No. 047903 3/18/16 PROFESSIONAL ENGINEER SEAL

Wiley|Wilson | BURNS McDONNELL JOINT VENTURE

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CHIEF ENG/ARCH

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

POWER PLAN - PHASE 3

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078453

SHEET 169 OF 180

E-102C

DRAWFORM REVISION: 10 MAY 2014

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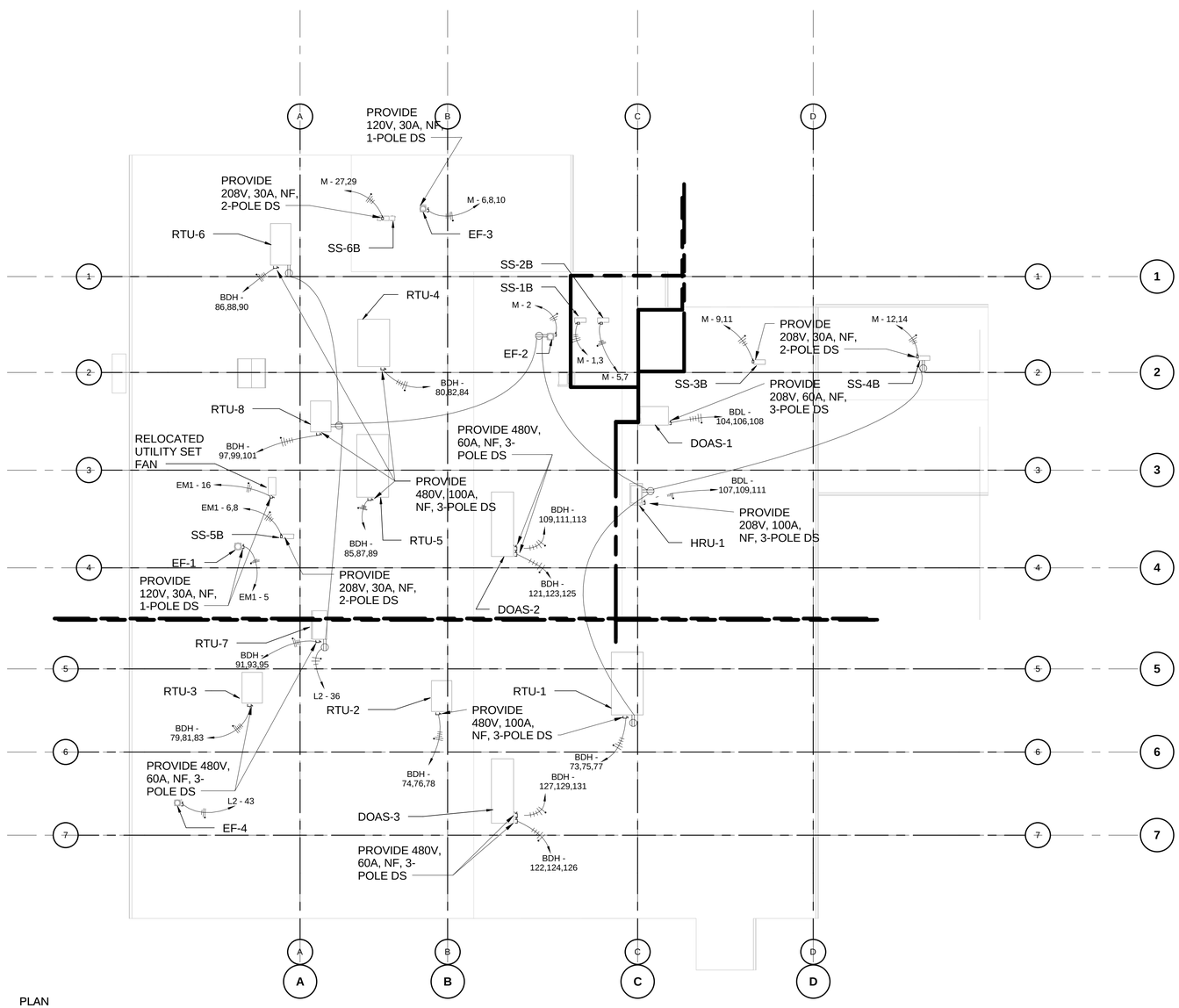
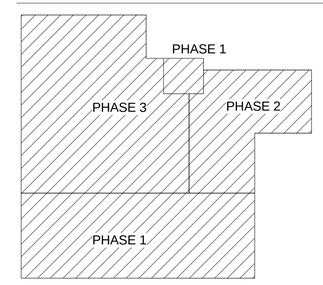


PLAN NORTH

OVERALL MECHANICAL EQUIPMENT POWER PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0"

0' 8' 16' 32'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Manetti
Lic. No. 047903
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

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BWY	BWY	JCC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER
NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
OVERALL MECHANICAL EQUIPMENT POWER PLAN

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078454
SHEET 170 OF 180
E-102D

DRAWFORM REVISION: 10 MAY 2014

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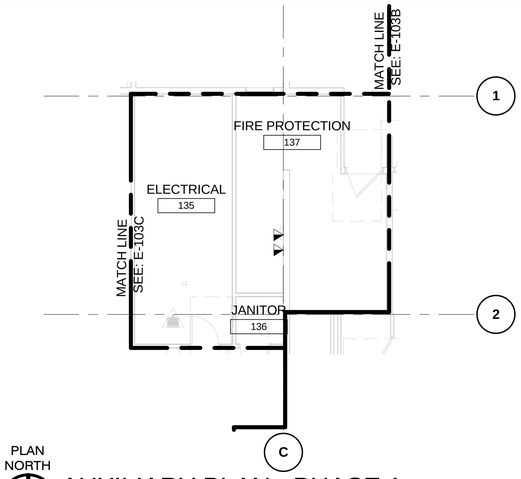
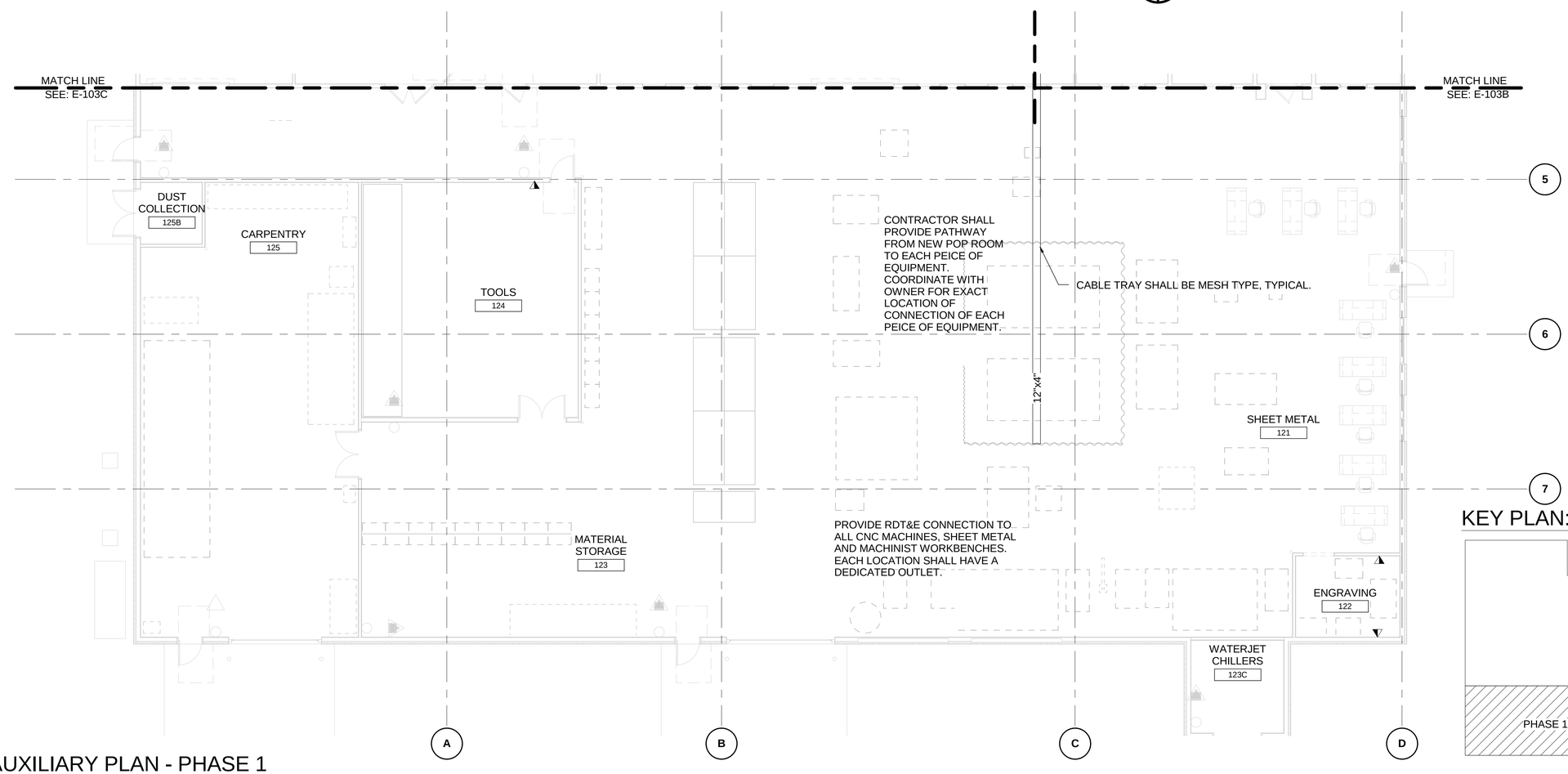


PLAN NORTH

AUXILIARY PLAN - PHASE 1

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

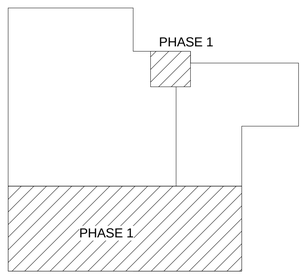


PLAN NORTH

AUXILIARY PLAN - PHASE 1

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL: Brian W. Yarnell, Lic. No. 047903, 3/18/16

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO.

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

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PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

AUXILIARY PLAN - PHASE 1

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078455
SHEET 171 OF 180

E-103A

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt
REVDATE: 5/9/2016 2:31:27 PM

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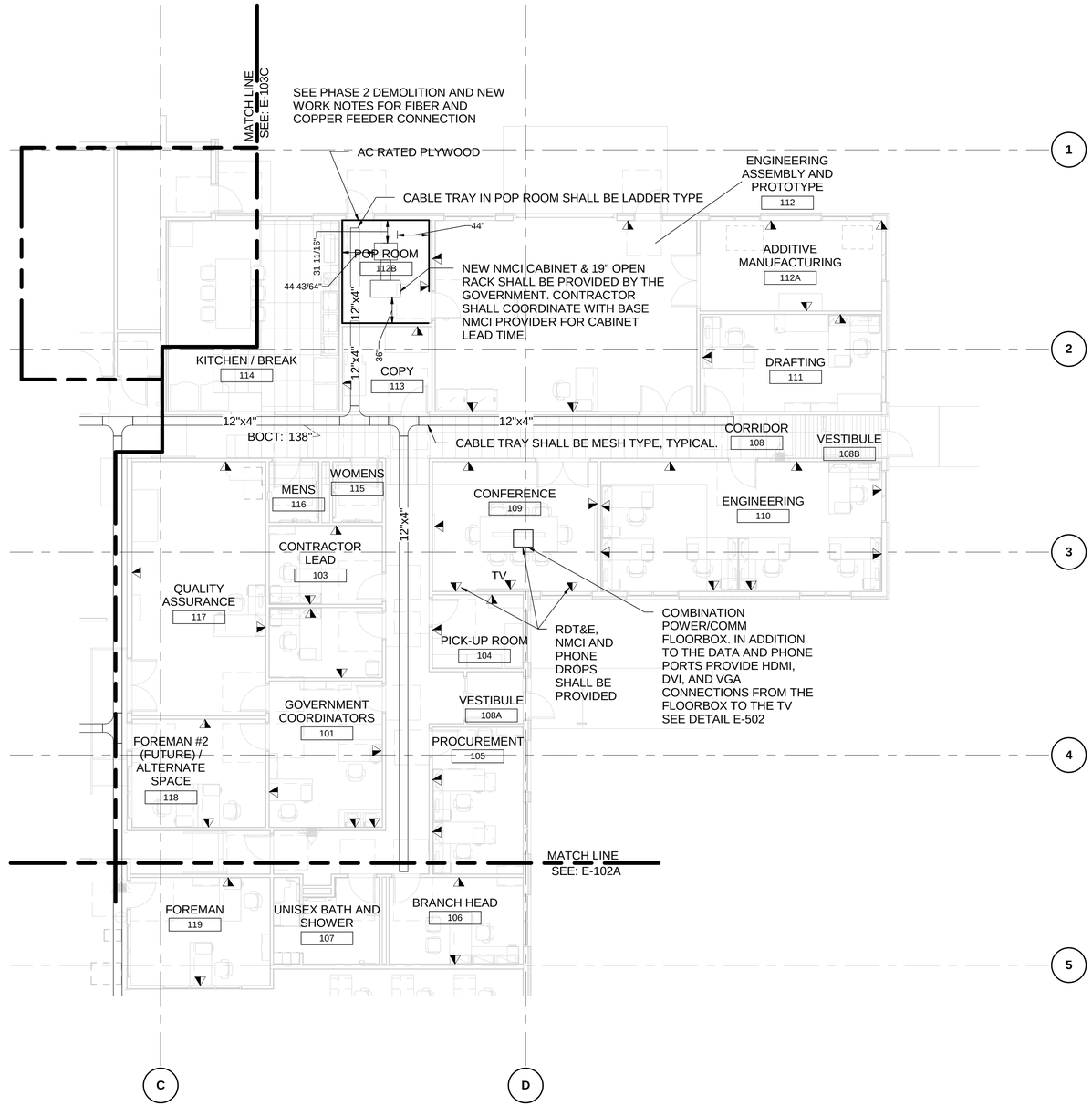
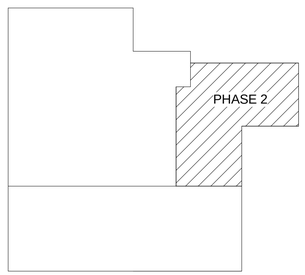


PLAN NORTH

AUXILIARY PLAN - PHASE 2

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

KEY PLAN:



GRAPHIC SCALE:

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

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Yanitelli
Lic. No. 047903
3/18/16
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

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FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

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WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

AUXILIARY PLAN - PHASE 2

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078456
SHEET 172 OF 180
E-103B

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt
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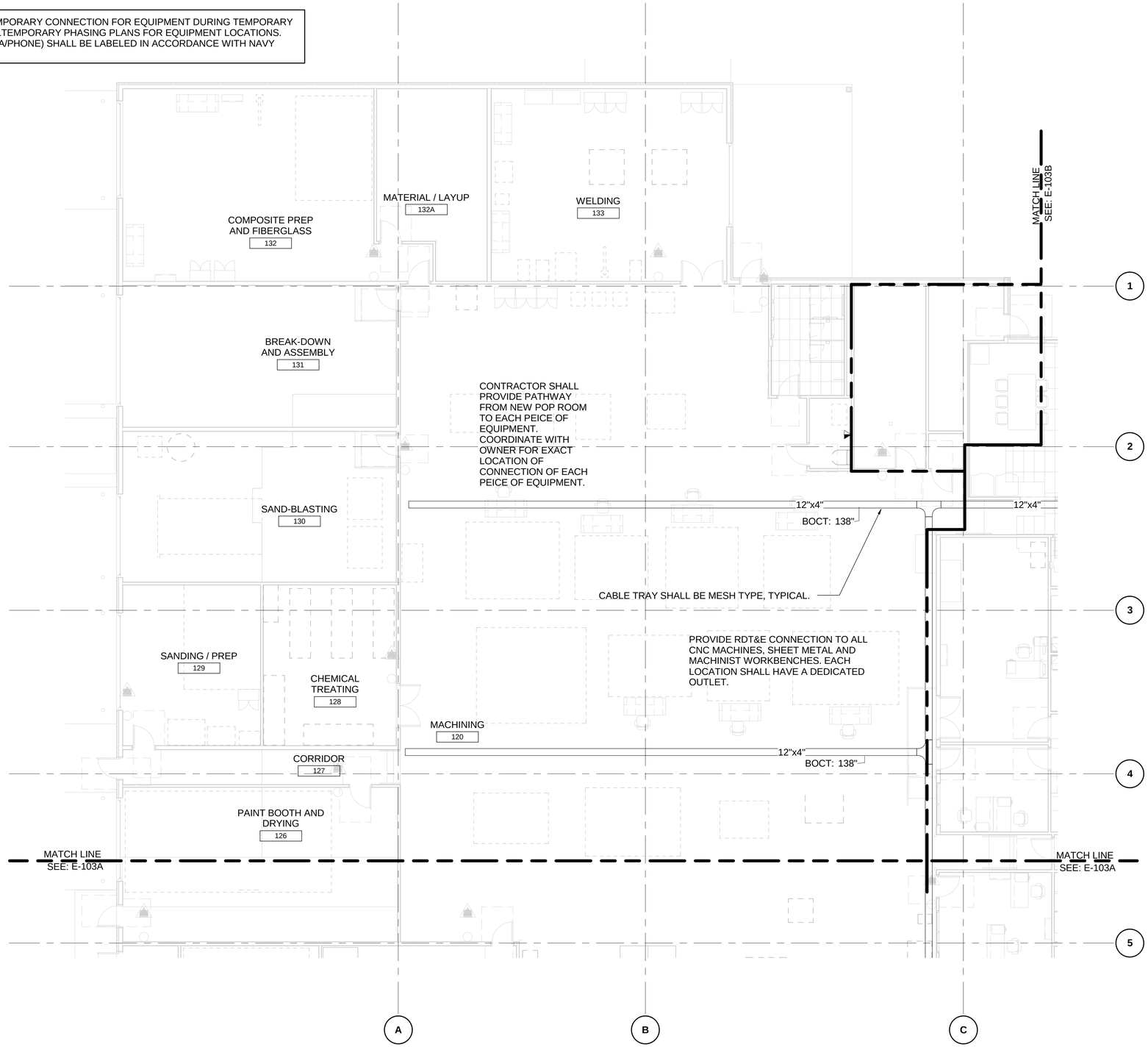
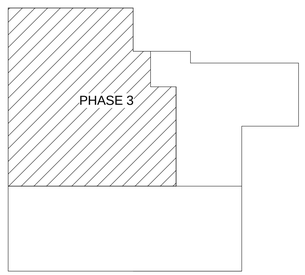


PLAN NORTH

AUXILIARY PLAN - PHASE 3

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

KEY PLAN:



GRAPHIC SCALE:

1/8" =1'-0"

0' 4' 8' 16'

SYM	DESCRIPTION	DATE	APPR

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Brian W. Yarnell
Lic. No. 047903
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NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

AUXILIARY PLAN - PHASE 3

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078457

SHEET 173 OF 180

E-103C

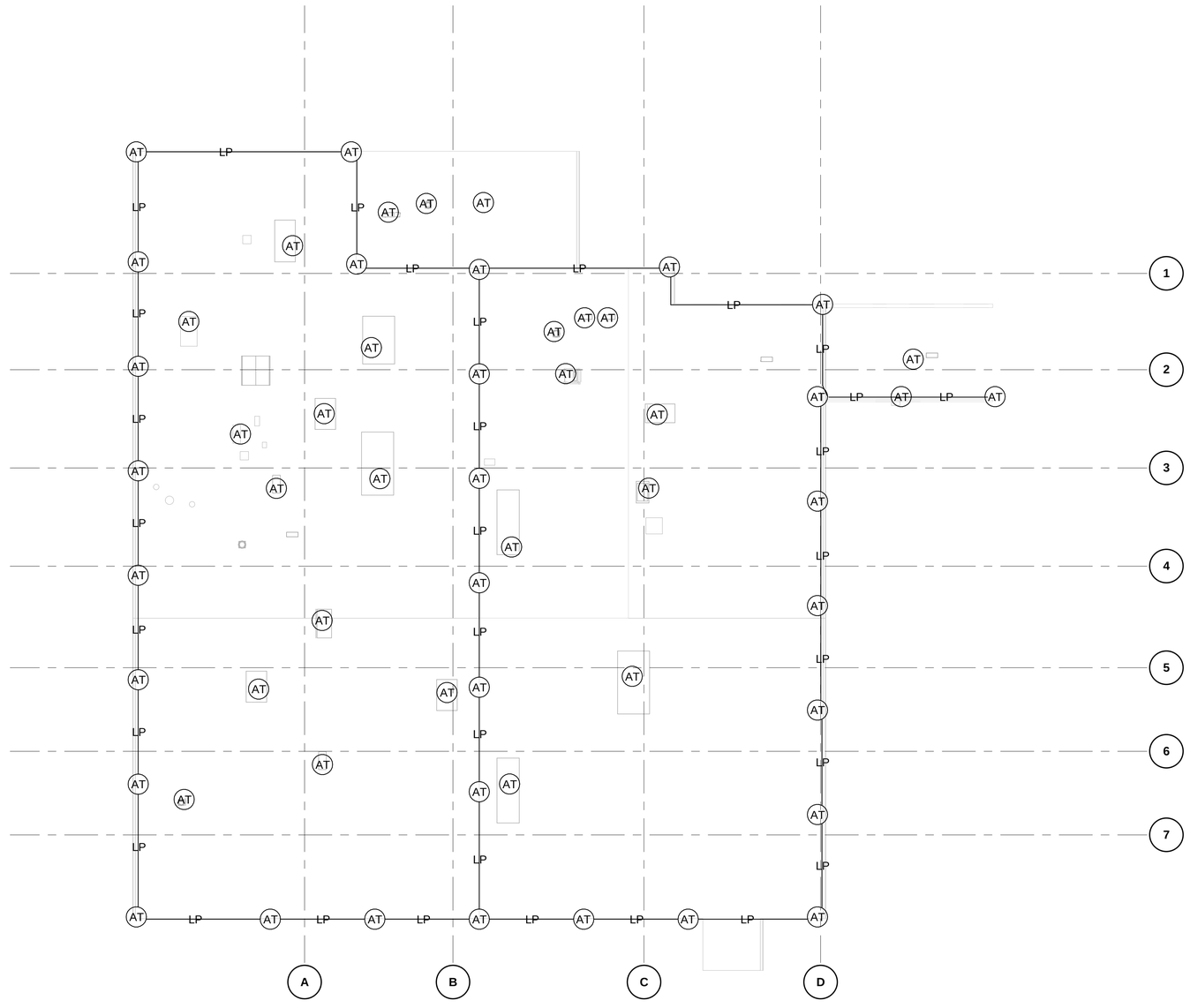
DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135-JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt

REV/DATE: 5/9/2016 2:31:38 PM

LIGHTNING PROTECTION NOTES

1. CONTRACTOR SHALL OBTAIN THE SERVICES OF A QUALIFIED LIGHTNING PROTECTION CONTRACTOR TO PERFORM THE WORK AS DESCRIBED IN SPEC SECTION 264113
2. ITEMS TO BE GROUNDED OR BONDED INCLUDE, BUT ARE NOT LIMITED TO:
   - 2.1. STEEL FRAME BUILDINGS.
   - 2.2. INTERCONNECTION OF METAL BODIES
   - 2.3. GENERATOR ENCLOSURES
   - 2.4. METAL ROOFS AND/OR METAL WALLS
   - 2.5. CANOPYS
   - 2.6. SUPPORT POLES OF SECURITY EQUIPMENT
3. PROVIDE ALL NECESSARY COMPONENTS TO ENSURE A COMPLETE AND FUNCTIONING UL LABLED LIGHTNING PROTECTION SYSTEM TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING:
   - 3.1. CONDUCTORS - MAIN AND BONDING CONDUCTORS, ROOF CONDUCTORS, DOWN CONDUCTORS, GROUND CONDUCTORS, INTERCONNECTING CONDUCTORS
   - 3.2. STRIKE TERMINATION DEVICES - AIR TERMINALS, GROUND TERMINALS
   - 3.3. GROUND BUS
   - 3.4. CONNECTORS, FITTINGS, TERMINATIONS, SUPPORTS, FASTENERS
   - 3.5. BONDING PLATES
   - 3.6. SURGE SUPPRESSION DEVICES
4. ALL ADHESIVE AIR TERMINAL BASES AND FITTINGS SHALL BE SECURED TO ROOF WITH AN ADHESIVE COMPOUND OR PITCH WHICH COMPLIES WITH ROOFING BOND REQUIREMENTS. ADHESIVE COMPOUND SHALL BE FURNISHED BY ROOFING CONTRACTOR.
5. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED IN A NEAT, WORKMANLIKE AND INCONSPICUOUS MANNER SO THAT ALL COMPONENTS WILL BLEND IN WITH THE BUILDING AESTHETICS.

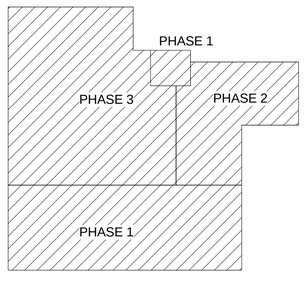


PLAN NORTH

LIGHTNING PROTECTION ROOF PLAN

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

KEY PLAN:



GRAPHIC SCALE:

1/16" =1'-0" 0' 8' 16' 32'

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LIGHTNING PROTECTION ROOF PLAN

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078458
SHEET 174 OF 180
E-104

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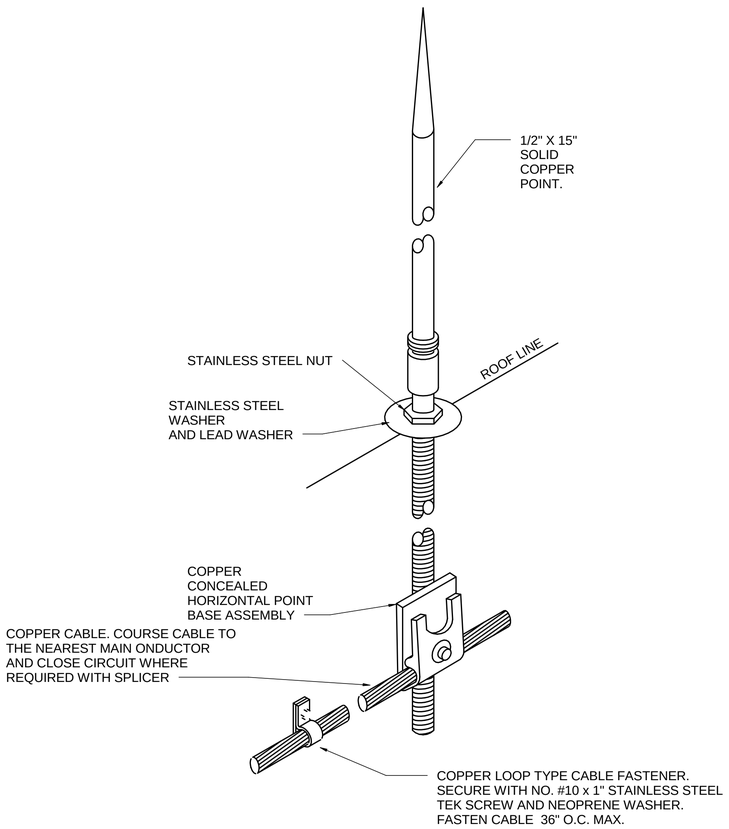
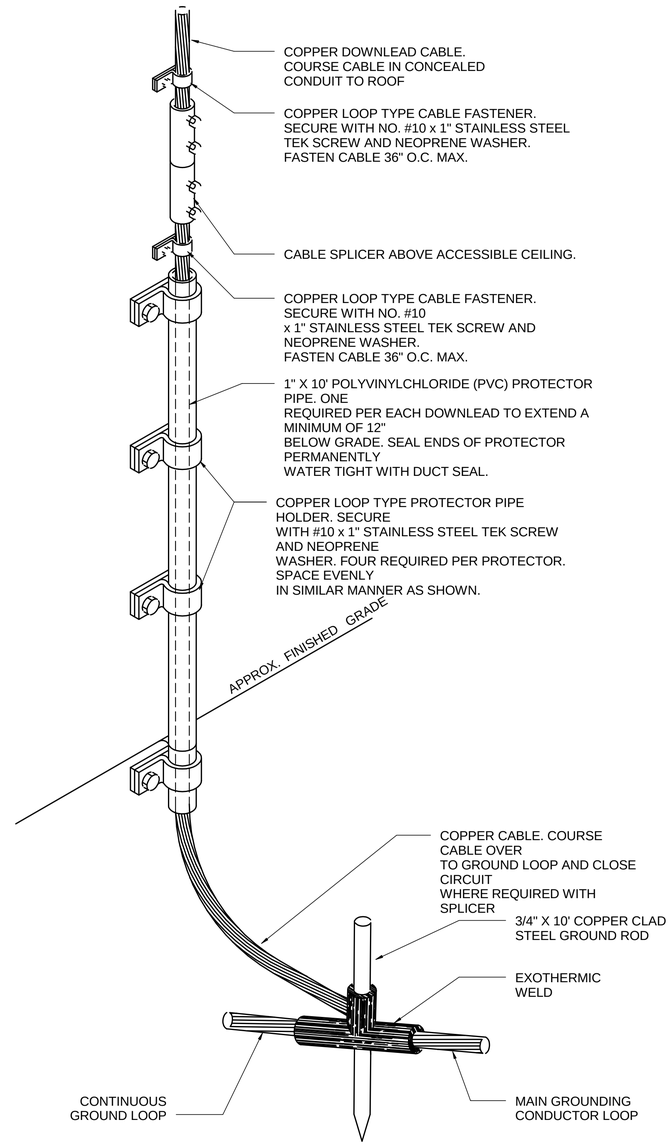


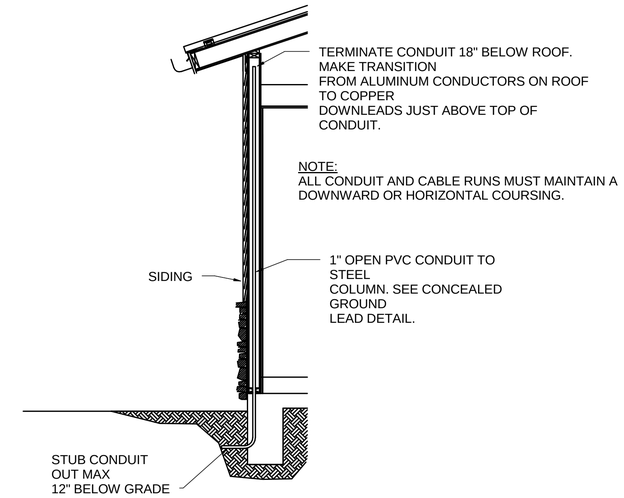
B1 AIR TERMINAL WITH CONCEALED CONDUCTOR

SCALE: NONE



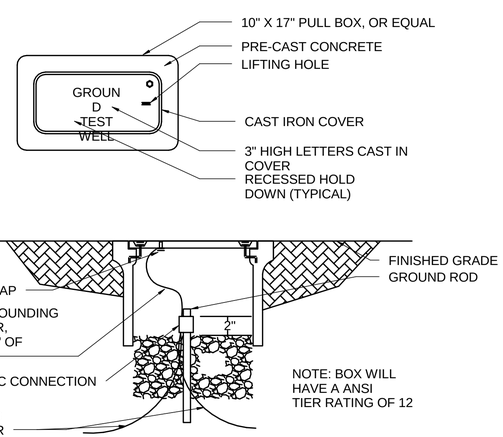
A2 DETAIL - CONCEALED GROUND LEAD TO GROUNDING LOOP1

SCALE: NONE



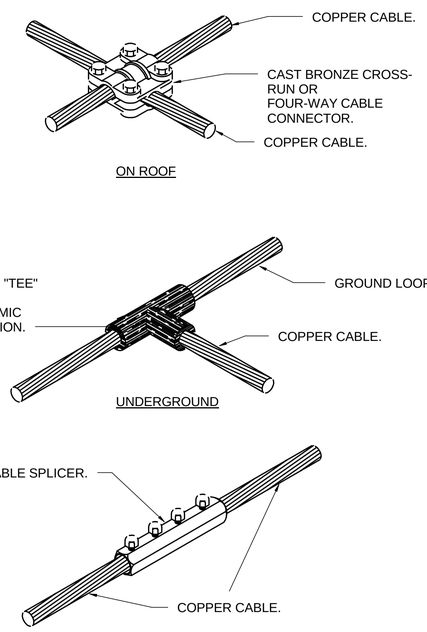
C4 DETAIL - DOWN CONDUCTOR ROUTING

SCALE: NONE



A1 DETAIL - GROUND TEST WELL DETAIL

SCALE: NONE



A4 DETAIL - TYPICAL GROUNDING CABLE SPLICES

SCALE: NONE

SYM	DESCRIPTION	DATE	APPR

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Lic. No. 047903
3/18/16
SEAL

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BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
DETAILS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078459
SHEET 175 OF 180
E-501

DRAWFORM REVISION: 10 MAY 2014

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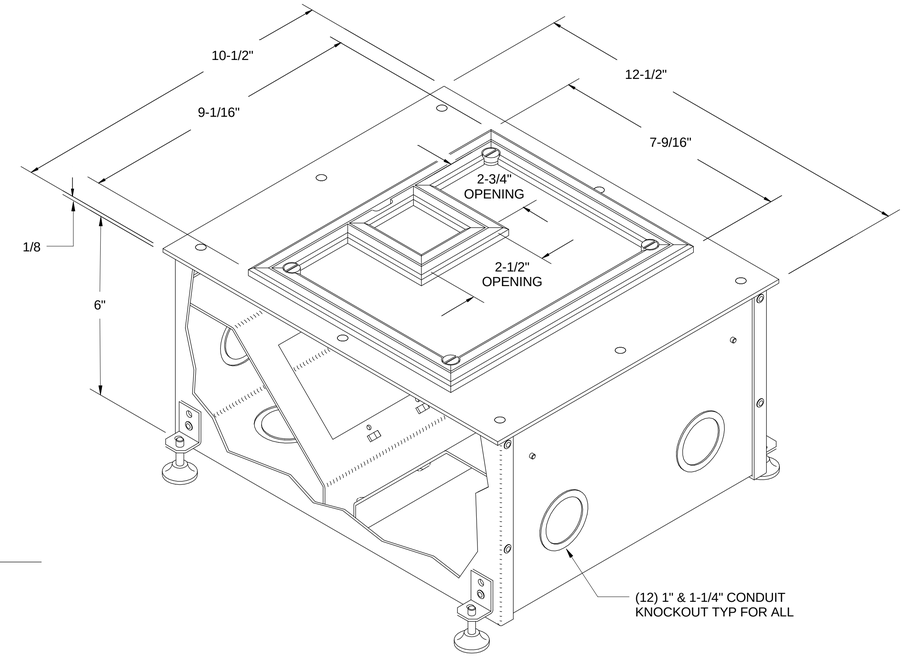
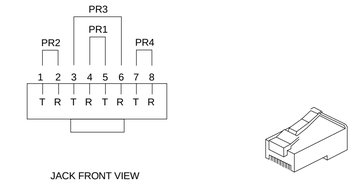


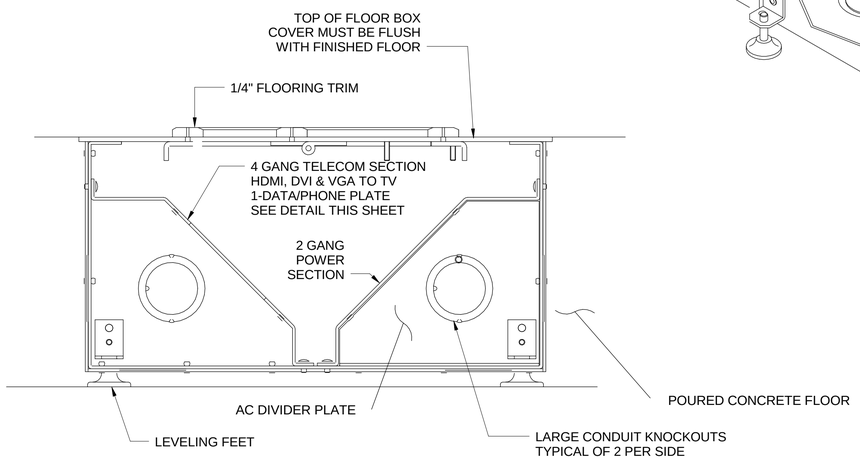


JACK WIRING (EACH JACK)

PAIR 1	5 - TIP (W-BL) 4 - RING (BL-W)
PAIR 2	1 - TIP (W-OR) 2 - RING (OR-W)
PAIR 3	3 - TIP (W-GN 6 - RING (GR-W)
PAIR 4	7 - TIP (W-BN) 8 - RING (BN-W)

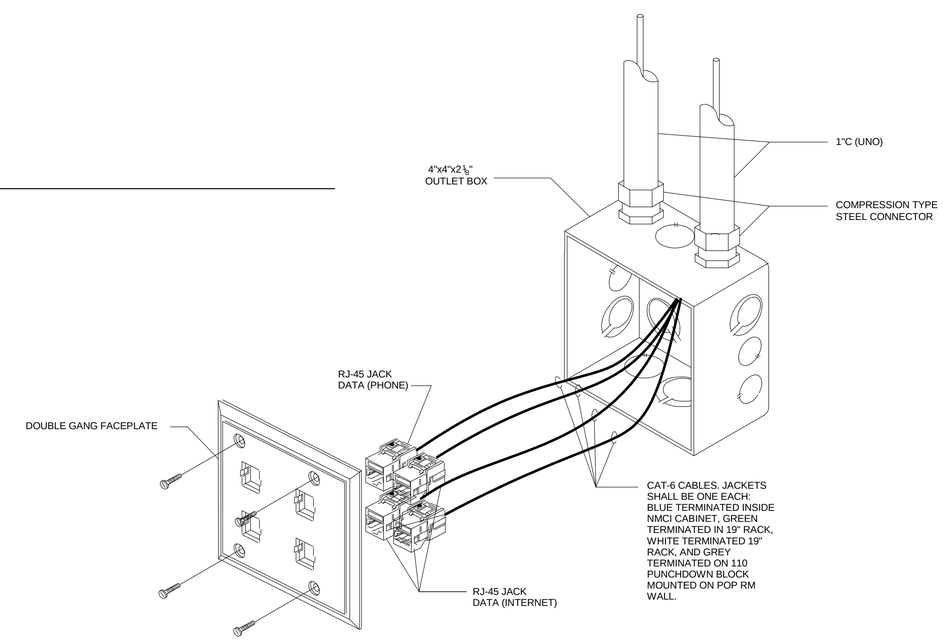
C5 DETAIL - RG-45 PLUG CONFIGURATION

SCALE: NONE



B1 AIR TERMINAL WITH CONCEALED CONDUCTOR

SCALE: NONE



A4 DETAIL - INTERNET/PHONE WALL OUTLET DETAIL

SCALE: NONE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Yarnell
Lic. No. 047903
3/18/16
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY
SATISFACTORY TO DATE

DES	BWY	DRW	BWY	CHK	JCC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

DETAILS

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078460
SHEET 176 OF 180

E-502

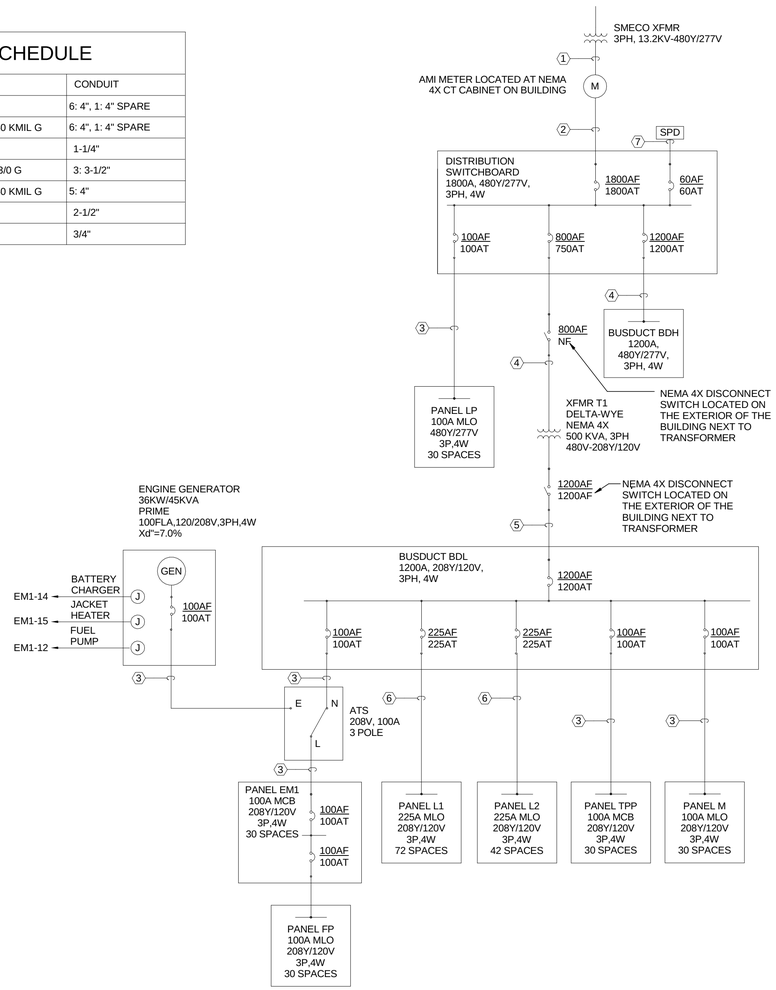
DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135-JV NAVFAC PAX B8008\Submittals\2016-02-29_JFC Submittal\215135R15_E_Cent.vt

REV/DATE: 3/18/2016 8:12:54 AM

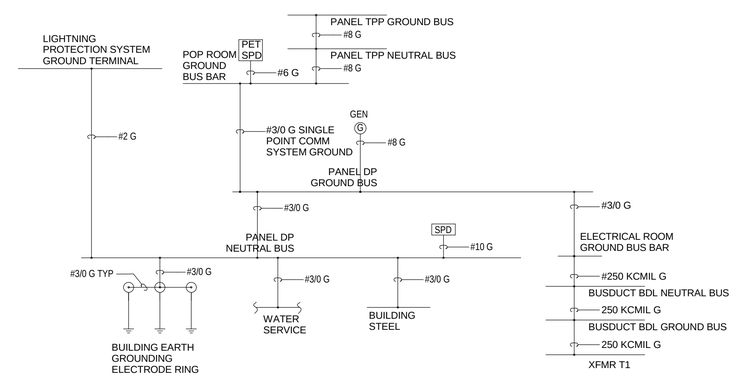
CABLE SCHEDULE

TYPE	FEEDER CABLE	CONDUIT
1	BY SMECO	6: 4", 1: 4" SPARE
2	5 SETS: 4-500 KCMIL, 250 KMIL G	6: 4", 1: 4" SPARE
3	4- #3, #8 G	1-1/4"
4	3 SETS: 4- 600 KCMIL, #3/0 G	3: 3-1/2"
5	5 SETS: 4-600 KCMIL, 250 KMIL G	5: 4"
6	4, #4/0 #4 G	2-1/2"
7	4, #6 #10 G	3/4"



A1 POWER ONE-LINE DIAGRAM

SCALE: NONE



A3 GROUNDING RISER DIAGRAM

SCALE: NONE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Yarnell
Lic. No. 047903
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS & McDONNELL
JOINT VENTURE

A/E INFO.

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES BWY | DRW BWY | CHK JCC

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND – WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER

ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

POWER ONE-LINE DIAGRAM

SCALE: AS NOTED

EPROJECT NO. 1183080

CONSTR. CONTR. NO. N40080-15-D-0452

NAVFAC DRAWING NO. 13078461

SHEET 177 OF 180

E-601

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt

REVDATE: 3/18/2016 8:12:54 AM

Switchboard: DP

Location: ELECTRICAL 135
Supply From: CT SECTION/METER
Mounting: WALL
Enclosure: SB2

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 35,000
Mains Type: SERVICE RATED BREAKER
Mains Rating: 1800 A
MCB Rating: 1800 A

Notes:

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	PANEL LP	3	400 A	100 A	17.4 kVA	
2	BDL VIA XFMR T1	3	800 A	750 A	365.6 kVA	
3	BDH	3	1200 A	1200 A	959.8 kVA	
4	SPD	3	60 A	60 A	0.0 kVA	
				Total Conn. Load:	1343.7 kVA	
				Total Amps:	1616 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	548.8 kVA	100.0%	548.8 kVA		
Lighting	17.2 kVA	125.0%	21.6 kVA	**Total Conn. Load:**	1343.7 kVA
Motor	0.8 kVA	125.0%	1.0 kVA	**Total Est. Demand:**	1188.1 kVA
Other	0.2 kVA	100.0%	0.2 kVA	**Total Conn.:**	1616 A
Power	29.6 kVA	100.0%	29.6 kVA	**Total Est. Demand:**	1429 A
Receptacle	52.4 kVA	59.5%	31.2 kVA		
Equipment - Power	694.8 kVA	80.0%	555.8 kVA		

Notes:

Branch Panel: L1

Location: ELECTRICAL 135
Supply From: BDL
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000
Mains Type: MAIN LUG
Mains Rating: 225 A
ML Rating: 225 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1	RECEPTACLE-MICROWAVE	20 A	1	2#12,#12G,3/4"C	750...	500...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE-FRIDGE	2
3	RECEPTACLE-MICROWAVE	20 A	1	2#12,#12G,3/4"C			750...	500...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-FRIDGE	4
5	RECEPTACLE-KITCHEN	20 A	1	2#12,#12G,3/4"C					380...	750...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE-MICROWAVE	6
7	RECEPTACLE-CORRIDOR	20 A	1	2#12,#12G,3/4"C	2000...	1000...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE-VENDING	8
9	RECEPTACLE-VENDING	20 A	1	2#12,#12G,3/4"C			1000...	600...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-BREAK	10
11	RECEPTACLE-BREAK	20 A	1	2#12,#12G,3/4"C					400...	360...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE-COPIER	12
13	RECEPTACLE-COPIER	20 A	1	2#12,#12G,3/4"C	360...	600...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE-COPY RM	14
15	RECEPTACLE-ASSEMBLY &...	20 A	1	2#12,#12G,3/4"C			1200...	3300...			2#8,#10G,3/4"C	2	40 A	ULTRASONIC TANK	16
17									1233...	3300...					18
19	FORTUS 400MC	20 A	3	3#12,#12G,3/4"C	1233...	780...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE-ADDATIVE MFG	20
21							1233...	800...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE- ENGINEERING	22
23	RECEPTACLE-DRAFTING	20 A	1	2#12,#12G,3/4"C					1000...	600...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE- ENGINEERING	24
25	RECEPTACLE- ENGINEERING	20 A	1	2#12,#12G,3/4"C	600...	800...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE- ENGINEERING	26
27	RECEPTACLE- CONF	20 A	1	2#12,#12G,3/4"C			1440...	800...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-PICK UP	28
29	RECEPTACLE-CONF	20 A	1	2#12,#12G,3/4"C					1440...	800...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE- PROCURMENT	30
31	RECEPTACLE- BRANCH HEAD	20 A	1	2#12,#12G,3/4"C	1000...	180...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE-SHOWER	32
33	HARDWIRED FLUSH VALVE	20 A	1	2#12,#12G,3/4"C			200...	800...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-FOREMAN	34
35	FARO EDGE	20 A	1	2#12,#12G,3/4"C					200...	180...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE-WATER COOLER	36
37	RECEPTACLE-QUALITY...	20 A	1	2#12,#12G,3/4"C	1200...	200...					2#12,#12G,3/4"C	1	20 A	HARDWIRED FLUSH VALVE	38
39	RECEPTACLE-ELEC AND FP RMS	20 A	1	2#12,#12G,3/4"C			560...	360...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-MENS & WOMENS	40
41	HARDWIRED FLUSH VALVE	20 A	1	2#12,#12G,3/4"C					200...	180...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE-MENS	42
43	RECEPTACLE- GOV COORD	20 A	1	2#12,#12G,3/4"C	800...	800...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE- FOREMAN 2	44
45	RECEPTACLE- SECRETARY	20 A	1	2#12,#12G,3/4"C			800...	800...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE- CONTRACTOR...	46
47	RECEPTACLE- POP ROOM	20 A	1	2#12,#12G,3/4"C					600...	1250...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE- EXTERIOR	48
49	RECEPTACLE- MICROWAVE...	20 A	1	2#12,#12G,3/4"C	750...	750...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE- MICROWAVE...	50
51	RECEPTACLE- MICROWAVE...	20 A	1	2#12,#12G,3/4"C			750...	200...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE- GARBAGE...	52
53	RECEPTACLE- PRINTERS	20 A	1	2#12,#12G,3/4"C					200...	1000...	2#12,#12G,3/4"C	1	20 A	EQUIPMENT - TRAP PRIMER	54
55					333...	200...					2#12,#12G,3/4"C	1	20 A	EQUIPMENT - 3D COMPRESSOR	56
57	WH-1	30 A	3	2#10,#10G,3/4"C			333...	0 VA			2#12,#12G,3/4"C	1	20 A	POWER- ROLL UP DOOR	58
59									333...	30 VA	2#12,#12G,3/4"C	1	20 A	EQUIPMENT - SS-6B1	60
61	RECEPTACLE - TV	20 A	1	2#12,#12G,3/4"C	200...	30 VA					2#12,#12G,3/4"C	1	20 A	EQUIPMENT - SS-6B2	62
63	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	64
65	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	66
67	Spare	20 A	1		0 VA	0 VA						1	20 A	Spare	68
69	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	70
71	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	72
		Total Load:			15.1 kVA		16.4 kVA		14.4 kVA						
		Total...			126 A		138 A		120 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Other	0.1 kVA	100.0%	0.1 kVA		
Power	0.0 kVA	0.0%	0.0 kVA	**Total Conn. Load:**	45.9 kVA
Receptacle	32.6 kVA	65.4%	21.3 kVA	**Total Est. Demand:**	32.0 kVA
Equipment - Power	13.3 kVA	80.0%	10.6 kVA	**Total Conn.:**	127 A
				Total Est. Demand:	89 A

Notes:

Bus Duct: BDH

Location: ELECTRICAL 135
Supply From: DP
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 35,000
Mains Type: NON-FUSED DISCONNECT
Mains Rating: 1200 A
MCB Rating: 1200 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1					6400...	6400...									2
3	WATERJET 55100	50 A	3	3#8,#10G,3/4"C			6400...	6400...			3#8,#10G,3/4"C	3	50 A	WATERJET 5555	4
5									6400...	6400...					6
7					6400...	6400...									8
9	STRIPPIT PUNCH	50 A	3	3#8,#10G,3/4"C			6400...	6400...			3#8,#10G,3/4"C	3	50 A	STRIPPIT PUNCH (FUTURE)	10
11									6400...	6400...					12
13					3833...	3833...									14
15	LVD PRESS BRAKE 90/07	30 A	3	3#10,#10G,3/4"C			3833...	3833...			3#10,#10G,3/4"C	3	30 A	LVD PRESS BRAKE 80/20	16
17									3833...	3833...					18
19					1033...	1280...									20
21	MIDWEST BLOWER	20 A	3	3#12,#12G,3/4"C			1033...	1280...			3#3,#8G,3/4"C	3	100 A	CLEMCO BLASTING BOOTH	22
23									1033...	1280...					24
25					2067...	4467...									26
27	MONARCH LATHE	20 A	3	3#12,#12G,3/4"C			2067...	4467...			3#10,#10G,3/4"C	3	35 A	LOEWER DISC MASTER	28
29									2067...	4467...					30
31					3833...	7667...									32
33	VERT. BANDSAW	30 A	3	3#10,#10G,3/4"C			3833...	7667...			3#6,#10G,3/4"C	3	60 A	FAMCO SHEAR	34
35									3833...	7667...					36
37					1280...	8967...									38
39	DAVEY COMPRESSOR	100 A	3	3#3,#8G,3/4"C			1280...	8967...			3#4,#8G,3/4"C	3	70 A	SANDING BOOTH	40
41									1280...	8967...					42
43					8967...	6867...									44
45	SANDING BOOTH	70 A	3	3#4,#8G,3/4"C			8967...	6867...			3#6,#10G,3/4"C	3	60 A	MILLER 700	46
47									8967...	6867...					48
49					6867...	8133...									50
51	MILLER 700	60 A	3	3#6,#10G,3/4"C			6867...	8133...			3#4,#8G,3/4"C	3	70 A	MILLER 456P	52
53									6867...	8133...					54
55					5133...	6400...									56
57	LINCON V300	40 A	3	3#8,#10G,3/4"C			5133...	6400...			3#8,#10G,3/4"C	3	50 A	LINCON TIG355	58
59									5133...	6400...					60
61					2400...	433...									62
63	LINCON TIG300	20 A	3	3#12,#12G,3/4"C			2400...	433...			3#12,#12G,3/4"C	3	20 A	NIAGAR SHEAR	64
65									2400...	433...					66
67					467...	3467...									68
69	HAMMOND BELT SANDER 600W	20 A	3	3#12,#12G,3/4"C			467...	3467...			3#8,#10G,3/4"C	3	50 A	EVAPORATOR-IRIDITE RM	70
71									467...	3467...					72
73					2217...	1552...									74
75	RTU-1	100 A	3	3#3,#8G,3/4"C			2217...	1552...			3#8,#10G,3/4"C	3	70 A	RTU-2	76
77									2217...	1552...					78
79					1330...	1773...									80
81	RTU-3	60 A	3	3#8,#10G,3/4"C			1330...	1773...			3#6,#10G,3/4"C	3	80 A	RTU-4	82
83									1330...	1773...					84
85					2217...	2217...									86
87	RTU-5	100 A	3	3#3,#8G,3/4"C			2217...	2217...			3#6,#10G,3/4"C	3	100 A	RTU-6	88
89									2217...	2217...					90
91					7757...	1280...									92
93	RTU-7	35 A	3	3#8,#10G,3/4"C			7757...	1280...			3#12,#12G,3/4"C	3	20 A	DAVEY COMPRESSOR 2	94
95									7757...	1280...					96
97					1552...	2533...									98
99	RTU-8	70 A	3	3#8,#10G,3/4"C			1552...	2533...			3#12,#12G,3/4"C	3	20 A	EQUIPMENT - POWER	100
101									1552...	2533...					102
103					1133...	1133...									104
105	EQUIPMENT - WATERJET CHILLER	20 A	3	3#12,#12G,3/4"C			1133...	1133...			3#12,#12G,3/4"C	3	20 A	EQUIPMENT - WATERJET CHILLER	106
107									1133...	1133...					108
109					3200...	3467...									110
111	DOAS-2	35 A	3	3#10,#10G,3/4"C			3200...	3467...			3#12,#12G,3/4"C	3	20 A	EQUIPMENT - TANK	112
113									3200...	3467...					114
115					3467...	3467...									116
117	EQUIPMENT - TANK	20 A	3	3#12,#12G,3/4"C			3467...	3467...			3#12,#12G,3/4"C	3	20 A	EQUIPMENT - TANK	118
119									3467...	3467...					120
121					4800...	4800...									122
123	DOAS-2 Coil	35 A	3	3#10,#10G,3/4"C			4800...	4800...			3#10,#10G,3/4"C	3	35 A	DOAS-3 COIL	124
125									4800...	4800...					126
127					3200...	2533...									128
129	DOAS-3	35 A	3	3#10,#10G,3/4"C			3200...	2533...			3#12,#12G,3/4"C	3	20 A	RELOCATED MAU	130
131									3200...	2533...					132
133					1033...	0 VA					--	--	--	Space	134
135	RELOCATED DUST COLLECTOR	20 A	3	3#12,#12G,3/4"C			1033...	0 VA			--	--	--	Space	136
137									1033...	0 VA	--	--	--	Space	138
		Total Load:			319.9 kVA		319.9 kVA		319.9 kVA						
		Total...			1155 A		1155 A		1155 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	428.2 kVA	100.0%	428.2 kVA		
Power	28.8 kVA	100.0%	28.8 kVA	**Total Conn. Load:**	959.8 kVA
Equipment - Power	502.8 kVA	80.0%	402.2 kVA	**Total Est. Demand:**	859.3 kVA
				Total Conn.:	1154 A
				Total Est. Demand:	1034 A

Notes:
CONTRACTOR SHALL PROVIDE A MINIMUM OF 8 SPACES TO ADD FUTURE LOADS TO BUSDCT.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES BWY | DRW BWY | CHK JCC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

PANEL SCHEDULES

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078462
SHEET 178 OF 180
E-701

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC-Submittal\215135R15_E_Cent.rvt
REV/DATE: 3/18/2016 8:12:57 AM

Bus Duct: BDL

Location:	ELECTRICAL 135	**Volts:**	120/208 Wye	**A.I.C. Rating:**	22,000
Supply From:	T1	**Phases:**	3	**Mains Type:**	NON-FUSED DISCONNECT
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	1200 A
Enclosure:	Type 1			**MCB Rating:**	1200 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1					1506...	6732...									2
3	PANEL L1	225 A	3	SEE ONE-LINE			1642...	4956...			SEE ONE-LINE	3	100 A	PANEL EM1 VIA ATS	4
5									1443...	6023...					6
7					720...	2412...									8
9	PANEL TPP	100 A	3	SEE ONE-LINE			720...	3005...			SEE ONE-LINE	3	225 A	PANEL L2	10
11									720...	1933...					12
13					1109...	2200...									14
15	PANEL M	100 A	3	SEE ONE-LINE			1021...	2200...			3#8,#10G,3/4"C	3	40 A	VF2	16
17									1346...	2200...					18
19					400...	250...									20
21	BALEIGHT ROLLER	20 A	3	3#12,#12G,3/4"C			400...	250...			3#12,#12G,3/4"C	3	20 A	BRIDGEPORT 8F	22
23									400...	250...					24
25					467...	467...									26
27	BRIDGEPORT EZTRAK 2	20 A	3	3#12,#12G,3/4"C			467...	467...			3#12,#12G,3/4"C	3	20 A	BRIDGEPORT SERIES 1	28
29									467...	467...					30
31					1100...	433...									32
33	DCM TECH GRINDER	20 A	3	3#12,#12G,3/4"C			1100...	433...			3#12,#12G,3/4"C	3	20 A	DRAKE PRESS 905075-2	34
35									1100...	433...					36
37					1467...	1467...									38
39	DRILL PRESS #1	30 A	3	3#10,#10G,3/4"C			1467...	1467...			3#10,#10G,3/4"C	3	30 A	DRILL PRESS #2	40
41									1467...	1467...					42
43					1033...	533...									44
45	ELECTROARC 300SH TAP BURNER	20 A	3	3#12,#12G,3/4"C			1033...	533...			3#12,#12G,3/4"C	3	20 A	HABERLE SAW	46
47									1033...	533...					48
49					900...	900...									50
51	HARDINGE LATHE #1	20 A	3	3#12,#12G,3/4"C			900...	900...			3#12,#12G,3/4"C	3	20 A	HARDINGE LATHE #2	52
53									900...	900...					54
55					533...	1400...									56
57	HORIZ. BANDSAW 0-916M	20 A	3	3#12,#12G,3/4"C			533...	1400...			3#12,#12G,3/4"C	3	25 A	MINI MILL	58
59									533...	1400...					60
61					333...	1400...									62
63	MANFORD SP150VSL	20 A	3	3#12,#12G,3/4"C			333...	1400...			3#12,#12G,3/4"C	3	25 A	TM3	64
65									333...	1400...					66
67					1667...	2200...									68
69	STURDY BENDR AA5	30 A	3	3#12,#12G,3/4"C			1667...	2200...			3#8,#10G,3/4"C	3	40 A	SL20	70
71									1667...	2200...					72
73					600...	2200...									74
75	TRAKMILL TRAKX3SX-3	20 A	3	3#12,#12G,3/4"C			600...	2200...			3#8,#10G,3/4"C	3	40 A	VF2YT	76
77									600...	2200...					78
79					2200...	2500...									80
81	TL3	40 A	3	3#8,#10G,3/4"C			2200...	2500...			3#8,#10G,3/4"C	3	45 A	VERT. BANDSAW 3618-2	82
83									2200...	2500...					84
85					2200...	940...					2#12,#12G,3/4"C	1	20 A	RADIUS MASTER	86
87	VF4	40 A	3	3#8,#10G,3/4"C			2200...	650...			2#12,#12G,3/4"C	1	20 A	KALAMAZOO BELT SANDER	88
89									2200...	310...	2#12,#12G,3/4"C	1	20 A	STENCIL MACHINE CCS24CS	90
91	ROCKWELL GRINDER	20 A	1	2#12,#12G,3/4"C	740...	2200...									92
93	ROYSON VIB. FINISHER	20 A	1	2#12,#12G,3/4"C			1900...	2200...			3#8,#10G,3/4"C	3	40 A	VF8 (FUTURE)	94
95	GRAVPGRAPH IS700	20 A	1	2#12,#12G,3/4"C					240...	2200...					96
97	GRAVOGRAPH IS700	20 A	1	2#12,#12G,3/4"C	840...	2200...									98
99	GRAVOGRAPH IS900	20 A	1	2#12,#12G,3/4"C			420...	2200...			3#8,#10G,3/4"C	3	40 A	UMC750 (FUTURE)	100
101									2200...	2200...					102
103	VF3SSYT(FUTURE)	40 A	3	3#8,#10G,3/4"C	2200...	4800...									104
105							2200...	4800...			3#8,#10G,3/4"C	3	50 A	DOAS-1	106
107									6723...	4800...					108
109	HRU-1	70 A	3	3#4,#8G,3/4"C	6723...	0 VA									110
111							6723...	0 VA				3	20 A	Spare	112
113	Spare	20 A	1						0 VA	0 VA					114
	Total Load:				107.2 kVA		156.9 kVA		101.5 kVA						
	Total...				901 A		1315 A		846 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	120.6 kVA	100.0%	120.6 kVA		
Lighting	0.8 kVA	125.0%	1.0 kVA	**Total Conn. Load:**	366.4 kVA
Motor	0.8 kVA	125.0%	1.0 kVA	**Total Est. Demand:**	307.4 kVA
Other	0.2 kVA	100.0%	0.2 kVA	**Total Conn.:**	1017 A
Power	0.8 kVA	100.0%	0.8 kVA	**Total Est. Demand:**	853 A
Receptacle	52.4 kVA	59.5%	31.2 kVA		
Equipment - Power	191.0 kVA	80.0%	152.8 kVA		

Notes:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 8 SPACES TO ADD FUTURE LOADS TO BUSDCT.

Branch Panel: L2

Location:	MACHINING 119	**Volts:**	120/208 Wye	**A.I.C. Rating:**	22,000
Supply From:	BDL	**Phases:**	3	**Mains Type:**	MAIN LUG
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	225 A
Enclosure:	Type 1			**ML Rating:**	225 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1	RECEPTACLE-WELDING	20 A	1	2#12,#12G,3/4"C	1000...	600...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE- COMPOSITE PREP	2
3	RECEPTACLE-BREAK DOWN	20 A	1	2#12,#12G,3/4"C			1000...	1000...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE- MATERIAL PREP	4
5	RECEPTACLE- SAND PREP	20 A	1	2#12,#12G,3/4"C					400...	400...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE- SAND BLASTING	6
7	ECONOLINE MEDIA BOOTH	20 A	1	2#12,#12G,3/4"C	840...	1900...					2#12,#12G,3/4"C	1	20 A	KALAMAZO BELT SAMDER	8
9	MEDIA BOOTH	20 A	1	2#12,#12G,3/4"C			1400...	800...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-CARPENTRY	10
11	RECEPTACLE-TOOL ROOM	20 A	1	2#12,#12G,3/4"C					400...	1000...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE-MACHINE AREA	12
13	RECEPTACLE-SHEET METAL	20 A	1	2#12,#12G,3/4"C	2600...	800...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE-MACHINE AREA	14
15	RECEPTACLE-TOOL ROOM	20 A	1	2#12,#12G,3/4"C			400...	800...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE-SHEET METAL	16
17	RECEPTACLE-CARPENTRY	20 A	1	2#12,#12G,3/4"C					800...	1033...					18
19					1100...	1033...					3#12,#12G,3/4"C	3	20 A	ROCKWELL BANDSAW	20
21	DLAT TABLE SAW	20 A	3	3#12,#12G,3/4"C			1100...	1033...							22
23									1100...	1100...					24
25					9600...	1100...					3#12,#12G,3/4"C	3	20 A	ROCKWELL DRILL PRESS	26
27	PAINTBOOTH	100 A	3	3#3,#8G,3/4"C			9600...	1100...							28
29									9600...	250...	2#12,#12G,3/4"C	1	20 A	RECEPTACLE- EXTERIOR	30
31	RECEPTACLE- EXTERIOR	20 A	1	2#12,#12G,3/4"C	1250...	1500...					2#12,#12G,3/4"C	1	20 A	RECEPTACLE- EXTERIOR	32
33	EQUIPMENT - UH-1	20 A	2	2#12,#12G,3/4"C			1000...	20 VA			2#12,#12G,3/4"C	1	20 A	EQUIPMENT - TRAP PRIMER	34
35									1000...	1400...	2#10,#12G,3/4"C	1	20 A	RECEPTACLE-ROOF MAINT	36
37	POWER-ROLL UP DOOR	20 A	1	2#12,#12G,3/4"C	0 VA	0 VA					2#12,#12G,3/4"C	1	20 A	POWER	38
39	EQUIPMENT - RINSE	20 A	1	2#12,#12G,3/4"C			1040...	400...			2#12,#12G,3/4"C	1	20 A	RECEPTACLE- CHEM TREATING	40
41	RECEPTACLE-PAINT & DRYING	20 A	1	2#12,#12G,3/4"C					600...	0 VA	2#12,#12G,3/4"C	1	20 A	POWER - ROLL UP DOOR	42
43	EF-4	20 A	1	2#12,#12G,3/4"C	800...	0 VA					2#12,#12G,3/4"C	1	20 A	POWER - ROLL UP DOOR	44
45	Space	--	--	--			0 VA	0 VA			--	--	--	Space	46
47	Space	--	--	--					0 VA	0 VA	--	--	--	Space	48
49	Space	--	--	--	0 VA	0 VA					--	--	--	Space	50
51	Space	--	--	--			0 VA	0 VA			--	--	--	Space	52
53	Space	--	--	--					0 VA	0 VA	--	--	--	Space	54
55	POWER	20 A	1	2#12,#12G,3/4"C	0 VA	0 VA					2#12,#12G,3/4"C	1	20 A	POWER	56
57	POWER	20 A	1	2#12,#12G,3/4"C			0 VA	0 VA			2#12,#12G,3/4"C	1	20 A	POWER	58
59	RECEPTACLE - RAMPOLE	20 A	1	2#12,#12G,3/4"C					250...	0 VA		1	20 A	Spare	60
61	Spare	20 A	1		0 VA	0 VA						1	20 A	Spare	62
63	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	64
65	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	66
67	Spare	20 A	1		0 VA	0 VA						1	20 A	Spare	68
69	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	70
71	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	72
	Total Load:				24.1 kVA		30.1 kVA		19.3 kVA						
	Total...				207 A		257 A		161 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	0.8 kVA	100.0%	0.8 kVA		
Receptacle	17.7 kVA	78.3%	13.8 kVA	**Total Conn. Load:**	73.5 kVA
Equipment - Power	55.1 kVA	80.0%	44.0 kVA	**Total Est. Demand:**	58.7 kVA
				Total Conn.:	204 A
				Total Est. Demand:	163 A

Notes:

APPR DATE DESCRIPTION SYM

NAVFAC

Brian W. Yannetti
Lic. No. 047903
3/18/16
PROFESSIONAL ENGINEER
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED

FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE

DES Designer | DRW Author | CHK Checker

PROJECT MANAGER

IPT TECH. BRANCH HEAD

CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
WEBSTER FIELD, NAS PATUXENT RIVER — ST. INIGOES, MD
NAVAL AIR STATION PATUXENT RIVER — ST. INIGOES, MD
BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION
PANEL SCHEDULES

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078463
SHEET 179 OF 180
E-702

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt
REVDATE: 3/18/2016 8:12:59 AM

Branch Panel: EM1

Location: ELECTRICAL 135 **Volts:** 120/208 Wye **A.I.C. Rating:** 22,000
Supply From: BDL **Phases:** 3 **Mains Type:** MAIN LUG
Mounting: Surface **Wires:** 4 **Mains Rating:** 100 A
Enclosure: Type 1 **MCB Rating:** 100 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1	SS-5A CONDINSATE PUMP	20 A	1	2#12,#12G,3/4"C	30 VA	315...					2#12,#12G,3/4"C	1	20 A	LIGHTING- EXTERIOR	2
3	LIGHTING- EXTERIOR	20 A	1	2#12,#12G,3/4"C			210...	263...			2#12,#12G,3/4"C	1	20 A	LIGHTING- EXTERIOR	4
5	EF-1	20 A	1	2#12,#12G,3/4"C					528...	2495...	2#12,#12G,3/4"C	2	30 A	SS-5A&B	6
7					3200...	2495...									8
9	FP	20 A	3	SEE ONE-LINE			2000...	0 VA				1	20 A	Spare	10
11									2000...	1000...		1	20 A	EQUIPMENT - GEN FUEK PUMP	12
13	Spare	20 A	1		0 VA	1000...						1	20 A	EQUIPMENT - GEN BATTERY...	14
15	EQUIPMENT -GEN JACKET...	20 A	1				1000...	4656...				1	20 A	EQUIPMENT - UTILITY SET FAN	16
17	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	18
19	Spare	20 A	1		0 VA	0 VA						1	20 A	Spare	20
21	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	22
23	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	24
25	Spare	20 A	1		0 VA	0 VA						1	20 A	Spare	26
27	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	28
29	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	30
		Total Load:			7.0 kVA		50.0 kVA		6.0 kVA						
		Total...			60 A		418 A		50 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	52.1 kVA	100.0%	52.1 kVA		
Lighting	0.8 kVA	125.0%	1.0 kVA	**Total Conn. Load:**	63.1 kVA
Motor	0.0 kVA	0.0%	0.0 kVA	**Total Est. Demand:**	61.3 kVA
Other	0.0 kVA	100.0%	0.0 kVA	**Total Conn.:**	175 A
Power	0.0 kVA	0.0%	0.0 kVA	**Total Est. Demand:**	170 A
Equipment - Power	10.2 kVA	80.0%	8.2 kVA		

Notes:

Branch Panel: LP

Location: ELECTRICAL 135 **Volts:** 480/277 Wye **A.I.C. Rating:** 35,000
Supply From: DP **Phases:** 3 **Mains Type:** MAIN LUG
Mounting: Surface **Wires:** 4 **Mains Rating:** 100 A
Enclosure: Type 1 **ML Rating:** 100 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1	LIGHTING	20 A	1	2#12,#12G,3/4"C	1291...	3733...					2#12,#12G,3/4"C	1	20 A	LIGHTING	2
3	LIGHTING	20 A	1	2#12,#12G,3/4"C			2303...	2353...			2#12,#12G,3/4"C	1	20 A	LIGHTING	4
5	LIGHTING	20 A	1	2#12,#12G,3/4"C					2784...	3980...	2#12,#12G,3/4"C	1	20 A	LIGHTING	6
7	Spare	20 A	1		0 VA	333...									8
9	Spare	20 A	1				0 VA	333...			2#10,#10G,3/4"C	3	30 A	SPD	10
11	Spare	20 A	1						0 VA	333...					12
13	Spare	20 A	1		0 VA	0 VA						1	20 A	Spare	14
15	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	16
17	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	18
19	Space	--	--	--	0 VA	0 VA					--	--	--	Space	20
21	Space	--	--	--			0 VA	0 VA			--	--	--	Space	22
23	Space	--	--	--					0 VA	0 VA	--	--	--	Space	24
25	Space	--	--	--	0 VA	0 VA					--	--	--	Space	26
27	Space	--	--	--			0 VA	0 VA			--	--	--	Space	28
29	Space	--	--	--					0 VA	0 VA	--	--	--	Space	30
		Total Load:			5.4 kVA		5.0 kVA		7.1 kVA						
		Total...			20 A		18 A		26 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	16.5 kVA	125.0%	20.6 kVA		
Equipment - Power	1.0 kVA	80.0%	0.8 kVA	**Total Conn. Load:**	17.5 kVA
				Total Est. Demand:	21.4 kVA
				Total Conn.:	21 A
				Total Est. Demand:	26 A

Notes:

Branch Panel: FP

Location: ELECTRICAL 135 **Volts:** 120/208 Wye **A.I.C. Rating:** 22,000
Supply From: EM1 **Phases:** 3 **Mains Type:** MAIN LUG
Mounting: Surface **Wires:** 4 **Mains Rating:** 100 A
Enclosure: Type 1 **MCB Rating:** 100 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1	MNS PANEL	20 A	1	2#12,#12G,3/4"C	1000...	1000...					2#12,#12G,3/4"C	1	20 A	DACT	2
3	EXTERNAL AMP	20 A	1	2#12,#12G,3/4"C			1000...	1000...			2#12,#12G,3/4"C	1	20 A	FACP	4
5	NAC	20 A	1	2#12,#12G,3/4"C					1000...	1000...	2#12,#12G,3/4"C	1	20 A	NAC	6
7	EQUIPMENT - FIRE ALARM	20 A	1		200...	1000...					2#12,#12G,3/4"C	1	20 A	NAC	8
9	Spare	20 A	1				0 VA	0 VA							10
11	Spare	20 A	1						0 VA	0 VA	3#12,#12G,3/4"C	3	20 A	FP AIR COMPRESSOR	12
13	Spare	20 A	1		0 VA	0 VA									14
15	Spare	20 A	1				0 VA	0 VA				1	20 A	Spare	16
17	Spare	20 A	1						0 VA	0 VA		1	20 A	Spare	18
19	Space	--	--	--	0 VA	0 VA					--	--	--	Space	20
21	Space	--	--	--			0 VA	0 VA			--	--	--	Space	22
23	Space	--	--	--					0 VA	0 VA	--	--	--	Space	24
25	Space	--	--	--	0 VA	0 VA					--	--	--	Space	26
27	Space	--	--	--			0 VA	0 VA			--	--	--	Space	28
29	Space	--	--	--					0 VA	0 VA	--	--	--	Space	30
		Total Load:			3.2 kVA		2.0 kVA		2.0 kVA						
		Total...			27 A		17 A		17 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	0.0 kVA	0.0%	0.0 kVA		
Equipment - Power	7.2 kVA	80.0%	5.8 kVA	**Total Conn. Load:**	7.2 kVA
				Total Est. Demand:	5.8 kVA
				Total Conn.:	20 A
				Total Est. Demand:	16 A

Notes:

Branch Panel: M

Location: ELECTRICAL 135 **Volts:** 120/208 Wye **A.I.C. Rating:** 22,000
Supply From: BDL **Phases:** 3 **Mains Type:** MAIN LUG
Mounting: Surface **Wires:** 4 **Mains Rating:** 100 A
Enclosure: Type 1 **ML Rating:** 100 A

Notes:

CKT	Circuit Description	Trip	Poles	Wire & Conduit Size	A		B		C		Wire & Conduit Size	Poles	Trip	Circuit Description	CKT
1	SS-1A&B	30 A	2	2#10,#10G,3/4"C	2495...	528...					2#12,#12G,3/4"C	1	20 A	EF-2	2
3							2495...	60 VA			2#12,#12G,3/4"C	1	20 A	SS-3A&4A CONDISATE PUMP	4
5	SS-2A&B	20 A	2	2#12,#12G,3/4"C					1350...	267...	3#12,#12G,3/4"C	3	20 A	EF-3	6
7					1350...	267...									8
9	SS-3A&B	30 A	2	2#10,#10G,3/4"C			2495...	267...							10
11									2495...	2495...	2#10,#10G,3/4"C	2	30 A	SS-4A&B	12
13	MCU-1,2&3	20 A	2	2#12,#12G,3/4"C	0 VA	2495...									14
15							0 VA	1400...			2#12,#12G,3/4"C	2	20 A	HVAC	16
17	ECH-2	20 A	2	2#12,#12G,3/4"C					1000...	1400...					18
19					1000...	1000...					2#12,#12G,3/4"C	2	20 A	ECH-1	20
21	Space	--	--	--			0 VA	1000...							22
23	HVAC	20 A	2	2#12,#12G,3/4"C					1120...	840...	2#12,#12G,3/4"C	2	20 A	VRV BOXES	24
25					1120...	840...									26
27	HVAC -SS-6B	30 A	2	2#10,#10G,3/4"C			2495...	0 VA				1	20 A	Spare	28
29									2495...	0 VA		1	20 A	Spare	30
		Total Load:			11.1 kVA		10.2 kVA		13.5 kVA						
		Total...			94 A		85 A		113 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	33.9 kVA	100.0%	33.9 kVA		
Motor	0.8 kVA	125.0%	1.0 kVA	**Total Conn. Load:**	34.8 kVA
Other	0.1 kVA	100.0%	0.1 kVA	**Total Est. Demand:**	35.0 kVA
Power	0.0 kVA	0.0%	0.0 kVA	**Total Conn.:**	97 A
				Total Est. Demand:	97 A

Notes:

SYM	DESCRIPTION	DATE	APPR

NAVFAC

Brian W. Manelli
Lic. No. 047903
3/18/16
SEAL

Wiley|Wilson | BURNS McDONNELL
JOINT VENTURE

A/E INFO

APPROVED
FOR COMMANDER NAVFAC / B.L.T.L.

ACTIVITY

SATISFACTORY TO DATE
DES BWY | DRW BWY | CHK JCC

PROJECT MANAGER
IPT TECH. BRANCH HEAD
CHIEF ENG/ARCH

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WEBSTER FIELD, NAS PATUXENT RIVER

NAVAL FACILITIES ENGINEERING COMMAND ~ WASHINGTON
ST. INIGOES, MD

NAVAL AIR STATION PATUXENT RIVER
ST. INIGOES, MD

BUILDING 8008 REPAIRS, ALTERATIONS AND ADDITION

PAMEL SCHEDULES

SCALE: AS NOTED
EPROJECT NO. 1183080
CONSTR. CONTR. NO. N40080-15-D-0452
NAVFAC DRAWING NO. 13078464
SHEET 180 OF 180
E-703

DRAWFORM REVISION: 10 MAY 2014

FILE NAME: X:\2015\215135 JV NAVFAC PAX B8008\Submittals\2016-02-29_IFC Submittal\215135R15_E_Cent.rvt
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