



WORK ORDER NO. 1333825

HVAC and DDC Facility Optimization

At

NAVSTA Norfolk, Norfolk, VA

SUBMITTED BY:

CH2M HILL
2411 Dulles Corner Park, Suite 500
Herndon, VA 20171

Project Manager: Mark Pratt
Project Team: Brian Cooper
Perry Jones
Cassandra Johnson
Matt Ludwig

Volume 4 of 4

APPROVED BY:

For Commander, NAVFAC MIDLANT
Date: June 2, 2016
100 Percent RFP Submittal

SP-300 Record Drawings

MECHANICAL ABBREVIATIONS

A
AC
@
ACC &
ACU
ADJ
AFS
AHU
ATC
APPROX.
APD
AS
AV
BDD
B
BRD
CT
CD
CFR
CFS
CH
CP
CMU
CW
CUH
CHWS/R
CWS/R
CHWP

COMPRESSED AIR
AIR COMPRESSOR
AND
AIR COOLED CHILLER
AIR CONDITIONING UNIT
ADJUSTABLE
AIR FLOW MONITORING STATION
AIR HANDLING UNIT
AUTOMATIC TEMPERATURE CONTROL
APPROXIMATELY
AIR PRESSURE DROP
AIR SEPARATOR
AUTOMATIC AIR VENT
BACKDRAFT DAMPER
BOILER
BAROMETRIC RELIEF DAMPER
COOLING TOWER
CONDENSATE DRAIN/CEILING DIFFUSER
CHEMICAL FEED RETURN
CHEMICAL FEED SUPPLY
CHILLER
CONTROL PANEL
CONCRETE MASONRY UNIT
COLD WATER, POTABLE
CABINET UNIT HEATER
CHILLED WATER SUPPLY/RETURN
CONDENSER WATER SUPPLY/RETURN
CHILLED WATER PUMP

DI
DD
DDC
DEG °C
DIA
DN
DB
DWG
DX
EFF
EXH
EAT,LAT
EWT,LWT
EF
EG
EL
ET
ESP,TSP
EWC
EXP
FCU
FD
FFD
FLA
FLR
FO
FPB
FTR

DEIONIZED WATER
DESICCANT DRYER
DIRECT DIGITAL CONTROL
DEGREE CELSIUS
DIAMETER
DOWN
DRY BULB
DRAWINGS
DIRECT EXPANSION
EFFICIENCY
EXHAUST
ENTERING/LEAVING AIR TEMPERATURE
ENTERING/LEAVING WATER TEMPERATURE
EXHAUST FAN
EXHAUST GRILLE
ELEVATION
EXPANSION TANK
EXTERNAL/TOTAL STATIC PRESSURE
ELECTRIC WATER COOLER
EXPANSION/EXPANSION TANK
FAN COIL UNIT
FIRE DAMPER
FUNNEL FLOOR DRAIN
FULL LOAD AMPERES
FLOOR
FLAT OVAL
FAN POWERED VAV BOX
FIN TUBE RADIATION

FTU
FV
GA
GALV.
H.D. GALV.
HT
HD
HWP
HC
HR
HWR
HWS
HZ
H
I
KPa
KW
KG
KW
L/MIN
L
L/S
LPH
m

FAN POWERED TERMINAL UNIT
FACE VELOCITY
GAUGE, GAGE
GALVANIZED
HOT DIPPED GALVANIZED
HEAT TRACE
HEAD
HEATING WATER PUMP
HEATING COIL
HEATING WATER RETURN
HEATING WATER SUPPLY
HUMIDIFIER
INTAKE HOOD
KILOPASCALS
KILOWATT
KILOGRAM
KW (INPUT)
LITERS PER MINUTE
LENGTH
LITERS/SECOND
LITER PER HOUR
METERS

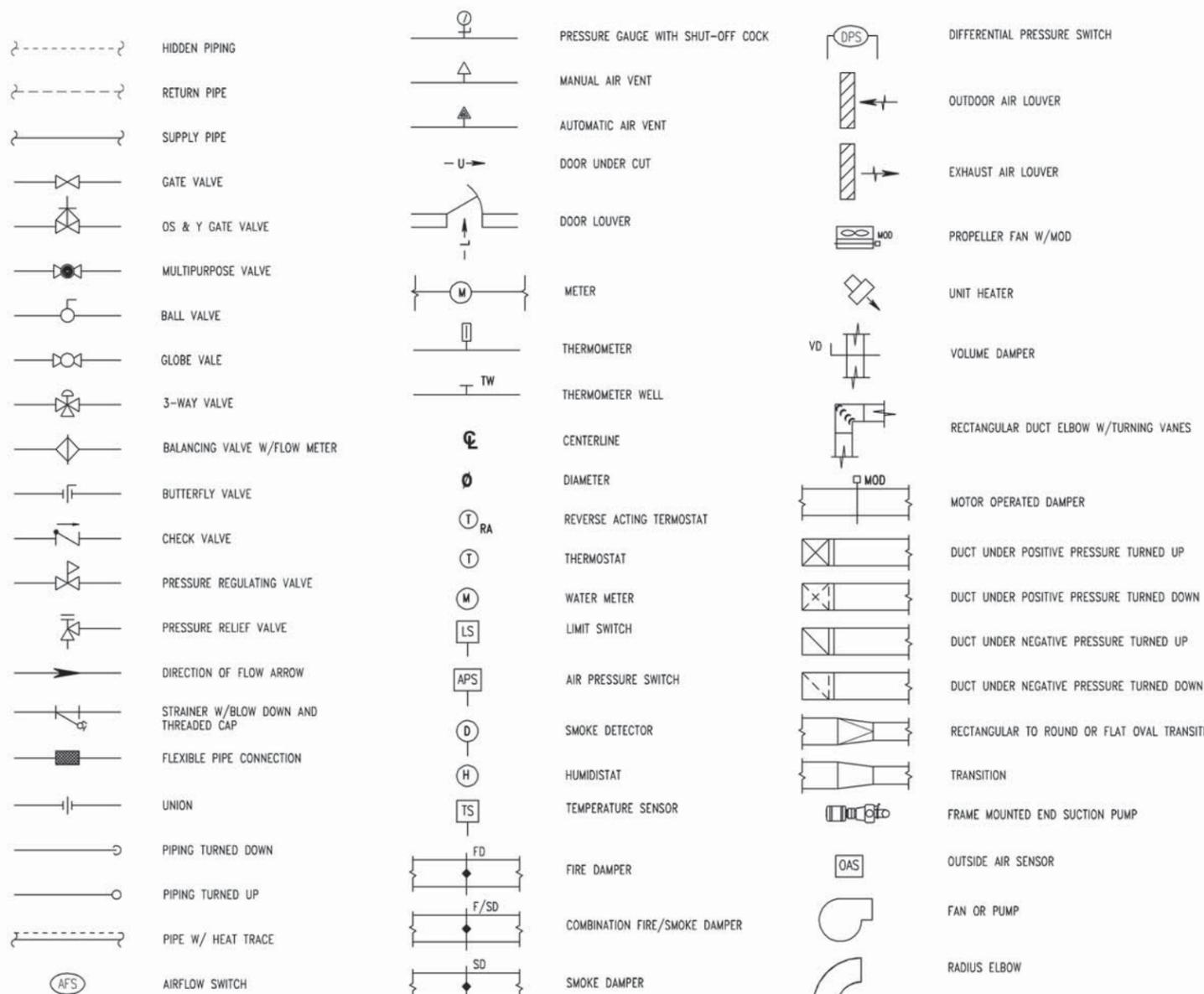
M/S
MAX
MIN
mm
MOD
MTD
MV
MCA
NPLV
NEMA
N
NC
NTS
NO
No
OED
OA
OS&Y
PCHWS/R
PCHP
PH
PRV
POS
RD
RV
RH
RPM
RPPBFP

METERS PER SECOND
MAXIMUM
MINIMUM
MILLIMETERS
MOTOR OPERATED DAMPER
MOUNTED
MANUAL AIR VENT
MINIMUM CIRCUIT AMPACITY
NON-STANDARD PART LOAD VALVE
NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NORTH
NORMALLY CLOSED
NOT TO SCALE
NORMALLY OPEN
NUMBER
OPEN END DUCT
OUTDOOR AIR
OUTSIDE SCREW & YOKE
PRIMARY CHILLED WATER SUPPLY/RETURN
PRIMARY CHILLED WATER PUMP
PHASE
PRESSURE REDUCING VALVE
POSITION
RETURN DIFFUSER
REFRIGERANT VENT
RELATIVE HUMIDITY
REVOLUTIONS PER MINUTE
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

SA
SCHWS/R
SCHP
SENS
S/M
S
SF
SPS
S.S
TEMP
TG
THK
TS
TW
TYP
T&P
UH
V
VAV
VFD
VEL
VD
WPD
WTR
W/
WB
WG

SUPPLY AIR
SECONDARY CHILLED WATER SUPPLY/RETURN
SECONDARY CHILLED WATER PUMP
SENSIBLE COOLING
SHEET METAL
SECOND
SUPPLY FAN
STATIC PRESSURE SENSOR
STAINLESS STEEL
TEMPERATURE
TRANSFER GRILLE
THICKNESS
TAMPER SWITCH
THERMOMETER WELL
TYPICAL
TEMPERATURE AND PRESSURE
UNIT HEATER
CONTROL VALVE
VARIABLE AIR VOLUME
VARIABLE FREQUENCY DRIVE
VELOCITY
VOLUME DAMPER
WATER PRESSURE DROP
WATER
WITH
WET BULB
WATER GAUGE

MECHANICAL LEGEND



GENERAL NOTES

- GENERAL NOTES ARE DISCIPLINE SPECIFIC, AND APPLY TO EVERY DRAWING IN THAT DISCIPLINE. DRAWING NOTES APPLY TO ALL WORK SHOWN ON A DRAWING. SPECIAL NOTES APPLY TO INDIVIDUAL SITUATIONS AND EQUIPMENT.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL CODES AND STANDARDS ENFORCED BY THE LOCAL REGULATING AUTHORITIES.
- THE CONTRACTOR SHALL COMPLETELY EXAMINE THE SITE AND OBSERVE THE CONDITIONS UNDER WHICH THE WORK WILL BE INSTALLED. NO ALLOWANCES WILL BE MADE FOR ERRORS OR OMISSIONS RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLETELY EXAMINE THE SITE.
- THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL EXISTING SERVICES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL DISCREPANCIES THAT EXIST BETWEEN THE CONTRACT DOCUMENTS AND THE EXISTING SERVICES PRIOR TO MAKING ANY CONNECTIONS TO THE EXISTING SERVICE.
- THE CONTRACTOR SHALL TERMINATE SERVICES AND UTILITIES IN ACCORDANCE WITH LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS.
- ALL EQUIPMENT TO BE REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS.
- ALL EQUIPMENT TO BE REUSED OR RETURNED TO THE OWNER SHALL BE REMOVED SO AS TO NOT DAMAGE THE EQUIPMENT, MATERIAL OR AFFECT ITS REUSE. IF ANY EQUIPMENT OR MATERIAL IS DAMAGED BY THE CONTRACTOR, IT SHALL BE REPLACED BY THE CONTRACTOR, WITH NO EXPENSE TO THE OWNER.
- THE CONTRACTOR SHALL ENSURE THAT ADEQUATE CLEARANCE EXISTS FOR THE INSTALLATION OF ALL WORK SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
- THE CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, VALVES AND ACCESS LOCATIONS HAVE CLEARANCES IN ACCORDANCE TO THE DRAWINGS AND THE MANUFACTURER'S REQUIREMENTS FOR FULL ACCESSIBILITY AND OPERATION OF MECHANICAL SYSTEMS.
- THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED BY THE MECHANICAL WORK, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE BUILDING OR FURNISHINGS RESULTING FROM THE MECHANICAL WORK. ALL PATCHING AND REPAIR WORK SHALL MATCH THE SURROUNDING SURFACE.
- ALL MECHANICAL PENETRATIONS THROUGH FIRE RESISTANCE RATED WALLS, FLOORS AND ASSEMBLIES SHALL BE FIRE-STOPPED IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
- THE CONTRACTOR SHALL PROVIDE ACCESS PANELS, IN WALLS OR CEILING, OR ACCESS DOORS, IN DUCTWORK, AS INDICATED OR REQUIRED FOR ACCESS TO CONCEALED MECHANICAL EQUIPMENT OR DEVICES.
- CONTRACTOR SHALL COMPLY WITH SMACNA "HVAC DUCT CONSTRUCTION AND STANDARDS" AND OTHER APPLICABLE STANDARDS INCLUDED IN THE SPECIFICATIONS FOR THE CONSTRUCTION AND SUPPORT OF DUCTWORK, UNLESS OTHERWISE NOTED.
- FOR PURPOSES OF INSULATION ONLY, THE PLATFORMS SHALL BE CONSIDERED MECHANICAL ROOMS AND PROVIDED W/ RIGID EXTERNAL INSULATION.

DESIGN CONDITIONS

ROOM DESCRIPTION	INDOOR				OUTDOOR			
	SUMMER		WINTER		SUMMER		WINTER	
	°C (DB)	%RH	°C (DB)	%RH	°C (DB)	°C (WB)	°C (DB)	
OCCUPIED SPACES (ADMINISTRATION)	24	50	21	50	32.8	25	-5.6	
OCCUPIED SPACES (REPAIR AREAS)	24	50	21	50	32.8	25	-5.6	
CLEAN ROOM	21	50	21	50	32.8	25	-5.6	
ELECTRONIC REPAIR	20.0	50	20.0	50	32.8	25	-5.6	
BATTERY ROOM	20.0	50	20.0	50	32.8	25	-5.6	
OXYGEN STORAGE	21	50	21	50	32.8	25	-5.6	

RECORD DRAWING
LETTER DATED
29/12/05

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

DATE: 7/06/04

WR&A
WHITMAN, REARDY AND ASSOCIATES, LLP
101 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

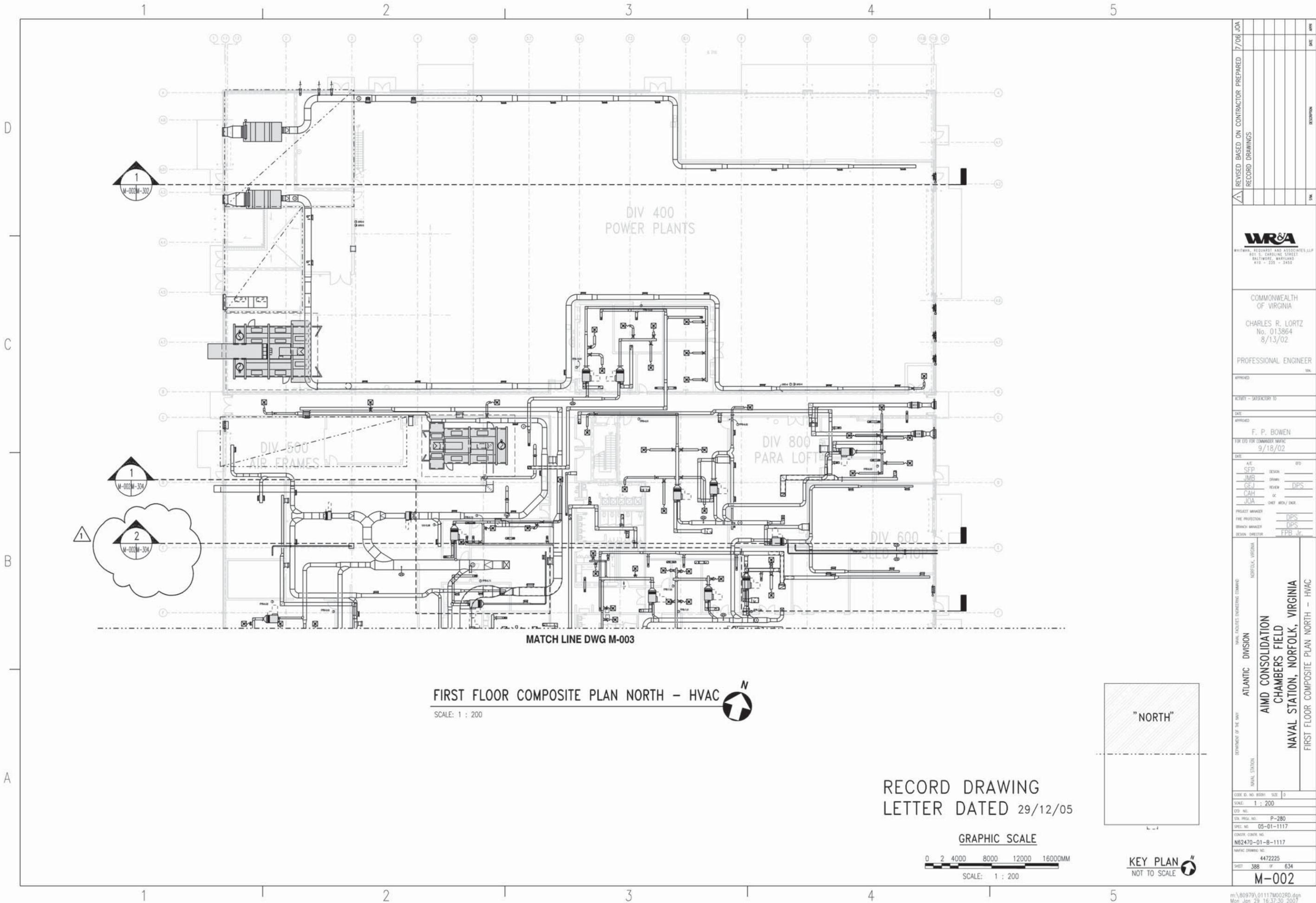
COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: _____
DATE: _____
ACTIVITY - SATISFACTORY TO: _____
APPROVED: F. P. BOWEN
FOR USE FOR CONTRACTOR WORK: 9/18/02
DATE: _____
A/E: SFP DESIGN: EFD
SFP DRAWN: _____
PFB DRAWN: _____
GEJ REVIEW: DPS
CAH OC: _____
JOA CHIEF MECH/ENGR: _____
PROJECT MANAGER: _____
FIRE PROTECTION: DPS
BRANCH MANAGER: DPS
DESIGN DIRECTOR: FPB, Jr.

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NOFOLK, VIRGINIA
NAVAL STATION
AIDM CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES

CODE NO. 80979 SIZE: D
SCALE: NONE
DTP: _____
DIN: _____
SIN. PROJ. NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472224
SHEET 387 OF 634
M-001

m:\80979\01117M001RD.dgn
Mon Jan 29 16:37:31 2007



MATCH LINE DWG M-003

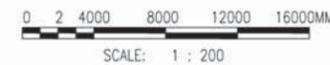
FIRST FLOOR COMPOSITE PLAN NORTH - HVAC

SCALE: 1 : 200



RECORD DRAWING
LETTER DATED 29/12/05

GRAPHIC SCALE



KEY PLAN
NOT TO SCALE

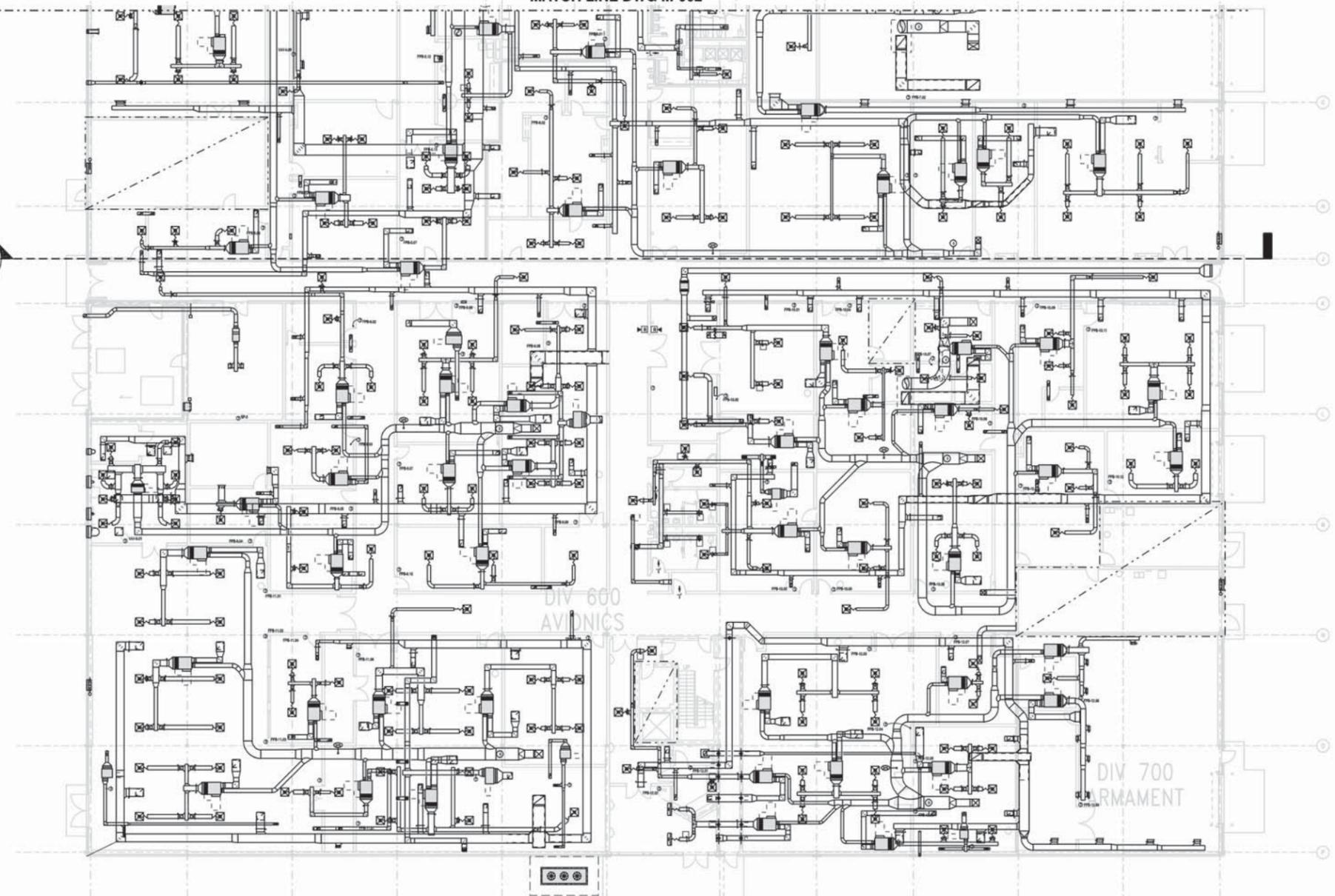
REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS		DATE	BY
REVISIONS		DESCRIPTION	DATE
COMMONWEALTH OF VIRGINIA			
CHARLES R. LORTZ No. 013864 8/13/02			
PROFESSIONAL ENGINEER			
APPROVED			
ACTIVITY - SATISFACTORY TO			
DATE			
APPROVED	F. P. BOWEN		
FOR USE FOR COMMANDER WORK	9/18/02		
DATE			
A/E	DESIGN	BY	
SFP			
JMR	DRAWN		
GFJ	REVIEW	DPS	
CAH	OC		
JOA	CHEF ARCH/ENGR.		
PROJECT MANAGER	DPS		
FIRE PROTECTION	DPS		
BRANCH MANAGER	DPS		
DESIGN DIRECTOR	FPB, Jr.		
DEPARTMENT OF THE NAVY	ATLANTIC DIVISION		
NAVAL STATION	NAVAL FACILITIES ENGINEERING COMMAND		
ATLANTIC DIVISION			
NAVAL CONSOLIDATION			
CHAMBERS FIELD			
NAVAL STATION, NORFOLK, VIRGINIA			
FIRST FLOOR COMPOSITE PLAN NORTH - HVAC			
CODE NO. 80979	SIZE	D	
SCALE:	1 : 200		
DTD NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472225		
SHEET	388	OF	634
M-002			

1 2 3 4 5

D
C
B
A



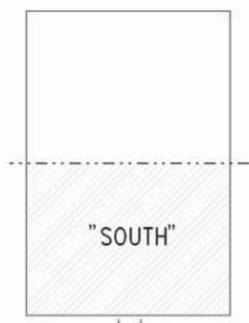
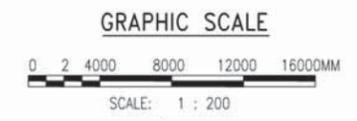
MATCH LINE DWG M-002



FIRST FLOOR COMPOSITE PLAN SOUTH - HVAC 

SCALE: 1 : 200

RECORD DRAWING
LETTER DATED 29/12/05



KEY PLAN
NOT TO SCALE 

1 2 3 4 5

NO.	DATE	DESCRIPTION

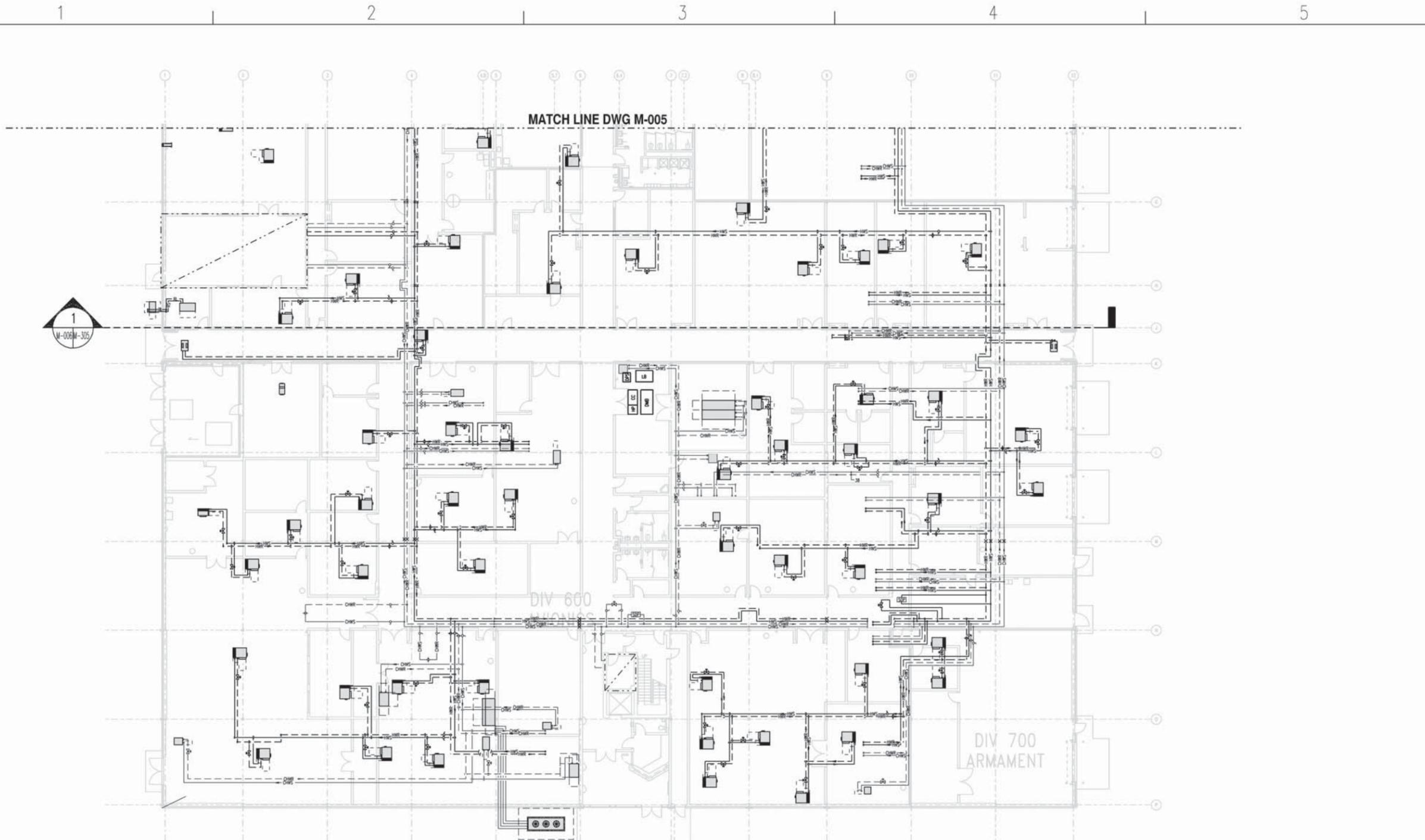


COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	F. P. BOWEN
FOR USE FOR COMMONWEALTH	9/18/02
DATE	
A/E	
SFP	DESIGN
JMR	DRAWN
GFJ	REVIEW
CAH	
JOA	CHEF ARCH/ENGR.
PROJECT MANAGER	DPS
FIRE PROTECTION	DPS
BRANCH MANAGER	DPS
DESIGN DIRECTOR	FPB, Jr.

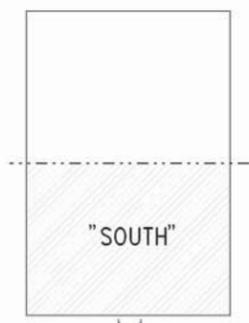
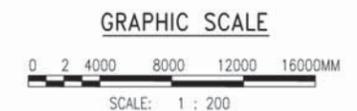
NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
NORFOLK, VIRGINIA
NAVAL CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
FIRST FLOOR COMPOSITE PLAN SOUTH - HVAC

CODE ID NO.	80979	SIZE	D
SCALE:	1 : 200		
STD. NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONSTR. CONTR. NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472226		
SHEET	389	OF	634
M-003			

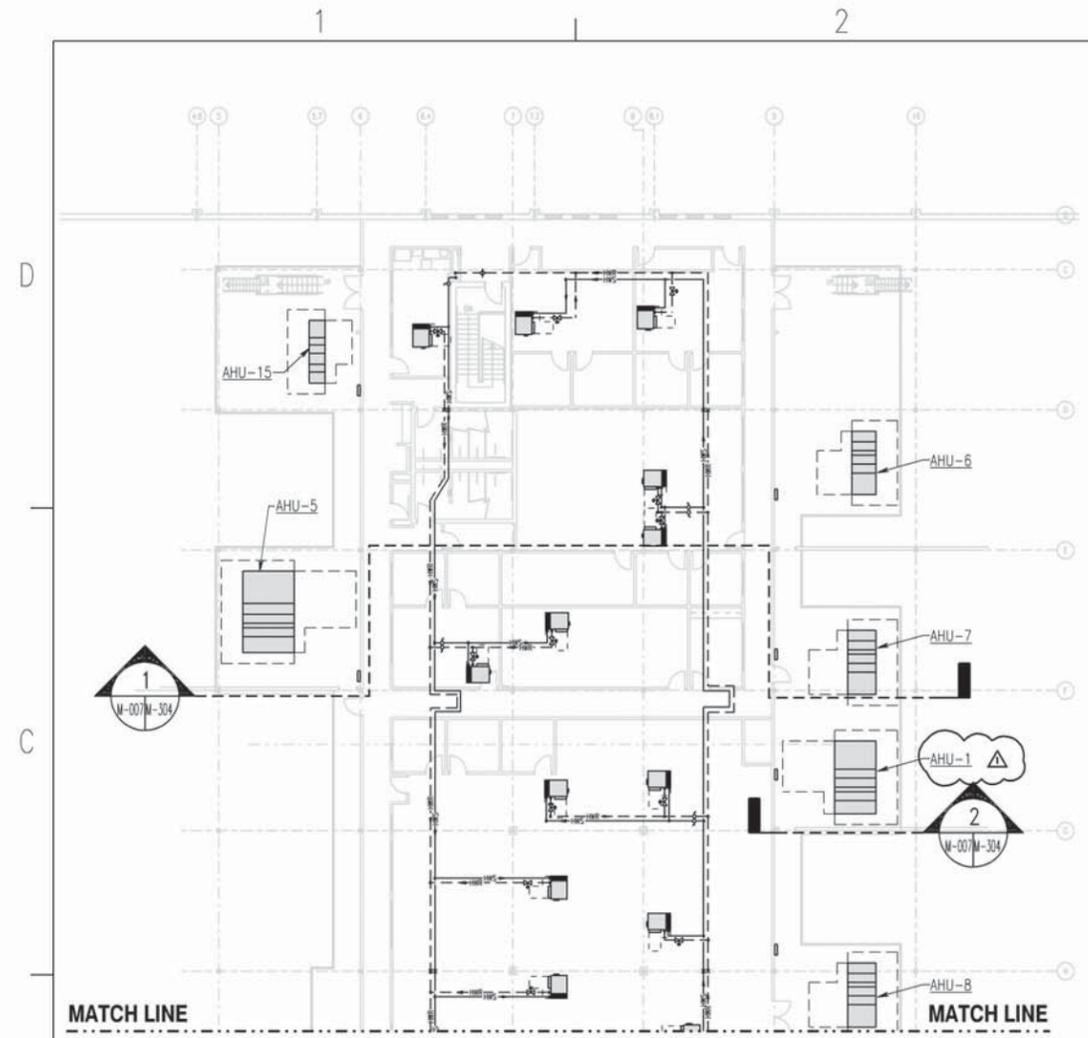


FIRST FLOOR COMPOSITE PLAN SOUTH - HVAC PIPING
 SCALE: 1 : 200

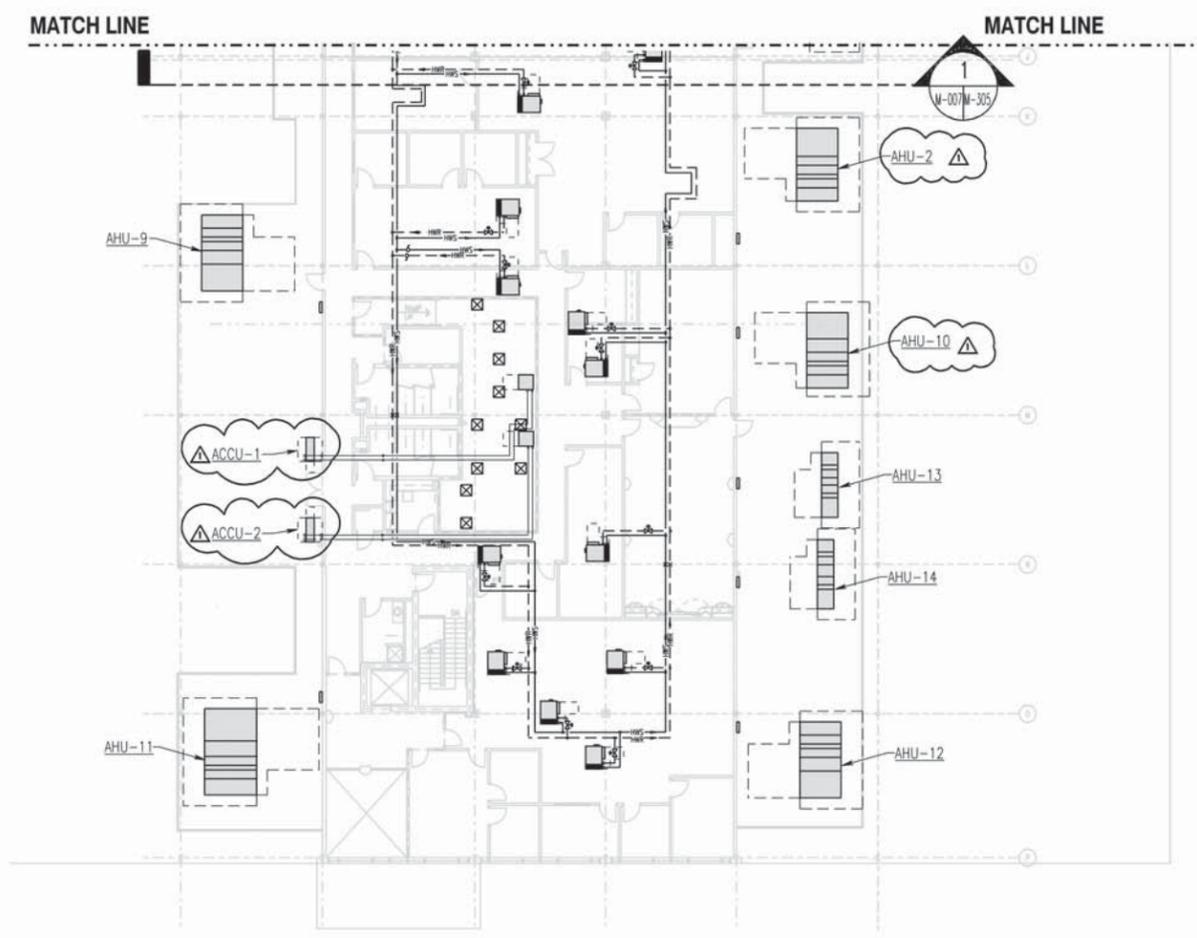
RECORD DRAWING
 LETTER DATED 29/12/05



NO.	DATE	DESCRIPTION
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER		
APPROVED		
ACTIVITY - SATISFACTORY TO		
DATE		
APPROVED	F. P. BOWEN	
FOR USE FOR COMMANDER WORK	9/18/02	
DATE		
A/E	DESIGN	
SFP	DESIGN	
JMR	DRAWN	
GFJ	REVIEW	DPS
CAH		
JOA	CHEF ARCH/ENGR.	
PROJECT MANAGER	DPS	
FIRE PROTECTION	DPS	
BRANCH MANAGER	FPB, Jr.	
DESIGN DIRECTOR		
NAVAL FACILITIES ENGINEERING COMMAND	NORFOLK, VIRGINIA	
ATLANTIC DIVISION		
DEPARTMENT OF THE NAVY		
NAVAL STATION		
AIMD CONSOLIDATION CHAMBERS FIELD NAVAL STATION, NORFOLK, VIRGINIA FIRST FLOOR COMPOSITE PLAN SOUTH - HVAC PIPING		
CODE ID: NO. 80979	SIZE	D
SCALE:	1 : 200	
STD. PROJ. NO.:	P-280	
SPEC. NO.:	05-01-1117	
CONTRACTOR NO.:	N62470-01-B-1117	
NAVFAC DRAWING NO.:	4472229	
SHEET	392	OF 634
M-006		

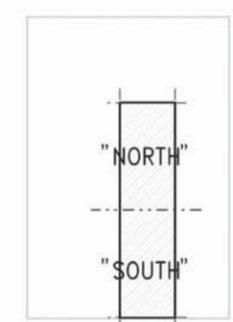
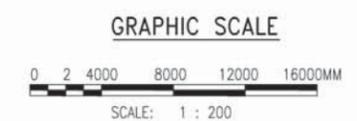


SECOND FLOOR COMPOSITE PLAN NORTH
SCALE: 1 : 200



SECOND FLOOR COMPOSITE PLAN SOUTH
SCALE: 1 : 200

RECORD DRAWING
LETTER DATED 29/12/05



KEY PLAN
NOT TO SCALE

REVISIONS		DATE	BY
 WHITMAN, REARDY AND ASSOCIATES, LLP 101 E. CAROLINE STREET BALTIMORE, MARYLAND 410 - 235 - 3450			
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER			
APPROVED			
ACTIVITY - SATISFACTORY TO			
DATE			
APPROVED			
F. P. BOWEN			
FOR USE FOR COMMANDER NAFC			
9/18/02			
DATE			
A/E	DESIGN	CFD	
SFP			
JMR	DRAWN		
GFJ		DPS	
CAH			
JOA			
	CHEF ARCH/ENGR.		
PROJECT MANAGER			
DPS			
FIRE PROTECTION			
DPS			
BRANCH MANAGER			
DPS			
DESIGN DIRECTOR			
FPB, JR.			
DEPARTMENT OF THE NAVY NAVAL STATION ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA AIMD CONSOLIDATION CHAMBERS FIELD NAVAL STATION, NORFOLK, VIRGINIA SECOND FLOOR COMPOSITE PLANS NORTH AND SOUTH-HVAC PIPING			
CODE ID NO	88881	SIZE	D
SCALE:	1 : 200		
DTD NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.			
NAFC DRAWING NO.	N62470-01-B-1117		
	4472230		
SHEET	393	OF	634
M-007			

1 2 3 4 5

DRAWING NOTES

1. PROVIDE INTERNAL LINING ON ALL SUPPLY DUCTWORK. PROVIDE EXTERNAL INSULATION ON ALL BRANCH CONNECTIONS. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
2. PROVIDE VOLUME DAMPER AT DISCHARGE OF ALL VAV BOXES. PROVIDE VOLUME DAMPER FOR EVERY SUPPLY AND RETURN BRANCH CONNECTION.
3. PROVIDE FIRE OR COMBINATION FIRE/SMOKE DAMPERS IN ALL WALLS PENETRATING A FIRE RATED WALL. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL IDENTIFICATION.
4. EXPOSED SUPPLY DUCTWORK IN FINISHED SPACES SHALL BE INTERNALLY LINED ROUND DUCT.
5. BRANCH DUCT TO SUPPLY DIFFUSERS SHALL BE SIZED TO MATCH NECK SIZE. REFER TO AIR DEVICE SCHEDULE FOR SIZE.
6. BRANCH DUCT TO TERMINAL UNITS SHALL BE SIZED TO MATCH BOX INLET SIZE. REFER TO FAN POWERED VAV BOX SCHEDULE FOR SIZE.
7. AIR DEVICES IN ROOMS WITH EXPOSED STRUCTURE SHALL BE HARD DUCTED. (IN LIEU OF FLEXIBLE DUCT AND LAY-IN MOUNTING)
8. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-304 AND M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.
9. PROVIDE 450x450 ACCESS PANEL IN CEILING AT EVERY VOLUME DAMPER ABOVE INACCESSIBLE CEILING UNLESS OTHERWISE NOTED.
10. PROVIDE 300x300 ACCESS DOOR IN DUCT AND 450x450 ACCESS PANEL IN CEILING AT EVERY FIRE DAMPER, SMOKE DAMPER OR COMBINATION FIRE/SMOKE DAMPER LOCATIONS UNLESS OTHERWISE NOTED.
11. DUCT MOUNTED SMOKE DETECTOR SHALL BE LOCATED 6-10 DUCT LENGTHS DOWNSTREAM OF AHU PER NFPA 72.

SPECIAL NOTES

1. 950x700 SUPPLY DUCT UP TO AHU-5 LOCATED ON METAL GRATING PLATFORM. TRANSITION TO AHU CONNECTION SIZE.
2. PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS REQUIRED (TYP).
3. PROVIDE PACKAGED PAINT BOOTH WITH GAS FIRED HEATING AND VENTILATING UNIT, COMPLETE WITH EXHAUST AND FILTRATION. MAINTAIN CLEARANCE AS RECOMMENDED BY THE MANUFACTURER. 1
4. GAS FIRED HEATING AND VENTILATING UNIT
5. NOTE NOT USED.
6. EXHAUST DUCT WITH INLINE FAN UP TO ROOF.
7. DUCT MOUNTED SMOKE DETECTOR. REFER TO FIRE PROTECTION DRAWINGS FOR SPECIFICATION.
8. PROVIDE VAV BOX AND MAINTAIN CLEARANCES AS INDICATED FOR PROPER MAINTENANCE.
9. 250x200 SUPPLY DUCT UP TO AHU-15 LOCATED ON METAL GRATING PLATFORM. TRANSITION TO AHU CONNECTION SIZE.
10. INSTALL DUCTWORK TIGHT TO WALL AND LOCATE 4.2m AFF.
11. SUPPLY DUCT TO RISE AND MAINTAIN BOTTOM ELEVATION OF 5.6m ABOVE FINISHED FLOOR HIGHER AS REQUIRED FOR DOOR CLEARANCE.
12. 450x450 CEILING ACCESS PANEL (TYP).
13. SUPPLY DUCT TO MAINTAIN BOTTOM ELEVATION OF 2.9m AFF.
14. PROVIDE STATIC PRESSURE SENSOR IN MEDIUM PRESSURE DUCT AND LOCATE 2/3 DOWNSTREAM OF AHU AS INDICATED.

NO.	DATE	DESCRIPTION



COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

APPROVED	DATE	DESIGN	DATE

ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA
AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
 PART "C" FIRST FLOOR PLAN - HVAC SUPPLY

ROOM NAMES & NUMBERS			
091	CORRIDOR	101	BREAK ROOM
092	OFFICE	112	TEST BENCH
093	OFFICE	113	X-RAY
094	MACHINE SHOP	114	WELD SHOP
095	TIRE/WHEEL SHOP	115	STRUCTURES SHOP
096	OFFICE	116	IMRL
097	COMPOSITES REPAIR SHOP	117	BEAD BLAST
098	IMRL	118	PAINT AREA
100	PROCESSING ROOM		

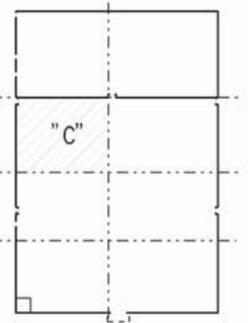
PART "C" FIRST FLOOR PLAN - HVAC SUPPLY

SCALE: 1 : 100



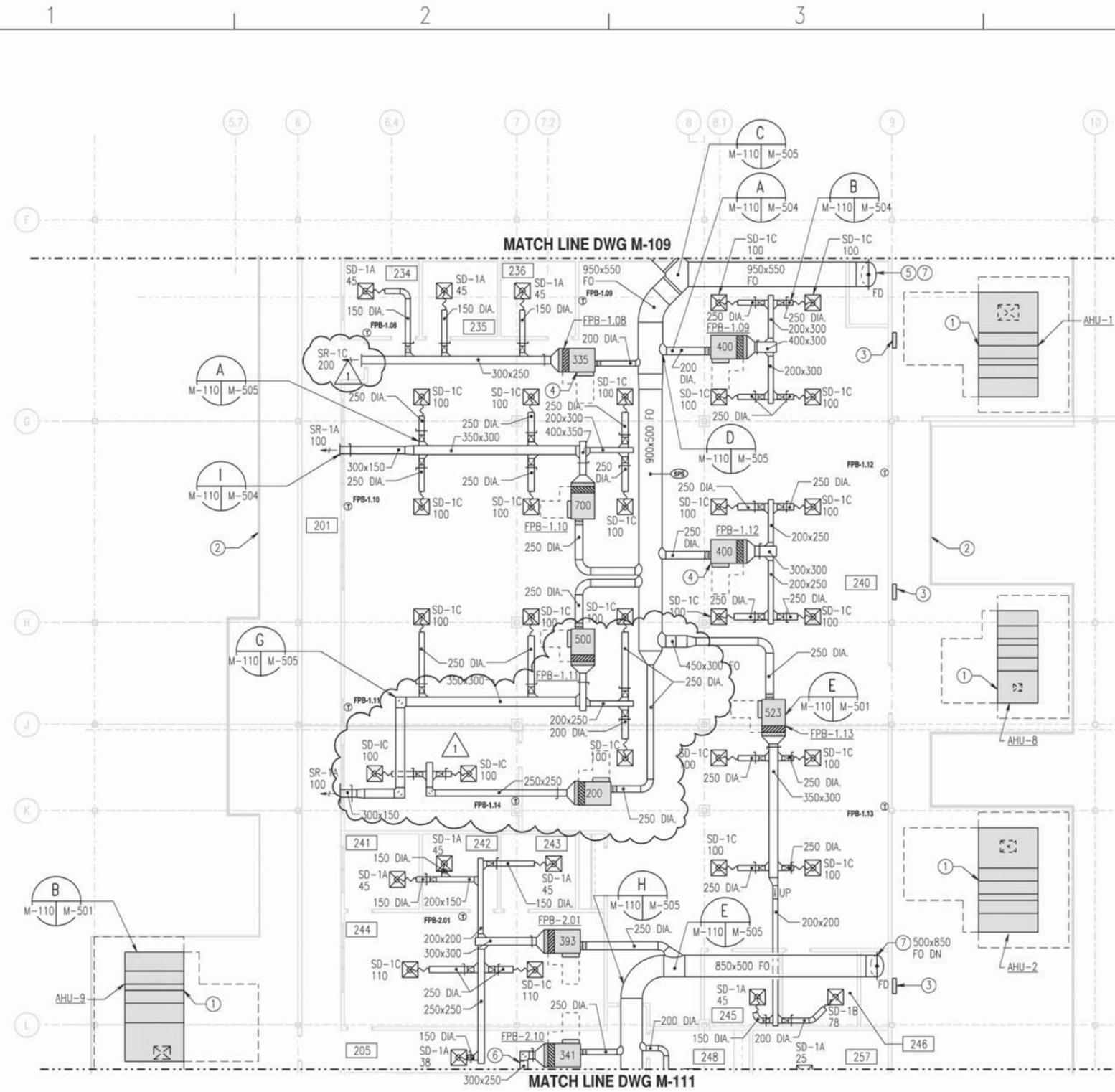
RECORD DRAWING
LETTER DATED 29/12/05

GRAPHIC SCALE



KEY PLAN
 NOT TO SCALE

CODE NO.	NO. 80979	SIZE	D
SCALE	1 : 100		
DTD. NO.			
SIN. PRIN. NO.	P-280		
SPEC. NO.	05-01-1117		
CONSTR. CONTR. NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472235		
SHEET	398	OF	634
M-103			



PART "J" SECOND FLOOR PLAN - HVAC SUPPLY
 SCALE: 1 : 100

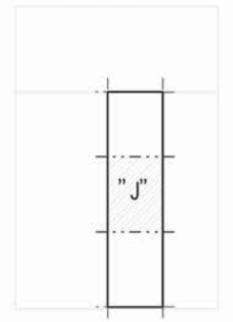
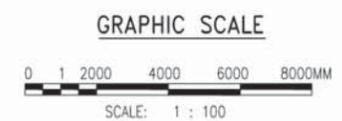
- DRAWING NOTES**
1. PROVIDE INTERNAL LINING ON ALL SUPPLY DUCTWORK. PROVIDE EXTERNAL INSULATION ON ALL BRANCH CONNECTIONS. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
 2. PROVIDE VOLUME DAMPER AT DISCHARGE OF ALL VAV BOXES. PROVIDE VOLUME DAMPER FOR EVERY SUPPLY AND RETURN BRANCH CONNECTION.
 3. PROVIDE FIRE OR COMBINATION FIRE/SMOKE DAMPERS IN ALL WALLS PENETRATING A FIRE RATED WALL. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL IDENTIFICATION.
 4. EXPOSED SUPPLY DUCTWORK IN FINISHED SPACES SHALL BE INTERNALLY LINED ROUND DUCT.
 5. BRANCH DUCT TO SUPPLY DIFFUSERS SHALL BE SIZED TO MATCH NECK SIZE. REFER TO AIR DEVICE SCHEDULE FOR SIZE.
 6. BRANCH DUCT TO TERMINAL UNITS SHALL BE SIZED TO MATCH BOX INLET SIZE. REFER TO FAN POWERED VAV BOX SCHEDULE FOR SIZE.
 7. AIR DEVICES IN ROOMS WITH EXPOSED STRUCTURE SHALL BE HARD DUCTED. (IN LIEU OF FLEXIBLE DUCT AND LAY-IN MOUNTING)

8. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-303 AND M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

- SPECIAL NOTES**
1. PROVIDE AHU AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE RIGHT OR LEFT SIDE CONFIGURATION AS SHOWN (TYP).
 2. METAL GRATING PLATFORM. REFER TO STRUCTURAL DRAWINGS FOR DETAIL.
 3. PROVIDE ATC PANEL AS REQUIRED (TYP).
 4. PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS REQUIRED (TYP).
 5. 950x550 FO SUPPLY DOWN THRU CHASE. SEE M-104 FOR CONTINUATION.
 6. 300x300 DUCT ACCESS DOOR.
 7. PROVIDE FIRE DAMPER IN DUCTWORK AT FLOOR PENETRATION WITH 450x450 WALL ACCESS PANEL.
 8. EXTEND REGISTER ABOVE ALCOVE AND SERVE CORRIDOR 201.

ROOM NAMES & NUMBERS			
201	CORRIDOR	242	DIVISION OFFICER
205	CORRIDOR	243	DIVISION OFFICER
234	SRS/PMU SUPERVISOR	244	ADMIN.
235	REPAIRABLES MANG. SUP.	245	ASD/RSO LCPO
236	CCS SUPERVISOR	246	ASD OFFICER
240	SUPPLY OPEN OFFICE	248	COPY/FAX
241	LCPO	257	CONFERENCE

RECORD DRAWING
 LETTER DATED 29/12/05



KEY PLAN
 NOT TO SCALE

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS	NO.	DATE	DESCRIPTION

WRA
 WHITMAN, REARDY AND ASSOCIATES, LLP
 101 E. CAROLINE STREET
 BALTIMORE, MARYLAND
 410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02

PROFESSIONAL ENGINEER

APPROVED: [Signature]

ACTIVITY - SATISFACTORY TO: [Signature]

DATE: 9/18/02

FOR USE FOR COMMONWEALTH OF VIRGINIA: 9/18/02

DATE: 9/18/02

DATE	BY	DESCRIPTION

PROJECT MANAGER: DPS
 FIRE PROTECTION: DPS
 BRANCH MANAGER: DPS
 DESIGN DIRECTOR: FPB, Jr.

ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA

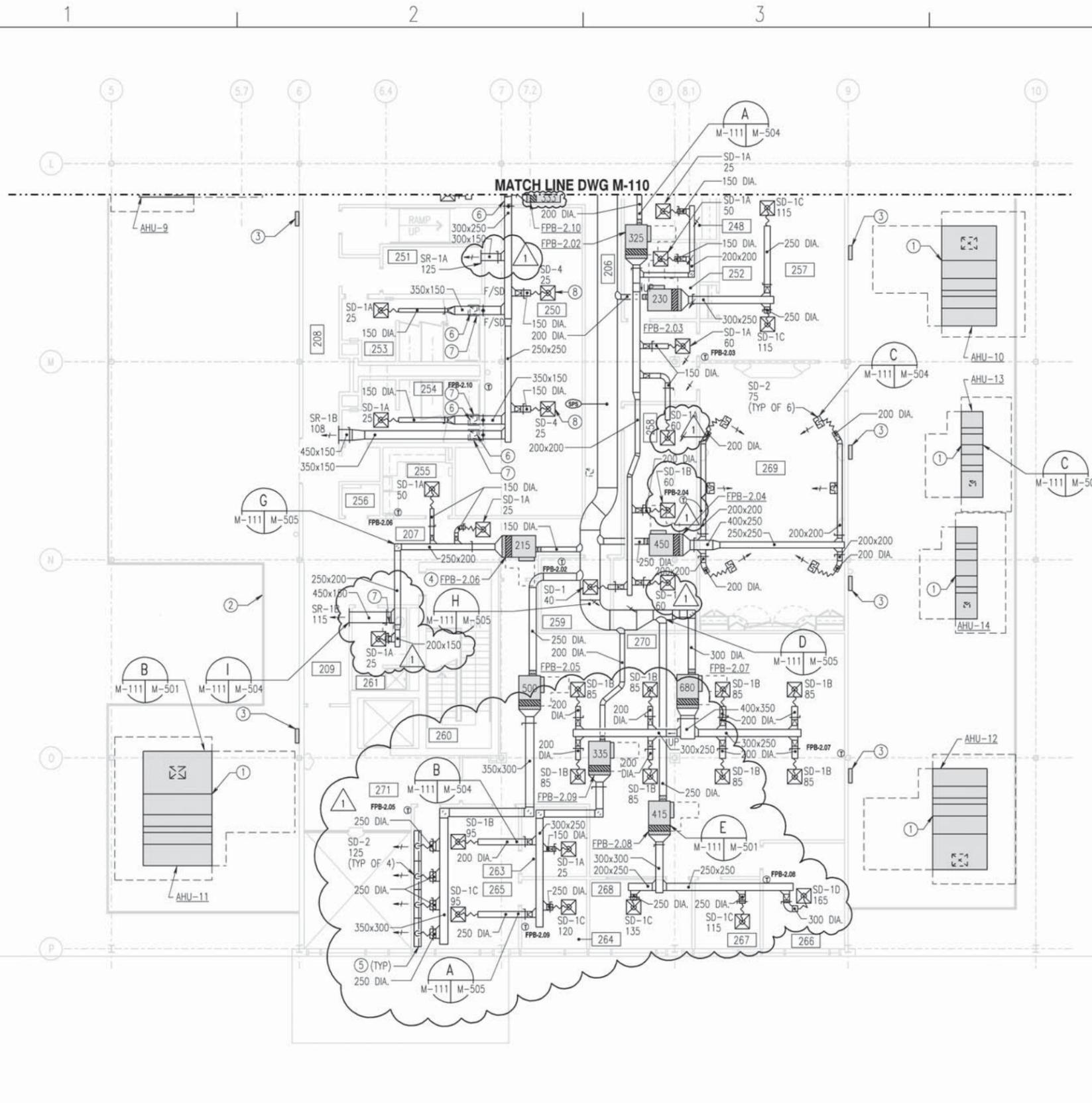
AIMD CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA

PART "J" SECOND FLOOR PLAN - HVAC SUPPLY

CODE ID: NO. 88911 SIZE: D
 SCALE: 1 : 100
 STD. NO.:
 SDR. PROJ. NO.: P-280
 SPEC. NO.: 05-01-1117
 CONSTRUCTION CONTROL NO.: N62470-01-B-1117
 NAUTIC DRAWING NO.: 4472242
 SHEET 405 OF 634

M-110

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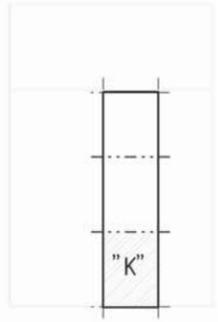
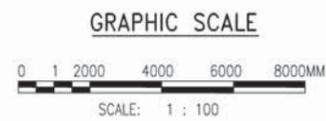
PART "K" SECOND FLOOR PLAN - HVAC SUPPLY
 SCALE: 1 : 100

- DRAWING NOTES**
1. PROVIDE INTERNAL LINING ON ALL SUPPLY DUCTWORK. PROVIDE EXTERNAL INSULATION ON ALL BRANCH CONNECTIONS. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
 2. PROVIDE VOLUME DAMPER AT DISCHARGE OF ALL VAV BOXES. PROVIDE VOLUME DAMPER FOR EVERY SUPPLY AND RETURN BRANCH CONNECTION.
 3. PROVIDE FIRE OR COMBINATION FIRE/SMOKE DAMPERS IN ALL WALLS PENETRATING A FIRE RATED WALL. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL IDENTIFICATION.
 4. EXPOSED SUPPLY DUCTWORK IN FINISHED SPACES SHALL BE INTERNALLY LINED ROUND DUCT.
 5. BRANCH DUCT TO SUPPLY DIFFUSERS SHALL BE SIZED TO MATCH NECK SIZE. REFER TO AIR DEVICE SCHEDULE FOR SIZE.
 6. BRANCH DUCT TO TERMINAL UNITS SHALL BE SIZED TO MATCH BOX INLET SIZE. REFER TO FAN POWERED VAV BOX SCHEDULE FOR SIZE.
 7. AIR DEVICES IN ROOMS WITH EXPOSED STRUCTURE SHALL BE HARD DUCTED. (IN LIEU OF FLEXIBLE DUCT AND LAY-IN MOUNTING)
 8. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-304 AND M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

- SPECIAL NOTES**
1. PROVIDE AHU AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE RIGHT OR LEFT SIDE CONFIGURATION AS SHOWN (TYP).
 2. METAL GRATING PLATFORM. REFER TO STRUCTURAL DRAWINGS FOR DETAIL.
 3. PROVIDE ATC PANEL AS REQUIRED (TYP).
 4. PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS REQUIRED (TYP).
 5. PROVIDE 1200 LONG x 300 WIDE x 100 DEEP INSULATED PLENUM.
 6. 300x300 DUCT ACCESS DOOR.
 7. 450x450 CEILING ACCESS PANEL.
 8. PROVIDE FIRE/SMOKE DAMPER IN NECK OF DIFFUSER TO MAINTAIN FIRE RATING OF CEILING.

ROOM NAMES & NUMBERS			
206	CORRIDOR	258	MANPOWER,SEAOPDET
207	CORRIDOR	259	1ST LT.
208	CORRIDOR	260	STAIR
209	CORRIDOR	261	AIMD STORAGE
248	COPY/FAX	263	CONFERENCE
250	NALCOMIS	264	LCPO
251	DATA/COM 3	265	HR/CAR. COUN.
252	CONFERENCE	266	MO
253	WOMEN'S TOILET	267	CONFERENCE
254	MEN'S TOILET	268	AMO
255	KITCHENETTE	269	CONFERENCE
256	JANITOR	270	MAINT. ADMIN.
257	CONFERENCE	271	ELEVATOR LOBBY

RECORD DRAWING
LETTER DATED 29/12/05



REVISED	DATE	DESCRIPTION

WRA
 WHELAN, REARDY AND ASSOCIATES, LLP
 101 E. CAROLINE STREET
 BALTIMORE, MARYLAND
 410 - 235 - 3450

COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

APPROVED: _____
 ACTIVITY - SATISFACTORY TO: _____
 DATE: _____
 APPROVED: **F. P. BOWEN**
 FOR USE FOR COMMONWEALTH OF VIRGINIA: 9/18/02
 DATE: _____
 A/E: _____
 SFP: _____
 JMR: _____
 GEJ: _____
 CAH: _____
 JOA: _____
 PROJECT MANAGER: _____
 FIRE PROTECTION: _____
 BRANCH MANAGER: _____
 DESIGN DIRECTOR: _____

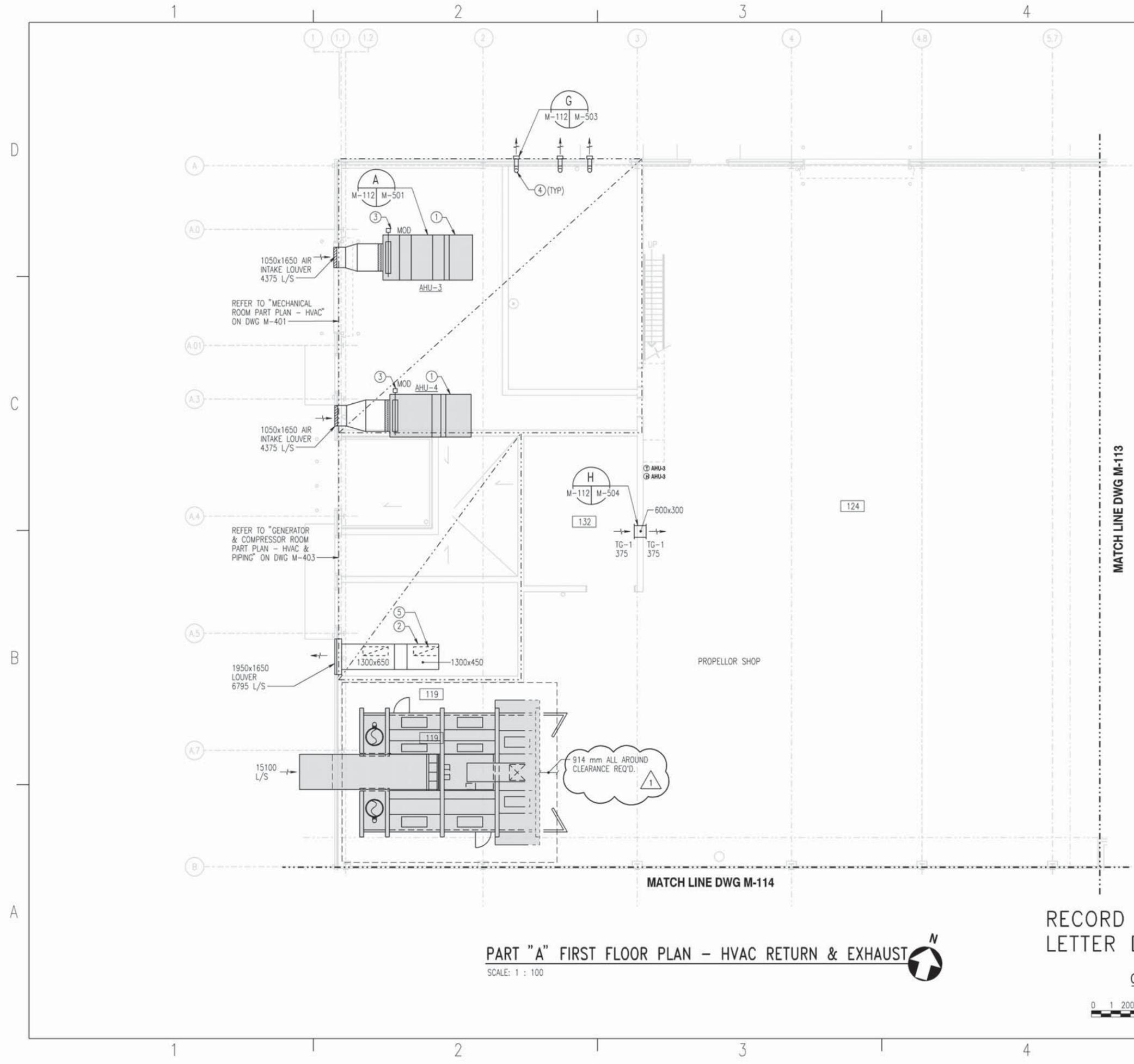
ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA

DEPARTMENT OF THE NAVY
 NAVAL STATION

AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
 PART "K" SECOND FLOOR PLAN - HVAC SUPPLY

CODE ID: NO. 88881 SIZE: D
 SCALE: 1 : 100
 DTD: _____
 SW. PROJ. NO.: P-280
 SPEC. NO.: 05-01-1117
 CONSTRUCTION CONTROL NO.: N62470-01-B-1117
 NAUTIC DRAWING NO.: 4472243
 SHEET 406 OF 634
M-111

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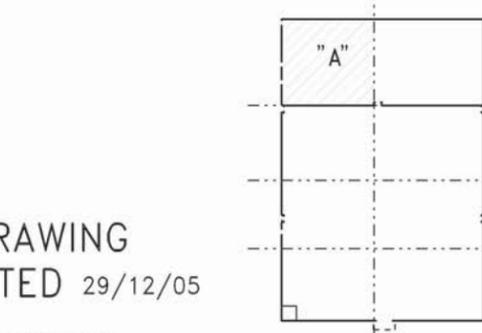


- ### DRAWING NOTES
1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
 2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
 3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-304 AND M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

- ### SPECIAL NOTES
1. PROVIDE AIR HANDLING UNIT AND LOCATE ABOVE MECHANICAL ROOM AS INDICATED. MAINTAIN CLEARANCES AS RECOMMENDED BY THE MANUFACTURER.
 2. EXHAUST DUCT MAIN FROM COMPRESSED AIR ROOM.
 3. PROVIDE RETURN AIR INTAKE ON TOP OF MIXING BOX WITH MOD AS INDICATED.
 4. PROVIDE 250 DIA SEALED, DOUBLE WALLED, AL 29-4C STAINLESS STEEL EXHAUST DUCTWORK. ROUTE DOWN THRU ROOF SLAB. SEE M-401 FOR CONTINUATION.
 5. EXHAUST DUCT DOWN TO AIR COMPRESSOR. REFER TO FIRE PUMP AND COMPRESSOR ROOM PART PLAN - HVAC AND PIPING DRAWING FOR CONTINUATION.

ROOM NAMES & NUMBERS

119	PAINT BOOTH
124	POWER PLANTS DIVISION
132	PUMP & VALVE HOUSING TEST AREA



RECORD DRAWING
LETTER DATED 29/12/05
GRAPHIC SCALE
0 1 2000 4000 6000 8000MM
SCALE: 1 : 100

PART "A" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST
SCALE: 1 : 100

REVISED	DATE	DESCRIPTION

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, REARDY AND ASSOCIATES, LLP
101117 M-112
1101 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED
ACTIVITY - SATISFACTION TO
DATE
APPROVED
F. P. BOWEN
FOR USE FOR COMMANDER WHFC
9/18/02
DATE

A/E	SFP	DESIGN	DFD
JMR	DRN		
GFJ	DRN	DPS	
CAH	OC		
JOA	CHIEF ARCH/ENGR.		

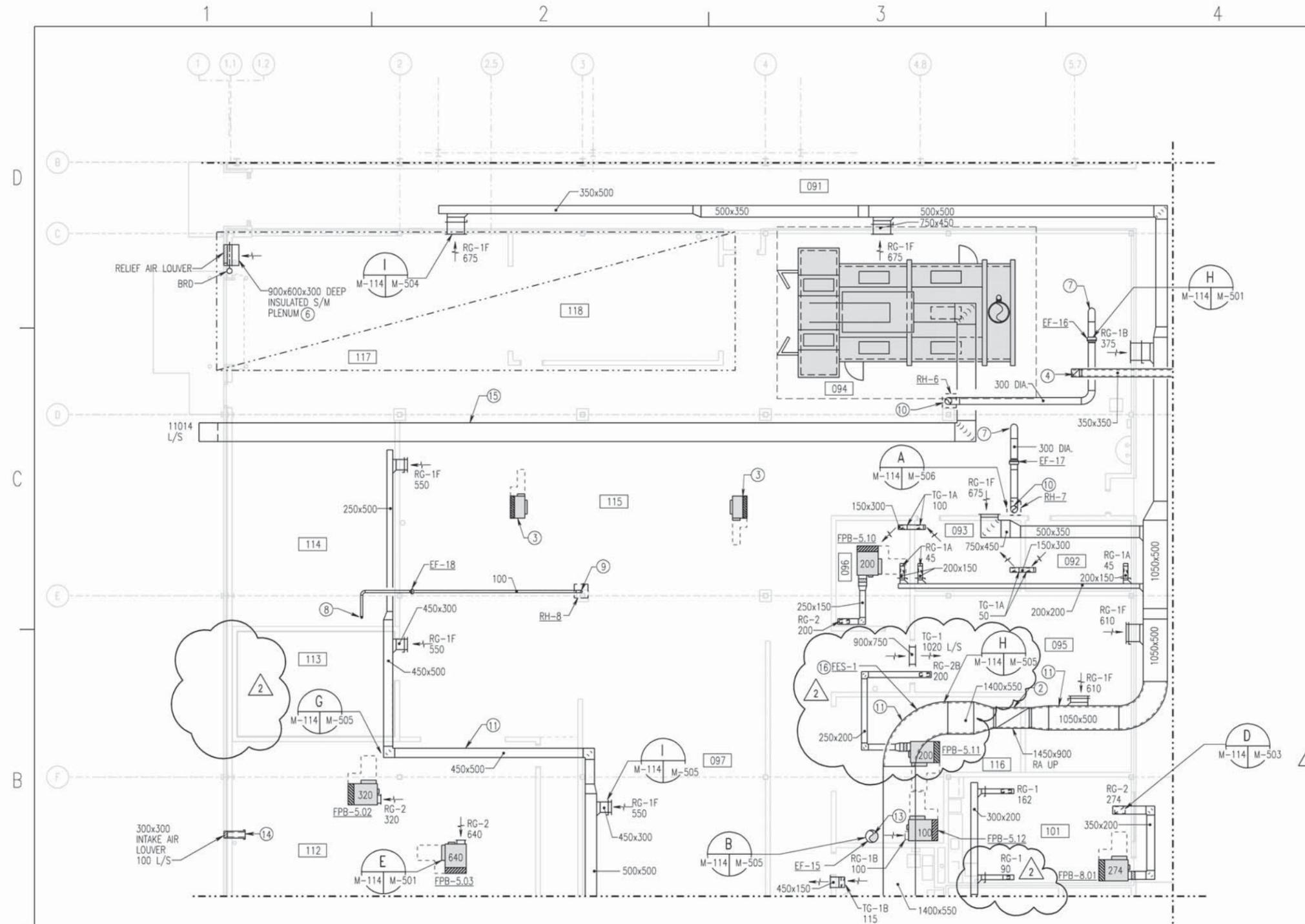
PROJECT MANAGER: DPS
BRANCH MANAGER: DPS
DESIGN DIRECTOR: FPB, Jr.

NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NOFOLK, VIRGINIA

DEPARTMENT OF THE NAVY
NAVAL STATION
NAVAL CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
PART "A" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

CODE ID NO.	ISSUE	SIZE	D
SCALE:	1 : 100		
STD. NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472244		
SHEET	407	OF	634
M-112			

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Mon Jan 29 16:36:40 2007



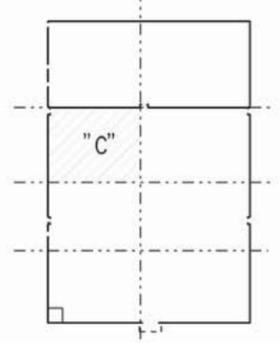
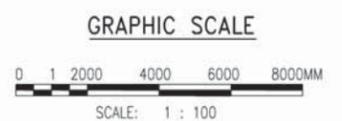
- ### DRAWING NOTES
1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
 2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
 3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-304 AN M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

- ### SPECIAL NOTES
1. PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS SHOWN ON DRAWINGS (TYPICAL).
 2. RETURN DUCT UP TO AHU-5 LOCATED ON METAL GRATING PLATFORM.
 3. PROVIDE VAV BOX AND MAINTAIN CLEARANCES AS INDICATED FOR PROPER MAINTENANCE.
 4. 350x350 RETURN DUCT UP TO AHU-15 LOCATED ON METAL GRATING PLATFORM. TRANSITION TO AHU CONNECTION SIZE.
 5. PROVIDE SHEET METAL CONNECTION TO LOUVER WITH PLENUM AND CONNECT TO EXHAUST DUCT DOWN TO WELDING HOOD.
 6. PROVIDE SHEET METAL CONNECTION TO LOUVER WITH BAROMETRIC RELIEF DAMPER AND SET AT 24.88 Pa.
 7. 300 DIA. DUCT DOWN AND CAPPED AT 2.74 ABOVE FINISHED FLOOR FOR FUTURE EQUIPMENT EXHAUST CONNECTION.
 8. 100 DIA. DUCT DOWN AND CAPPED AT 2.74 ABOVE FINISHED FLOOR FOR FUTURE EQUIPMENT EXHAUST CONNECTION.
 9. 100 DIA. EXHAUST DUCT UP THROUGH ROOF TO RELIEF HOOD.
 10. 300 DIA. EXHAUST DUCT UP THROUGH ROOF TO RELIEF HOOD.
 11. RETURN DUCT TO MAINTAIN 3.7m. AFF.
 12. PROVIDE SLOTTED WELDING HOOD WITH INLINE EXPLOSION PROOF EXHAUST FAN EF-15.
 13. 450 DIA. DUCT UP THROUGH ROOF FOR WELD HOOD EXHAUST.
 14. CAP DUCT FROM RELOCATED AHU-21. LOUVER TO REMAIN.
 15. DUCTWORK SIZE TO BE COORDINATED WITH PAINT BOOTH MANUFACTURER.
 16. PROVIDE FUME EXTRACTION SYSTEM WITH SWING ARM. DASHED LINE REPRESENTS SWING ARM RADIUS.

ROOM NAMES & NUMBERS	
091	CORRIDOR
092	OFFICE
093	OFFICE
094	MACHINE SHOP
095	TIRE/WHEEL SHOP
096	OFFICE
097	COMPOSITES REPAIR SHOP
098	IMRL
100	PROCESSING ROOM
101	BREAK ROOM
112	TEST BENCH
113	X-RAY
114	WELD SHOP
115	STRUCTURES SHOP
116	IMRL
117	BEAD BLAST
118	PAINT AREA

PART "C" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST
SCALE: 1 : 100

RECORD DRAWING
LETTER DATED 29/12/05



NO.	DATE	DESCRIPTION

GENERAL REVISIONS
REVISED BASED ON CONTRACTOR PREPARED RECORD DRAINAGE

WR&A
WHITMAN, REINHART AND ASSOCIATES, LLP
101 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: F. P. BOWEN
DATE: 9/18/02

PROJECT MANAGER: F.P.B. Jr.
DESIGN DIRECTOR: F.P.B. Jr.
BRANCH MANAGER: DPS
FIRE PROTECTION: DPS

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NOFOLK, VIRGINIA

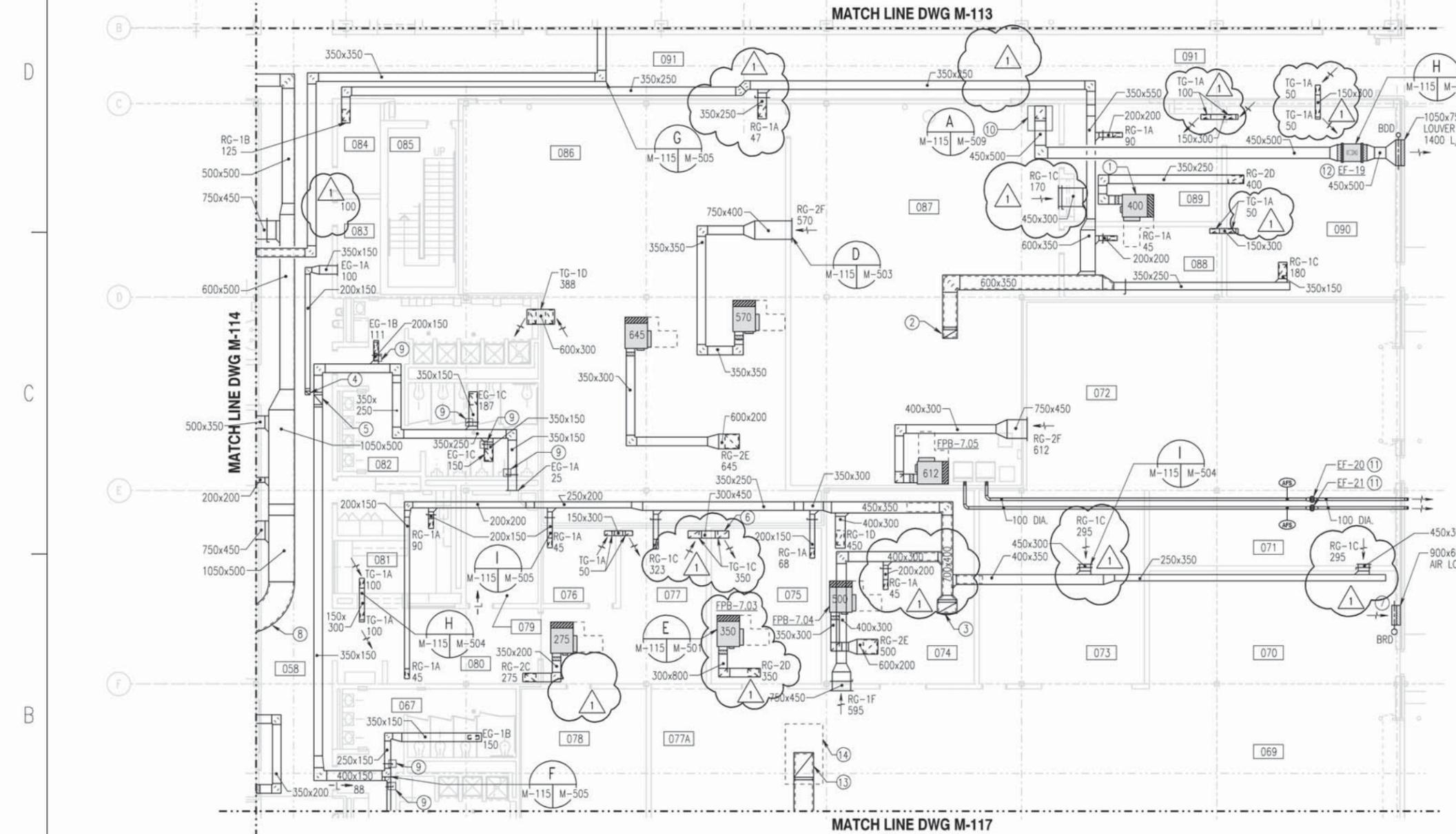
AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
PART "C" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

CODE ID: NO 89871 SIZE: D
SCALE: 1 : 100
DTP: NIL
SUN: P-280
SPEC: NO 05-01-1117
CONTRACTOR: NO N62470-01-B-1117
NAVFAC DRAWING NO: 4472246
SHEET: 409 OF 634
M-114

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Mon Jan 29 16:36:30 2007

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5.7 6.4 7.2 8.1 8.5 9 10 11 11.8 11.9 12



- DRAWING NOTES**
1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
 2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
 3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-304 AND M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

- SPECIAL NOTES**
1. PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS SHOWN ON DRAWINGS (TYPICAL).
 2. 600x350 RETURN DUCT UP TO AHU-6 LOCATED ON METAL GRATING PLATFORM.
 3. 800x450 RETURN DUCT UP TO AHU-7 LOCATED ON METAL GRATING PLATFORM.
 4. 200x150 EXHAUST DUCT UP TO EF-7.
 5. 350x400 EXHAUST DUCT UP TO EF-1.
 6. PROVIDE TRANSFER GRILLE WITH LINED DUCT (TYPICAL).
 7. PROVIDE SHEET METAL CONNECTION TO LOUVER WITH BAROMETRIC RELIEF DAMPER AND SET AT 24.88 Pa.
 8. RETURN DUCT TO MAINTAIN BOTTOM ELEVATION OF 3.7m. AFF
 9. 300x300 CEILING ACCESS PANEL.
 10. PROVIDE EXHAUST HOOD ABOVE CO2 PURGE TABLE.
 11. PROVIDE EXHAUST FAN WITH AN AIRFLOW SWITCH FOR DRYER VENT SYSTEM.
 12. PROVIDE INLINE EXHAUST FAN AND ASSOCIATED DUCTWORK FOR CO2 PURGING HOOD SYSTEM.
 13. 1000x800 RETURN DUCT UP THROUGH CHASE TO SECOND FLOOR. SEE DRAWING M-121 FOR CONTINUATION.
 14. CHASE ABOVE.

ROOM NAMES & NUMBERS

058	CORRIDOR	080	VENDING
067	WOMEN'S TOILET/SHOWER	081	GEEDUNK
069	STAGING BAY	082	MEN'S TOILET/SHOWER
070	TEST EQUIP. BAY	083	ELECT.
071	ILTE TEST BENCH AREA	084	DATA/COM 2
072	GEAR STORAGE	085	STAIR
073	SUPPLY ASSETS	086	PARACHUTE SHOP
074	TEST BENCH	087	AVIATORS SAFETY EQUIPMENT SHOP
075	SOLDER STATION	088	OFFICE
076	CONTR.	089	AVIATION LIFE SUPPORT SYSTEMS PC
077	SLED SHOP	090	ALLS POOL
077A	MAINTENANCE STANDS	091	CORRIDOR
078	TECH. REP. OFFICE		
079	GEAR LOCKER		

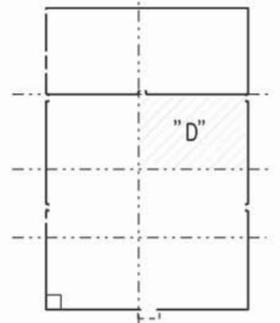
PART "D" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

SCALE: 1 : 100



**RECORD DRAWING
LETTER DATED 29/12/05**

GRAPHIC SCALE



KEY PLAN
NOT TO SCALE

REV	DATE	DESCRIPTION

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, REARDY AND ASSOCIATES, LLP
101 E. CAROLING STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

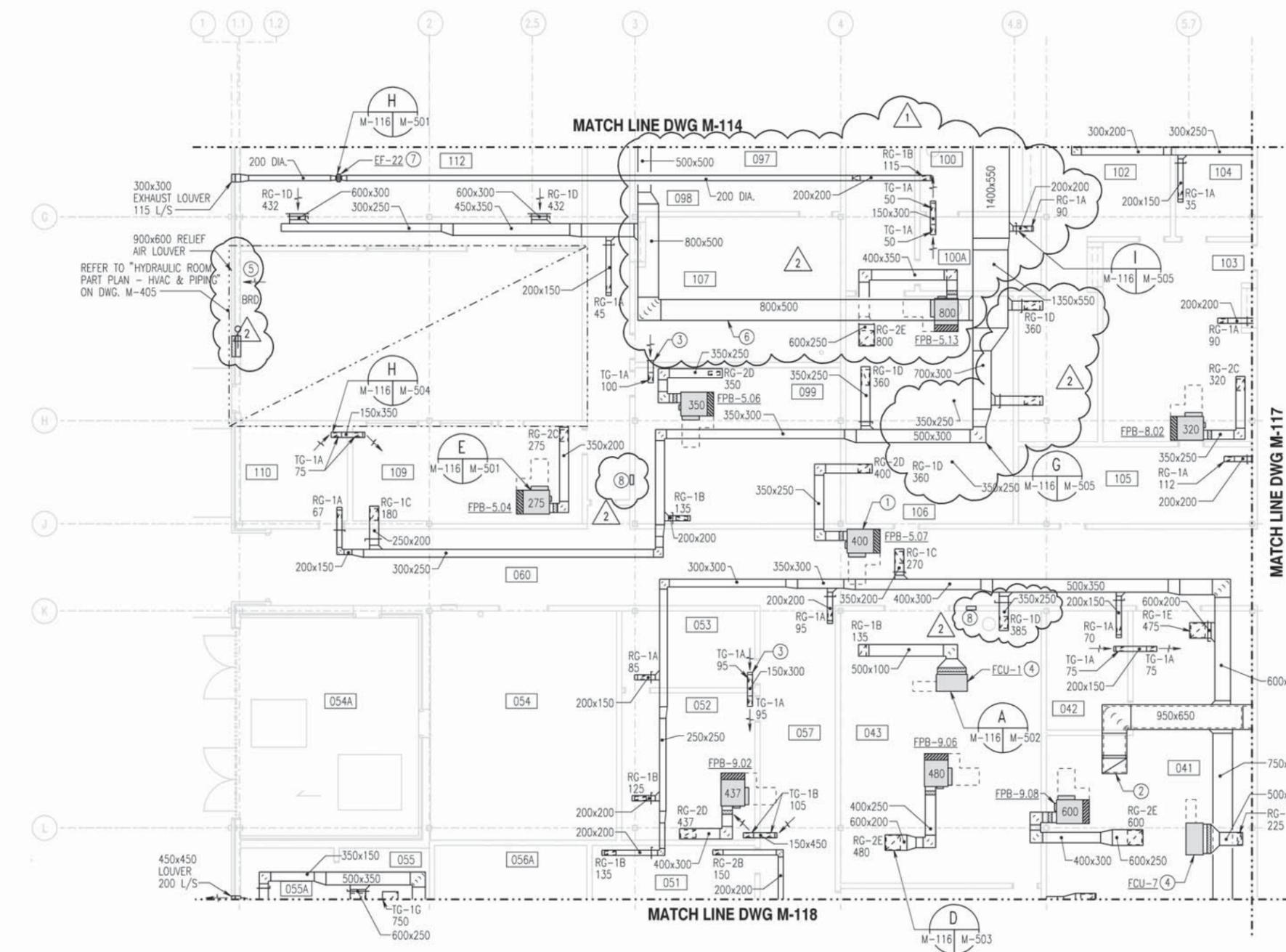
APPROVED: _____
ACTIVITY - SATISFACTORY TO: _____
DATE: _____
APPROVED: **F. P. BOWEN**
FOR USE FOR EXAMINER SIGNATURE: 9/18/02
DATE: _____
A/E: SFP
DESIGN: JMR
DRAWING: JMR
CHECK: CAH
DESIGN: JOA
DATE: _____
PROJECT MANAGER: _____
FIRE PROTECTION: _____
BRANCH MANAGER: _____
DESIGN DIRECTOR: _____

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NAVAL STATION
NAVAL CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
PART "D" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

CODE ID: NO 88991 SIZE: D
SCALE: 1 : 100
DTP: MFL
SIN. PRIN. NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472247
SHEET 410 OF 634
M-115

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Mon Jan 29 16:36:27 2007

1 2 3 4 5



- DRAWING NOTES**
1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
 2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
 3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-304 AND M-305 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

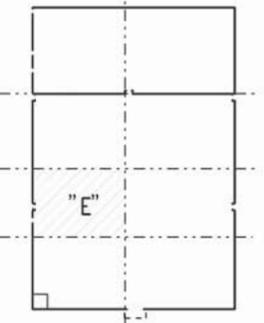
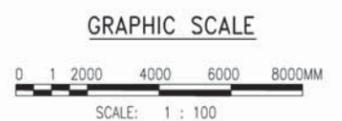
- SPECIAL NOTES**
- 1 PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS SHOWN ON DRAWINGS (TYPICAL).
 - 2 950x650 RETURN DUCT UP TO AHU-9 LOCATED ON METAL GRATING PLATFORM.
 - 3 PROVIDE TRANSFER GRILLE WITH LINED DUCT (TYPICAL).
 - 4 PROVIDE FAN COIL UNIT AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE.
 - 5 PROVIDE SHEET METAL CONNECTION TO LOUVER WITH BAROMETRIC RELIEF DAMPER AND SET AT 24.88 Pa.
 - 6 RETURN DUCT TO MAINTAIN BOTTOM ELEVATION OF 3.7m. AFF.
 - 7 PROVIDE INLINE FAN AS INDICATED FOR PROCESSING ROOM EXHAUST SYSTEM.
 - 8 PROVIDE WALL OPENING FOR TRANSFER AIR.

ROOM NAMES & NUMBERS

041	SACE/ATE BRANCH	098	IMRL
042	ATE BRANCH OFFICE	099	OFFICE
043	RADAR/ECM BRANCH	100	PROCESSING ROOM
051	NATEC	100A	VIEWING ROOM
052	ADMIN.	102	LOGS & RECORDS
053	CAREER OFFICE	103	MAINTENANCE PRODUCTION CONTROL
054	ELECTRICAL	104	DBA
054A	TRANSFORMER	105	MMCO/MMCPO
055	AVONICS CORROSION CONTROL BRANCH	106	MAGNETIC PARTS LAB
055A	---	107	PRE- X
056A	VAULT	109	OFFICE
057	CORRIDOR	110	TELEPHONE/LAN/ COMMUNICATION HUB
060	CORRIDOR	112	TEST BENCH
097	COMPOSITES REPAIR SHOP		

PART "E" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST
SCALE: 1 : 100

RECORD DRAWING
LETTER DATED 29/12/05



KEY PLAN
NOT TO SCALE

NO.	DATE	DESCRIPTION	BY	CHK

GENERAL REVISIONS

REVISIONS BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, WAREHOUSSE AND ASSOCIATES, LLP
801 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: _____
ACTIVITY - SATISFACTORY TO: _____
DATE APPROVED: _____
FOR USE FOR EXAMINER WORK: 9/18/02
DATE: _____
A/E: SFP
SFP: DESIGN
JMR: DRAWN
GFJ: REVIEW
CAH: OC
JOA: CHIEF ARCH/ENGR.

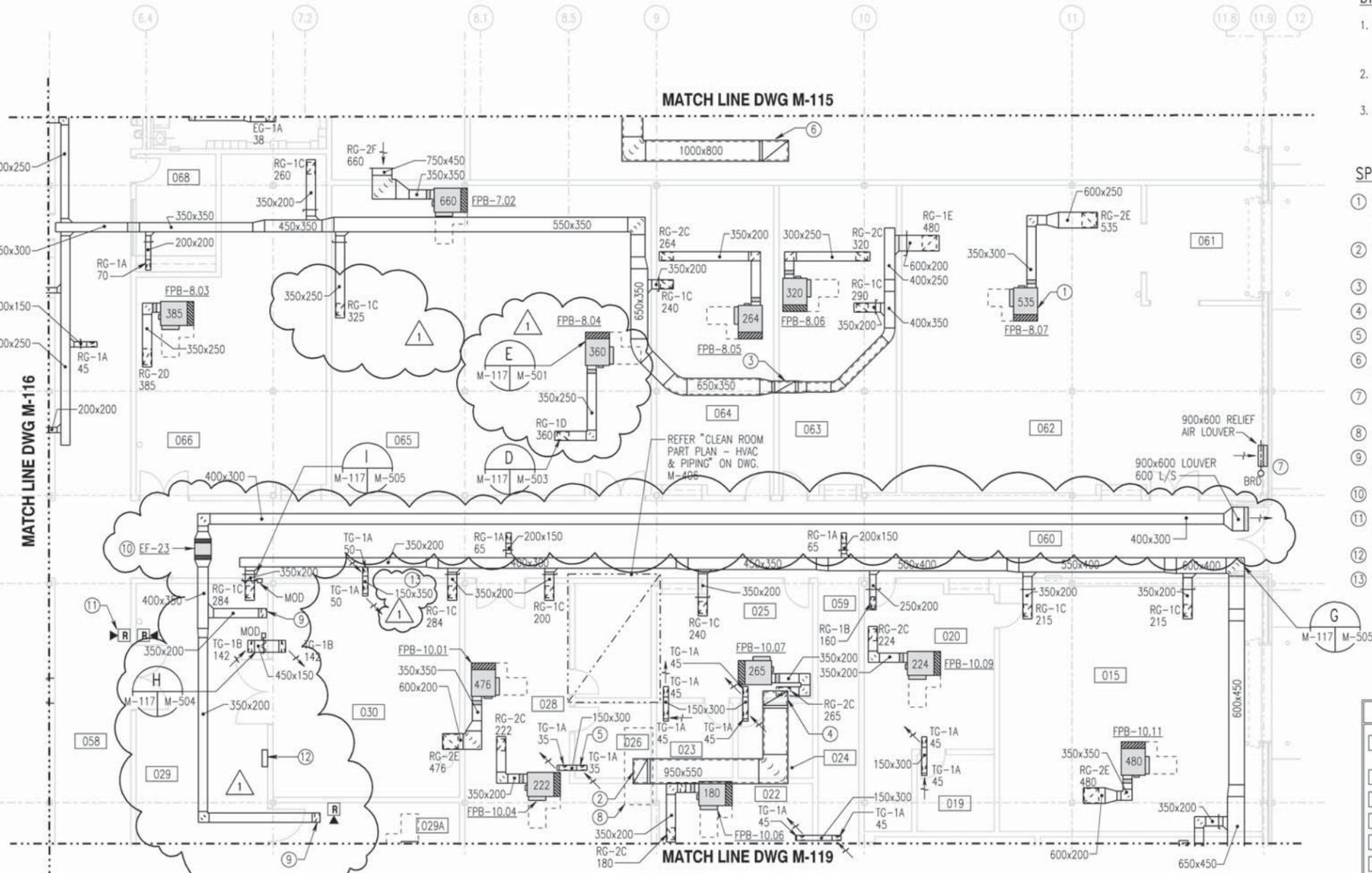
PROJECT MANAGER: _____
FIRE PROTECTION: _____
BRANCH MANAGER: _____
DESIGN DIRECTOR: _____

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NOFOLK, VIRGINIA

AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
PART "E" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

CODE NO. 80979 1117M116RD
SCALE: 1 : 100
DTP NO.: _____
SIN. PROJ. NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472248
SHEET 411 OF 634
M-116

m:\80979\01117M116RD.dgn
Mon Jan 29 16:36:15 2007



PART "F" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST
SCALE: 1 : 100

DRAWING NOTES

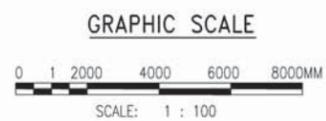
1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-303 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.

SPECIAL NOTES

- ① PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS SHOWN ON DRAWINGS (TYPICAL).
- ② 950x550 RETURN DUCT UP THROUGH CHASE TO SECOND FLOOR. SEE DRAWING M-121 FOR CONTINUATION.
- ③ RETURN DUCT UP TO AHU-8 LOCATED ON METAL GRATING PLATFORM.
- ④ 950x550 RETURN DUCT UP TO AHU-2 LOCATED ON METAL GRATING PLATFORM.
- ⑤ PROVIDE TRANSFER GRILLE WITH LINED DUCT (TYPICAL).
- ⑥ 1000x800 RETURN DUCT UP TO AHU-1. LOCATED ON METAL GRATING PLATFORM.
- ⑦ PROVIDE SHEET METAL CONNECTION TO LOUVER WITH BAROMETRIC RELIEF DAMPER AND SET AT 24.88 Pa.
- ⑧ CHASE ABOVE.
- ⑨ 350x200 EXHAUST DUCT DOWN ALONG WALL TO TERMINATE WITH EXHAUST GRILLE 450 AFF. COORDINATE DROP WITH EQUIPMENT.
- ⑩ PROVIDE INLINE EXHAUST FAN FOR EMERGENCY REFRIGERANT EXHAUST SYSTEM.
- ⑪ PROVIDE COMBINATION REFRIGERANT ALARM HORN AND FLASHING STROBE LIGHT(TYP). BLUE LIGHT STROBE HORN SHALL DIFFER FROM THE FIRE ALARM.
- ⑫ REFRIGERANT DETECTION PANEL.
- ⑬ PROVIDE WALL OPENING FOR TRANSFER AIR.

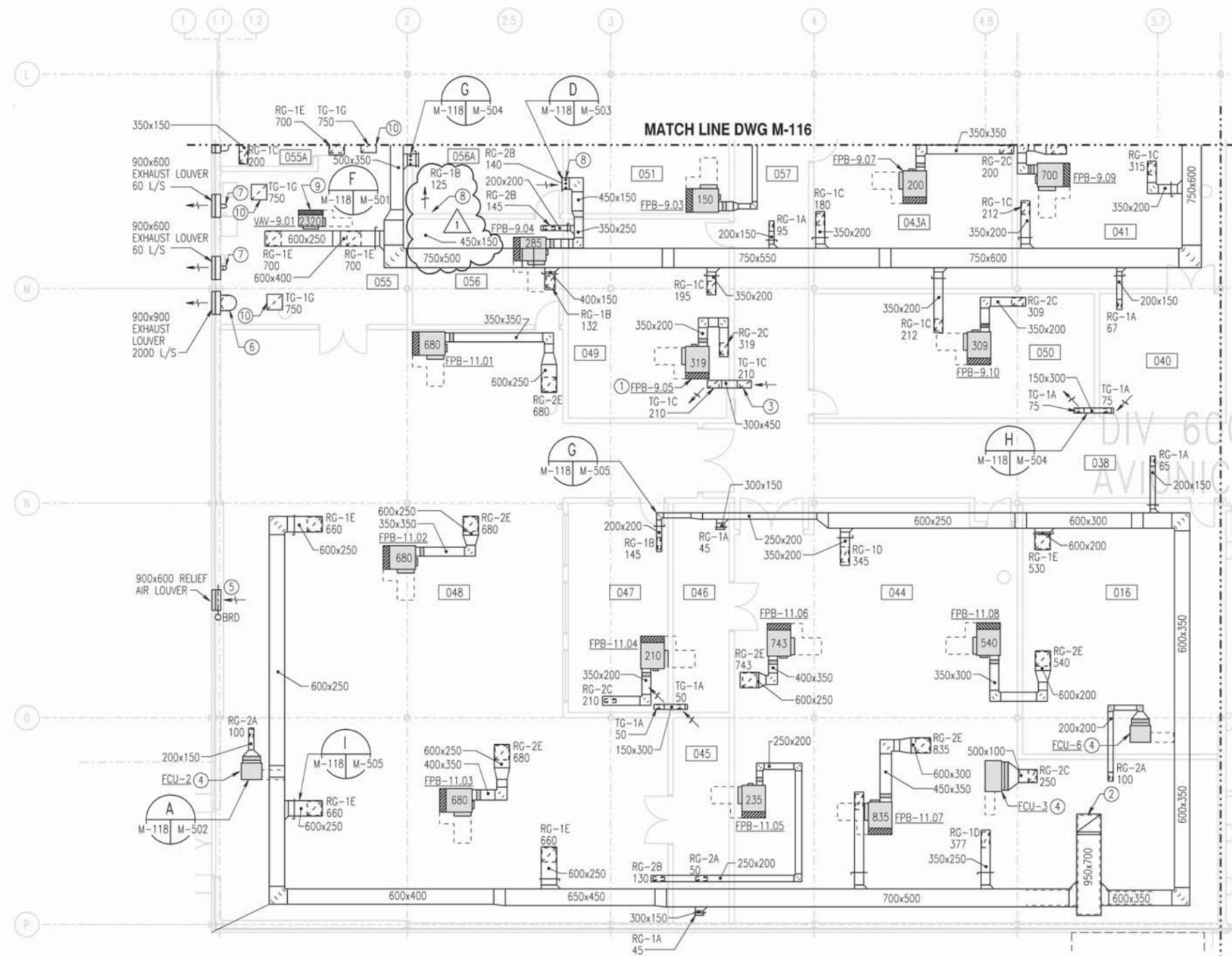
ROOM NAMES & NUMBERS	
015	ACCOUNTABLE MATERIAL IMRL MANAGER
019	IMRL SUPERVISOR
020	IMRL
022	HUNTRON
023	LCPO
024	STORAGE ROOM
025	MATERIAL CONTROL
026	SOLO
028	INSTRUMENT SHOP
029	GENERATOR SHOP
029A	VAPOR CYCLE TEST STAND ROOM
030	GENERATOR ROOM
058	CORRIDOR
059	CORRIDOR
060	CORRIDOR
061	MDU
062	DCU
063	AMSU
064	SUPPLY PRE-X
065	ROTABLE POOL
066	AWP LOCKER
068	COPY ROOM

RECORD DRAWING
LETTER DATED 29/12/05



KEY PLAN
NOT TO SCALE

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS	DATE	BY
WR&A WHITMAN, REARDY AND ASSOCIATES, LLP 801 F STREET BALTIMORE, MARYLAND 410 - 255 - 3450		
COMMONWEALTH OF VIRGINIA		
CHARLES R. LORTZ No. 013864 8/13/02		
PROFESSIONAL ENGINEER		
APPROVED	DATE	
ACTIVITY - SATISFACTORY TO		
DATE		
APPROVED		
FOR USE FOR CONTRACTOR WORK	DATE	
	9/18/02	
DATE		
A/E	D/S	
SFP	DESIGN	
JMR	DRAWN	
GFJ	REVIEW	DPS
CAH		
JOA		
	CHEF	MDJ/ENR
PROJECT MANAGER		
FIRE PROTECTION		DPS
BRANCH MANAGER		DPS
DESIGN DIRECTOR		FPB, Jr.
ATLANTIC DIVISION	NAVAL FACILITIES ENGINEERING COMMAND	
	NORFOLK, VIRGINIA	
NAVAL CONSOLIDATION CHAMBERS FIELD CHAMBERS STATION, NORFOLK, VIRGINIA		
PART "F" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST		
CODE ID: NO. 00001	SIZE	D
SCALE:	1 : 100	
DTN: NO.		
SN: PROJ. NO.	P-280	
SPEC. NO.	05-01-1117	
CONTRACTOR NO.		
NAVFAC DRAWING NO.	4472249	
SHEET	412	OF 634
M-117		



PART "G" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

SCALE: 1 : 100

RECORD DRAWING
LETTER DATED 29/12/05

GRAPHIC SCALE



KEY PLAN
 NOT TO SCALE

DRAWING NOTES

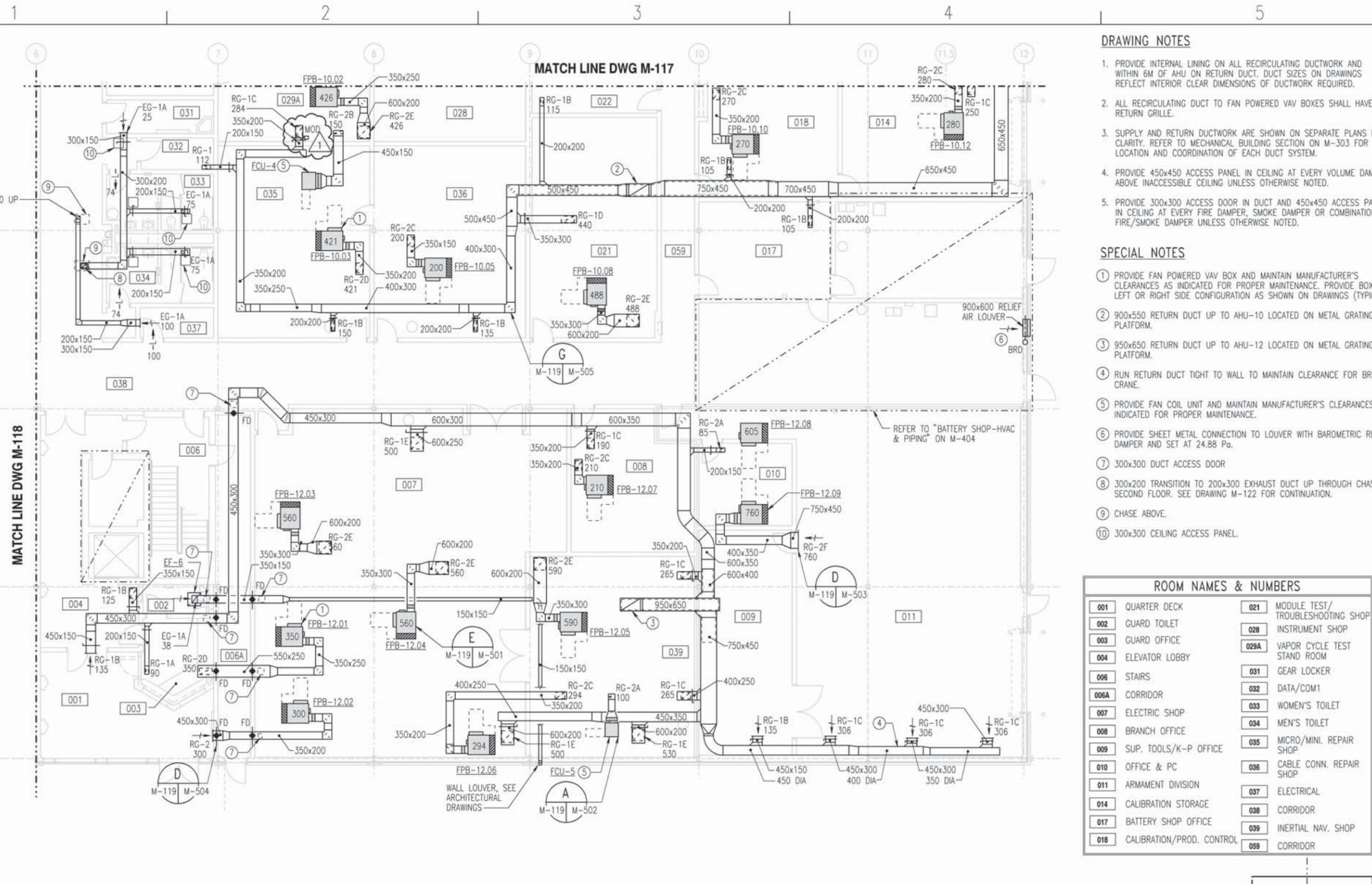
1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-303 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.
4. PROVIDE 450x450 ACCESS PANEL IN CEILING AT EVERY VOLUME DAMPER ABOVE INACCESSIBLE CEILING UNLESS OTHERWISE NOTED.
5. PROVIDE 300x300 ACCESS DOOR IN DUCT AND 450x450 ACCESS PANEL IN CEILING AT EVERY FIRE DAMPER, SMOKE DAMPER OR COMBINATION FIRE/SMOKE DAMPER UNLESS OTHERWISE NOTED.

SPECIAL NOTES

- 1 PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS REQUIRED (TYPICAL).
- 2 950x700 RETURN DUCT UP TO AHU-11 LOCATED ON METAL GRATING PLATFORM.
- 3 PROVIDE TRANSFER GRILLE WITH LINED DUCT (TYPICAL).
- 4 PROVIDE FAN COIL UNIT AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE.
- 5 PROVIDE SHEET METAL CONNECTION TO LOUVER WITH BAROMETRIC RELIEF DAMPER AND SET AT 24.88 Pa.
- 6 600 EXHAUST DUCT DOWN AND CAPPED AT 2.74m AFF FOR FUTURE EQUIPMENT EXHAUST CONNECTION.
- 7 150 EXHAUST DUCT DOWN AND CAPPED AT 2.74m AFF FOR FUTURE EQUIPMENT EXHAUST CONNECTION.
- 8 PROVIDE SECURITY BARS IN DUCT AS INDICATED.
- 9 PROVIDE VAV BOX AND MAINTAIN CLEARANCES AS INDICATED FOR PROPER MAINTENANCE.
- 10 PROVIDE TRANSFER GRILLE IN CEILING OF CORROSION CONTROL ROOM FOR ROOM PRESSURE RELIEF.

ROOM NAMES & NUMBERS	
016	TRAINING
038	CORRIDOR
040	TPS STORAGE
041	ATE BRANCH
043A	64B
044	RADCOM/CASS/ CASS MAINTENANCE SHOP
045	TPS STORAGE
046	TPS STORAGE
047	COMMUNICATION/NAVIGATION BRANCH
048	COMMUNICATION/NAVIGATION SHOP
049	X55
050	X56
051	NATEC
055	AVIONICS CORROSION CONTROL BRANCH
055A	---
056	COMSEC/CRYPTO REPAIR SHOP & ADMIN.
056A	VAULT
057	CORRIDOR

REVISIONS	NO.	DATE	DESCRIPTION
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER			
APPROVED			
ACTIVITY - SATISFACTORY TO			
DATE			
APPROVED	F. P. BOWEN		
FOR USE FOR COMMANDER WORK	9/18/02		
DATE			
A/E	SFP	DESIGN	
JMR	DRN		
GFJ	REVIS	DPS	
CAH	QC		
JOA	CHIEF ARCH/ENGR.		
PROJECT MANAGER	DPS		
FIRE PROTECTION	DPS		
BRANCH MANAGER	FPB, Jr.		
DESIGN DIRECTOR			
NAVAL FACILITIES ENGINEERING COMMAND	NORFOLK, VIRGINIA		
ATLANTIC DIVISION	NAVAL STATION		
AIMD CONSOLIDATION CHAMBERS FIELD NAVAL STATION, NORFOLK, VIRGINIA PART "G" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST			
CODE ID: NO. 88991	SIZE	D	
SCALE:	1 : 100		
STD. NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.			
NAVFAC DRAWING NO.	4472250		
SHEET	413	OF	634
M-118			
<small>m:\80979\01117M118RD.dgn Mon Jan 29 16:36:00 2007</small>			



PART "H" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST
 SCALE: 1 : 100

DRAWING NOTES

1. PROVIDE INTERNAL LINING ON ALL RECIRCULATING DUCTWORK AND WITHIN 6M OF AHU ON RETURN DUCT. DUCT SIZES ON DRAWINGS REFLECT INTERIOR CLEAR DIMENSIONS OF DUCTWORK REQUIRED.
2. ALL RECIRCULATING DUCT TO FAN POWERED VAV BOXES SHALL HAVE FILTER RETURN GRILLE.
3. SUPPLY AND RETURN DUCTWORK ARE SHOWN ON SEPARATE PLANS FOR CLARITY. REFER TO MECHANICAL BUILDING SECTION ON M-303 FOR LOCATION AND COORDINATION OF EACH DUCT SYSTEM.
4. PROVIDE 450x450 ACCESS PANEL IN CEILING AT EVERY VOLUME DAMPER ABOVE INACCESSIBLE CEILING UNLESS OTHERWISE NOTED.
5. PROVIDE 300x300 ACCESS DOOR IN DUCT AND 450x450 ACCESS PANEL IN CEILING AT EVERY FIRE DAMPER, SMOKE DAMPER OR COMBINATION FIRE/SMOKE DAMPER UNLESS OTHERWISE NOTED.

SPECIAL NOTES

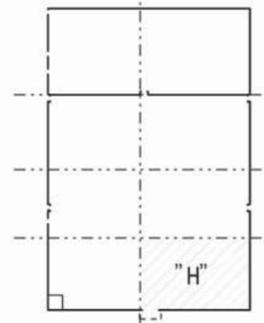
- 1 PROVIDE FAN POWERED VAV BOX AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE. PROVIDE BOX WITH LEFT OR RIGHT SIDE CONFIGURATION AS SHOWN ON DRAWINGS (TYPICAL).
- 2 900x550 RETURN DUCT UP TO AHU-10 LOCATED ON METAL GRATING PLATFORM.
- 3 950x650 RETURN DUCT UP TO AHU-12 LOCATED ON METAL GRATING PLATFORM.
- 4 RUN RETURN DUCT TIGHT TO WALL TO MAINTAIN CLEARANCE FOR BRIDGE CRANE.
- 5 PROVIDE FAN COIL UNIT AND MAINTAIN MANUFACTURER'S CLEARANCES AS INDICATED FOR PROPER MAINTENANCE.
- 6 PROVIDE SHEET METAL CONNECTION TO LOUVER WITH BAROMETRIC RELIEF DAMPER AND SET AT 24.88 Pa.
- 7 300x300 DUCT ACCESS DOOR
- 8 300x200 TRANSITION TO 200x300 EXHAUST DUCT UP THROUGH CHASE TO SECOND FLOOR. SEE DRAWING M-122 FOR CONTINUATION.
- 9 CHASE ABOVE.
- 10 300x300 CEILING ACCESS PANEL.

ROOM NAMES & NUMBERS

001	QUARTER DECK	021	MODULE TEST/TROUBLESHOOTING SHOP
002	GUARD TOILET	028	INSTRUMENT SHOP
003	GUARD OFFICE	029A	VAPOR CYCLE TEST STAND ROOM
004	ELEVATOR LOBBY	031	GEAR LOCKER
006	STAIRS	032	DATA/COM1
006A	CORRIDOR	033	WOMEN'S TOILET
007	ELECTRIC SHOP	034	MEN'S TOILET
008	BRANCH OFFICE	035	MICRO/MINI. REPAIR SHOP
009	SUP. TOOLS/K-P OFFICE	036	CABLE CONN. REPAIR SHOP
010	OFFICE & PC	037	ELECTRICAL
011	ARMAMENT DIVISION	038	CORRIDOR
014	CALIBRATION STORAGE	039	INERTIAL NAV. SHOP
017	BATTERY SHOP OFFICE	099	CORRIDOR
018	CALIBRATION/PROD. CONTROL		

RECORD DRAWING
 LETTER DATED 29/12/05

GRAPHIC SCALE



KEY PLAN
 NOT TO SCALE

REV	DATE	DESCRIPTION

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WRA
 WHELAN, REARDY AND ASSOCIATES, LLP
 101 E. CAROLINE STREET
 BALTIMORE, MARYLAND
 410 - 235 - 3450

COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02

PROFESSIONAL ENGINEER

APPROVED: F. P. BOWEN
 FOR USE FOR COMMANDER WAFIC
 9/18/02

DATE: 9/18/02

PROJECT MANAGER: FIRE PROTECTION
 BRANCH MANAGER: DPS
 DESIGN DIRECTOR: FPB Jr.

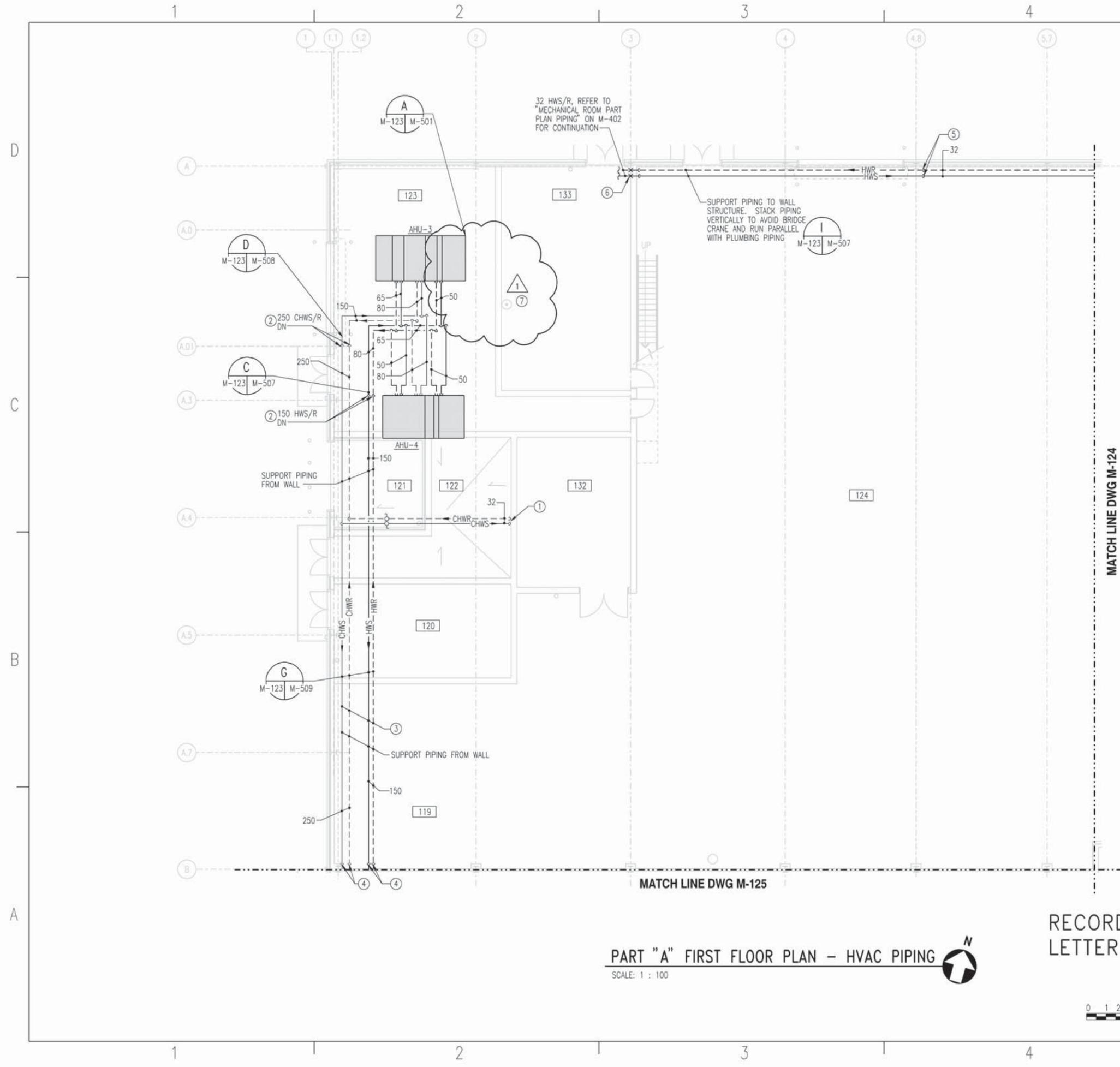
ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA

AIMD CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA

PART "H" FIRST FLOOR PLAN - HVAC RETURN & EXHAUST

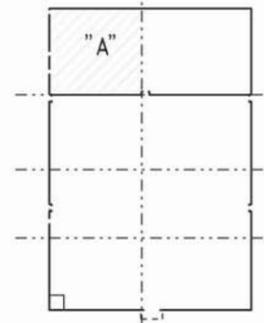
CODE ID: NO. 80979 SIZE: D
 SCALE: 1 : 100
 DTD: N/A
 SW: P-280
 SPEC: NO. 05-01-1117
 CONSTRUCTION NO. N62470-01-B-1117
 NAUTIC DRAWING NO. 4472251
 SHEET 414 OF 634
M-119

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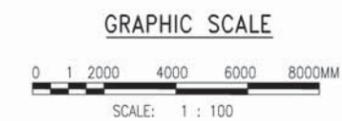


- DRAWING NOTES**
1. PROVIDE MANUAL VENTS AT ALL HIGH POINTS IN THE SYSTEM AND MANUAL DRAINS AT ALL LOW POINTS IN THE SYSTEM.
- SPECIAL NOTES**
- 1 PROVIDE CHILLED WATER PIPING TO VALVE HOUSE TEST STAND EQUIPMENT. PROVIDE CAPPED CONNECTION 30mm BELOW CEILING. SEE MECHANICAL EQUIPMENT PLANS FOR CONNECTION TO EQUIPMENT. CORE DRILL THROUGH ROOM 122 ROOF SLAB.
 - 2 REFER TO "MECHANICAL ROOM PART PLAN - PIPING ON M-402 FOR CONTINUATION.
 - 3 MAINTAIN CHILLED WATER AND HOT WATER PIPING AT 8m ABOVE FINISHED FLOOR.
 - 4 CHILLED WATER AND HOT WATER PIPING TO DROP TIGHT TO WALL AND MAINTAIN ELEVATION OF 5.2m ABOVE FINISHED FLOOR.
 - 5 HW PIPING TO DROP.
 - 6 ANCHOR PIPE TO WALL AS INDICATED.
 - 7 RUN CONDENSATE PIPING FOR AHU-3 & 4 AT 1% SLOPE TO FD-2 BY RPBFP ON SOUTH WALL OF CHILLER ROOM.

ROOM NAMES & NUMBERS	
119	PAINT BOOTH
120	COMPRESSED AIR ROOM
121	GENERATOR ROOM
122	FIRE PUMP SUPPRESSION
123	CHILLER ROOM
124	POWER PLANTS DIVISION
132	PUMP & VALVE HOUSING TEST AREA
133	BOILER ROOM

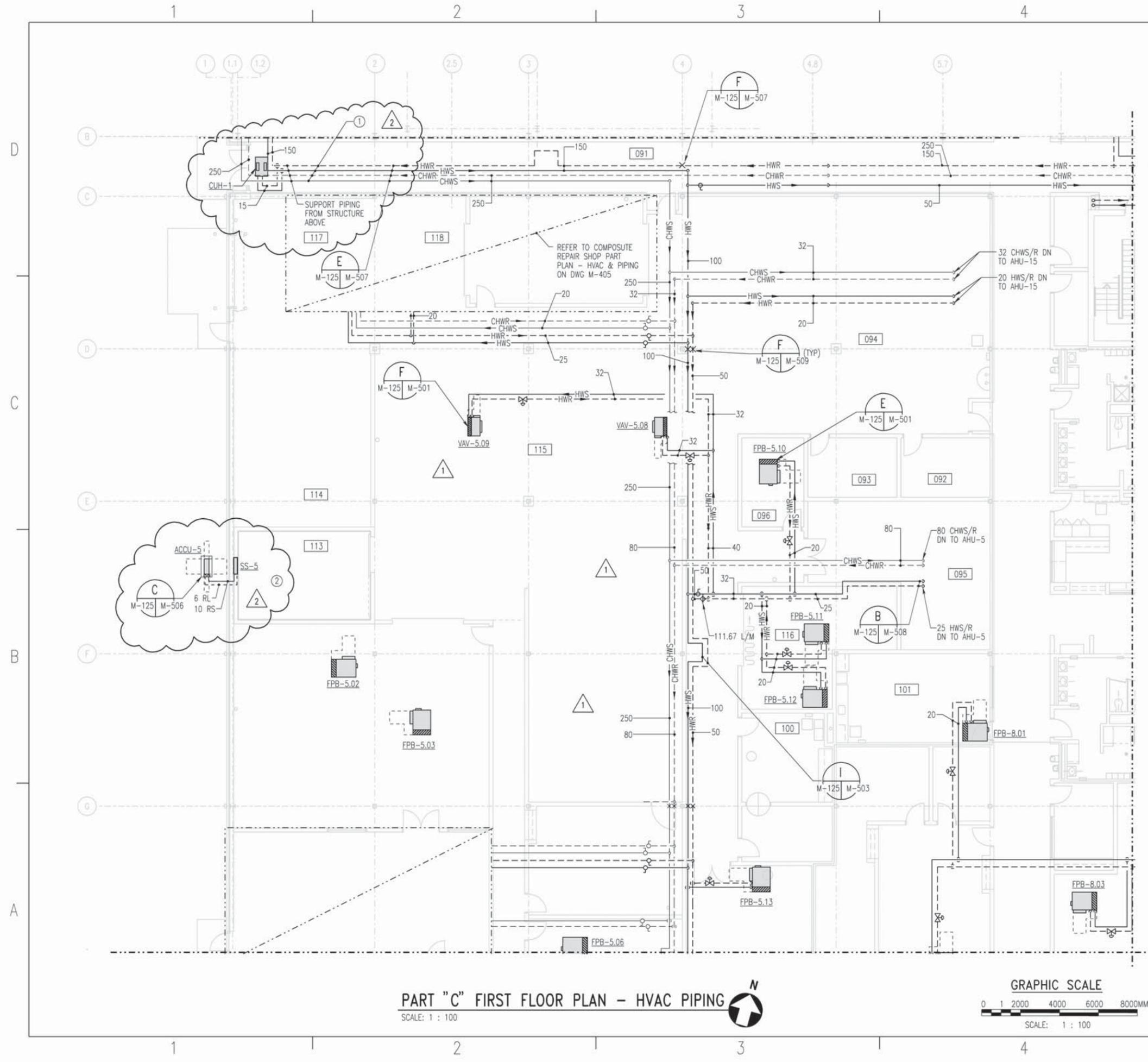


RECORD DRAWING
LETTER DATED 29/12/05



PART "A" FIRST FLOOR PLAN - HVAC PIPING
SCALE: 1 : 100

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS	NO.	DATE	DESCRIPTION
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER			
APPROVED			
ACTIVITY - SATISFACTORY TO			
DATE			
APPROVED	F. P. BOWEN		
FOR USE FOR EXAMINER SIGNATURE	9/18/02		
DATE			
A/E	DESIGN		
SFP			
JMR	DRAWN		
GFJ			
CAH			
JOA			
	CHECK		
PROJECT MANAGER	DPS		
FIRE PROTECTION	DPS		
BRANCH MANAGER	DPS		
DESIGN DIRECTOR	FPB, Jr.		
DEPARTMENT OF THE NAVY	NAVAL STATION		
ATLANTIC DIVISION	NAVAL FACILITIES ENGINEERING COMMAND		
	NOFOLK, VIRGINIA		
	AIMD CONSOLIDATION		
	CHAMBERS FIELD		
	NAVAL STATION, NORFOLK, VIRGINIA		
	PART "A" FIRST FLOOR PLAN - HVAC PIPING		
CODE ID: NO. 80979	SIZE	D	
SCALE:	1 : 100		
STD. NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472255		
SHEET	418	OF	634
M-123			



DRAWING NOTES

1. PROVIDE MANUAL VENTS AT ALL HIGH POINTS IN THE SYSTEM AND MANUAL DRAINS AT ALL LOW POINTS IN THE SYSTEM.

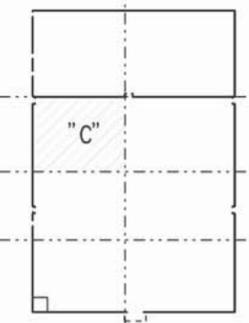
SPECIAL NOTES

① MAINTAIN CHILLED WATER AND HOT WATER PIPING AT 5.2m ABOVE FINISHED FLOOR.

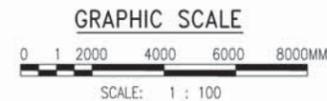
② THE POWER PLAN SHOWS ACCU-5 ON THE ROOF OF THE X-RAY ROOM. MANUAL MOTOR STARTER SHOULD BE WP LOCATED ON EXTERIOR WALL. ONLY MASONRY WALL REQUIRES PENETRATION.

RECORD DRAWING
LETTER DATED 29/12/05

ROOM NAMES & NUMBERS	
091	CORRIDOR
092	OFFICE
093	OFFICE
094	MACHINE SHOP
095	TIRE/WHEEL SHOP
096	OFFICE
100	PROCESSING ROOM
101	BREAK ROOM
113	X-RAY
114	WELD SHOP
115	STRUCTURES SHOP
116	IMRL
117	BEAD BLAST
118	PAINT AREA



PART "C" FIRST FLOOR PLAN - HVAC PIPING
 SCALE: 1 : 100



NO.	DATE	DESCRIPTION

GENERAL REVISIONS

REVISIONS BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WRA
 WHITMAN, REARDY AND ASSOCIATES, LLP
 801 E. CAROLINE STREET
 BALTIMORE, MARYLAND
 410 - 235 - 3450

COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

APPROVED: _____
 ACTIVITY - SATISFACTORY TO: _____
 DATE: _____
 APPROVED: F. P. BOWEN
 FOR USE FOR CONTRACTOR WORK: 9/18/02
 DATE: _____

DATE	BY	FOR

PROJECT MANAGER: _____
 FIRE PROTECTION: _____
 BRANCH MANAGER: _____
 DESIGN DIRECTOR: _____

ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA

DEPARTMENT OF THE NAVY
 NAVAL STATION

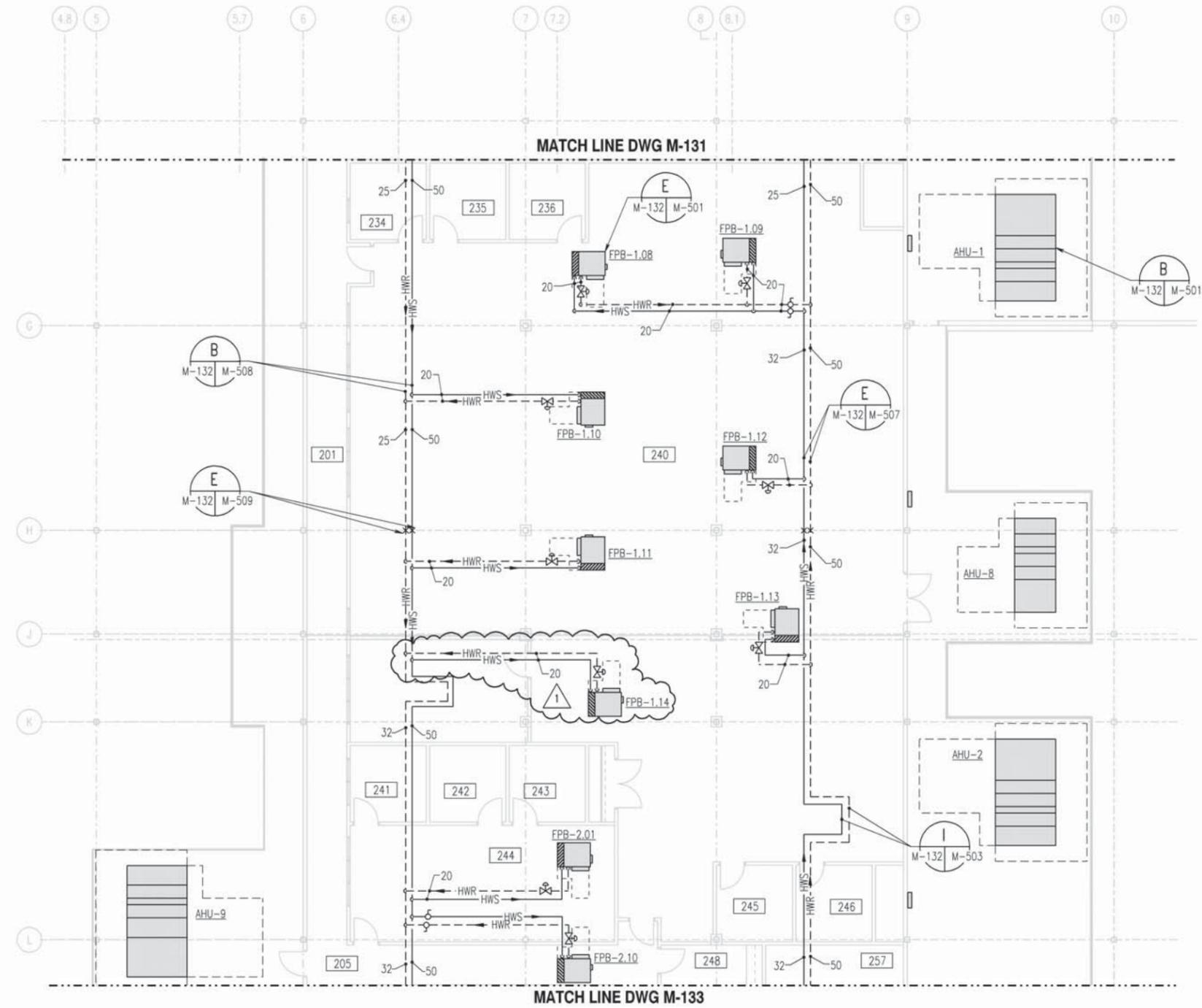
AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
 PART "C" FIRST FLOOR PLAN - HVAC PIPING

CODE ID: NO. 80979 SIZE: D
 SCALE: 1 : 100
 STD. NO.: _____
 SDR. PROJ. NO.: P-280
 SPEC. NO.: 05-01-1117
 CONSTRUCTION NO.: N62470-01-B-1117
 NAUTIC DRAWING NO.: 4472257
 SHEET 420 OF 634
M-125

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 Mon Jan 29 16:34:47 2007

DRAWING NOTES

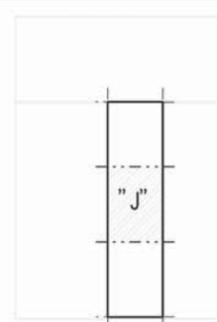
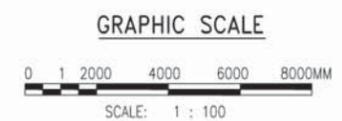
1. PROVIDE MANUAL VENTS AT ALL HIGH POINTS IN THE SYSTEM AND MANUAL DRAINS AT ALL LOW POINTS IN THE SYSTEM.



PART "J" SECOND FLOOR PLAN - HVAC PIPING
SCALE: 1 : 100

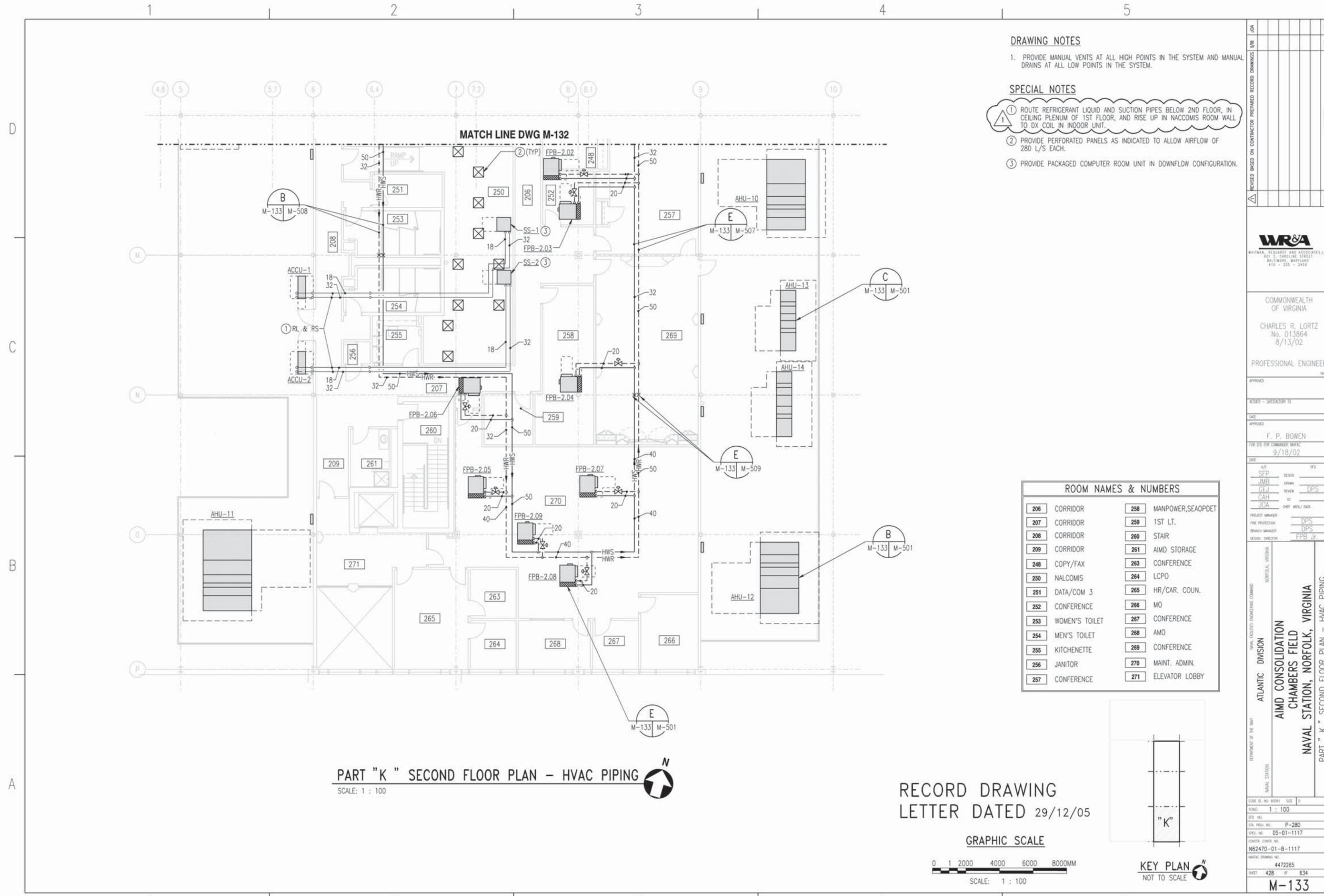
ROOM NAMES & NUMBERS			
201	CORRIDOR	242	DIVISION OFFICER
205	CORRIDOR	243	DIVISION OFFICER
234	SRS/PMU SUPERVISOR	244	ADMIN.
235	REPAIRABLES MANG. SUP.	245	ASD/RSO LCPO
236	CCS SUPERVISOR	246	ASD OFFICER
240	SUPPLY OPEN OFFICE	248	COPY/FAX
241	LCPO	257	CONFERENCE

RECORD DRAWING
LETTER DATED 29/12/05



KEY PLAN
NOT TO SCALE

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS	NO.	DATE	DESCRIPTION
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER			
APPROVED			
ACTIVITY - SATISFACTORY TO			
DATE			
APPROVED	F. P. BOWEN		
FOR USE FOR COMMANDER WRAIC	9/18/02		
DATE	A/E	DESIGN	
	SFP	DESIGN	
	JMR	DRAWN	
	GFJ	REVIEW	DPS
	CAH	OC	
	JOA	CHIEF ARCH/ ENGR.	
PROJECT MANAGER	DPS		
FIRE PROTECTION	DPS		
BRANCH MANAGER	DPS		
DESIGN DIRECTOR	FPB, Jr.		
ATLANTIC DIVISION	NAVAL FACILITIES ENGINEERING COMMAND		
	NORFOLK, VIRGINIA		
DEPARTMENT OF THE NAVY	NAVAL STATION		
	AIMD CONSOLIDATION		
	CHAMBERS FIELD		
	NAVAL STATION, NORFOLK, VIRGINIA		
	PART "J" SECOND FLOOR PLAN - HVAC PIPING		
CODE ID: NO. 80979	SIZE	D	
SCALE:	1 : 100		
STD. NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472264		
SHEET	427	OF	634
M-132			



PART "K" SECOND FLOOR PLAN - HVAC PIPING
 SCALE: 1 : 100

DRAWING NOTES

1. PROVIDE MANUAL VENTS AT ALL HIGH POINTS IN THE SYSTEM AND MANUAL DRAINS AT ALL LOW POINTS IN THE SYSTEM.

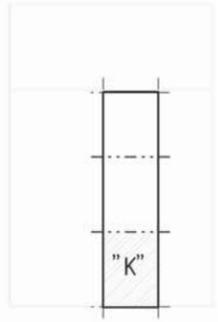
SPECIAL NOTES

- 1. ROUTE REFRIGERANT LIQUID AND SUCTION PIPES BELOW 2ND FLOOR, IN CEILING PLENUM OF 1ST FLOOR, AND RISE UP IN NACCOMIS ROOM WALL TO DX COIL IN INDOOR UNIT.
- 2. PROVIDE PERFORATED PANELS AS INDICATED TO ALLOW AIRFLOW OF 280 L/S EACH.
- 3. PROVIDE PACKAGED COMPUTER ROOM UNIT IN DOWNFLOW CONFIGURATION.

ROOM NAMES & NUMBERS			
206	CORRIDOR	258	MANPOWER, SEAPDET
207	CORRIDOR	259	1ST LT.
208	CORRIDOR	260	STAIR
209	CORRIDOR	261	AIMD STORAGE
248	COPY/FAX	263	CONFERENCE
250	NALCOMIS	264	LCPO
251	DATA/COM 3	265	HR/CAR. COUN.
252	CONFERENCE	266	MO
253	WOMEN'S TOILET	267	CONFERENCE
254	MEN'S TOILET	268	AMO
255	KITCHENETTE	269	CONFERENCE
256	JANITOR	270	MAINT. ADMIN.
257	CONFERENCE	271	ELEVATOR LOBBY

RECORD DRAWING
 LETTER DATED 29/12/05

GRAPHIC SCALE



KEY PLAN
 NOT TO SCALE

REV	DESCRIPTION	DATE

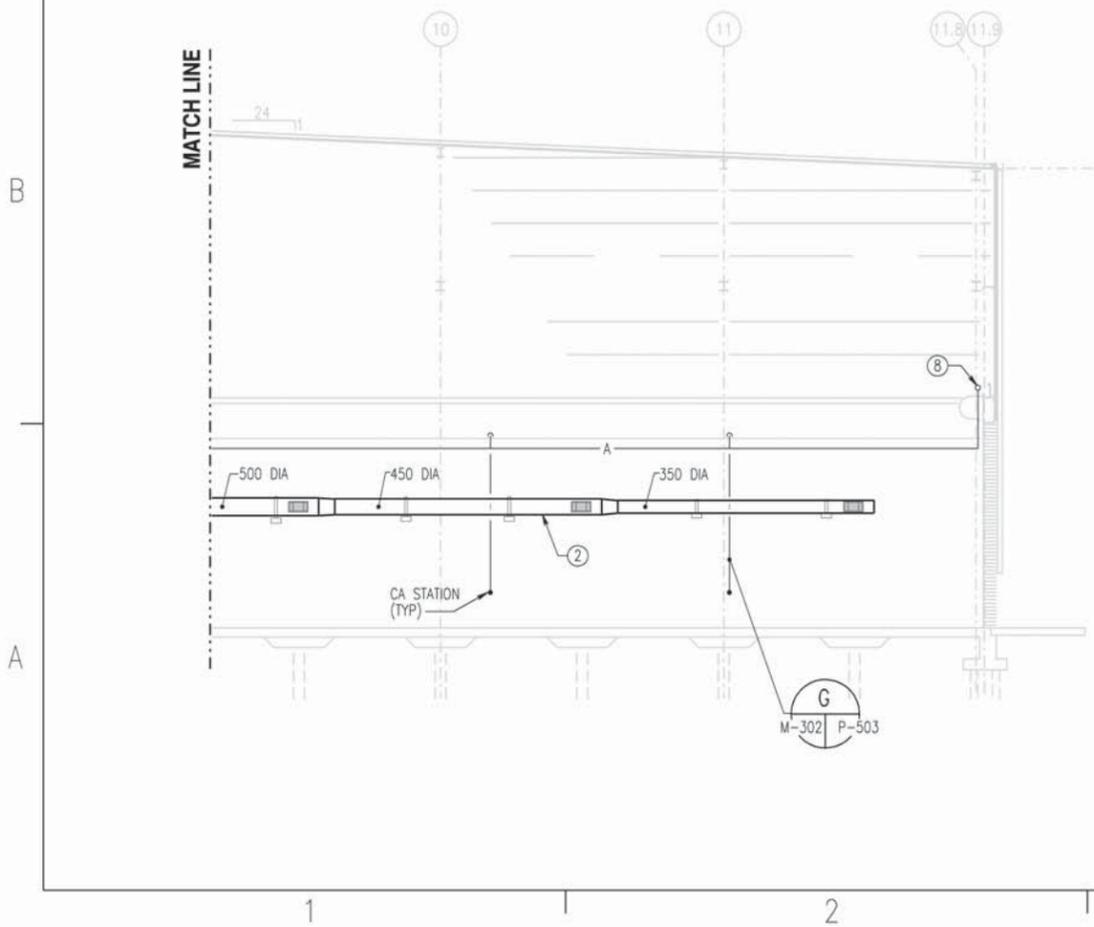
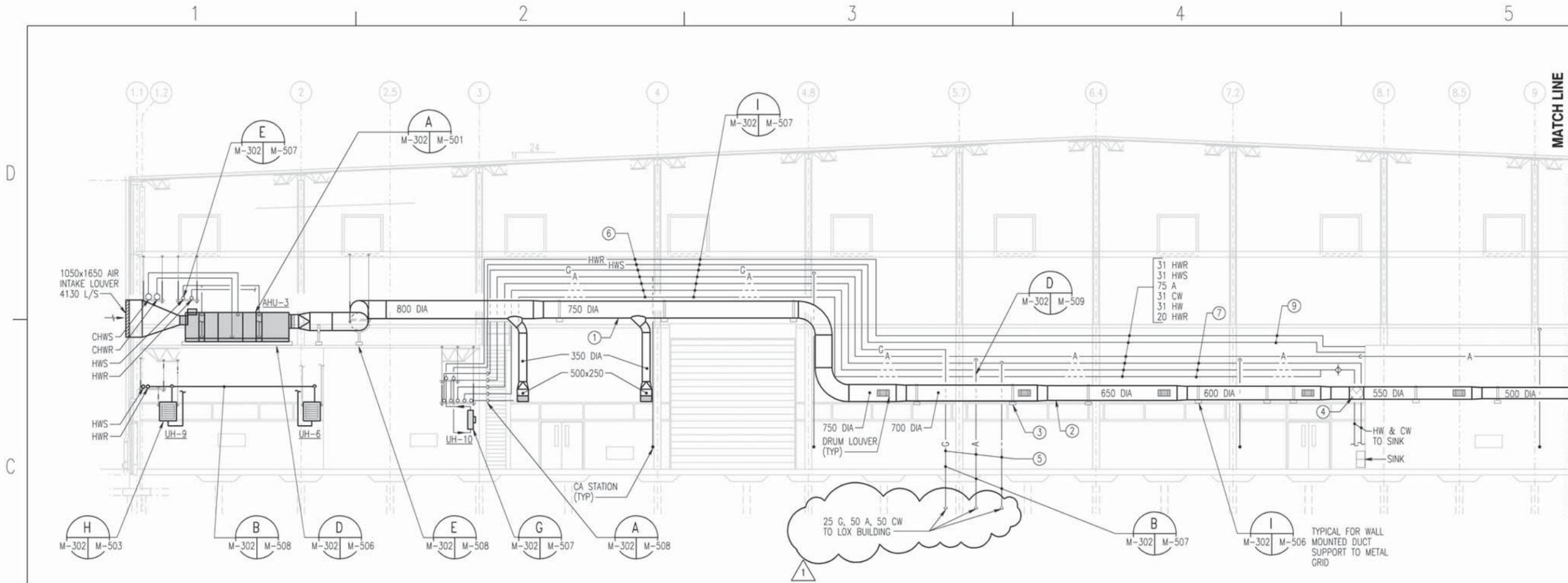


COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

DATE	APPROVED	FOR USE FOR EXAMINER SIGNATURE
9/18/02	F. P. BOWEN	9/18/02

ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVY STATION
 NAVAL CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA
 PART "K" SECOND FLOOR PLAN - HVAC PIPING

CODE	NO.	ISSUE	DATE
SCALE:	1 : 100		
DTD NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472265		
SHEET	428	OF	634
M-133			

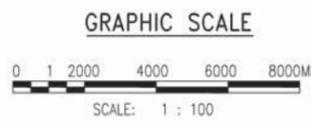


MECHANICAL SECTION 1
SCALE: 1 : 100

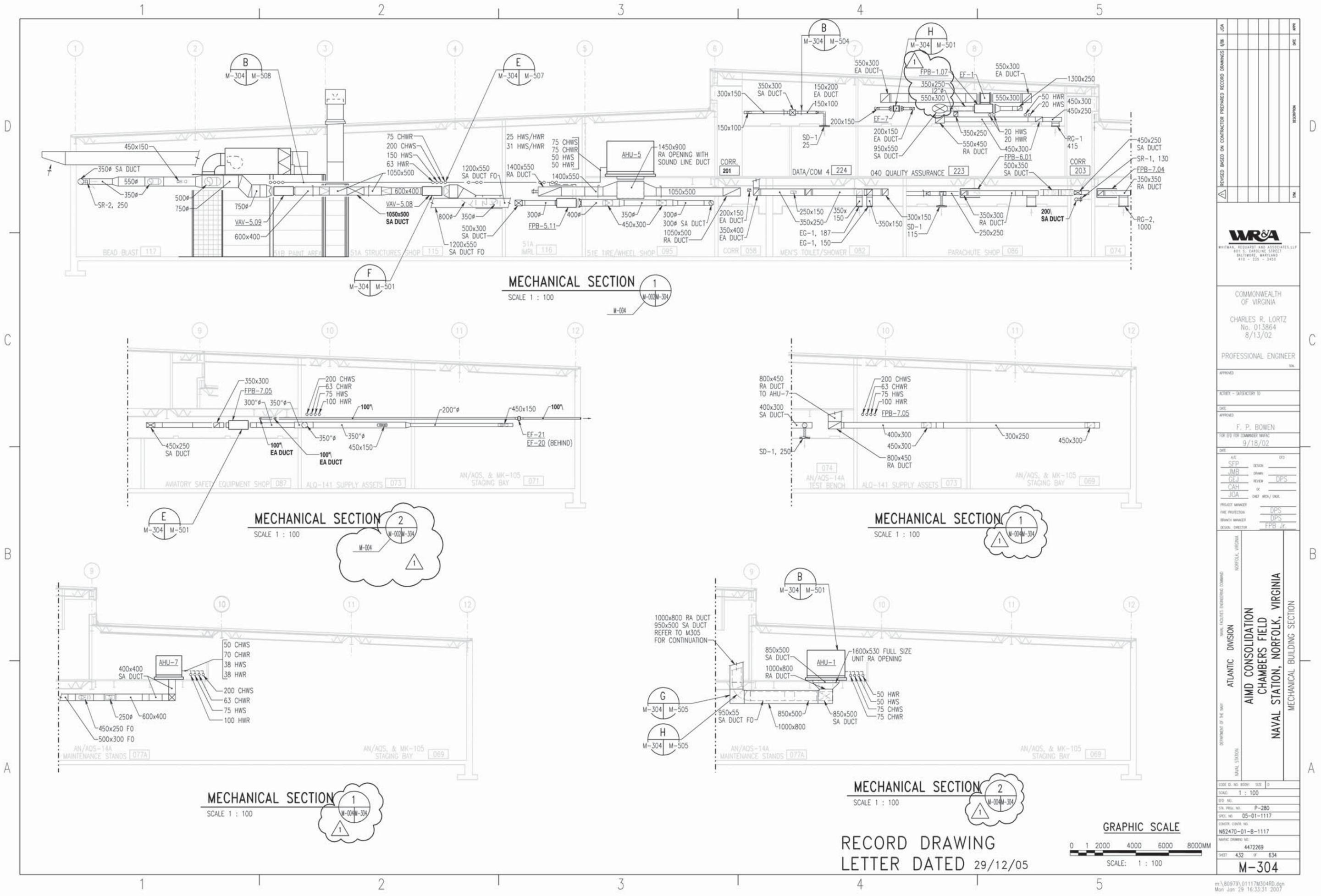
SPECIAL NOTES

- 1 SUPPLY DUCT TO MAINTAIN BOTTOM ELEVATION OF 6.4M ABOVE FINISHED FLOOR.
- 2 SUPPLY DUCT TO MAINTAIN BOTTOM ELEVATION OF 3.2M ABOVE FINISHED FLOOR.
- 3 PROVIDE WALL MOUNTED STRUCTURAL SUPPORT FOR DUCTWORK IN ACCORDANCE W/SPECIFICATIONS. ATTACH SUPPORT TO STRUCTURAL GRID FOR METAL PANEL WALL.
- 4 SUPPLY DUCT TO ELBOW AND RUN TIGHT TO COVERED PAD ENCLOSURE.
- 5 COMPRESSED AIR, GAS AND DOMESTIC COLD WATER TO RUN TIGHT TO WALL, DROP THROUGH FLOOR TO OXYGEN STORAGE BUILDING. SEE PLAN P-109 FOR CONTINUATION.
- 6 PLUMBING & HVAC PIPING TO RUN VERTICALLY STACKED ALONG WALL. MAINTAIN BOTTOM ELEVATION OF 7.4M ABOVE FINISHED FLOOR.
- 7 MAINTAIN PLUMBING PIPING AT 4.1M ABOVE FINISHED FLOOR.
- 8 MAINTAIN COMPRESSED AIR PIPING AT 6.7M ABOVE FINISHED FLOOR.
- 9 HWS AND HWR PIPING TO COVERED PAD AREA.

RECORD DRAWING
LETTER DATED 29/12/05



	REVISED	BY	DATE	DESCRIPTION
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER				
APPROVED				
ACTIVITY - SATISFACTION TO				
DATE				
APPROVED				
F. P. BOWEN				
FOR USE FOR COMMONWEALTH OF VIRGINIA				
9/18/02				
DATE				
A/E	DESIGN	E/P		
SFP	JMR	DPS		
GEJ	REVIEW	DPS		
CAH	OC			
JOA	CHIEF ARCH/ENGR.			
PROJECT MANAGER			DPS	
FIRE PROTECTION			DPS	
BRANCH MANAGER			FPB, Jr.	
DESIGN DIRECTOR				
NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA ATLANTIC DIVISION AIMD CONSOLIDATION CHAMBERS FIELD NAVAL STATION, NORFOLK, VIRGINIA BUILDING CROSS SECTION - MECHANICAL				
CODE ID: NO. 80979 SIZE: D				
SCALE: 1 : 100				
DTP: NIL				
SIN. PROJ. NO.: P-280				
SPEC. NO.: 05-01-1117				
CONTRACTOR NO.: N62470-01-B-1117				
NAVFAC DRAWING NO.: 4472267				
SHEET 430 OF 634				
M-302				



REV	DATE	DESCRIPTION

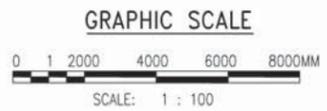


COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	F. P. BOWEN
FOR USE FOR EXAMINER WORK	9/18/02
DATE	
A/E	
SFP	DESIGN
JMR	DRAWN
GEJ	REVIEW
CAH	OC
JOA	CHIEF MECH/ ENGR.
PROJECT MANAGER	DPS
FIRE PROTECTION	DPS
BRANCH MANAGER	DPS
DESIGN DIRECTOR	FPB, Jr.

ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA
 AIMD CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA
 MECHANICAL BUILDING SECTION

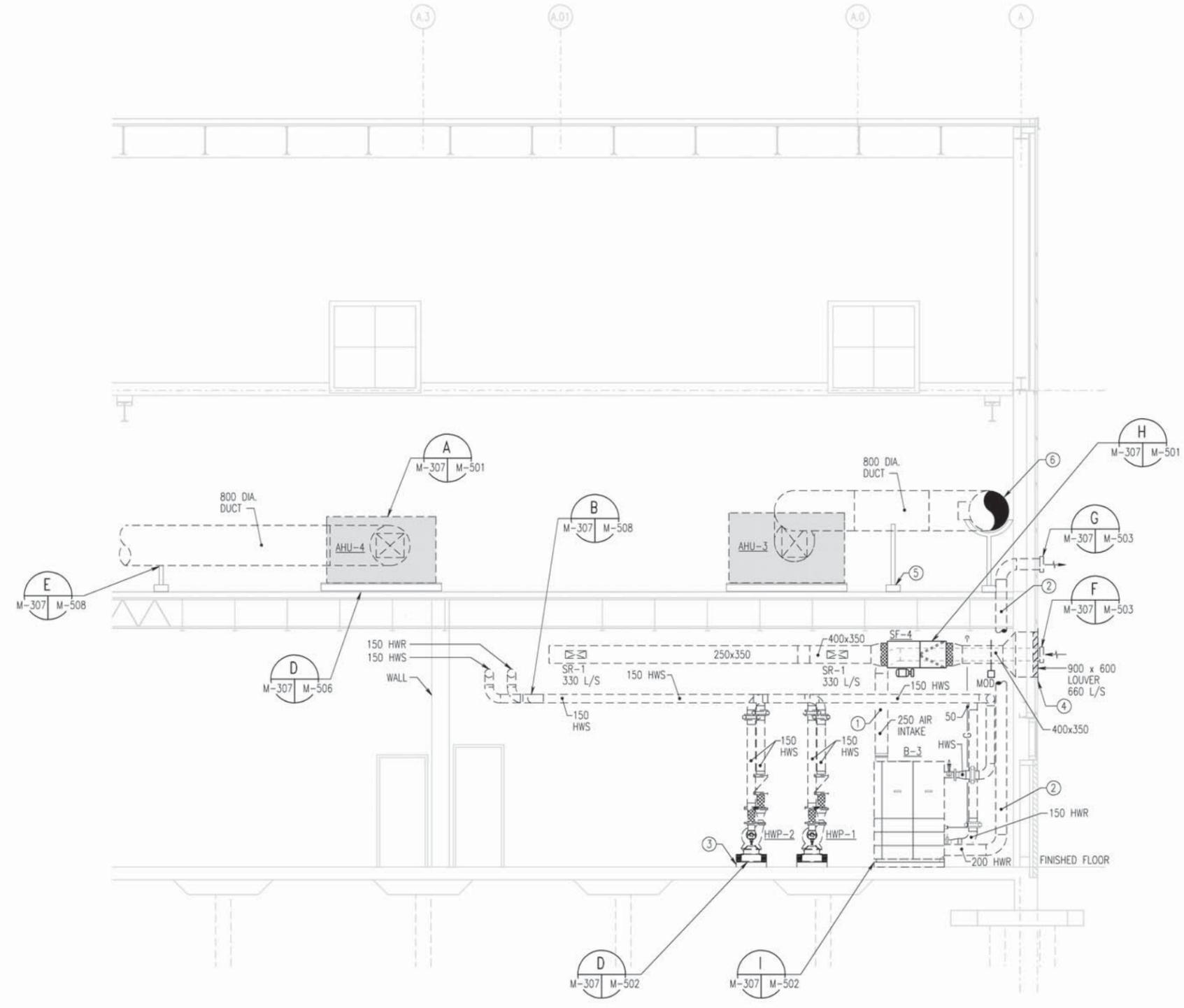
CODE ID NO	80979	SIZE	D
SCALE	1 : 100		
DTD NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONTRACTOR NO.	N62470-01-B-1117		
NAVFAC DRAWING NO.	4472269		
SHEET	432	OF	634
M-304			



RECORD DRAWING
 LETTER DATED 29/12/05

1 2 3 4 5

D
C
B
A



- SPECIAL NOTES:**
- 1 PROVIDE 250 SEALED DIRECT COMBUSTION AIR DUCTWORK.
 - 2 PROVIDE 250 SEALED, DOUBLE WALLED AL29-4C STAINLESS STEEL EXHAUST DUCTWORK.
 - 3 PROVIDE 100 HOUSEKEEPING PAD (TYPICAL).
 - 4 PROVIDE 900 WIDE x 600 HIGH x 500 DEEP SHEET METAL PLENUM AND CONNECT TO WALL LOUVER. SEE ARCHITECTURAL DETAILS FOR LOUVER.
 - 5 SUPPORT DUCT FROM CONCRETE SLAB.
 - 6 ROUTE DUCTWORK TIGHT TO WALL.

NO.	DATE	DESCRIPTION



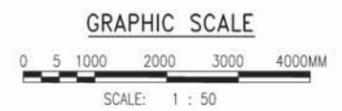
COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	F. P. BOWEN
FOR USE FOR COMMONWEALTH OF VIRGINIA	9/18/02
DATE	
A/E	
SFP	DESIGN
JMR	DRAWN
GEJ	REVIEW
CAH	OC
JOA	CHEF ARCH/ENGR.
PROJECT MANAGER	
FIRE PROTECTION	DPS
BRANCH MANAGER	DPS
DESIGN DIRECTOR	FPB, Jr.

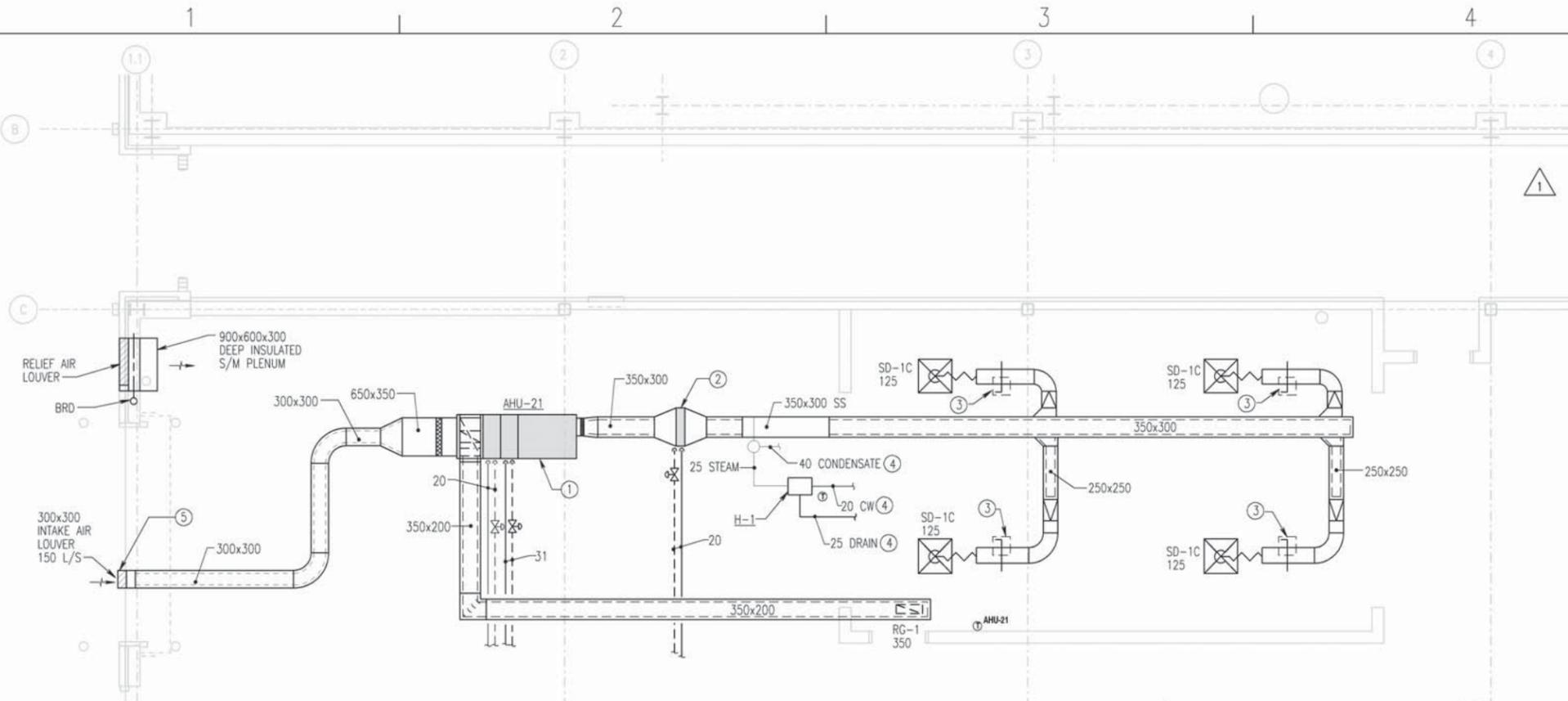
NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA
 ATLANTIC DIVISION
 NAVAL STATION
 AIMD CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA
 BOILER ROOM SECTION

RECORD DRAWING
 LETTER DATED 29/12/05

1 BOILER ROOM SECTION
 M-402 M-307 SCALE: 1 : 50



CODE ID NO	80979	SIZE	D
SCALE:	1 : 50		
STD. NO.			
SIN. PROJ. NO.	P-280		
SPEC. NO.	05-01-1117		
CONSTR. CONTR. NO.			
N62470-01-B-1117			
NAVFAC DRAWING NO.	4472272		
SHEET	435	OF	634
M-307			



COMPOSITE REPAIR SHOP PART PLAN - HVAC & PIPING
SCALE: 1 : 50

- SPECIAL NOTES:**
- 1 PROVIDE CENTRAL AIR STATION UNIT AND LOCATE 3m AFF.
 - 2 PROVIDE DUCT MOUNTED REHEAT COIL AS INDICATED.
 - 3 PROVIDE 300x300 CEILING ACCESS PANEL AT EACH VOLUME DAMPER.
 - 4 SEE PLUMBING DRAWING P-111 FOR CONTINUATION.
 - 5 MAINTAIN 3m DISTANCE FROM RELIEF AIR LOUVER.
 - 6 BASED ON THE INFORMATION RECEIVED THERE IS NO REQUIREMENT FOR HEPA FILTERS. CLEAN ROOM 520 WAS TO MEET THE REQUIREMENTS OF NAV AIR 01-1A-17 AND WAS VERBALLY GIVEN TO WRA AS FOLLOWS:
 1. MAINTAIN POSITIVE PRESSURE (0.05 IN WG)
 2. MAINTAIN ROOM TEMPERATURE OF 21 DEGREES C +/- 2.8 DEGREES C.
 3. MAINTAIN 35% - 50% RELATIVE HUMIDITY.
 4. PROVIDE 80% EFFICIENCY FILTER FOR AIR INTO ROOM.
- THE ROOMS ARE DESIGNED POSITIVE AS INDICATED ON THE AIR BALANCE SCHEDULE IN M-607. THE FILTERS FOR THE AIR HANDLING UNIT ARE SPECIFIED WITH A PREFILTER AND 90% EFFICIENCY FINAL FILTER.
- THE INFORMATION FOR CLEAN ROOM 520 WAS APPLIED TO THE OTHER CLEAN ROOMS (COMPOSITES 51F ROOM 097 AND 62B CLEAN ROOM 027) SINCE NO FURTHER INFORMATION WAS RECEIVED.

RECORD DRAWING
LETTER DATED 29/12/05

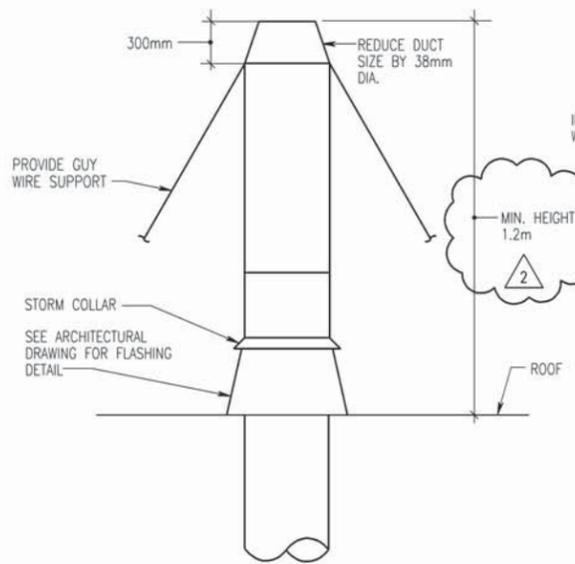
NO.	DATE	DESCRIPTION



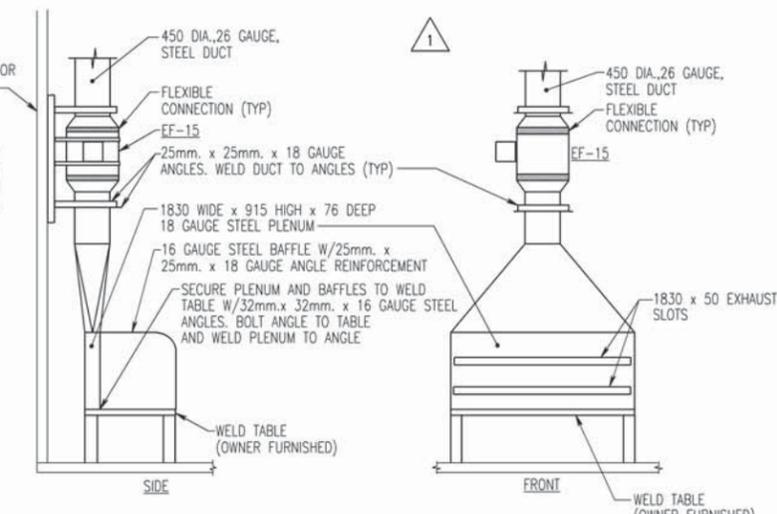
COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

FUME EXTRACTION SYSTEM SCHEDULE

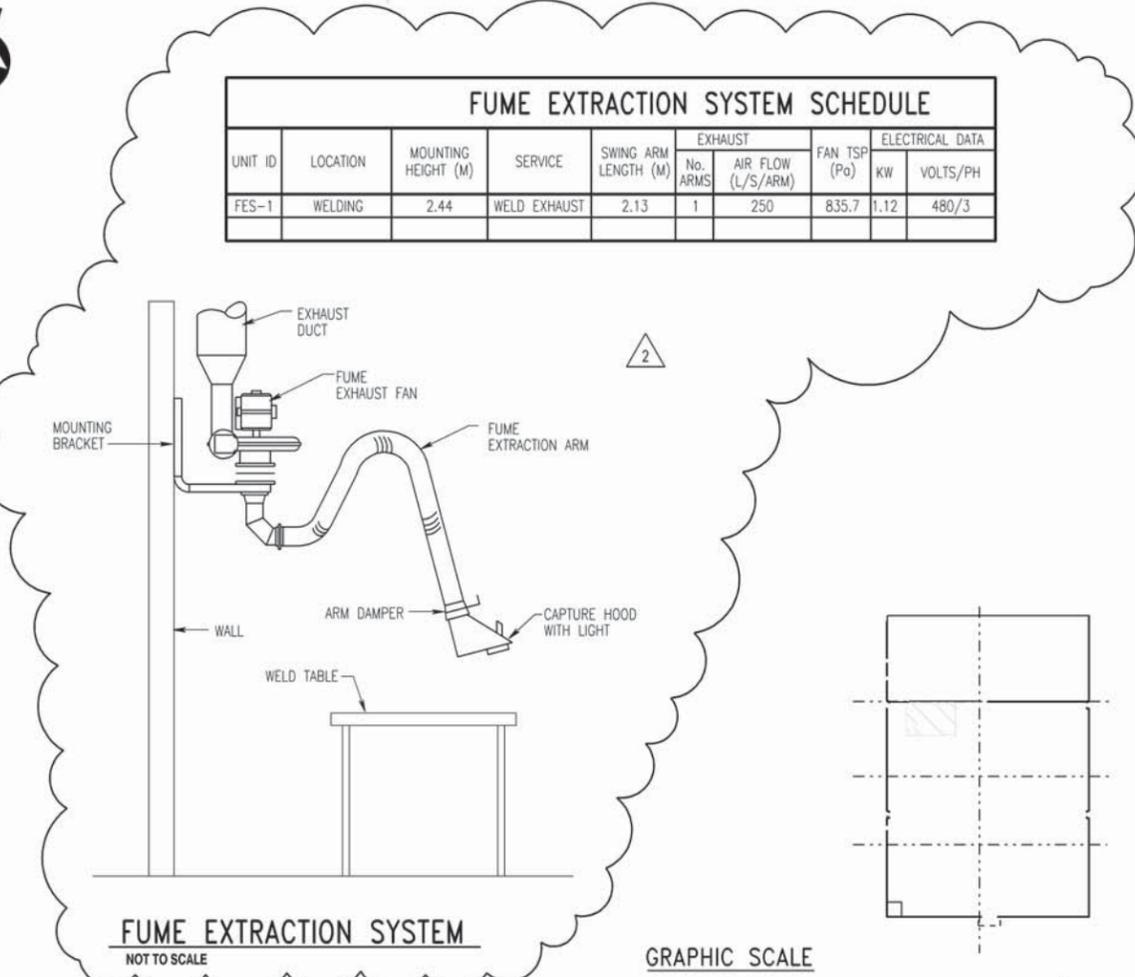
UNIT ID	LOCATION	MOUNTING HEIGHT (M)	SERVICE	SWING ARM LENGTH (M)	EXHAUST		ELECTRICAL DATA		
					No. ARMS	AIR FLOW (L/S/ARM)	FAN TSP (Po)	KW	VOLTS/PH
FES-1	WELDING	2.44	WELD EXHAUST	2.13	1	250	835.7	1.12	480/3



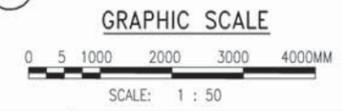
EXHAUST DUCT THRU ROOF DETAIL
NOT TO SCALE



WELD TABLE HOOD DETAIL
NOT TO SCALE



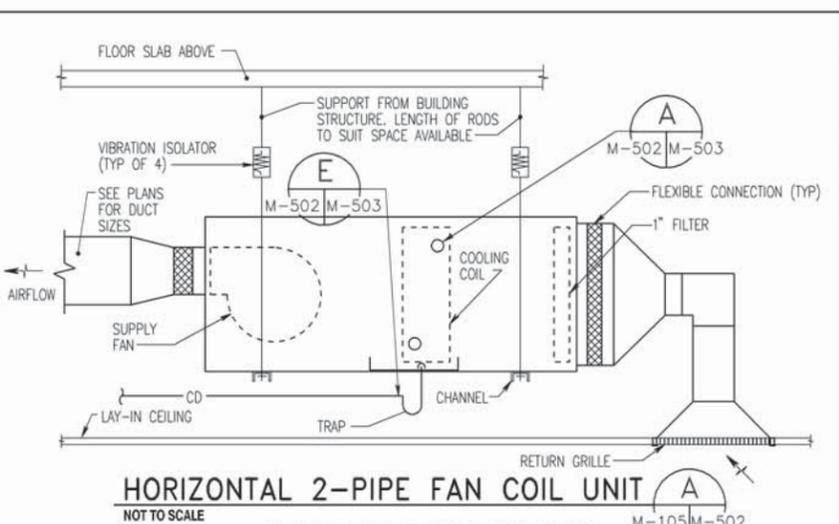
FUME EXTRACTION SYSTEM
NOT TO SCALE



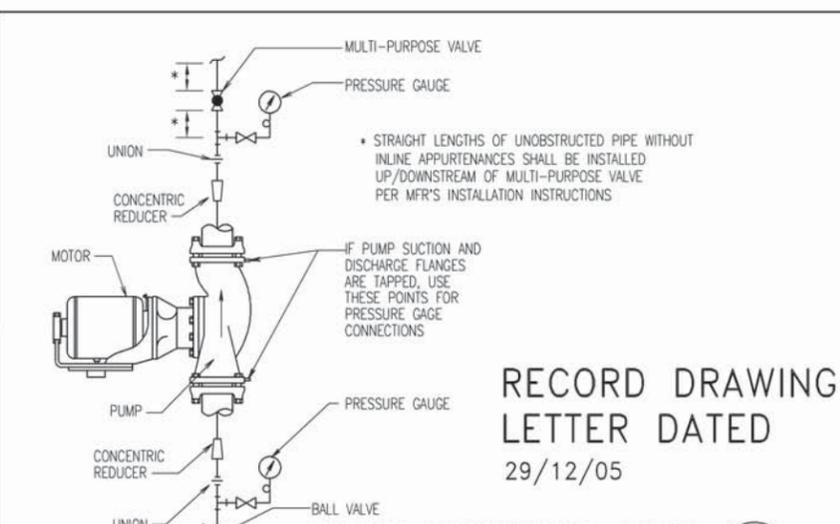
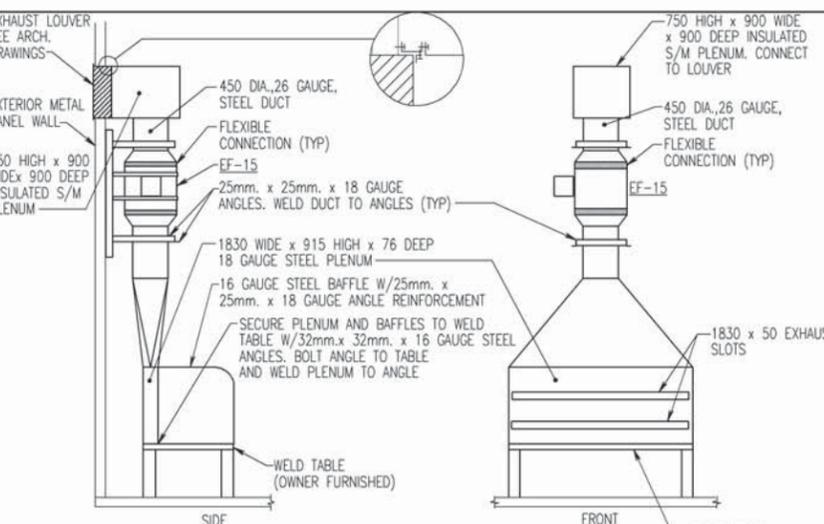
APPROVED: _____
 ACTIVITY - SATISFACTORY TO: _____
 DATE: _____
 APPROVED: F. P. BOWEN
 FOR USE FOR COMMONWEALTH OF VIRGINIA: 9/18/02
 DATE: _____
 A/E: _____
 SFP: _____
 JMR: _____
 GEJ: _____
 CAH: _____
 JOA: _____
 PROJECT MANAGER: _____
 FIRE PROTECTION: _____
 BRANCH MANAGER: _____
 DESIGN DIRECTOR: _____

ATLANTIC DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL STATION
 NAVAL CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA
 PART FIRST FLOOR PLAN - HVAC

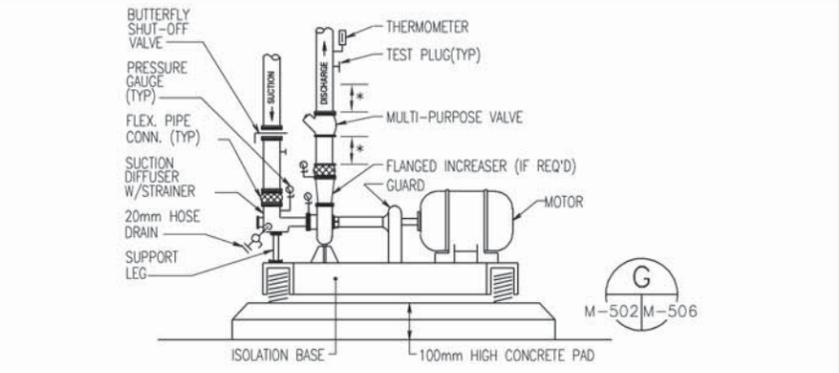
CODE ID: NO. 80979 SIZE: D
 SCALE: 1 : 50
 DTD: NO.
 SW. PROJ. NO.: P-280
 SPEC. NO.: 05-01-1117
 CONSTR. CONTR. NO.: N62470-01-B-1117
 NAUTIC DRAWING NO.: 4472235
 SHEET 398 OF 634
M-405



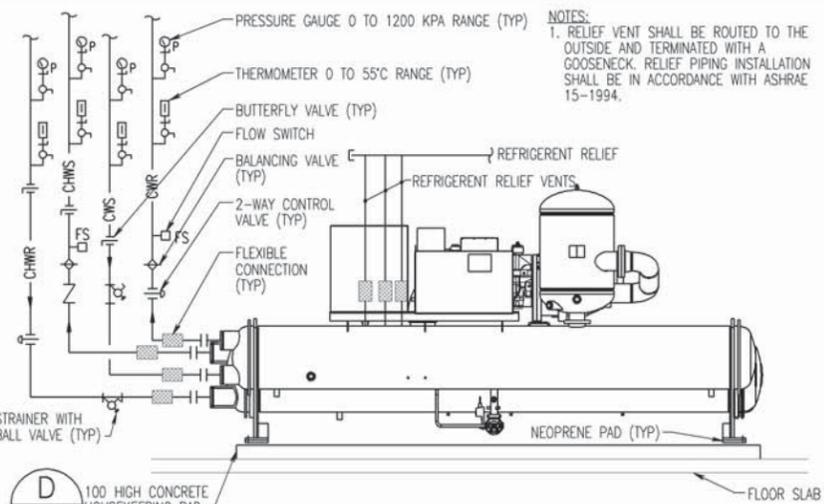
NOTES:
 1. PROVIDE AUXILIARY DRAIN PAN AS REQUIRED.
 2. FCU SHALL BE EQUIPPED WITH FULL ACCESS HINGED FACE.
 3. SEE FLOOR PLANS FOR FCU ARRANGEMENT-DUCTED OR UNDUCTED.



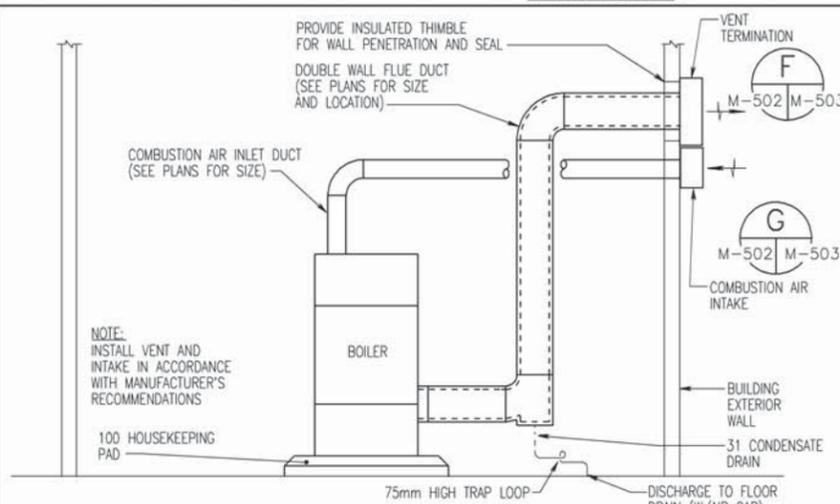
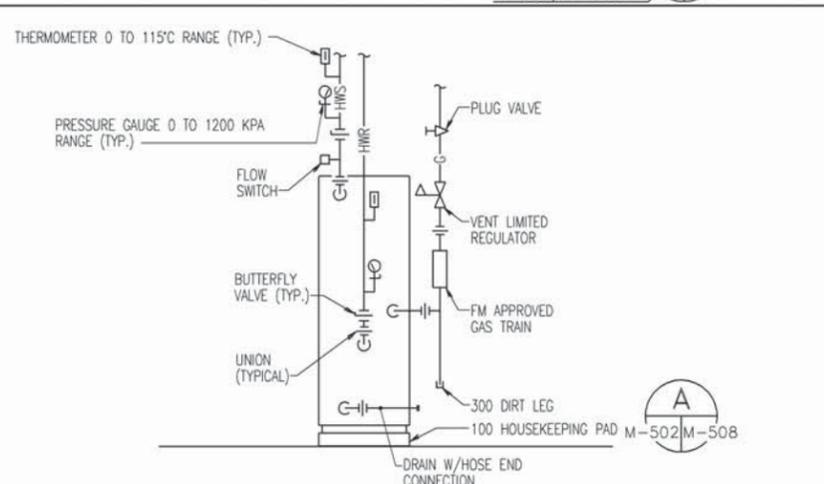
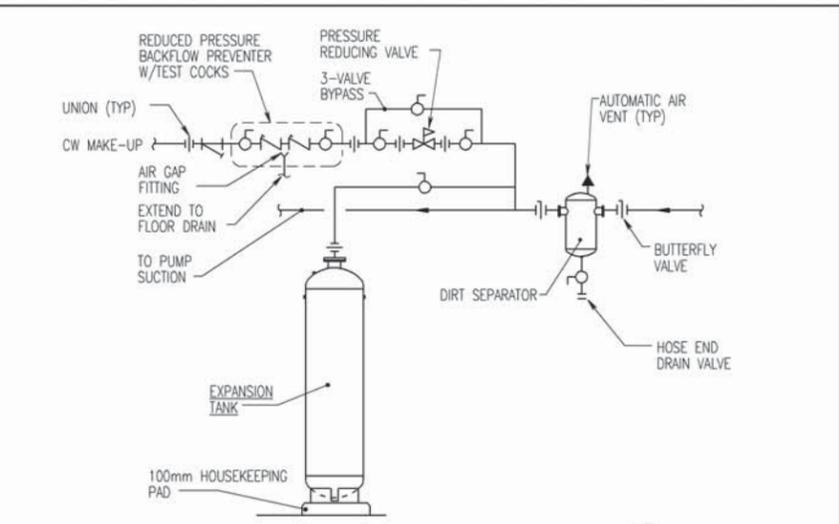
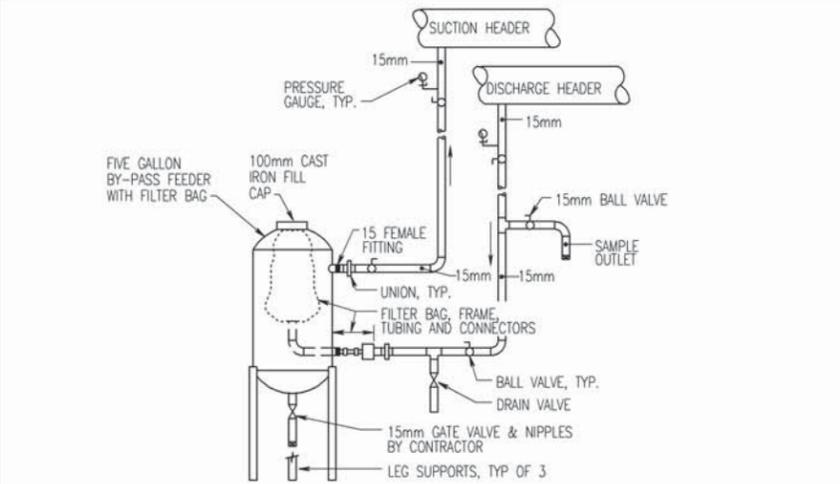
RECORD DRAWING LETTER DATED 29/12/05



NOTES:
 1. SUCTION DIFFUSER MAY BE REPLACED WITH MINIMUM 5 PIPE DIAMETERS OF UNOBSTRUCTED STRAIGHT PIPE LENGTH AND IN-LINE STRAINER.

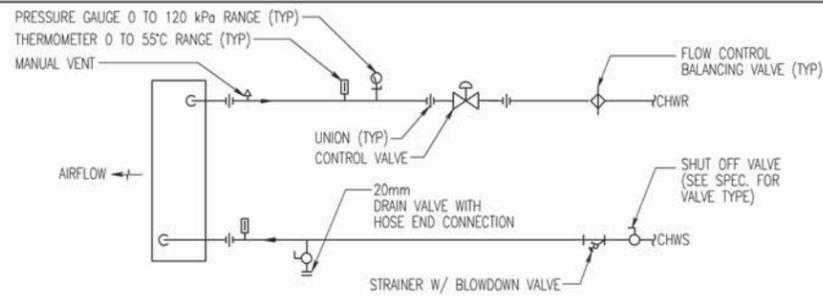


NOTES:
 1. RELIEF VENT SHALL BE ROUTED TO THE OUTSIDE AND TERMINATED WITH A GOOSENECK. RELIEF PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH ASHRAE 15-1994.



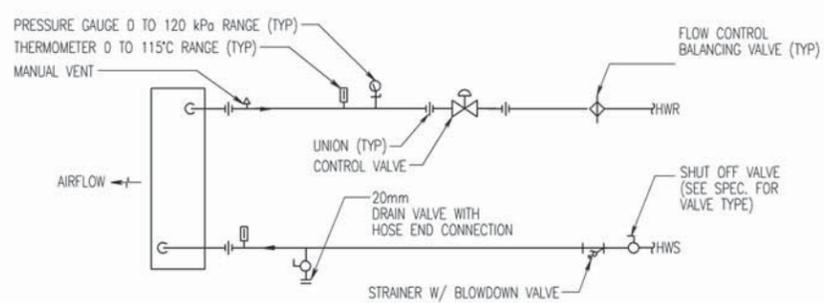
RECORD DRAWING LETTER DATED 29/12/05

DATE	
DESCRIPTION	
REV	
WR&A	
WHITMAN, REINHART AND ASSOCIATES, LLP 1001 F STREET, BALTIMORE, MARYLAND 410 • 235 • 3450	
COMMONWEALTH OF VIRGINIA	
CHARLES R. LORTZ No. 013864 8/13/02	
PROFESSIONAL ENGINEER	
APPROVED	
ACTIVITY - SATISFACTION TO	
DATE	
APPROVED	
FOR USE FOR COMMANDER WORK	
DATE	
DATE	
A/E	
SFP	DESIGN
PEJ	DRAMA
GFJ	REVIEW
CAH	QC
JOA	CHIEF MGR/ENR.
PROJECT MANAGER	
FIRE PROTECTION	DPS
BRANCH MANAGER	DPS
DESIGN DIRECTOR	FPB, Jr.
NAVAL FACILITIES ENGINEERING COMMAND	
ATLANTIC DIVISION	
NAVAL STATION	
NAVAL STATION, NORFOLK, VIRGINIA	
MECHANICAL DETAILS	
CODE ID NO. 899H	SIZE: D
SCALE:	NONE
STD. NO.	
SIN. PROJ. NO.	P-280
SPEC. NO.	05-01-1117
CONTRACTOR NO.	N62470-01-B-1117
NAVFAC DRAWING NO.	4472282
SHEET	445 OF 634
M-502	
m:\80979\01117M502RD.dgn Mon Jan 29 16:33:01 2007	



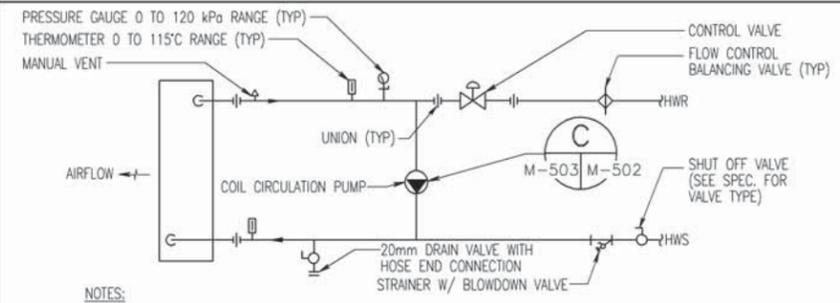
- NOTES:
- FOR MULTIPLE COIL UNITS, PROVIDE A SHUT OFF VALVE AND TEST PORT IN EACH SUPPLY CONNECTION, AND A BALANCING VALVE AND TEST PORT ON EACH RETURN CONNECTION.
 - PROVIDE MANUFACTURER'S RECOMMENDED LENGTH OF STRAIGHT PIPE BEFORE AND AFTER CONTROL VALVE.
 - ARRANGE PIPING TO PERMIT REMOVAL OF COIL.
 - PROVIDE MANUFACTURER'S RECOMMENDED LENGTH OF STRAIGHT UNOBSTRUCTED PIPE BEFORE AND AFTER FLOW CONTROL BALANCING VALVE.

COOLING COIL PIPING DETAIL (A)
NOT TO SCALE
M-501 M-503
M-502



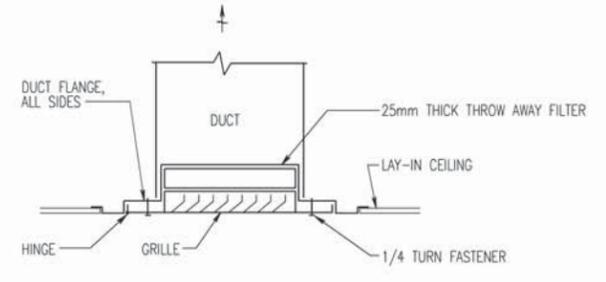
- NOTES:
- FOR MULTIPLE COIL UNITS, PROVIDE A SHUT OFF VALVE AND TEST PORT IN EACH SUPPLY CONNECTION, AND A BALANCING VALVE AND TEST PORT ON EACH RETURN CONNECTION.
 - PROVIDE MANUFACTURER'S RECOMMENDED LENGTH OF STRAIGHT PIPE BEFORE AND AFTER CONTROL VALVE.
 - ARRANGE PIPING TO PERMIT REMOVAL OF COIL.
 - PROVIDE MANUFACTURER'S RECOMMENDED LENGTH OF STRAIGHT UNOBSTRUCTED PIPE BEFORE AND AFTER FLOW CONTROL BALANCING VALVE.

HEATING COIL PIPING DETAIL (B)
NOT TO SCALE
M-501 M-503



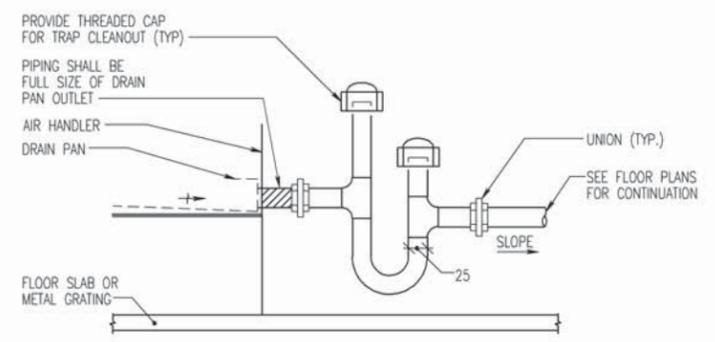
- NOTES:
- FOR MULTIPLE COIL UNITS, PROVIDE A SHUT OFF VALVE AND TEST PORT IN EACH SUPPLY CONNECTION, AND A BALANCING VALVE AND TEST PORT ON EACH RETURN CONNECTION.
 - SIZE PUMP FOR 50% COIL GPM.
 - PROVIDE MANUFACTURER'S RECOMMENDED LENGTH OF STRAIGHT PIPE BEFORE AND AFTER CONTROL VALVE.
 - ARRANGE PIPING TO PERMIT REMOVAL OF COIL.
 - PROVIDE MANUFACTURER'S RECOMMENDED LENGTH OF STRAIGHT UNOBSTRUCTED PIPE BEFORE AND AFTER FLOW CONTROL BALANCING VALVE.

PRE-HEATING COIL PIPING DETAIL (C)
NOT TO SCALE
M-501 M-503

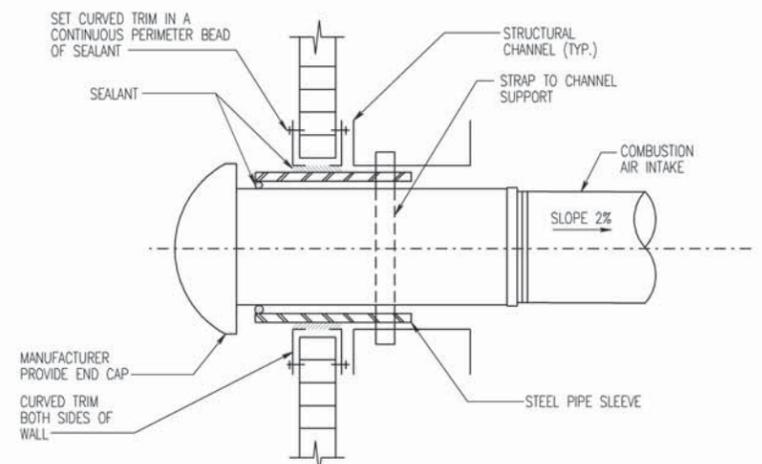


NOTE:
1. LAY-IN BORDER SHOWN, BORDER TYPE SHALL MATCH CEILING WHERE INSTALLED.

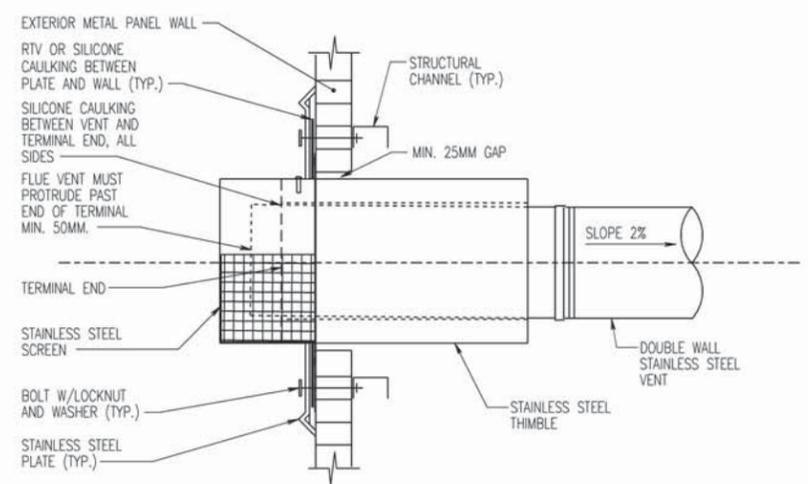
FILTER GRILLE DUCT CONNECTION DETAIL (D)
NOT TO SCALE
M-113 M-503
M-114 THRU M-122, M-305



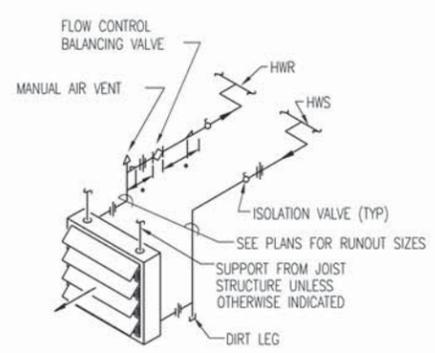
DRAW-THRU UNIT A/C CONDENSATE TRAP (E)
NOT TO SCALE
M-501 M-503
M-502



COMBUSTION AIR INTAKE DETAIL (F)
NOT TO SCALE
M-401 M-503
M-307



BOILER HORIZONTAL FLUE VENT DETAIL (G)
NOT TO SCALE
M-112 M-503
M-307

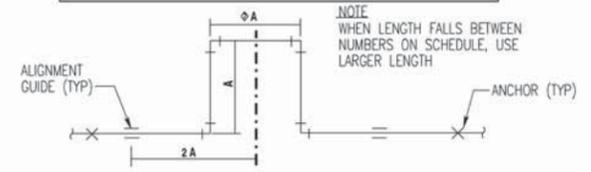


• THE FLOW CONTROL BALANCING VALVES SHALL BE INSTALLED BY THE CONTRACTOR IN CONFORMANCE WITH VALVE MFGR'S RECOMMENDED SPACING UP/DOWNSTREAM FROM PIPE CHANGES IN DIRECTION AND/OR OTHER VALVES/COMPONENTS IN THE PIPING.

HOT WATER UNIT HEATER PIPING DETAIL (H)
NOT TO SCALE
M-402 M-503
M-124, M-302, M-309, M-403

RECORD DRAWING
LETTER DATED
29/12/05

LENGTH BETWEEN ANCHORS IN METERS	PIPE SIZES									
	20	25	32	40	50	65	80	100	150	200
15.25	915	1220	1220	1525	1525	1525	1525	1830	2134	2438
30.50	1220	1525	1525	1830	1830	1676	1830	2134	2591	3048
45.70	1525	1830	1981	2134	2286	2134	2286	2591	3048	3658
60.95	1830	1981	2286	2438	2591	2438	2591	3048	3658	4267



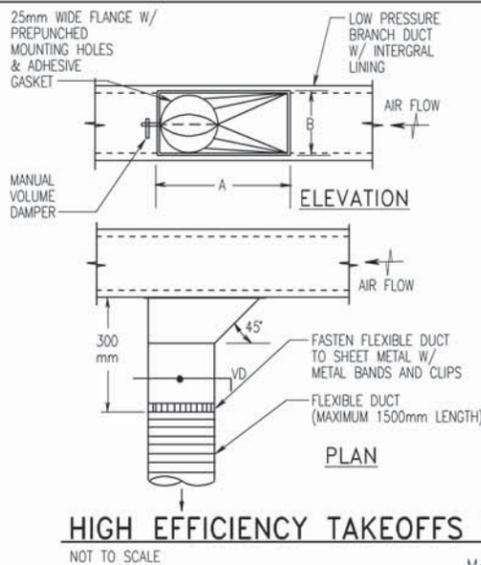
TYPICAL EXPANSION LOOP (I)
NOT TO SCALE
M-125 M-503
M-127, M-128, M-130, M-131, M-132

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NAVAL STATION
AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL DETAILS

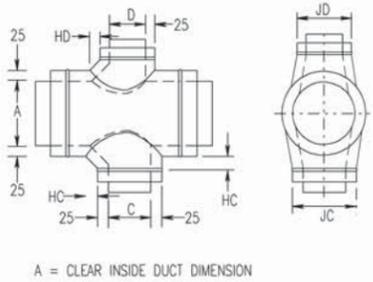
DATE: 9/18/02
DESIGNER: F. P. BOWEN
CHECKER: CAH
PROJECT MANAGER: JOA
DESIGN DIRECTOR: JOA

SCALE: NONE
SHEET NO: 446 OF 634
M-503



SCHEDULES		
NECK SIZE (mm)	DUCT OPENING A x B (mm)	MINIMUM BRANCH DUCT DEPTH (mm)
150	225x125	150
200	300x150	200
250	350x200	250
300	400x250	300

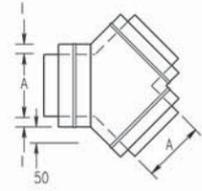
HIGH EFFICIENCY TAKEOFFS TO DIFFUSER (A)
NOT TO SCALE
M-103 THRU M-111 M-102 M-505
M-404, M-405, M-406



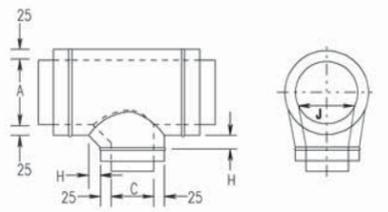
C OR D (mm)	HC OR HD (mm)
75-200	100
215-350	175
365-650	250
675 OR LARGER	325

FLAT OVAL LOW LOSS 90° CROSS (B)
NOT TO SCALE
M-105 M-505

RECORD DRAWING
LETTER DATED
29/12/05

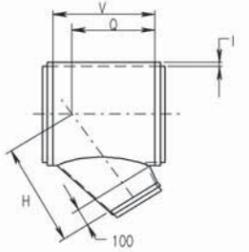


FLAT OVAL Y-BRANCH (C)
NOT TO SCALE
M-103 M-505
M-110

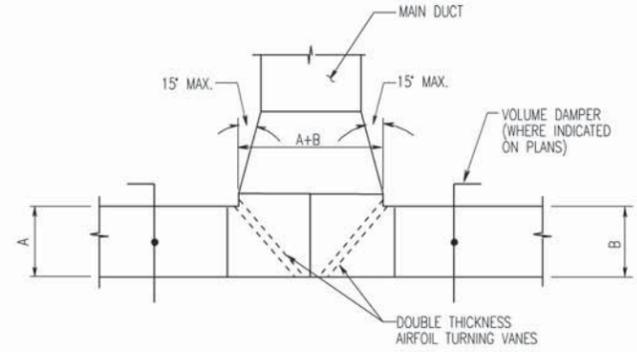


C OR D (mm)	HC OR HD (mm)
75-200	100
215-350	175
365-650	250
675 OR LARGER	325

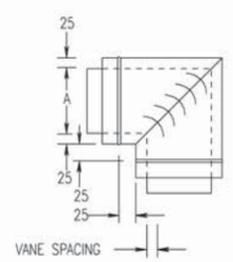
FLAT OVAL LOW LOSS TEE (D)
NOT TO SCALE
M-105 M-505
M-106 THRU M-111



FLAT OVAL CONICAL 45° LATERAL (E)
NOT TO SCALE
M-103 M-505
M-104 THRU M-110

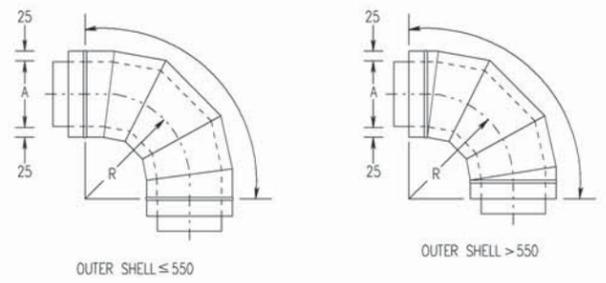


RECTANGULAR ELBOW DUCT TEE (F)
NOT TO SCALE
M-106 M-505
M-108, M-115, M-305, M-404

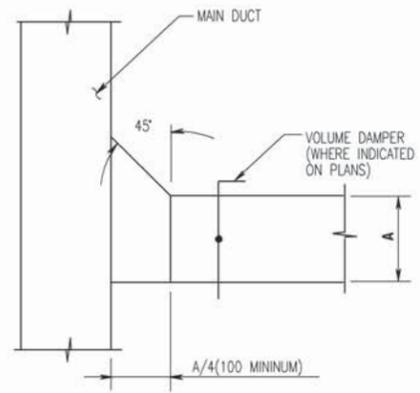


A (mm)	NUMBER OF VANES
75-240	2
250-365	3
375-475	4
500-1500	5
OVER 1500	300 MINIMUM SPACING

MITERED 90° ELBOW (G)
NOT TO SCALE
M-102 M-505
M-104 THRU M-122, M-304, M-305

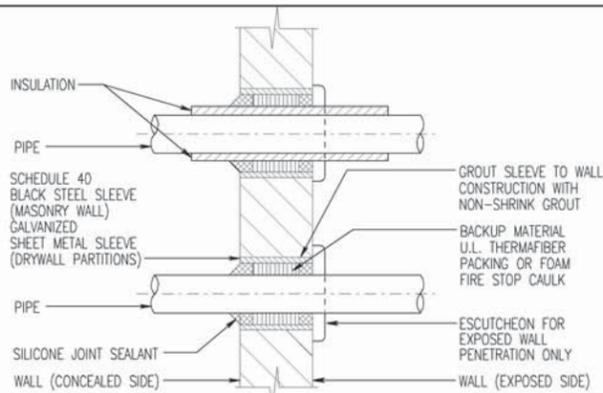


FLAT OVAL ELBOW (H)
NOT TO SCALE
M-103 M-505
M-104 THRU M-111, M-114 M-304, M-305



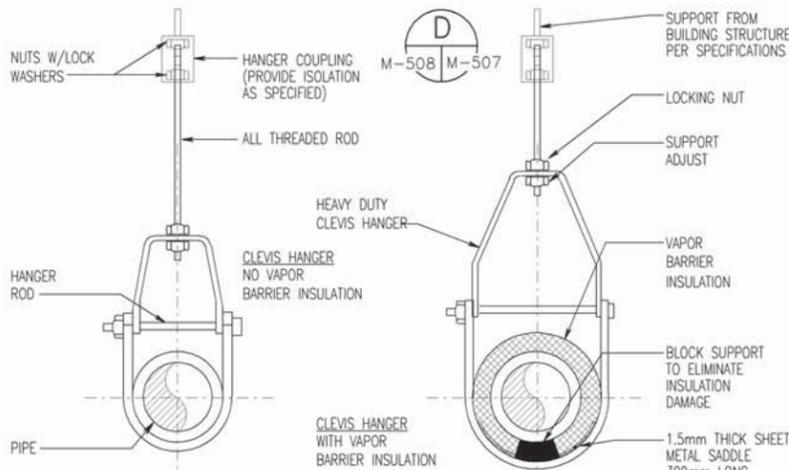
MINOR DUCT BRANCH (I)
NOT TO SCALE
M-101 M-505
M-102 THRU M-105, M-107 THRU M-109 M-113 THRU 122

DATE	
DESCRIPTION	
DN	
WR&A WHITMAN, REARDY AND ASSOCIATES, LLP 801 E. CAROLINE STREET BALTIMORE, MARYLAND 410 - 235 - 3450	
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	
F. P. BOWEN	
FOR USE FOR COMMONWEALTH	
9/18/02	
DATE	
A/E	DESIGN
SFP	DESIGN
PEJ	DRAWN
GEJ	REVIEW
CAH	OC
JOA	CHEF MECH ENGR.
PROJECT MANAGER	DPS
FIRE PROTECTION	DPS
BRANCH MANAGER	DPS
DESIGN DIRECTOR	FPR, Jr.
NAVAL FACILITIES ENGINEERING COMMAND	NORFOLK, VIRGINIA
ATLANTIC DIVISION	
DEPARTMENT OF THE NAVY	
NAVAL STATION	
AIDM CONSOLIDATION CHAMBERS FIELD NAVAL STATION, NORFOLK, VIRGINIA MECHANICAL DETAILS	
CODE ID NO. 889H	SIZE D
SCALE:	NONE
STD. NO.	
SIN. PROJ. NO.	P-280
SPEC. NO.	05-01-1117
CONTRACTOR NO.	
N62470-01-B-1117	
NAVFAC DRAWING NO.	
4472285	
SHEET 448 OF 634	
M-505	

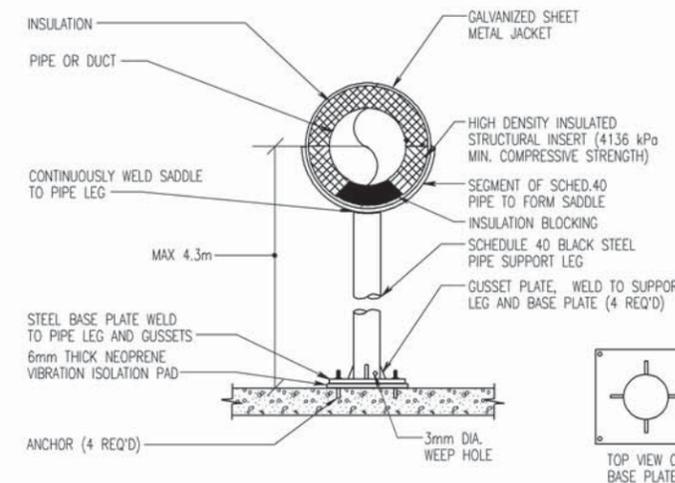


PIPE SLEEVE THRU WALL
NOT TO SCALE
M-302, M-306, M-403, M-104, M-124

NOTES:
1. AT THE CONTRACTORS' OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL.



TYPICAL PIPE HANGER SUPPORTS
NOT TO SCALE
M-125 THRU-M-133, M-302 THRU M-309

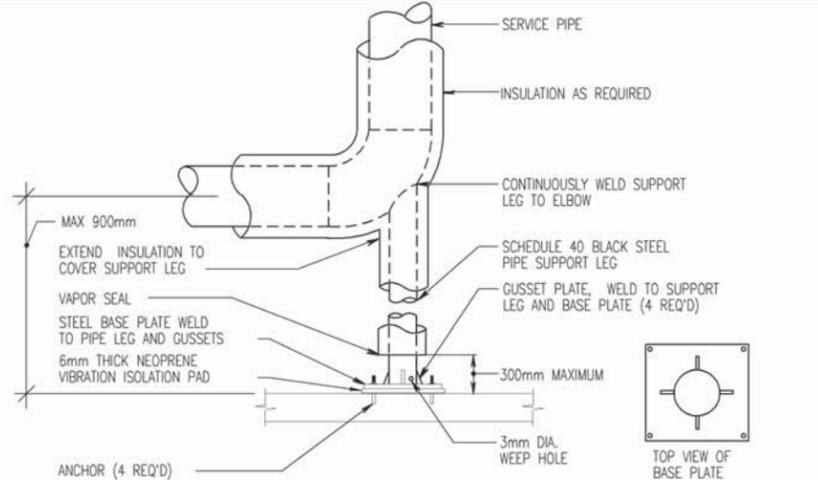


PIPE SIZE	RISER LEG SUPPORT	BASE PLATE	GUSSET	ANCHOR BOLTS
800 DIA.	300 DIA.	750x750x16	100x100x15	20 DIA. x 150 LG.
750 DIA.	300 DIA.	750x750x16	100x100x15	20 DIA. x 150 LG.
600 DIA.	250 DIA.	450x450x15	50x50x15	20 DIA. x 100 LG.
500 DIA.	250 DIA.	450x450x15	50x50x15	20 DIA. x 100 LG.
450 DIA.	250 DIA.	450x450x15	50x50x15	20 DIA. x 100 LG.
400 DIA.	250 DIA.	450x450x15	50x50x15	20 DIA. x 100 LG.
350 DIA.	250 DIA.	450x450x15	50x50x15	20 DIA. x 100 LG.
300 DIA.	200 DIA.	350x350x10	50x50x10	18 DIA. x 100 LG.
250 DIA.	200 DIA.	350x350x10	50x50x10	18 DIA. x 100 LG.
200 DIA.	100 DIA.	200x200x10	38x38x10	18 DIA. x 100 LG.
150 DIA.	100 DIA.	200x200x10	38x38x10	18 DIA. x 100 LG.
100 DIA.	50 DIA.	150x150x10	25x25x10	15 DIA. x 100 LG.

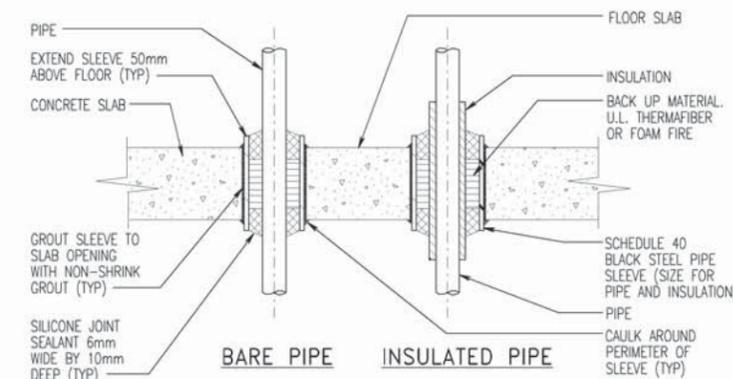
FOR NON-INSULATED PIPES OR INTERNALLY LINED DUCT, OUTSIDE PIPE/DUCT WALL SHALL REST DIRECTLY ON INNER WALL OF SADDLE.

REFER TO MECHANICAL PLANS AND SECTIONS FOR LOCATIONS OF SUPPORTS. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO COMPLY WITH MSS-58 AND MSS-69.

TYPICAL INSULATED PIPE OR DUCT SADDLE SUPPORT
NOT TO SCALE
M-302, M-303, M-306, M-307, M-309, M-402

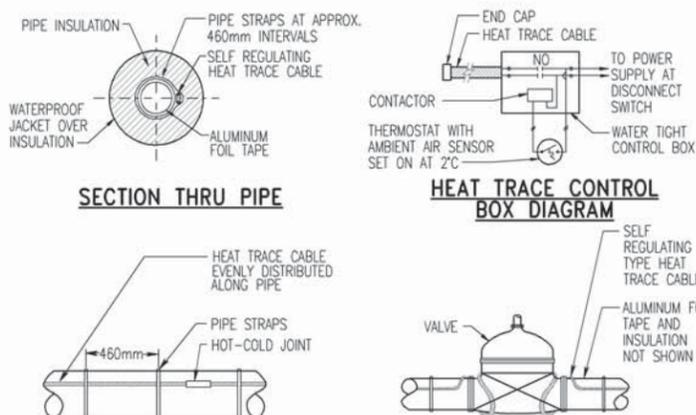


TYPICAL INSULATED PIPE RISER FLOOR SUPPORT
NOT TO SCALE
M-309, M-307, M-402

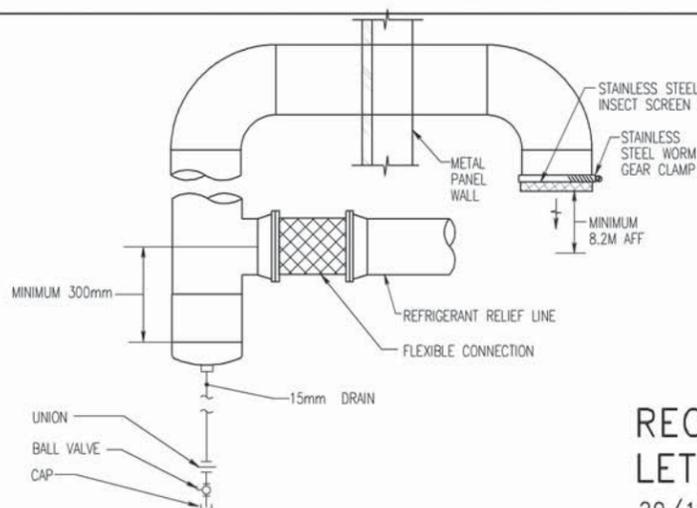


PIPE SLEEVE THRU FLOOR
NOT TO SCALE
M-123 M-508

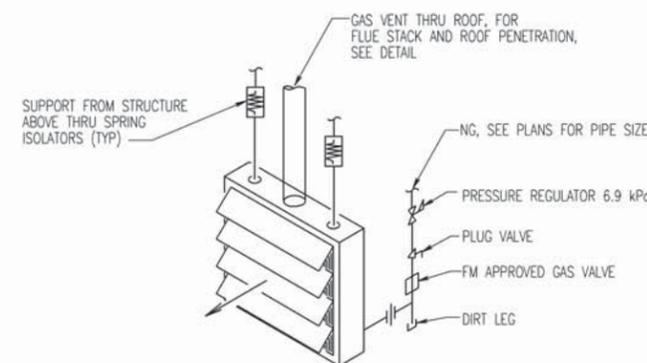
NOTES:
1. AT THE CONTRACTORS' OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL.



ELECTRIC HEAT TRACE
NOT TO SCALE
M-306 M-508



REFRIGERANT RELIEF VENT
NOT TO SCALE
M-402 M-508



GAS FIRED UNIT HEATER
NOT TO SCALE
P-701 M-508

RECORD DRAWING
LETTER DATED
29/12/05

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

NO.	DATE	DESCRIPTION

WR&A
WHITMAN, REARDY AND ASSOCIATES, LLP
100 E. CAROLING STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: _____
ACTIVITY - SATISFACTORY TO: _____
DATE: _____
APPROVED: F. P. BOWEN
FOR USE FOR COMMONWEALTH OF VIRGINIA
9/18/02
DATE: _____
A/E: SFP DESIGN
P/E: GEJ DRAWING
C/A: CAH REVISION
JCA: OC
JCA: CHIEF MECH. ENGR.
PROJECT MANAGER: _____
FIRE PROTECTION: _____
BRANCH MANAGER: _____
DESIGN DIRECTOR: _____

NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
NAVFAC DIVISION
NAVAL STATION
NAVFAC DIVISION
NAVAL STATION

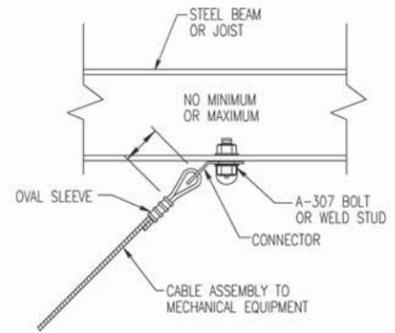
AIMD CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL DETAILS

CODE NO. 050911 SIZE: D
SCALE: NONE
DTP: NIL
SIN. PROJ. NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472288
SHEET 451 OF 634
M-508

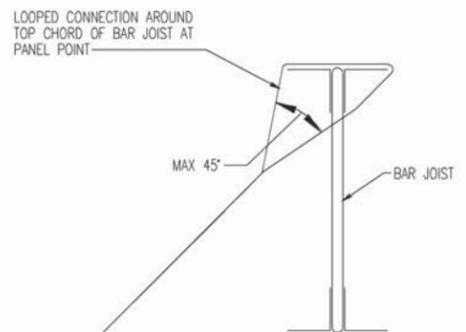
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Mon Jan 29 16:32:47 2007

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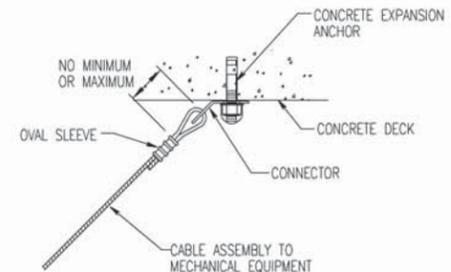
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ATFP CABLE BRACING ATTACHMENT TO STRUCTURE DETAIL
NOT TO SCALE

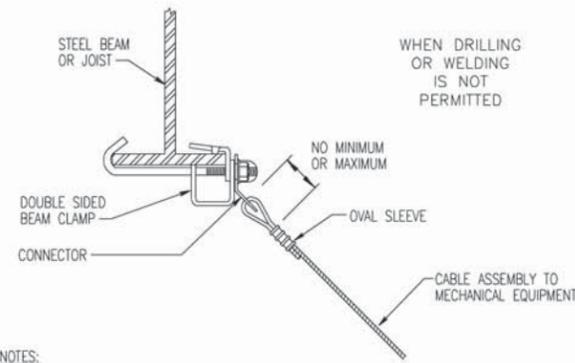


ATFP CABLE BRACING ATTACHMENT TO STRUCTURE DETAIL
NOT TO SCALE



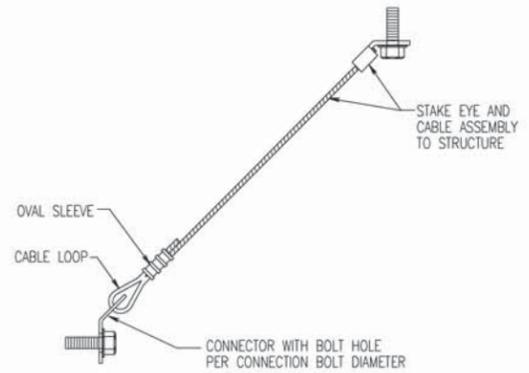
ATFP CABLE BRACING ATTACHMENT TO STRUCTURE DETAIL
NOT TO SCALE

C

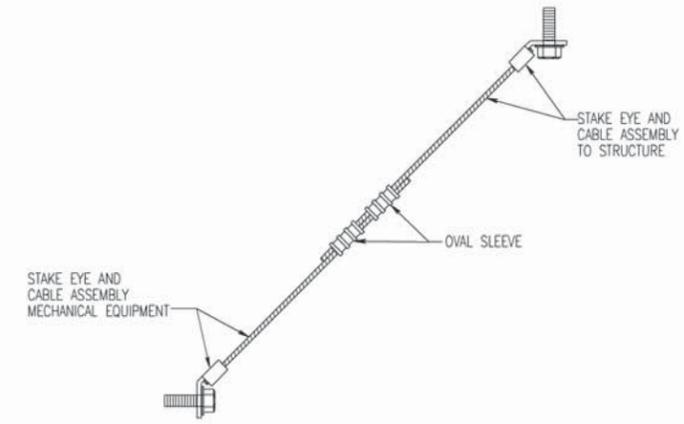


ATFP CABLE BRACING ATTACHMENT TO STRUCTURE DETAIL
NOT TO SCALE

NOTES:
1. DETAIL APPLIES ONLY WHEN DRILLING OR WELDING IS NOT FEASIBLE OR PERMITTED.

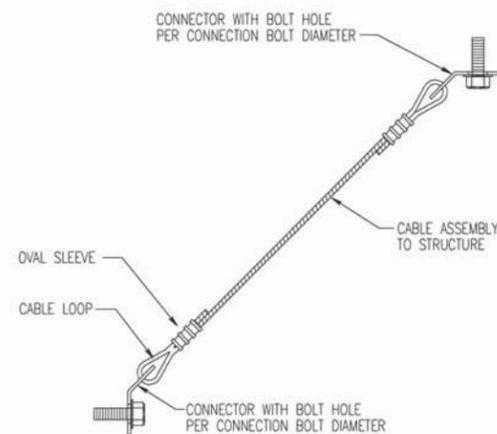


ATFP CABLE BRACING ASSEMBLY DETAIL
NOT TO SCALE

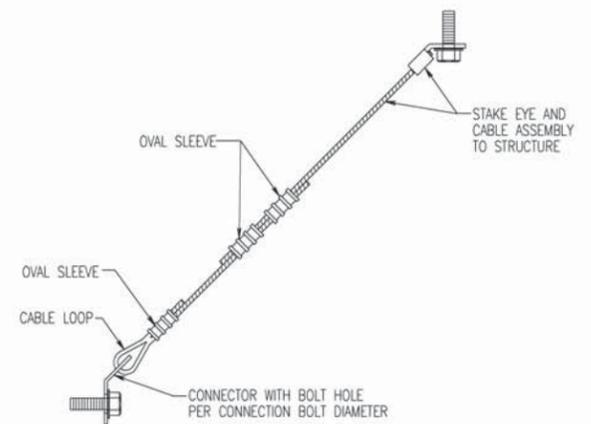


ATFP CABLE BRACING ASSEMBLY DETAIL
NOT TO SCALE

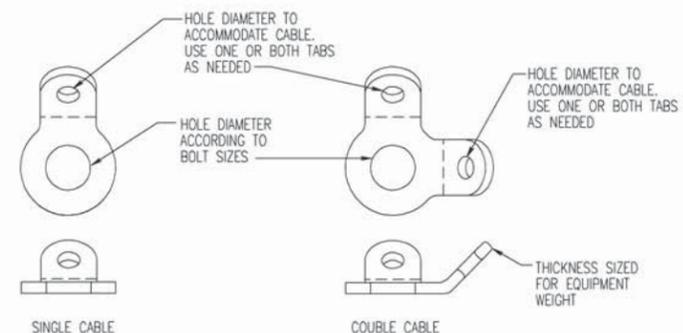
B



ATFP CABLE BRACING ASSEMBLY DETAIL
NOT TO SCALE



ATFP CABLE BRACING ASSEMBLY DETAIL
NOT TO SCALE



ATFP BRACING CONNECTOR DETAIL
NOT TO SCALE

RECORD DRAWING LETTER DATED
29/12/05

DATE	
DESCRIPTION	
DATE	
COMMONWEALTH OF VIRGINIA CHARLES R. LORTZ No. 013864 8/13/02 PROFESSIONAL ENGINEER	
APPROVED	
ACTIVITY - SATISFACTORY TO	
DATE	
APPROVED	
F. P. BOWEN FOR USE FOR COMMANDER NAFC 9/18/02	
DATE	
A/E	DESIGN
SFP	
JMR	DRAWN
GFJ	REVIEW
CAH	OC
JOA	CHEF ARCH/ENGR.
PROJECT MANAGER	DPS
FIRE PROTECTION	DPS
BRANCH MANAGER	DPS
DESIGN DIRECTOR	FPB, Jr.
ATLANTIC DIVISION	NORFOLK, VIRGINIA
NAVAL FACILITIES ENGINEERING COMMAND NAVAL STATION AIMD CONSOLIDATION CHAMBERS FIELD NAVAL STATION, NORFOLK, VIRGINIA MECHANICAL ATFP DETAILS	
DEPARTMENT OF THE NAVY	
CODE NO. 98991	SIZE 11
SCALE:	NONE
STD. NO.	
SIN. PROJ. NO.	P-280
SPEC. NO.	05-01-1117
CONTRACTOR NO.	N62470-01-B-1117
NAVFAC DRAWING NO.	4472291
SHEET	454 OF 634
M-511	

1 2 3 4 5

CHILLER SCHEDULE																						
UNIT ID.	TYPE	NOMINAL CAPACITY (KW)	EVAPORATOR						CONDENSER						ELECTRICAL DATA				PERFORMANCE DATA		REMARKS	
			PASSES	L/M	EWT °C	LWT °C	MAX. WPD (kPa)	FOULING FACTOR	PASSES	L/M	EWT °C	LWT °C	MAX. WPD (kPa)	FOULING FACTOR	MCA (AMPS)	FLA (AMPS)	MAX. BREAKER	V/PH	KW	KW/TON @ 100% LOAD		IPLV
CH-1	ROTARY SCREW	1054	2	2725	12	6.5	57.7	0.0001	2	3407	29.5	35	55	0.00025	324	257	450	480/3	182	0.607	0.473	
CH-2	ROTARY SCREW	1054	2	2725	12	6.5	57.7	0.0001	2	3407	29.5	35	55	0.00025	324	257	450	480/3	182	0.607	0.473	

COOLING TOWER SCHEDULE													
UNIT I.D.	NOMINAL CAPACITY (KW)	TYPE	AMBIENT WB (°C)	CONDENSER WATER				ELECTRICAL DATA					REMARKS
				EWT (°C)	LWT (°C)	L/M	Basin Heaters	KW (EACH)	NO. OF FANS	KW (EACH)	VOLTS/PH		
CT-1	1054	CROSS FLOW	25	35	30	3407	1	6	1	7	480/3	-	
CT-2	1054	CROSS FLOW	25	35	30	3407	1	6	1	7	480/3	-	

HYDRONIC GAS FIRED BOILER SCHEDULE											
UNIT I.D.	SERVICE	GAS INPUT (ML/S)	CAPACITY OUTPUT (KW)	EWT (°C)	LWT (°C)	L/M	MAX. WPD (kPa)	ELECTRICAL		FULL LOAD THERMAL EFFICIENCY (%)	REMARKS
								VOLTS/PH	FLA		
B-1	HOT WATER SYSTEM	13925	446	71	82	576	29.9	208/3	15	86	
B-2	HOT WATER SYSTEM	13925	446	71	82	576	29.9	208/3	15	86	
B-3	HOT WATER SYSTEM	13925	446	71	82	576	29.9	208/3	15	86	

HYDRONIC UNIT HEATER SCHEDULE														
UNIT I.D.	TYPE	LOCATION	HEATING CAPACITY (KW)	EWT (°C)	LWT (°C)	L/M	MAX. WPD (kPa)	L/S	EAT (°C)	LAT (°C)	MOTOR KW	MOTOR RPM	ELECTRICAL VOLT/PH	REMARKS
UH-2	HYDRONIC	COVERED PAD	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-3	HYDRONIC	COVERED PAD	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-4	HYDRONIC	COVERED PAD	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-5	HYDRONIC	BOILER ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-6	HYDRONIC	CHILLER ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-7	HYDRONIC	CHILLER ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-8	HYDRONIC	CHILLER ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-9	HYDRONIC	CHILLER ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-10	HYDRONIC	BOILER ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-11	HYDRONIC	FIRE PUMP ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-12	HYDRONIC	FIRE PUMP ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF
UH-13	HYDRONIC	COMPRESSOR ROOM	5.6	71	82	8	3.3	200	15.5	40	.45	1550	120/1	MOUNT AT 3M AFF

GAS-FIRED UNIT HEATER SCHEDULE											
UNIT I.D.	LOCATION	HEATING CAPACITY (KW)	INPUT (ML/S)	OUTPUT (ML/S)	AIRFLOW			ELECTRICAL		MOUNTING HT. (METERS)	REMARKS
					L/S	EAT (°C)	LAT (°C)	KW	VOLT/PH		
UH-14	TIRE STORAGE BUILDING	5.6	196.7	157.7	190	15.5	42.7	.015	120/1	2.4	
UH-15	TIRE STORAGE BUILDING	5.6	196.7	157.7	190	15.5	42.7	.015	120/1	2.4	

PUMP SCHEDULE										
UNIT ID	SERVICE	TYPE	CAPACITY			ELECTRICAL				REMARKS
			L/M	HEAD (kPa)	EFF. (%)	KW	RPM	V/PH	NEMA STARTER	
CHWP-1	PRIMARY CHILLED WATER SYSTEM	BASE MOUNTED END SUCTION	2726	148	82	11.2	1150	480/3	1	
CHWP-2	PRIMARY CHILLED WATER SYSTEM	BASE MOUNTED END SUCTION	2726	148	82	11.2	1150	480/3	1	
CHWP-3	PRIMARY CHILLED WATER SYSTEM	BASE MOUNTED END SUCTION	2726	148	82	11.2	1150	480/3	1	
SCHP-1	SECONDARY CHILLED WATER SYSTEM	BASE MOUNTED END SUCTION	5452	230	84	30	1150	480/3	VFD	
SCHP-2	SECONDARY CHILLED WATER SYSTEM	BASE MOUNTED END SUCTION	5452	230	84	30	1150	480/3	VFD	
CWP-1	CONDENSER WATER SYSTEM	BASE MOUNTED END SUCTION	3407	127	80	11.2	1750	480/3	1	
CWP-2	CONDENSER WATER SYSTEM	BASE MOUNTED END SUCTION	3407	127	80	11.2	1750	480/3	1	
CWP-3	CONDENSER WATER SYSTEM	BASE MOUNTED END SUCTION	3407	127	80	11.2	1750	480/3	1	
HWP-1	HEATING WATER SYSTEM	BASE MOUNTED END SUCTION	1537	248	76	11.2	1750	480/3	VFD	
HWP-2	HEATING WATER SYSTEM	BASE MOUNTED END SUCTION	1537	248	76	11.2	1750	480/3	VFD	
HWCP-1	AHU-1 PREHEAT COIL	INLINE	27	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-2	AHU-2 PREHEAT COIL	INLINE	27	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-3	AHU-3 PREHEAT COIL	INLINE	99	29.9	-	.12	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-4	AHU-4 PREHEAT COIL	INLINE	99	29.9	-	.12	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-5	AHU-5 PREHEAT COIL	INLINE	14	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-6	AHU-6 PREHEAT COIL	INLINE	6	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-7	AHU-7 PREHEAT COIL	INLINE	2	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-8	AHU-8 PREHEAT COIL	INLINE	15	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-9	AHU-9 PREHEAT COIL	INLINE	52	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-10	AHU-10 PREHEAT COIL	INLINE	12	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-11	AHU-11 PREHEAT COIL	INLINE	14	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-12	AHU-12 PREHEAT COIL	INLINE	6	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-13	AHU-13 PREHEAT COIL	INLINE	15	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-14	AHU-14 PREHEAT COIL	INLINE	23	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-15	AHU-15 PREHEAT COIL	INLINE	2	29.9	-	.06	2650	120/1	0	FOR FREEZE PROTECTION AND LAMINAR FLOW CONDITIONS
HWCP-23	AHU-23 PREHEAT COIL	INLINE	-	-	-	-	-	-	-	

EXPANSION TANK SCHEDULE						
UNIT I.D.	SERVICE	TYPE	ACCEPTANCE VOLUME (L)	PRESSURE		REMARKS
				PRECHARGE (kPa)	MAX OPER. (kPa)	
ET-1	CHILLED WATER	BLADDER	201	103	690	
ET-2	HEATING WATER	BLADDER	1022	103	690	

GAS FIRED DUCT FURNACE SCHEDULE								
UNIT I.D.	LOCATION	INPUT (ML/S)	CAPACITY (KW)	EAT (°C)	LAT (°C)	MAX APD (Pa)	ELECTRICAL VOLTS/PH	REMARKS

RECORD DRAWING
LETTER DATED
29/12/05

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, REINHART AND ASSOCIATES, LLP
101 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: F. P. BOWEN
DATE: 9/18/02

PROJECT MANAGER: SFP
DESIGN: JMR
DRAWN: GEJ
REVIEW: CAH
CHECK: JOA

PROJECT MANAGER: SFP
DESIGN: JMR
DRAWN: GEJ
REVIEW: CAH
CHECK: JOA

ATLANTIC DIVISION
NAVAL CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA

MECHANICAL SCHEDULES

CODE NO. 000001 SIZE: D
SCALE: NONE
SHEET NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472294
SHEET 457 OF 634
M-602

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Mon Jan 29 16:32:31 2007

FAN POWERED VAV BOX SCHEDULE

UNIT ID.	AREA SERVED	BOX INLET DIA. (MM)	FAN SECTION		ESP (Pa)	REHEAT COIL CAPACITY (KW)	HEATING COIL						ELEC. DATA		REMARKS	
			MAX. AIRFLOW (L/S)	MIN. SA VOLUME (CFM)			EAT (°C)	LAT (°C)	MAX APD (Pa)	EWT (°C)	LWT (°C)	L/M	MAX WPD (kPa)	FLA		VOLT/Ph
FPB-1.01	210 - BREAK/CLASS; 201 - CORR	200	310	124	99.5	3.37	17.1	26.6	24.8	82.2	71.1	4.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.02	211 - ADMIN.; 212 - DIV. OFFICER; 214 - LCPO; 202 - CORR	200	300	120	99.5	3.26	17.1	26.6	24.8	82.2	71.1	4.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.03	216 - ADMIN.; 217 - LCPO; 218 - DIV. OFFICER; 215 - AIMD STOR.; 203 - CORR	250	400	160	99.5	4.35	17.1	26.6	24.8	82.2	71.1	5.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.04	220 - MEN'S TOILET; 221 - WOMEN TOILET; 224 - DATA/COM; 222 - STORAGE; 201 - CORR; 225 - LCPO 226 - DIV OFFICER; 233 - ADMIN	200	520	208	99.5	5.66	17.1	26.6	24.8	82.2	71.1	7.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.05	223 - QUALITY ASSURANCE	250	460	184	99.5	5.0	17.1	26.6	24.8	82.2	71.1	6.4	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.06	227 - TECH LIBRARY; 232 - GOAT LOCKER; 204 - CORRIDOR	200	287	115	99.5	3.13	17.1	26.6	24.8	82.2	71.1	4.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.07	228 - QAO; 229 - QAS; 231 - COPY/FAX	200	322	129	99.5	3.5	17.1	26.6	24.8	82.2	71.1	4.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.08	2234 - SRS SUPERV; 235 - REPAIR MANG; 236 - CCS SUPERV; 201 - CORRIDOR	200	335	134	99.5	3.64	17.1	26.6	24.8	82.2	71.1	4.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.09	240 - OPEN OFFICE	200	400	160	99.5	4.35	17.1	26.6	24.8	82.2	71.1	5.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.10	240 - OPEN OFFICE; 201 - CORRIDOR	250	700	280	99.5	7.61	17.1	26.6	24.8	82.2	71.1	9.8	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.11	240 - OPEN OFFICE; 201 - CORRIDOR	250	500	200	99.5	5.4	17.1	26.6	24.8	82.2	71.1	7.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.12	240 - OPEN OFFICE	250	400	160	99.5	4.35	17.1	26.6	24.8	82.2	71.1	5.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.13	245 - ASD/RSD LCPO; 246 - ASD OFFICER	250	522	209	99.5	5.68	17.1	26.6	24.8	82.2	71.1	7.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-1.14	SUPPLY OFFICE	150	200	80	99.5	2.2	17.1	26.6	24.8	82.2	71.1	2.8	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.01	241 - LCPO; 242 - DIV. OFFICER; 243 - DIV. OFFICER; 244 - 600/700 ADMIN.; 205 - CORR	250	392	157	99.5	4.27	17.1	26.6	24.8	82.2	71.1	5.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.02	247 - REAR PROJ./CONF.; 248 - COPY/FAX; 258 - MANPOWER; 259 - FIRST LEUT; 252 - CONF.; 206 - CORR	200	325	130	99.5	3.54	17.1	26.6	24.8	82.2	71.1	4.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.03	257 - CONF.	200	230	92	99.5	2.5	17.1	26.6	24.8	82.2	71.1	3.6	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.04	269 - CONF.	250	450	180	99.5	4.5	17.1	26.6	24.8	82.2	71.1	7.8	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.05	271 - ELEV. LOBBY; QUARTER DECK 2nd FLR.	250	500	200	99.5	5.4	17.1	26.6	24.8	82.2	71.1	7.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.06	255 - KITCHENETTE; 207 - CORR; 261 - AIMD STOR.; 209 - CORR	150	190	76	99.5	2.1	17.1	26.6	24.8	82.2	71.1	2.6	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.07	270 - MAINT. ADMIN.	300	680	272	99.5	7.4	17.1	26.6	24.8	82.2	71.1	9.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.08	266 - 010 MO; 267 - CONF; 268 - 01A AHO	250	415	166	99.5	4.5	17.1	26.6	24.8	82.2	71.1	5.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.09	263 - CONF.; 264 - LCPO; 265 - HR/CAR LOAN	200	335	134	99.5	3.6	17.1	26.6	24.8	82.2	71.1	4.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-2.10	250 - NALCOMIS; 251 - DATA/COM; 253 - WOMANS TOILET; 254 - MENS TOILET; 208 - CORRIDOR	250	520	208	99.5	5.7	17.1	26.6	24.8	82.2	71.1	7.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.01	NOT USED															
FPB-5.02	112 - TEST BENCH	250	320	128	99.5	3.48	17.1	26.6	24.8	82.2	71.1	4.5	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.03	112 - TEST BENCH	300	640	256	99.5	6.96	17.1	26.6	24.8	82.2	71.1	9.1	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.04	110 - TELE/COM; 109 - OFFICE	250	275	110	99.5	3.0	17.1	26.6	24.8	82.2	71.1	3.8	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.05	NOT USED															
FPB-5.06	099 - 530 OFFICE; 107 PRE-X	200	350	140	99.5	3.81	17.1	26.6	24.8	82.2	71.1	4.9	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.07	106 - MAG PART LAB	250	400	160	99.5	4.35	17.1	26.6	24.8	82.2	71.1	5.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
VAV-5.08	115 - 51a SHOP ; 091 CORRIDOR	600x400	2775	1125	99.5	30.6	17.1	26.6	24.8	82.2	71.1	39.4	17.9	3.4	208/120/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
VAV-5.09	115 - 51a SHOP	600x400	2870	1148	36.2	30.3	17.1	26.6	24.8	82.2	71.1	41.7	17.9	3.4	208/120/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.10	092 - 51d OFFICE; 093 - 51a OFFICE; 096 - 51e OFFICE	150	200	70	99.5	1.63	17.1	26.6	24.8	82.2	71.1	2.3	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-5.11	51A IMRL	150	200	80	99.5	2.42	17.1	26.6	24.8	82.2	71.1	3.8	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE

RECORD DRAWING
LETTER DATED 29/12/05

GENERAL REVISIONS

NO.	DATE	DESCRIPTION

REVISIONS BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, REARDY AND ASSOCIATES, LLP
101 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: _____
DATE: _____
ACTIVITY - SATISFACTORY TO: _____
DATE: _____
FOR USE FOR COMMANDER WORK: 9/18/02
DATE: _____

FILE: SFP DESIGN: EFD
JMR DRAWN: _____
GFJ REVIEW: DPS
CAH OC: _____
JOA CHIEF MECH ENGR.

PROJECT MANAGER: _____
FIRE PROTECTION: _____
BRANCH MANAGER: _____
DESIGN DIRECTOR: _____

NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL SCHEDULES

CODE NO. 98991 SIZE: D
SCALE: NONE
STD. NO.: _____
SUN. PROJ. NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: _____
NAVFAC DRAWING NO.: 4472295
SHEET 458 OF 634
M-603

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Mon Jan 29 16:32:26 2007

FAN POWERED VAV BOX SCHEDULE

UNIT ID.	AREA SERVED	BOX INLET DIA. (MM)	FAN SECTION MAX. AIRFLOW/MIN. AIRFLOW				HEATING COIL							ELEC. DATA		REMARKS
			SA VOLUME (L/S)	PRIMARY AIR VOLUME (CFM)	ESP (Pa)	REHEAT COIL CAPACITY (KW)	EAT (°C)	LAT (°C)	MAX APD (Pa)	EWI (°C)	LWT (°C)	L/M	MAX WPD (KPa)	FLA	VOLT/Ph	
FPB-10.11	015 - IMRL MANAGER	250	480	192	99.5	6.74	17.1	29.4	24.8	82.2	71.1	8.7	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-10.12	014 - CALIBRATION STOR.	200	280	112	99.5	3.93	17.1	29.4	24.8	82.2	71.1	4.9	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.01	048 - COM NAV SHOP	300	680	272	99.5	7.4	17.1	26.6	24.8	82.2	71.1	9.5	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.02	048 - COM NAV SHOP	300	680	272	99.5	7.4	17.1	26.6	24.8	82.2	71.1	9.5	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.03	048 - COM NAV SHOP	300	680	272	99.5	7.4	17.1	26.6	24.8	82.2	71.1	9.5	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.04	046 - TPS STORAGE	200	210	84	99.5	2.28	17.1	26.6	24.8	82.2	71.1	3.0	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.05	047 - COM NAV SHOP; 045 - TPS STORAGE	200	235	94	99.5	2.56	17.1	26.6	24.8	82.2	71.1	3.4	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.06	038 - CORRIDOR; 044 - RADCOM	350	770	308	99.5	8.38	17.1	26.6	24.8	82.2	71.1	11.0	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.07	044 - RADCOM	350	837	335	99.5	9.11	17.1	26.6	24.8	82.2	71.1	11.7	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-11.08	008 - TRAINING	250	530	212	99.5	5.77	17.1	26.6	24.8	82.2	71.1	7.6	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.01	003 - GUARD OFFICE; 004 - ELEV. LOBBY	200	350	140	99.5	4.69	17.1	28.9	24.8	82.2	71.1	6.1	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.02	001 - QUARTER DECK	200	300	140	99.5	4.02	17.1	28.9	24.8	82.2	71.1	5.3	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.03	007 - ELECTRIC SHOP	300	560	224	99.5	6.09	17.1	26.6	24.8	82.2	71.1	7.9	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.04	007 - ELECTRIC SHOP	300	560	224	99.5	6.09	17.1	26.6	24.8	82.2	71.1	7.9	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.05	039 - INERT NAV SHOP	300	590	236	99.5	6.42	17.1	26.6	24.8	82.2	71.1	8.3	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.06	039 - INERT NAV SHOP	200	295	118	99.5	3.21	17.1	26.6	24.8	82.2	71.1	4.2	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.07	008 - BRANCH OFFICE	200	210	84	99.5	2.28	17.1	26.6	24.8	82.2	71.1	3.0	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.08	011 - ARMAMENT; 010 - OFFICE	300	605	242	99.5	6.58	17.1	26.6	24.8	82.2	71.1	8.3	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-12.09	009 - SUPPLY OFFICE; 011 - ARMAMENT	350	760	304	99.5	8.27	17.1	26.6	24.8	82.2	71.1	10.6	17.9	6.6	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-15.01	125 - AVIATION TOOL; 127 - PRE-X; 129 - TOOL CONTROL	250	417	167	99.5	4.54	17.1	26.6	24.8	82.2	71.1	6.1	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE
FPB-15.02	126 - CPO OFFICE; 128 - CAREER COUNSEL	200	232	93	99.5	2.53	17.1	26.6	24.8	82.2	71.1	3.4	17.9	3.4	277/1	PROVIDE CONTROL PANEL AND COIL CONNECTION ON SAME SIDE

RECORD DRAWING
LETTER DATED
29/12/05

LOUVERED HOOD SCHEDULE

UNIT I.D.	SERVICE	TYPE	VOLUME (L/S)	MAX. PRESSURE (Pa)	LOUVER HEIGHT (mm)	HOOD SIZE		THROAT SIZE		REMARKS
						W (mm)	L (mm)	W (mm)	L (mm)	
IH-1	AHU-1	INTAKE	1387.5	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-2	AHU-2	INTAKE	1095	24.8	300	950	950	600	600	PROVIDE BIRDSCREEN
IH-3	NOT USED									
IH-4	NOT USED									
IH-5	AHU-5	INTAKE	1125	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-6	AHU-6	INTAKE	675	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-7	AHU-7	INTAKE	220	24.8	300	650	650	300	300	PROVIDE BIRDSCREEN
IH-8	AHU-8	INTAKE	732.5	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-9	AHU-9	INTAKE	827.5	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-10	AHU-10	INTAKE	692.5	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-11	AHU-11	INTAKE	800	24.8	400	950	950	600	600	PROVIDE BIRDSCREEN
IH-12	AHU-12	INTAKE	525	24.8	300	950	950	600	600	PROVIDE BIRDSCREEN

LOUVERED HOOD SCHEDULE

UNIT I.D.	SERVICE	TYPE	VOLUME (L/S)	MAX. PRESSURE (Pa)	LOUVER HEIGHT (mm)	HOOD SIZE		THROAT SIZE		REMARKS
						W (mm)	L (mm)	W (mm)	L (mm)	
IH-13	AHU-13	INTAKE	110	24.8	300	650	650	300	300	PROVIDE BIRDSCREEN
IH-14	AHU-14	INTAKE	75	24.8	300	650	650	300	300	PROVIDE BIRDSCREEN
IH-15	AHU-15	INTAKE	100	24.8	300	650	650	300	300	PROVIDE BIRDSCREEN
RH-1	EF-1	EXHAUST	850	24.8	300	800	800	450	450	PROVIDE BIRDSCREEN
RH-2	EF-7	EXHAUST	100	24.8	300	600	600	250	250	PROVIDE BIRDSCREEN
RH-3	EF-3	EXHAUST	425	24.8	300	700	700	350	350	PROVIDE BIRDSCREEN
RH-4	EF-4	EXHAUST	100	24.8	300	600	600	250	250	PROVIDE BIRDSCREEN
RH-5	EF-5	EXHAUST	75	24.8	300	600	600	250	250	PROVIDE BIRDSCREEN
RH-6	EF-16	EXHAUST	280	24.8	300	600	600	250	250	PROVIDE BIRDSCREEN
RH-7	EF-17	EXHAUST	280	24.8	300	600	600	250	250	PROVIDE BIRDSCREEN
RH-8	EF-18	EXHAUST	25	24.8	300	600	600	250	250	PROVIDE BIRDSCREEN

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, REINHART AND ASSOCIATES, LLP
101 E. CAROLINE STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: _____
ACTIVITY - SATISFACTORY TO: _____
DATE: _____
APPROVED: F. P. BOWEN
FOR USE FOR COMMANDER WAFAC
9/18/02
DATE: _____

A/E: SFP DESIGN: JFD
JMR DRAWN: JFD
G.F.J. REVIEW: DPS
CAH OC
JOA CHIEF MECH ENGR.

PROJECT MANAGER: _____
FIRE PROTECTION: _____
BRANCH MANAGER: _____
DESIGN DIRECTOR: _____

NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL SCHEDULES

CODE ID: NO. 89991 SIZE: 1/8
SCALE: NONE
DTP: NO.
SUN. PROJ. NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACTOR NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472297
SHEET 460 OF 634
M-605

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Mon Jan 29 16:32:21 2007

FAN SCHEDULE												
UNIT I.D.	TYPE	SERVICE	LOCATION	L/S	ESP (Pa)	FAN RPM	DRIVE TYPE	METHOD OF CONTROL	MOTOR			
									KW	VOLTS/PH	NEMA STARTER	
SF-1	INLINE	BOILER ROOM SUPPLY	BOILER ROOM	660	70	1141	BELT	ROOM WALL MOUNTED THERMOSTAT	0.37	480/3	0	
SF-2	INLINE	FIRE PUMP ROOM SUPPLY	FIRE PUMP ROOM	1600	124.4	1300	BELT	ROOM WALL MOUNTED THERMOSTAT	1.12	480/3	1	
SF-3	INLINE	ELECTRICAL ROOM SUPPLY	ELECTRICAL ROOM	236	124.4	1525	BELT	ROOM WALL MOUNTED THERMOSTAT	0.19	120/1	0	
SF-4	INLINE	CO ₂ PURGE HOOD SUPPLY	CORRIDOR 091	1000	100	1725	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	480/3	0	
EF-1	INLINE	NORTH TOILET ROOM EXHAUST	2ND FLOOR	887	200	1525	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	480/3	0	
EF-2	INLINE	CHILLER ROOM EXHAUST	CHILLER ROOM	1100	149.3	1375	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.56	480/3	0	
EF-3	INLINE	SOUTH TOILET ROOM EXHAUST	2ND FLOOR	463	149.3	1793	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	480/3	0	
EF-4	INLINE	SOUTH ELECTRIC ROOM EXHAUST	2ND FLOOR	100	90	1537	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	120/1	0	
EF-5	INLINE	KITCHENETTE EXHAUST	KITCHENETTE	55	87.2	1127	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	120/1	0	
EF-6	INLINE	GUARD TOILET ROOM EXHAUST	GUARD TOILET ROOM	38	80	1500	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.04	120/1	0	
EF-7	INLINE	NORTH ELECTRIC ROOM EXHAUST	2ND FLOOR	100	124.4	1537	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	480/3	0	
EF-8	INLINE	LOX BUILDING EXHAUST	LOX BUILDING	635	199.0	1557	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	208/3	0	
EF-9	INLINE	BATTERY ROOM EXHAUST	BATTERY ROOM	650	149.3	1779	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	480/3	0	
EF-10	INLINE	BATTERY ROOM EXHAUST	BATTERY ROOM	960	149.3	1198	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	480/3	0	
EF-11	INLINE	ENGINE REPAIR EXHAUST	ENGINE REPAIR	2000	156.7	1330	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.56	480/3	0	
EF-12	INLINE	ENGINE REPAIR EXHAUST	ENGINE REPAIR	2000	156.7	1330	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.56	480/3	0	
EF-13	INLINE	ENGINE REPAIR EXHAUST	ENGINE REPAIR	2000	156.7	1330	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.56	480/3	0	
EF-14	INLINE	ENGINE REPAIR EXHAUST	ENGINE REPAIR	2000	156.7	1330	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.56	480/3	0	
EF-15	INLINE	WELD SHOP EXHAUST	WELD SHOP	1050	124.4	2517	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.37	480/3	0	
EF-16	INLINE	SAND BLASTER (SB-2)	MACHINE SHOP	285	160	2450	DIRECT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.2	120/1	0	
EF-17	INLINE	SAND BLASTER (SB-1)	MACHINE SHOP	285	150	2950	DIRECT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.2	120/1	0	
EF-18	INLINE	PARTS WASHER (WR-2)	TIRE/WHEEL SHOP	25	40	2450	DIRECT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.2	120/1	0	
EF-19	INLINE	CO ₂ PURGE HOOD EXHAUST	ALSS SHOP	1400	40	1725	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.56	480/3	0	
EF-20	INLINE	GAS DRYER VENT	GEAR STORAGE 072	85	80	2950	DIRECT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.02	120/1	0	
EF-21	INLINE	GAS DRYER VENT	SUPPLY ACCESS 073	85	80	2950	DIRECT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.02	120/1	0	
EF-22	INLINE	FILM PROCESSING ROOM	TEST BENCH ROOM	115	102	2750	DIRECT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.13	120/1	0	
EF-23	1 SIDEWALL	TIRE STORAGE	TIRE STORAGE	1200	124.4	1221	BELTCT	ROOM WALL MOUNTED THERMOSTAT	0.37	480/3	0	
RF-1	INLINE	AHU-1 RELIEF	AHU-1	615	60	1369	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	120/1	0	
RF-2	INLINE	AHU-2 RELIEF	AHU-2	485	40	1123	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	120/1	0	
RF-3	INLINE	1 AHU-9 RELIEF	AHU-8	500	50	1215	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	120/1	0	
RF-4	INLINE	AHU-11 RELIEF	AHU-11	365	60	1609	BELT	SEE CONTROL DIAGRAMS BEGINNING ON M-804	0.19	120/1	0	

NOTE: EF-9 & EF-10 SERVING BATTERY ROOMS AND EF-15 IS SERVING WELD SHOP EXHAUST SHALL BE EXPLOSION PROOF TYPE FANS.

DIRT SEPARATOR SCHEDULE						
UNIT I.D.	FLOW RANGE (L/M)	SERVICE	SIZE		MAX. PRESSURE DROP (KPa)	REMARKS
			DIA (MM)	HEIGHT (MM)		
DS-1	5450	SECONDARY CHILLED WATER	762	2692	24.8	-
DS-2	1590	HEATING WATER	457	1575	0.06	-

AIR DEVICE SCHEDULE												
UNIT I.D.	SERVICE	MOUNTING	NECK SIZE (mm)	FACE SIZE (mm)	CFM RANGE (L/S)	MAX APD (Pa)	MAX NC	DESCRIPTION				
SD-1A	SUPPLY DIFFUSER	LAY-IN/SURFACE	150	600x600	0 - 50	7.46	15	PLAQUE FACE WITH 2 SLOTS				
SD-1B	SUPPLY DIFFUSER	LAY-IN/SURFACE	200	600x600	51 - 87	9.95	15	PLAQUE FACE WITH 2 SLOTS				
SD-1C	SUPPLY DIFFUSER	LAY-IN/SURFACE	250	600x600	88 - 137	9.95	20	PLAQUE FACE WITH 2 SLOTS				
SD-1D	SUPPLY DIFFUSER	LAY-IN/SURFACE	300	600x600	138 - 250	12.44	25	PLAQUE FACE WITH 2 SLOTS				
SD-2	LINEAR BAR DIFFUSER	LAY-IN/SURFACE	100 WIDTH		0 - 164/M	24.88	25	3mm THICK BARS, 6mm SPACING, 0 DEGREE DEFLECTION				
SD-3	LAMINAR DIFFUSER	LAY-IN	300	600x1200	50 - 250	37.32	32	PERFORATED STEEL FACE				
SD-4	FIRE RATED SUPPLY DIFFUSER	SURFACE	150	600x600	0 - 50	7.46	15	3 HOUR FIRE RATED WITH LOUVER FACE				
SR-1A	SUPPLY REGISTER	SURFACE	300x150	300x150	0 - 100	12.44	<15	DOUBLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
SR-1B	SUPPLY REGISTER	SURFACE	450x150	450x150	101 - 162	12.44	<15	DOUBLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
SR-1C	SUPPLY REGISTER	SURFACE	450x300	450x300	163 - 337	12.44	<15	DOUBLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
SR-1D	SUPPLY REGISTER	SURFACE	600x300	600x300	338 - 450	12.44	15	DOUBLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
SR-2A	DRUM LOUVER	DUCT	450x150	500x200	0 - 250	49.76	30	DOUBLE DEFLECTION, W/ OPPOSED BLADE DAMPER				
SR-2B	DRUM LOUVER	DUCT	500x250	550x300	251 - 450	49.76	30	DOUBLE DEFLECTION, W/ OPPOSED BLADE DAMPER				
RG-1A/TG-1A	RETURN/TRANSFER GRILLE	SURFACE	300x150	300x150	0 - 100	37.32	30	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
RG-1B/TG-1B	RETURN/TRANSFER GRILLE	SURFACE	450x150	450x150	101 - 162	37.32	30	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
RG-1C/TG-1C	RETURN/TRANSFER GRILLE	SURFACE	450x300	450x300	163 - 337	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
RG-1D/TG-1D	RETURN/TRANSFER GRILLE	SURFACE	600x300	600x300	338 - 450	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
RG-1E/TG-1E	RETURN/TRANSFER GRILLE	SURFACE	550x550	550x550	451 - 750	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
RG-1F/TG-1F	RETURN/TRANSFER GRILLE	SURFACE	750x450	750x450	451 - 750	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
TG-1G	RETURN/TRANSFER GRILLE	SURFACE	600x600	600x600	451 - 750	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
RG-2A	RETURN GRILLE	SURFACE	300x150	300x150	0 - 100	37.32		SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES W/ 25mm FILTER				
RG-2B	RETURN GRILLE	SURFACE	450x150	450x150	101 - 162	37.32	30	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES W/ 25mm FILTER				
RG-2C	RETURN GRILLE	SURFACE	450x300	450x300	163 - 337	37.32	30	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES W/ 25mm FILTER				
RG-2D	RETURN GRILLE	SURFACE	600x300	600x300	338 - 450	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES W/ 25mm FILTER				
RG-2E	RETURN GRILLE	SURFACE	550x550	550x550	451 - 750	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES W/ 25mm FILTER				
RG-2F	RETURN GRILLE	SURFACE	750x450	750x450	451 - 750	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES W/ 25mm FILTER				
RG-3	LINEAR BAR RETURN GRILLE	SURFACE	100mm WIDTH		0 - 250	37.32	30	3mm THICK BARS, 6mm SPACING, 0 DEGREE DEFLECTION				
EG-1A	EXHAUST GRILLE	SURFACE	300x150	300x150	0 - 100	37.32						
EG-1B	EXHAUST GRILLE	SURFACE	450x150	450x150	101 - 162	37.32	30	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
EG-1C	EXHAUST GRILLE	SURFACE	450x300	450x300	163 - 337	37.32	30	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				
EG-1D	EXHAUST GRILLE	SURFACE	600x300	600x300	338 - 450	37.32	35	SINGLE DEFLECTION, 20mm SPACING, LONG FRONT BLADES AT 45 DEGREES				

NOTE: FOR SD-1 AND SD-2 PROVIDE A LAY-IN MOUNTING FOR ACOUSTICAL CEILINGS AND SURFACE MOUNTING FOR GYP BOARD CEILINGS.

FAN COIL UNIT SCHEDULE																	
UNIT I.D.	MOUNTING	SUPPLY FAN					COOLING COIL										REMARKS
		L/S	ESP (Pa)	MOTOR		TOTAL (KW)	SENSIBLE (KW)	EAT DB (°C)	EAT WB (°C)	LAT DB (°C)	LAT WB (°C)	L/M	EWT (°C)	LWT (°C)	MAX. WPD (KPa)		
				KW	VOLTS/PH												
FCU-1	CEILING HIDEAWAY	135	124.4	.09	277/1	1.6	1.5	21.1	15.4	11.7	11.4	4.2	6.7	12.2	149.5		
FCU-2	CEILING HIDEAWAY	100	87	.019	277/1	1.2	1.1	21.1	15.4	11.7	11.4	3.0	6.7	12.2	149.5		
FCU-3	CEILING HIDEAWAY	250	124.4	.09	277/1	2.9	2.7	21.1	15.4	11.7	11.4	7.6	6.7	12.2	149.5		
FCU-4	CEILING HIDEAWAY	150	335.8	.09	277/1	1.7	1.6	21.1	15.4	11.7	11.4	6.5	6.7	12.2	149.5		
FCU-5	CEILING HIDEAWAY	100	99.5	.19	277/1	1.2	1.1	21.1	15.4	11.7	11.4	3.0	6.7	12.2	149.5		
FCU-6	CEILING HIDEAWAY	100	149.3	.019	277/1	1.2	1.1	21.1	15.4	11.7	11.4	3.0	6.7	12.2	149.5		
FCU-7	CEILING HIDEAWAY	225	129.4	.09	277/1	2.6	2.4	21.1	15.4	11.7	11.4	6.8	6.7	12.2	149.5		

RECORD DRAWING
LETTER DATED
29/12/05

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

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COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: F. P. BOWEN
FOR USE FOR COMMONWEALTH OF VIRGINIA
9/18/02

DATE: 9/18/02

PROJECT MANAGER: DPS
DESIGNER: DPS
CHECKER: DPS

ATLANTIC DIVISION
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL SCHEDULES

CODE: 01-NO-0001 SIZE: D
SCALE: NONE
SHEET NO.: P-280
SHEET NO.: 05-01-1117
CONTRACT NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472298
SHEET 461 OF 634
M-606

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Mon Jan 29 16:32:20 2007

DUCT CONSTRUCTION & LEAK TEST SCHEDULE												
MARK	DUCT PRESSURE CLASS (Pa)				SUPPLY				RETURN/OUTSIDE AIR		DUCT TEST PRESSURE (Pa)	REMARKS
	SUPPLY DUCT	RETURN DUCT	EXHAUST DUCT	OUTSIDE AIR DUCT	ROUND/OVAL		RECTANGULAR		DUCT SEAL CLASS	DUCT LEAK CLASS		
					DUCT SEAL CLASS	DUCT LEAK CLASS	DUCT SEAL CLASS	DUCT LEAK CLASS				
AHU'S	995	-	-	-	A	3	A	6	-	-	995	
SERIES VAV	-	-498	-	-498	-	-	-	-	B	-	498	
EXHAUST	-	-	-249	-	-	-	-	-	C	24	249	

AIR FLOW BALANCE SCHEDULE							
UNIT I.D.	SUPPLY AIR (L/S)	RETURN AIR (L/S)	OUTSIDE AIR (L/S)	EXHAUST AIR (L/S)	EQUIP. EXHAUST AIR (L/S)	RELIEF AIR (L/S)	AIR PRESSURE (L/S)
AHU-1	5525	4135	1390	225	0	615	+550
1 AHU-2	3610	2760	850	256	0	660	+360
AHU-3	4375	0	4375	4000	0	0	+375
AHU-4	4375	0	4375	4000	0	0	+375
AHU-5	8685	7560	1125	0	1000	1000	+125
1 AHU-6	1600	642	958	338	570	0	0
AHU-7	2397	2177	220	213	213	0	+7
AHU-8	2290	1555	735	0	0	500	+235
1 AHU-9	3410	2760	850	256	2320	660	+360
AHU-10	3960	3424	685	225	0	0	+420
AHU-11	4350	3550	800	0	0	365	+435
AHU-12	4200	3675	525	38	0	0	+487
AHU-13	630	0	630	650	0	0	-20*
AHU-14	920	0	920	960	0	0	-40*
AHU-15	650	550	100	0	0	0	+100
AHU-16	8250	8250	0	0	0	0	0
AHU-17	8250	8250	0	0	0	0	0
AHU-18	1500	1500	0	0	0	0	0
AHU-19	1500	1500	0	0	0	0	0
AHU-20	375	375	0	0	0	0	0
1 AHU-21	500	350	175	0	0	0	+175
AHU-22	960	860	100	0	0	0	+100
AHU-23	400	360	30	0	0	0	+30
AHU-24	900	900	0	0	0	0	0
AHU-25	1400	1400	0	0	0	0	0

NOTE: AHU-13 AND AHU-14 SERVE BATTERY ROOMS AND SHALL BE BALANCED TO OBTAIN NEGATIVE PRESSURE IN ROOM.

OVERHEAD TRANSPORTATION SYSTEM SCHEDULE										
UNIT I.D.	LOCATION	TYPE	CAPACITY (kg)	HOOK HEIGHT (m)	SPAN (m)	ELECTRICAL		WHEELLOAD (kg/WHEEL)	SPAN BETWEEN BEAMS (mm)	REMARKS
						MOTOR (kw)	VOLT/PH			
BC-1	ENGINE REPAIR SHOP	UNDERHUNG BRIDGE CRANE	4535	7.3	36.0	7.46	480/3	458	2287	PENDANT TYPE CONTROLS, 1.2 M AFF
BC-2	HOUSING TEST AREA	UNDERHUNG BRIDGE CRANE	907	3.7	6.1	2.2	480/3	48	1800	PENDANT TYPE CONTROLS, 1.2 M AFF
BC-3	SLED SHOP	UNDERHUNG BRIDGE CRANE	1814	3.7	6.7	3.73	480/3	144	1800	PENDANT TYPE CONTROLS, 1.2 M AFF
BC-4	ARMAMENT SHOP	UNDERHUNG BRIDGE CRANE	3628	3.7	6.1	5.60	480/3	218	1800	PENDANT TYPE CONTROLS, 1.2 M AFF
MC-1	ENGINE REPAIR SHOP	MONORAIL	1814	3.7	N/A	3.73	480/3	-	-	PENDANT TYPE CONTROLS, 1.2 M AFF
MC-2	ARMAMENT SHOP	MONORAIL	3628	3.7	N/A	3.73	480/3	-	-	PENDANT TYPE CONTROLS, 1.2 M AFF

NOTE:
1. SPAN BETWEEN BEAMS VARIES BY MANUFACTURER.

PAINT BOOTH SCHEDULE																
UNIT I.D.	LOCATION	INTERIOR DIMENSION		L/S	ESP (Pa)	HEATING AND VENTILATING SECTION				EXHAUST FAN SECTION				REMARKS		
		WIDTH (M)	LENGTH (M)			MOTOR KW	V/PH	CAPACITY (KW)	MIN INLET PRESSURE (Pa)	TEMP RISE (°C)	NO. FANS	L/S (EACH)	STATIC PRESSURE (Pa)		MOTOR HP	V/PH
PB-1	ENGINE REPAIR	6.1	7.6	16000	248.8	18.7	480/3	607.7	.	16	2	8000	124.4	3.73	480/3	1, 2, 3
PB-2	AIR FRAMES	4.3	7.9	11200	248.8	18.7	480/3	425.4	.	16	1	11200	124.4	3.73	480/3	2, 3

NOTES:
1. PROVIDE 2 TON ELECTRIC HOIST, HOOK HEIGHT TO MATCH MC-1.
2. PROVIDE PRE-PUNCHED OPENINGS FOR FIRE SPRINKLER PIPING AND COMPRESSED PIPING.
3. FINAL PACKAGED PAINT BOOTH SELECTION WILL BE BASED ON PAINT BOOTH LOCATION.

AIR FLOW MONITORING SCHEDULE								
UNIT I.D.	SERVES	AIRFLOW (L/S)	DUCT WIDTH (mm)	DUCT HEIGHT (mm)	DUCT SHAPE	DUCT VEL. (m/s)	MIN. OA TEMP (c)	REMARKS
AFS-1	AHU-1	1390	600	600	RECTANGULAR	3.66	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-2	AHU-2	1095	600	600	RECTANGULAR	2.89	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-3	AHU-21	175	300	300	RECTANGULAR	1.68	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-4	AHU-22	100	300	300	RECTANGULAR	1.02	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-5	AHU-5	1125	600	600	RECTANGULAR	3.05	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-6	AHU-6	675	600	600	RECTANGULAR	1.83	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-7	AHU-7	220	300	300	RECTANGULAR	2.34	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-8	AHU-8	735	600	600	RECTANGULAR	1.98	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-9	AHU-9	830	600	600	RECTANGULAR	2.24	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-10	AHU-10	695	600	600	RECTANGULAR	1.83	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-11	AHU-11	800	600	600	RECTANGULAR	2.18	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-12	AHU-12	525	600	600	RECTANGULAR	1.52	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-13	AHU-15	100	300	300	RECTANGULAR	1.52	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU
AFS-14	AHU-23	30	300	300	RECTANGULAR	0.30	-18	MOUNT TRANSMITTER ON WALL ADJACENT TO AHU

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

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No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: F. P. BOWEN
FOR USE FOR COMMONWEALTH OF VIRGINIA
9/18/02

DATE: 9/18/02

PROJECT MANAGER: JEA
DESIGN: SFP
DRAWING: JMR
REVIEW: G.F.J.
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ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NOFOLK, VIRGINIA
NAVAL CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL SCHEDULES

CODE NO. 90991 SIZE: D
SCALE: NONE
SHEET NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACT NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472299
SHEET 462 OF 634
M-607

RECORD DRAWING
LETTER DATED
29/12/05

CONTROL SYSTEM AUTOMATIC CONTROL VALVE SCHEDULE

UNIT I.D.	EQUIPMENT SERVED	SERVICE	LOCATION	TYPE	ACTION	WATER VALVES			FAIL POSITION	REMARKS
						(L/M)	MIN WPD (KPa)	MAX WPD (KPa)		
V-1A	AHU-1	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	311.8	20.93	29.9	OPEN	
V-1B	AHU-1	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	53.4	20.93	29.9	OPEN	
V-2A	AHU-2	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	246.3	20.93	29.9	OPEN	
V-2B	AHU-2	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	45.5	20.93	29.9	OPEN	
V-3A	AHU-3	CHILLED WATER	MECHANICAL ROOM	2-WAY	MODULATING	529.2	20.93	29.9	OPEN	
V-3B	AHU-3	HEATING WATER PREHEAT	MECHANICAL ROOM	2-WAY	MODULATING	196.8	20.93	29.9	OPEN	
V-3C	AHU-3	HEATING WATER REHEAT	MECHANICAL ROOM	2-WAY	MODULATING	89.3	20.93	29.9	OPEN	
V-4A	AHU-4	CHILLED WATER	MECHANICAL ROOM	2-WAY	MODULATING	529.2	20.93	29.9	OPEN	
V-4B	AHU-4	HEATING WATER PREHEAT	MECHANICAL ROOM	2-WAY	MODULATING	196.8	20.93	29.9	OPEN	
V-4C	AHU-4	HEATING WATER REHEAT	MECHANICAL ROOM	2-WAY	MODULATING	89.3	20.93	29.9	OPEN	
V-5A	AHU-5	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	467	20.93	29.9	OPEN	
V-5B	AHU-5	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	25.6	20.93	29.9	OPEN	
V-5A	AHU-6	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	130.4	20.93	29.9	OPEN	
V-6B	AHU-6	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	11.5	20.93	29.9	OPEN	
V-7A	AHU-7	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	122.6	20.93	29.9	OPEN	
V-7B	AHU-7	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	2.5	20.93	29.9	OPEN	
V-8A	AHU-8	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	159.5	20.93	29.9	OPEN	
V-8B	AHU-8	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	31.1	20.93	29.9	OPEN	
V-9A	AHU-9	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	212.9	20.93	29.9	OPEN	
V-9B	AHU-9	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	29.4	20.93	29.9	OPEN	
V-10A	AHU-10	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	206.9	20.93	29.9	OPEN	
V-10B	AHU-10	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	20.8	20.93	29.9	OPEN	
V-11A	AHU-11	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	219.1	20.93	29.9	OPEN	
V-11B	AHU-11	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	26	20.93	29.9	OPEN	
V-12A	AHU-12	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	190.9	20.93	29.9	OPEN	
V-12B	AHU-12	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	11.3	20.93	29.9	OPEN	
V-13A	AHU-13	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	86.6	20.93	29.9	OPEN	
V-13B	AHU-13	HEATING WATER PREHEAT	METAL GRATING PLATFORM	2-WAY	MODULATING	29.2	20.93	29.9	OPEN	
V-13C	AHU-13	HEATING WATER REHEAT	METAL GRATING PLATFORM	2-WAY	MODULATING	13.3	20.93	29.9	OPEN	
V-14A	AHU-14	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	128.7	20.93	29.9	OPEN	
V-14B	AHU-14	HEATING WATER PREHEAT	METAL GRATING PLATFORM	2-WAY	MODULATING	45	20.93	29.9	OPEN	
V-14C	AHU-14	HEATING WATER REHEAT	METAL GRATING PLATFORM	2-WAY	MODULATING	20.4	20.93	29.9	OPEN	
V-15A	AHU-15	CHILLED WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	40.1	20.93	29.9	OPEN	
V-15B	AHU-15	HEATING WATER	METAL GRATING PLATFORM	2-WAY	MODULATING	2.8	20.93	29.9	OPEN	
V-16	AHU-16	CHILLED WATER	GENERATOR TEAT STAND	2-WAY	MODULATING	264.5	20.93	29.9	OPEN	
V-17	AHU-17	CHILLED WATER	GENERATOR TEAT STAND	2-WAY	MODULATING	264.5	20.93	29.9	OPEN	
V-18	AHU-18	CHILLED WATER	RADCOM	2-WAY	MODULATING	124.3	20.93	29.9	OPEN	
V-19	AHU-19	CHILLED WATER	RADCOM	2-WAY	MODULATING	124.3	20.93	29.9	OPEN	
V-20	AHU-20	CHILLED WATER	ELEVATOR MACHINE ROOM	2-WAY	MODULATING	14.5	20.93	29.9	OPEN	
V-21A	AHU-21	CHILLED WATER	520 HYDRAULICS	2-WAY	MODULATING	30.7	20.93	29.9	OPEN	
V-21B	AHU-21	HEATING WATER PREHEAT	520 HYDRAULICS	2-WAY	MODULATING	9.1	20.93	29.9	OPEN	

CONTROL SYSTEM AUTOMATIC CONTROL VALVE SCHEDULE

UNIT I.D.	EQUIPMENT SERVED	SERVICE	LOCATION	TYPE	ACTION	WATER VALVES			FAIL POSITION	REMARKS
						(L/M)	MIN WPD (KPa)	MAX WPD (KPa)		
V-21C	AHU-21	HEATING WATER REHEAT	520 HYDRAULICS	2-WAY	MODULATING	10.2	20.93	29.9	OPEN	
V-22A	AHU-22	CHILLED WATER	51F COMPOSITE REPAIR	2-WAY	MODULATING	33.7	20.93	29.9	OPEN	
V-22B	AHU-22	HEATING WATER REHEAT	51F COMPOSITE REPAIR	2-WAY	MODULATING	14.8	20.93	29.9	OPEN	
V-23A	AHU-23	CHILLED WATER	AVIONICS CLEAN ROOM	2-WAY	MODULATING	16.3	20.93	29.9	OPEN	
V-23B	AHU-23	HEATING WATER REHEAT	AVIONICS CLEAN ROOM	2-WAY	MODULATING	5.7	20.93	29.9	OPEN	
V-24	AHU-24	CHILLED WATER	GENERATOR TEST STAND	2-WAY	MODULATING	23.5	20.93	29.9	OPEN	
V-25	AHU-25	CHILLED WATER	GENERATOR TEST STAND	2-WAY	MODULATING	37.9	20.93	29.9	OPEN	
V-26	-	HEATING WATER BYPASS	NEAR ROOM # 269	2-WAY	MODULATING	189.3	-	277.9	LAST POSITION	
V-27	-	CHILLED WATER BYPASS	NEAR ROOM # 037	2-WAY	MODULATING	1817	-	262.7	LAST POSITION	
V-28	CH-1	CONDENSER WATER	MECHANICAL ROOM	2-WAY	2 POSITION	3406.9	20.93	29.9	LAST POSITION	
V-29	CH-2	CONDENSER WATER	MECHANICAL ROOM	2-WAY	2 POSITION	3406.9	20.93	29.9	LAST POSITION	
V-30	CH-1	CHILLED WATER	MECHANICAL ROOM	2-WAY	2 POSITION	2725.5	20.93	29.9	LAST POSITION	
V-31	CH-2	CHILLED WATER	MECHANICAL ROOM	2-WAY	2 POSITION	2725.5	20.93	29.9	LAST POSITION	
V-32A	-	CONDENSER WATER	MECHANICAL ROOM	2-WAY	MODULATING	6813.7	20.93	29.9	LAST POSITION	LINKED W/ V-32B
V-32B	-	CONDENSER WATER	MECHANICAL ROOM	2-WAY	MODULATING	6813.7	20.93	29.9	LAST POSITION	LINKED W/ V-32A
V-33	CT-1	CONDENSER WATER	MECHANICAL ROOM	2-WAY	2 POSITION	3406.9	20.93	29.9	LAST POSITION	
V-34	CT-2	CONDENSER WATER	MECHANICAL ROOM	2-WAY	2 POSITION	3406.9	20.93	29.9	LAST POSITION	
V-35	MAKE-UP	CONDENSER WATER	MECHANICAL ROOM	2-WAY	2 POSITION	204.4	20.93	29.9	CLOSED	
V-36	MAKE-UP	CHILLED WATER	MECHANICAL ROOM	2-WAY	2 POSITION	163.5	20.93	29.9	CLOSED	
V-37	MAKE-UP	HEATING WATER	MECHANICAL ROOM	2-WAY	2 POSITION	32.2	20.93	29.9	CLOSED	
VARIES	FPVAV	HEATING WATER	SEE DRAWINGS	2-WAY	MODULATING	VARIES	20.93	29.9	LAST POSITION	
VARIES	UNIT HEATERS	HEATING WATER	SEE DRAWINGS	2-WAY	MODULATING	VARIES	20.93	29.9	LAST POSITION	

1. CONTROL VALVE SHALL BE ABLE TO CLOSE AGAINST PUMP SHUTOFF HEAD.

HUMIDIFIER SCHEDULE

UNIT I.D.	SERVICE	LOCATION	MOUNTING	FUEL SOURCE	INPUT (KW)	OUTPUT (KG/HR)	ELECTRICAL DATA VOLTS/PH	REMARKS
H-1	AHU-21	ROOM 112 CEILING	HUNG	ELEC.	3	4	208/1	PROVIDE SINGLE, DUCT MOUNTED, STEAM DISTRIBUTION MANIFOLD AND CONNECTING PIPE
H-2	AHU-22	ROOM 111 CEILING	HUNG	ELEC.	3	4	208/1	PROVIDE SINGLE, DUCT MOUNTED, STEAM DISTRIBUTION MANIFOLD AND CONNECTING PIPE
H-3	AHU-23	ROOM 060 CEILING	HUNG	ELEC.	3	4	208/1	PROVIDE SINGLE, DUCT MOUNTED, STEAM DISTRIBUTION MANIFOLD AND CONNECTING PIPE

FUME EXTRACTION HOOD SCHEDULE

UNIT I.D.	TYPE	SERVICE	CAPACITY (L/S)	ELECTRICAL DATA VOLTS/PH	REMARKS
FEH-1	FLEXIBLE SOLDERING FUME EXTRACTOR	MICRO MINIATURE REPAIR RM. 035	21	208/2	PROVIDE 99.97% FILTER AND DOME HOOD
FEH-2	FLEXIBLE SOLDERING FUME EXTRACTOR	MICRO MINIATURE REPAIR RM. 035	21	208/2	PROVIDE 99.97% FILTER AND DOME HOOD
FEH-3	FLEXIBLE SOLDERING FUME EXTRACTOR	MICRO MINIATURE REPAIR RM. 035	21	208/2	PROVIDE 99.97% FILTER AND DOME HOOD
FEH-4	FLEXIBLE SOLDERING FUME EXTRACTOR	MICRO MINIATURE REPAIR RM. 035	21	208/2	PROVIDE 99.97% FILTER AND DOME HOOD
FEH-5	FLEXIBLE SOLDERING FUME EXTRACTOR	MICRO MINIATURE REPAIR RM. 035	21	208/2	PROVIDE 99.97% FILTER AND DOME HOOD
FEH-6	FLEXIBLE SOLDERING FUME EXTRACTOR	CLEAN ROOM RM.011	21	208/2	PROVIDE 99.97% FILTER AND DOME HOOD

RECORD DRAWING
LETTER DATED
29/12/05

REVISED BASED ON CONTRACTOR PREPARED RECORD DRAWINGS

WR&A
WHITMAN, REINHART AND ASSOCIATES, LLP
801 E. CAROLING STREET
BALTIMORE, MARYLAND
410 - 255 - 3450

COMMONWEALTH OF VIRGINIA
CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED: F. P. BOWEN
FOR USE FOR COMMONWEALTH VIRGINIA
9/18/02

DESIGN: JMR
DRAWN: GFJ
REVIEW: CAH
CHECK: JOA

PROJECT MANAGER: DPS
FIRE PROTECTION: DPS
BRANCH MANAGER: DPS
DESIGN DIRECTOR: FPR, Jr.

NAVAL FACILITIES ENGINEERING COMMAND
ATLANTIC DIVISION
NAVAL STATION
NAVAL CONSOLIDATION
CHAMBERS FIELD
NAVAL STATION, NORFOLK, VIRGINIA
MECHANICAL SCHEDULES

CODE NO. 98991 SIZE: D
SCALE: NONE
SHEET NO.: P-280
SPEC. NO.: 05-01-1117
CONTRACT NO.: N62470-01-B-1117
NAVFAC DRAWING NO.: 4472300
SHEET 463 OF 634
M-608

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Mon Jan 29 16:32:08 2007

VIBRATION ISOLATION SCHEDULE

UNIT I.D.	DESCRIPTION	LOCATION	MOUNTING TYPE	ISOLATION TYPE	MINIMUM STATIC DEFLECTION (mm/in)
AHU-1,2 5-15		EQUIPMENT PLATFORM	FLOOR MTD. ON METAL GRATING PLATFORM	NEOPRENE PAD	6/0.25
AHU-3,4	AIR HANDLING UNIT	MEZZ. ABOVE MECH. ROOM	FLOOR MTD. ON CONCRETE ON METAL DECK	NEOPRENE PAD	6/0.25
AHU-16	COMPUTER RM. UNIT-GENERATOR	GENERATOR TEST STAND	FLOOR MTD. ON CONCRETE FLOOR	NEOPRENE PAD	6/0.25
AHU-17	COMPUTER RM. UNIT-GENERATOR	GENERATOR TEST STAND	FLOOR MTD. ON CONCRETE FLOOR	NEOPRENE PAD	6/0.25
AHU-18	COMPUTER RM. UNIT-RADCOM	RADCOM	FLOOR MTD. ON CONCRETE FLOOR	NEOPRENE PAD	6/0.25
AHU-19	COMPUTER RM. UNIT-RADCOM	RADCOM	FLOOR MTD. ON CONCRETE FLOOR	NEOPRENE PAD	6/0.25
AHU-20	COMPUTER RM. UNIT-ELEV. MACHINE	ELEVATOR MACHINE RM.	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS	6/0.25
AHU-21	AIR HANDLING UNIT	51F COMPOSITE REPAIR	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS	6/0.25
AHU-22	AIR HANDLING UNIT	520 CLEAN ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS	6/0.25
AHU-23	AIR HANDLING UNIT	AVONICS CLEAN ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS	6/0.25
AHU-24	COMPUTER ROOM UNIT	GENERATOR TEST STAND	FLOOR MTD. ON CONCRETE FLOOR	NEOPRENE PAD	6/0.25
AHU-25	COMPUTER ROOM UNIT	GENERATOR TEST STAND	FLOOR MTD. ON CONCRETE FLOOR	NEOPRENE PAD	6/0.25
SS-1	SPLIT SYSTEM UNIT-NALCOMIS	NALCOMIS	FLOOR MTD. ON RAISED FLOOR	NEOPRENE PAD	6/0.25
SS-2	SPLIT SYSTEM UNIT-NALCOMIS	NALCOMIS	FLOOR MTD. ON RAISED FLOOR	NEOPRENE PAD	6/0.25
SS-3	SPLIT SYSTEM UNIT-LOX BLDG.	MECH ROOM-LOX BLDG.	FLOOR MTD. ON CONCRETE EQUIP.PAD	NEOPRENE PAD	6/0.25
SS-4	SPLIT SYSTEM-TELE/COM RM.	TELE/COM ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
ACCU-1	CONDENSING UNIT (SS-1)	EQUIPMENT PLATFORM	FLOOR MTD. ON METAL GRATING PLATFORM	NEOPRENE PAD	6/0.25
ACCU-2	CONDENSING UNIT (SS-2)	EQUIPMENT PLATFORM	FLOOR MTD. ON METAL GRATING PLATFORM	NEOPRENE PAD	6/0.25
ACCU-3	CONDENSING UNIT (SS-3)	OUTSIDE MECH.ROOM	CONCRETE PAVER	NEOPRENE PAD	6/0.25
ACCU-4	CONDENSING UNIT (SS-4)	OUTSIDE TELE/COM ROOM	CONCRETE PAVER	NEOPRENE PAD	6/0.25
B-1	BOILER	BOILER ROOM	FLOOR MTD. ON CONCRETE EQUIP.PAD	NEOPRENE PAD	6/0.25
CHWP-1-3	PRIMARY CHILLED WTR. PUMPS	CHILLER ROOM	CONCRETE INERTIA BASE	SPRING ISOLATORS	19/0.75
SCHP-1,2	SECONDARY CHILLED WTR. PUMPS	CHILLER ROOM	CONCRETE INERTIA BASE	SPRING ISOLATORS	19/0.75
CWP 1-3	CONDENSER WATER PUMPS	CHILLER ROOM	CONCRETE INERTIA BASE	SPRING ISOLATORS	19/0.75
HWP-1-4	HOT WATER PUMPS	BOILER ROOM	CONCRETE INERTIA BASE	SPRING ISOLATORS	19/0.75
CP-1	PRE-HEAT COIL CIRCULATING PUMP	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS	19/0.75
DCP-1	DOMESTIC WTR.CIRCULATING PUMP	BOILER ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS	19/0.75
CH-1,CH-2	WATER COOLED CHILLER	CHILLER ROOM	FLOOR MTD. ON CONCRETE EQUIP.PAD	NEOPRENE PAD	6/0.25
CT-1,CT-2	COOLING TOWER	OUTSIDE CHILLER ROOM	ELEVATED STRUCTURAL FRAME	NEOPRENE PAD	6/0.25
FPB	FAN POWERED VAV BOX (TYPICAL)	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-1	EXHAUST FANS-NORTH TOILET ROOMS	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-2	EXHAUST FAN-CHILLER ROOM	CHILLER ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-3	EXHAUST FAN-SOUTH TOILET ROOMS	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-4	EXHAUST FAN-SOUTH ELECTRIC ROOM	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-5	EXHAUST FAN-KITCHENETTE	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-6	EXHAUST FAN-GUARD TOILET	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-7	EXHAUST FAN-NORTH ELECTRIC ROOM	REFER TO MECH.PLANS	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-8	EXHAUST FAN-LOX BUILDING	LOX BUILDING	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-9	EXHAUST FAN-BATTERY LEAD ACID	BATTERY LEAD ACID ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-10	EXHAUST FAN-BATTERY Ni CD	BATTERY Ni CD ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
EF-11-14	PROP FAN	ENGINE REPAIR	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75

VIBRATION ISOLATION SCHEDULE

UNIT I.D.	DESCRIPTION	LOCATION	MOUNTING TYPE	ISOLATION TYPE	MINIMUM STATIC DEFLECTION (mm/in)
EF-15	EXHAUST FAN	WELD SHOP	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
SF-1	SUPPLY FAN-BOILER ROOM	BOILER ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
SF-2	SUPPLY FAN-FIRE PUMP ROOM	CHILLER ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
SF-3	SUPPLY FAN-MAIN ELEC ROOM	MAIN ELECTRIC ROOM	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
RF-1	AHU-1	AHU-1	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
RF-2	AHU-2	AHU-1	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
RF-3	AHU-8	AHU-1	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75
RF-4	AHU-11	AHU-1	SUSPENDED FROM STRUCTURE	SPRING ISOLATORS W/ROD HANGERS	19/0.75



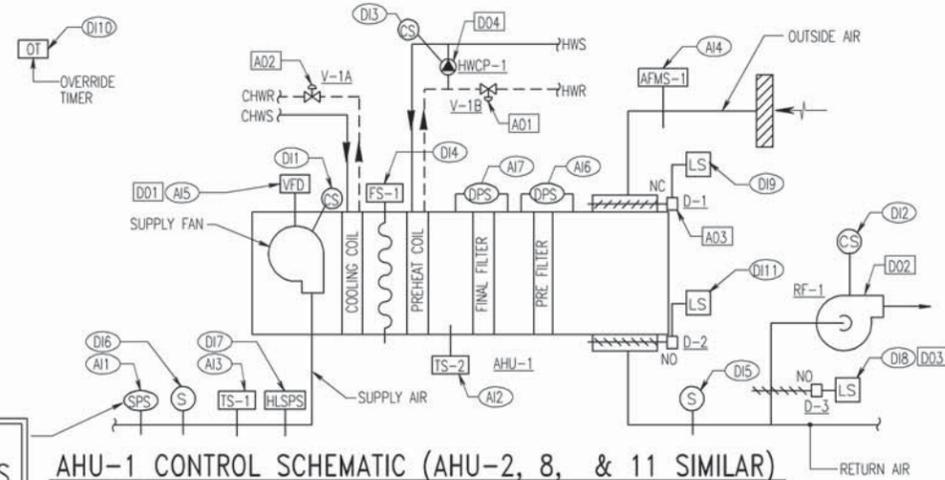
COMMONWEALTH OF VIRGINIA
 CHARLES R. LORTZ
 No. 013864
 8/13/02
 PROFESSIONAL ENGINEER

APPROVED
 ACTIVITY - SATISFACTORY TO
 DATE
 APPROVED
 F. P. BOWEN
 FOR USE FOR COMMANDER NAFC
 9/18/02
 DATE
 A/E SFP DESIGN
 JMR DRAWN
 GFJ REVIEW
 CAH OC
 JOA CHIEF MECH/ ENGR.
 PROJECT MANAGER
 FIRE PROTECTION
 BRANCH MANAGER
 DESIGN DIRECTOR
 DPS
 DPS
 FPB, Jr.

NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA
 ATLANTIC DIVISION
 AIMS CONSOLIDATION
 CHAMBERS FIELD
 NAVAL STATION, NORFOLK, VIRGINIA
 MECHANICAL SCHEDULES

CODE ID: NO 80979 SIZE: D
 SCALE: NONE
 STD. NO.
 SDR. PROJ. NO.: P-280
 SPEC. NO.: 05-01-1117
 CONSTR. CONTR. NO.:
 NAFC DRAWING NO.: 4472301
 SHEET 464 OF 634
 M-609

RECORD DRAWING
 LETTER DATED
 29/12/05



SPS LOCATIONS

AHU	ROOM #
1	240
2	206
8	066
11	045

AHU-1 CONTROLLER	
INPUTS	OUTPUTS
ANALOG AI1 SPS, DUCT STATIC PRESSURE SENSOR AI2 TS-2, PREHEAT COIL LAT AI3 TS-3, SUPPLY AIR TEMPERATURE AI4 AFMS AIRFLOW AI5 SUPPLY FAN VFD OUTPUT FREQUENCY AI6 PRE FILTER DPS AI7 FINAL FILTER DPS DIGITAL DI1 AHU SUPPLY FAN STATUS DI2 RF-1 STATUS DI3 HWCP-1 STATUS DI4 FREEZESTAT STATUS DI5 RETURN AIR SMOKE DETECTOR DI6 SUPPLY AIR SMOKE DETECTOR DI7 HIGH LIMIT STATIC PRESSURE SENSOR DI8 RELIEF AIR DAMPER D-3 LIMIT SWITCH (OPEN) DI9 OA DAMPER LIMIT SWITCH (OPEN) DI10 OVERRIDE TIMER STATUS DI11 RA DAMPER LIMIT SWITCH (CLOSED)	ANALOG AO1 PREHEAT COIL VALVE V-1B OPEN/CLOSE AO2 COOLING COIL VALVE V-1A OPEN/CLOSE AO3 OA DAMPER D-1 OPEN/CLOSE (ALSO CONTROLS D-2) DIGITAL DO1 AHU SUPPLY FAN START/STOP DO2 RF-1 RELIEF FAN START/STOP DO3 RELIEF DAMPER D-3 OPEN/CLOSE DO4 HWCP-1 START/STOP
SOFTWARE POINTS RF-1 FAILURE ALARM AHU-1 FAILURE & MAINTENANCE ALARMS SUPPLY AIR TEMPERATURE AND PRESSURE SETPOINTS AND HIGH/LOW TEMPERATURE ALARM AFMS AIRFLOW & HIGH/LOW ALARM	

AHU-1 SEQUENCE OF OPERATIONS (AHU-2, 8 & 11 SIMILAR)

GENERAL NOTES:

1. MODES OF OPERATION: AHU SHALL OPERATE IN THE FOLLOWING MODES OF OPERATION: OCCUPIED, UNOCCUPIED AND MORNING COOLDOWN. OCCUPIED AND UNOCCUPIED TIME PERIODS SHALL BE ESTABLISHED BY THE USER. MORNING COOLDOWN SHALL BE IMPLEMENTED AS DETERMINED BY OPTIMIZATION PROGRAM.

2. SYSTEM OPERATION SHALL BE FULLY AUTOMATIC WITH MANUAL OVERRIDES.

3. AHU OPERATING STATUS AND SCHEDULES, TEMPERATURE SETPOINTS AND EQUIPMENT ALARM CONDITIONS SHALL BE MONITORED AND ADJUSTED THROUGH DDC SYSTEM GRAPHIC INTERFACE. OPERATOR SHALL ALSO BE ABLE TO PERFORM ALL MONITORING AND CONTROL OF THE AHU DIRECTLY FROM THE ATC PANEL.

4. D-2 SHALL FAIL OPEN.

OCCUPIED MODE:

1. AHU SUPPLY FAN SHALL OPERATE CONTINUOUSLY. MODULATE SUPPLY FAN VFD AS REQUIRED TO MAINTAIN ADJUSTABLE SPS SETPOINT. INITIAL SPS SETPOINT SHALL BE ESTABLISHED BY THE BALANCING CONTRACTOR AS REQUIRED TO MAINTAIN MINIMUM REQUIRED INLET PRESSURE TO FAN POWERED BOXES IN SYSTEM. DDC SYSTEM SHALL ADJUST SPS SETPOINT AS REQUIRED TO KEEP THE FAN POWERED BOX AIR VALVE WITH THE LARGEST COOLING LOAD AT 90% OPEN MAXIMUM.

2. MODULATE OUTSIDE AIR MOD D-1 AS REQUIRED TO MAINTAIN MINIMUM OUTSIDE AIR SETPOINT AS SENSED BY AFMS-5.

3. ONCE D-1 IS FULLY OPEN MODULATE D-2 CLOSED AS REQUIRED TO MAINTAIN MINIMUM OUTSIDE AIR SETPOINT AS SENSED BY AFMS-5.

4. OPEN RELIEF DAMPER D-3 START RF-1 WHEN D-3 HAS BEEN PROVEN OPEN BY LIMIT SWITCH.

5. WHEN MIXED AIR TEMPERATURE IS ABOVE 12°C AS SENSED BY TS-2, MODULATE COOLING COIL CONTROL VALVE V-1A AS REQUIRED TO MAINTAIN 12.8°C LEAVING AIR TEMPERATURE AS SENSED BY TS-1.

6. WHEN OAT FALLS BELOW 5°C, ACTIVATE PUMP HWCP-1 AND RUN CONTINUOUSLY FOR FREEZE PROTECTION.

UNOCCUPIED MODE:

1. DEACTIVATE AHU SUPPLY FAN AND RELIEF FAN. CLOSE RELIEF DAMPER D-3.

2. OUTSIDE AIR DAMPER D-1 SHALL BE CLOSED.

3. ACTIVATE COIL CIRCULATION PUMP HWCP-1 WHEN OAT FALLS BELOW 5°C. PUMP WILL ADD HEAT TO WATER AND PREVENT WATER FROM SITTING STILL IN THE LOWEST PART OF THE AHU COIL WHERE COLD AIR CAN COLLECT.

4. PROVIDE OVERRIDE TIMER LOCATED AS DIRECTED BY ROICC THAT INDEXES AHU AND ASSOCIATED FANS AND TERMINAL UNITS TO THE OCCUPIED PERIOD FOR UP TO 4 HOURS.

MORNING COOLDOWN MODE:

1. ENABLE MORNING COOL DOWN MODE WHEN AVERAGE OF FAN POWERED BOX THERMOSTATS EXCEED OCCUPIED SETPOINT. DDC SYSTEM SHALL ACTIVATE MORNING COOL DOWN MODE AT A TIME DETERMINED BY OPTIMIZATION PROGRAM TO ALLOW SPACES TO BE COOLED TO OCCUPIED TEMPERATURE SETPOINT BY START OF THE OCCUPIED PERIOD.

2. SIGNAL FAN POWERED BOXES TO ENTER MORNING COOLDOWN MODE.

3. AFTER DELAY TO ALLOW FAN POWERED BOXES TO ESTABLISH BOX FAN ROTATION, START AHU SUPPLY FAN AND MODULATE UNDER VFD CONTROL TO MAINTAIN STATIC PRESSURE SENSOR SETPOINT.

4. MODULATE VALVE V-1A AS REQUIRED TO MAINTAIN 12.8°C SUPPLY AIR AS SENSED BY TS-1.

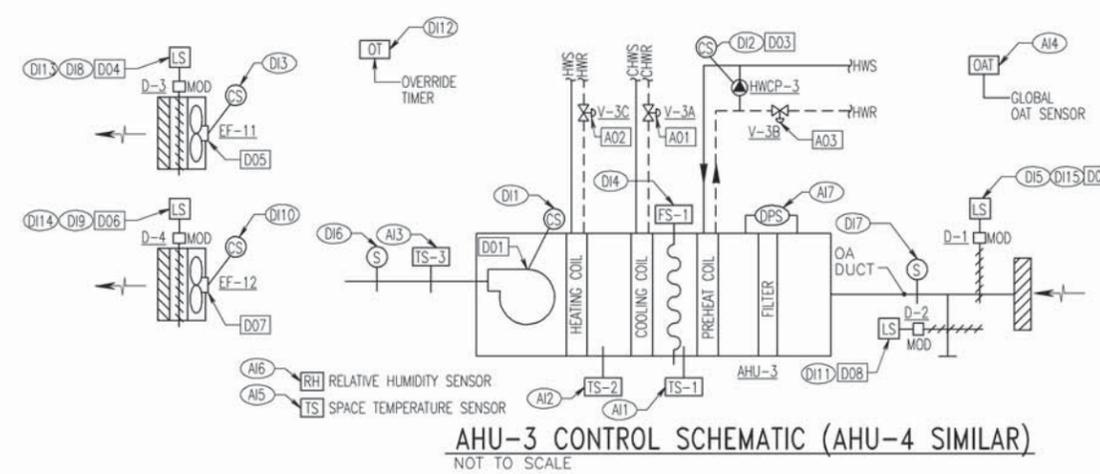
5. OUTSIDE AIR DAMPER D-1 SHALL REMAIN CLOSED AND RELIEF FAN SHALL BE DEACTIVATED.

SAFETY CONTROLS:

1. WHEN SUPPLY OR RETURN AIR SMOKE DETECTOR SENSES PRODUCTS OF COMBUSTION, DEACTIVATE AHU SUPPLY FAN AND RELIEF FAN. CLOSE OUTSIDE AIR DAMPER AND ANNUNCIATE AN ALARM AT THE CENTRAL WORKSTATION GRAPHIC INTERFACE AND THE FIRE ALARM SYSTEM. INTERLOCK WITH THE SUPPLY FAN SHALL BE HARD WIRED AND REQUIRE A MANUAL RESET.

2. DEACTIVATE AHU SUPPLY FAN AND RELIEF FAN WHEN HIGH LIMIT STATIC PRESSURE SENSOR SENSES DISCHARGE STATIC PRESSURE EXCEEDING 750 Pa. ANNUNCIATE AN ALARM AT THE CENTRAL WORKSTATION GRAPHIC INTERFACE. AUTOMATICALLY RESTART AFTER 1 MINUTE DELAY. SECOND FAILURE IN 1 HOUR PERIOD SHALL REQUIRE MANUAL RESTART.

3. WHEN FREEZESTAT SENSES HEATING COIL DISCHARGE AIR TEMPERATURE BELOW 3°C, ACTIVATE COIL CIRCULATION PUMP HWCP-1 AND SCHP, OPEN V-1A, DEACTIVATE AHU SUPPLY FAN AND OUTSIDE AIR FAN, AND CLOSE OUTSIDE AIR DAMPER. OPEN VALVES V-1A AND V-1B. ANNUNCIATE AN ALARM AT THE CENTRAL WORKSTATION GRAPHIC INTERFACE.



AHU-3 CONTROLLER	
INPUTS	OUTPUTS
ANALOG AI1 TS-1, PREHEAT COIL LAT AI2 TS-2, COOLING COIL LAT AI3 TS-3, SUPPLY AIR TEMPERATURE AI4 OAT, OUTSIDE AIR TEMPERATURE AI5 SPACE TEMPERATURE AI6 SPACE RELATIVE HUMIDITY SENSOR AI7 FILTER DPS STATUS DIGITAL DI1 AHU SUPPLY FAN STATUS DI2 HWCP-3 STATUS DI3 EF-11 STATUS DI4 FREEZESTAT FS-1 STATUS DI5 OA MOD D-1 LIMIT SWITCH (OPEN) DI6 SA SMOKE DETECTOR STATUS DI7 RA SMOKE DETECTOR STATUS DI8 EXHAUST AIR MOD D-3 LIMIT SWITCH (OPEN) DI9 EXHAUST AIR MOD D-4 LIMIT SWITCH (OPEN) DI10 EF-12 STATUS DI11 RA DAMPER D-2 LIMIT SWITCH DI12 OVERRIDE TIMER DI13 EXHAUST AIR MOD D-3 LIMIT SWITCH (CLOSED) DI14 EXHAUST AIR MOD D-4 LIMIT SWITCH (CLOSED) DI15 OA MOD D-1 LIMIT SWITCH (CLOSED)	ANALOG AO1 CHILLED WATER COIL CONTROL VALVE POSITION AO2 HEATING WATER COIL CONTROL VALVE POSITION AO3 PREHEAT COIL CONTROL VALVE POSITION DIGITAL DO1 AHU SUPPLY FAN START/STOP DO2 OUTSIDE AIR DAMPER D-1 OPEN/CLOSE DO3 HWCP-3 START/STOP DO4 EF-11 EXHAUST AIR MOD D-3 OPEN/CLOSE DO5 EF-11 START/STOP DO6 EF-12 EXHAUST AIR MOD D-4 OPEN/CLOSE DO7 EF-12 START/STOP DO8 RETURN AIR DAMPER D-2 OPEN/CLOSE
SOFTWARE POINTS SPACE TEMPERATURE SETPOINT AND HIGH/LOW ALARM AHU MAINTENANCE AND FAILURE ALARMS SPACE RELATIVE HUMIDITY SETPOINT AND HIGH HUMIDITY ALARM	

AHU-3 SEQUENCE OF OPERATIONS (AHU-4 SIMILAR)

GENERAL NOTES:

1. MODES OF OPERATION: AHU SHALL OPERATE IN THE FOLLOWING MODES OF OPERATION: OCCUPIED AND UNOCCUPIED.

2. SYSTEM OPERATION SHALL BE FULLY AUTOMATIC WITH MANUAL OVERRIDES.

3. 100 PERCENT OUTSIDE AIR AHU SHALL OPERATE TO MAINTAIN SPACE TEMPERATURE SETPOINT AND MAXIMUM RELATIVE HUMIDITY SETPOINT. UNIT SHALL USE RECIRCULATED AIR DURING UNOCCUPIED MODE.

4. AHU OPERATING STATUS AND SCHEDULES, TEMPERATURE SETPOINTS AND EQUIPMENT ALARM CONDITIONS SHALL BE MONITORED AND ADJUSTED THROUGH DDC SYSTEM GRAPHIC INTERFACE. OPERATOR SHALL ALSO BE ABLE TO PERFORM ALL MONITORING AND CONTROL OF THE AHU DIRECTLY FROM THE ATC PANEL.

OCCUPIED MODE:

1. OPEN OUTSIDE AIR DAMPER D-1 AND CLOSE RETURN AIR DAMPER D-2. START AHU SUPPLY FAN WHEN OUTSIDE AIR DAMPER HAS BEEN PROVEN OPEN BY LIMIT SWITCH. INTERLOCK AHU WITH EF-11 AND EF-12.

2. OPEN EXHAUST AIR MODS D-3 AND D-4 AND START EF-11 AND EF-12 WHEN THEIR RESPECTIVE EXHAUST DAMPERS HAVE BEEN PROVEN OPEN BY LIMIT SWITCH.

3. AHU SUPPLY FAN SHALL OPERATE CONTINUOUSLY.

4. WHEN OUTSIDE AIR TEMPERATURE IS ABOVE 12°C AS SENSED BY OAT SENSOR, MODULATE COOLING COIL CONTROL VALVE V-3A AS REQUIRED TO MAINTAIN SPACE COOLING TEMPERATURE SETPOINT (24.5°C, ADJUSTABLE).

5. WHEN SPACE RELATIVE HUMIDITY EXCEEDS SPACE SETPOINT (60% ADJUSTABLE), MODULATE COOLING COIL CONTROL VALVE V-3A AS REQUIRED TO MAINTAIN RELATIVE HUMIDITY SETPOINT.

7. WHEN SPACE TEMPERATURE SETPOINT FALLS BELOW HEATING TEMPERATURE SETPOINT (20°C, ADJUSTABLE) MODULATE HEATING COIL CONTROL VALVE A-3C AS REQUIRED TO MAINTAIN SPACE HEATING SETPOINT.

UNOCCUPIED MODE:

1. OPEN RETURN AIR DAMPER D-2 AND CLOSE OUTSIDE AIR DAMPER D-1. START AHU SUPPLY FAN WHEN DAMPER D-2 HAS BEEN PROVEN OPEN BY LIMIT SWITCH.

2. DEACTIVATE EF-11 AND EF-12 AND CLOSE EXHAUST DAMPERS D-3 AND D-4.

3. MODULATE COIL CONTROL VALVES AND HWCP-3 AS DESCRIBED IN THE OCCUPIED MODE.

4. PROVIDE OVERRIDE TIMER LOCATED AS DIRECTED BY ROICC THAT INDEXES AHU AND ASSOCIATED FANS AND TERMINAL UNITS TO THE OCCUPIED PERIOD OF UP TO 4 HOURS.

SAFETY CONTROLS:

1. WHEN SUPPLY OR RETURN AIR SMOKE DETECTOR SENSES PRODUCTS OF COMBUSTION, DEACTIVATE AHU SUPPLY FAN AND EXHAUST FANS, CLOSE OUTSIDE AIR DAMPER, AND ANNUNCIATE AN ALARM TO THE CENTRAL WORKSTATION GRAPHIC INTERFACE AND THE FIRE ALARM SYSTEM. INTERLOCK WITH THE SUPPLY FAN SHALL BE HARD WIRED AND REQUIRE A MANUAL RESET.

2. WHEN FREEZESTAT SENSES HEATING WATER COIL DISCHARGE TEMPERATURE BELOW 3°C, ACTIVATE COIL CIRCULATION PUMP HWCP-3 AND SCHP, OPEN V-3A, DEACTIVATE AHU SUPPLY FAN AND CLOSE OUTSIDE AIR DAMPER. ANNUNCIATE AN ALARM AT THE CENTRAL WORKSTATION GRAPHIC INTERFACE.

REVISIONS

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CHARLES R. LORTZ
No. 013864
8/13/02
PROFESSIONAL ENGINEER

APPROVED

ACTIVITY - SATISFACTORY TO

DATE

APPROVED

F. P. BOWEN
FOR USE FOR COMMANDER WORK
9/18/02

DATE

A/E SFP DESIGN
JMR DRAWN
GEJ REVIEW
CAH OC
JOA CHIEF MECH ENGR

PROJECT MANAGER
FIRE PROTECTION
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DESIGN DIRECTOR

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NAVAL FACILITIES ENGINEERING COMMAND
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AIMD CONSOLIDATION
CHAMBERS FIELD
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CONTROL SCHEMATICS

DEPARTMENT OF THE NAVY

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