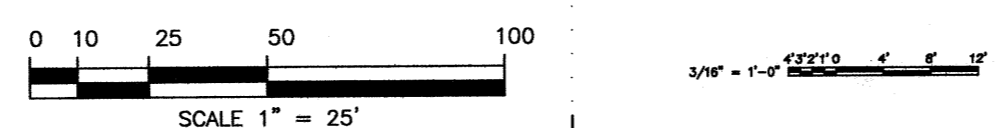
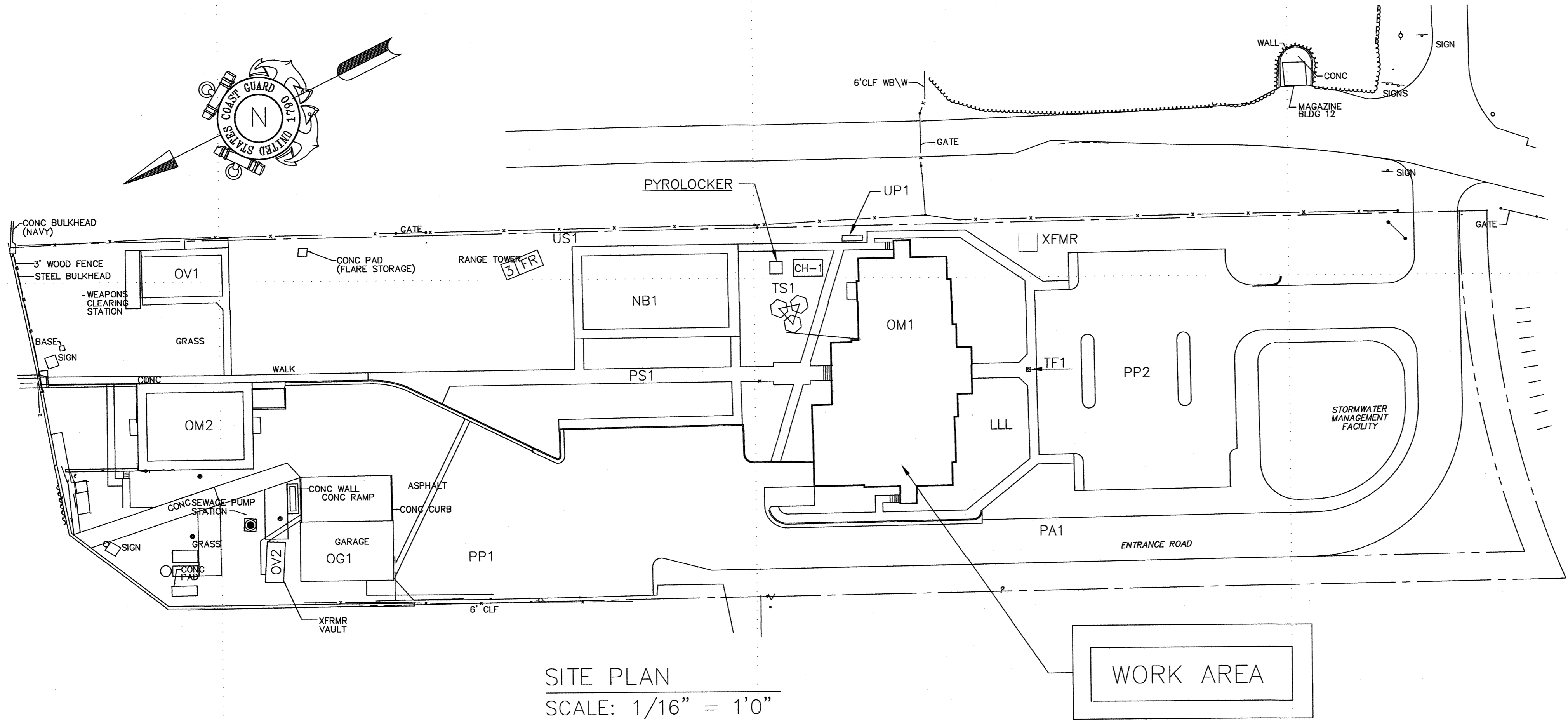
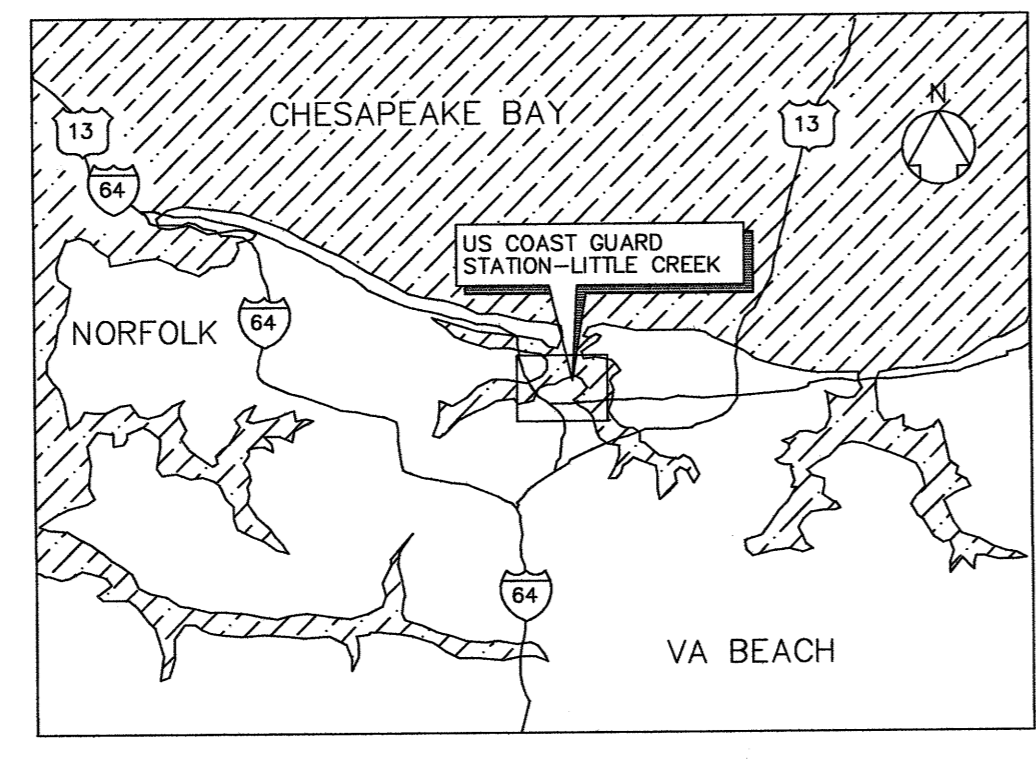
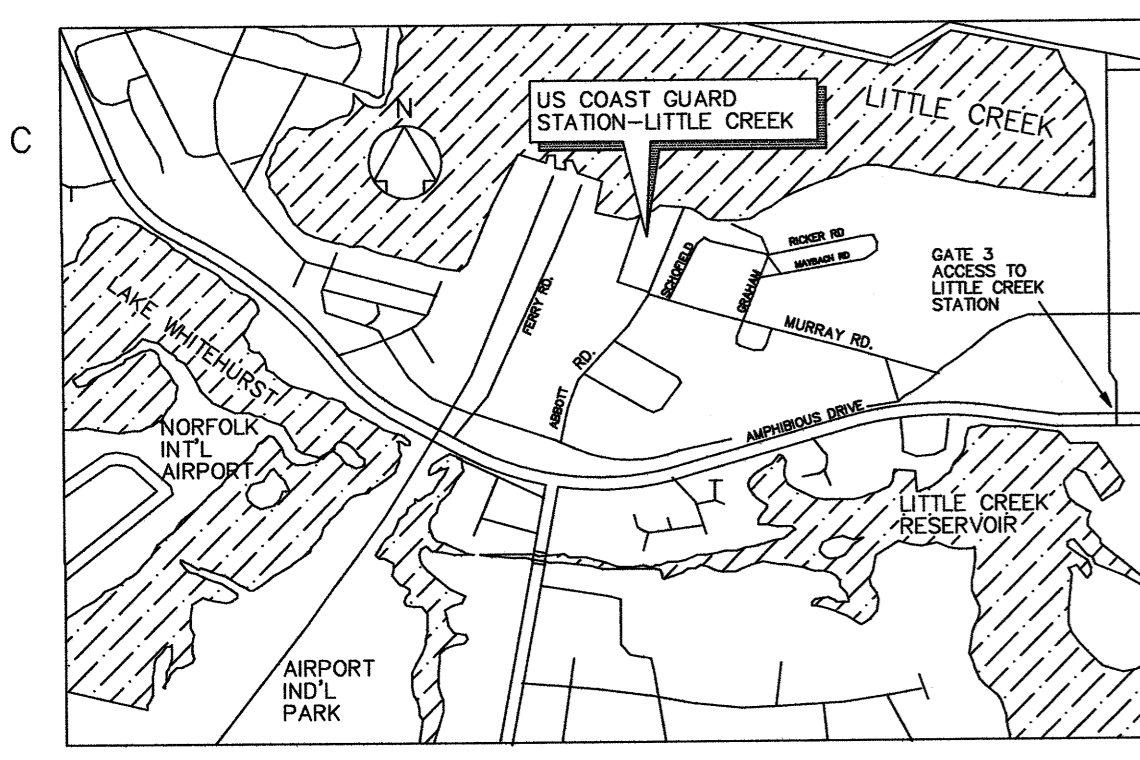


# REPAIR HVAC IN STATION BLDG USCG STATION LITTLE CREEK VIRGINIA BEACH, VIRGINIA

DRAWING INDEX	
SHEET	TITLE
<b>GENERAL</b>	
G-01	SITE PLAN
<b>MECHANICAL</b>	
M-01	FIRST FLOOR PLAN
M-02	SECOND FLOOR PLAN
M-03	SCHEDULES
M-04	DETAILS
M-05	DIAGRAM

SYMBOLS	
000	ROOM NUMBER
Ⓢ	THERMOSTAT / TEMPERATURE SENSOR
TC-1	TIME CLOCK
SW	SWITCH
— HCS —	HOT/CHILLED WATER SUPPLY
— HCR —	HOT/CHILLED WATER RETURN
— D —	DRAINLINE
⊘	VOLUME DAMPER
Ⓜ	FLOOR DRAIN
Ⓜ	METER (GAS OR WATER)
Ⓢ	AUX / CONDENSATE DRAIN DOWN
○	CONDENSATE OVERFLOW PIPING FROM SECOND FLOOR
◆	CONNECT NEW TO EXISTING

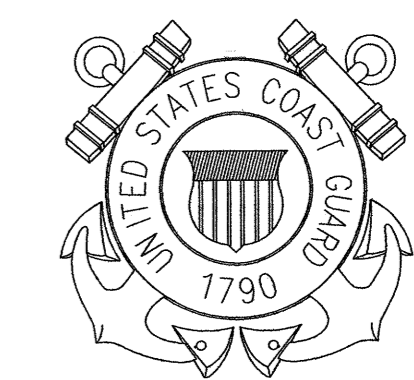
- GENERAL NOTES:**
- GENERAL NOTES APPLY TO ALL SHEETS IN THIS SET.
  - ALL ITEMS ARE EXISTING UNLESS OTHERWISE NOTED.
  - INSTALLATION AND CONNECTIONS SHALL BE SIZED TO MATCH EXISTING.
  - FINISH REMOVAL/INSTALLATION OF EACH FAN COIL UNIT AND CONTROLS BEFORE MOVING TO THE NEXT.
  - ALL WORK SHALL COMPLY WITH ICC MECHANICAL CODE AND NFPA 70.
  - CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND LOCATIONS PRIOR TO EQUIPMENT PROCUREMENT.
  - INSTALLATION OF EQUIPMENT SHALL COMPLY WITH MANUFACTURER'S INSTRUCTIONS.
  - PROVIDE AND INSTALL ALL EQUIPMENT SO AS TO BE ABLE TO FIT WITHIN EXISTING SPACES. ALL EQUIPMENT SHALL BE ACCESSIBLE FOR MAINTENANCE AND REPAIRS.



USCG CEU  
CLEVELAND, OHIO  
(216) 902-6200

CONSULTANTS	

U. S. COAST GUARD  
CIVIL ENGINEERING UNIT  
CLEVELAND



USCG. CEU CLEVELAND  
1240 EAST 9TH STREET  
CLEVELAND, OH 44199-2060

ISSUE		
MARK	DATE	DESCRIPTION

A/E PROJECT NO:	
CAD FILE NAME:	C8407G01
DESIGNED BY:	EFW
DRAWN BY:	EFW
EDITED BY:	EFW
CHECKED BY:	BV

SCALE: AS SHOWN PLOT SCALE: 1:1

**SHEET TITLE**

REPAIR HVAC IN STATION BLDG  
CG STA LITTLE CREEK  
VIRGINIA BEACH VA  
STATION BUILDING  
GENERAL  
SITE PLAN

REVIEWED BY: E. F. WISNESKI	REVIEWED BY: B. VANKAR	REVIEWED BY: G. S. PLACZEK
PROJECT ENG.	BRANCH CHIEF	TECH. DIRECTOR

S. P. HANNIGAN, CDR  
APPROVING OFFICER

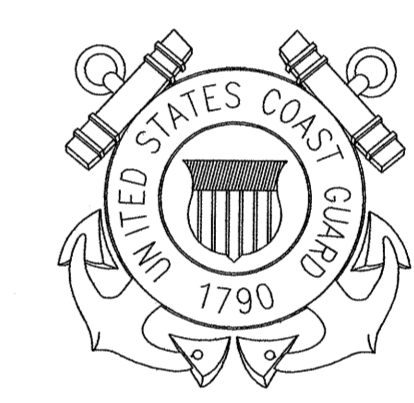
11/04/16  
DATE

PROJECT NUMBER	DRAWING NUMBER
4668187	8407-D

DISCIPLINE/SHT NO	SHEET 1 OF 6
G-01	

CONSULTANTS

U. S. COAST GUARD  
CIVIL ENGINEERING UNIT  
CLEVELAND



USCG. CEU CLEVELAND  
1240 EAST 9TH STREET  
CLEVELAND, OH 44199-2060

ISSUE		
MARK	DATE	DESCRIPTION

A/E PROJECT NO:  
CAD FILE NAME: C8407M01  
DESIGNED BY: EFW  
DRAWN BY: EFW  
EDITED BY: EFW  
CHECKED BY: BV

SCALE: AS SHOWN PLOT SCALE: 1:1

SHEET TITLE  
**REPAIR HVAC IN STATION BLDG  
CG STA LITTLE CREEK VA  
VIRGINIA BEACH VA  
STATION BUILDING  
MECHANICAL  
FIRST FLOOR PLAN**

REVIEWED BY: E. F. WISNESKI PROJECT ENG.	REVIEWED BY: G. S. PLACZEK TECH. DIRECTOR	REVIEWED BY: S. P. HANNIGAN, CDR APPROVING OFFICER
--	---	--

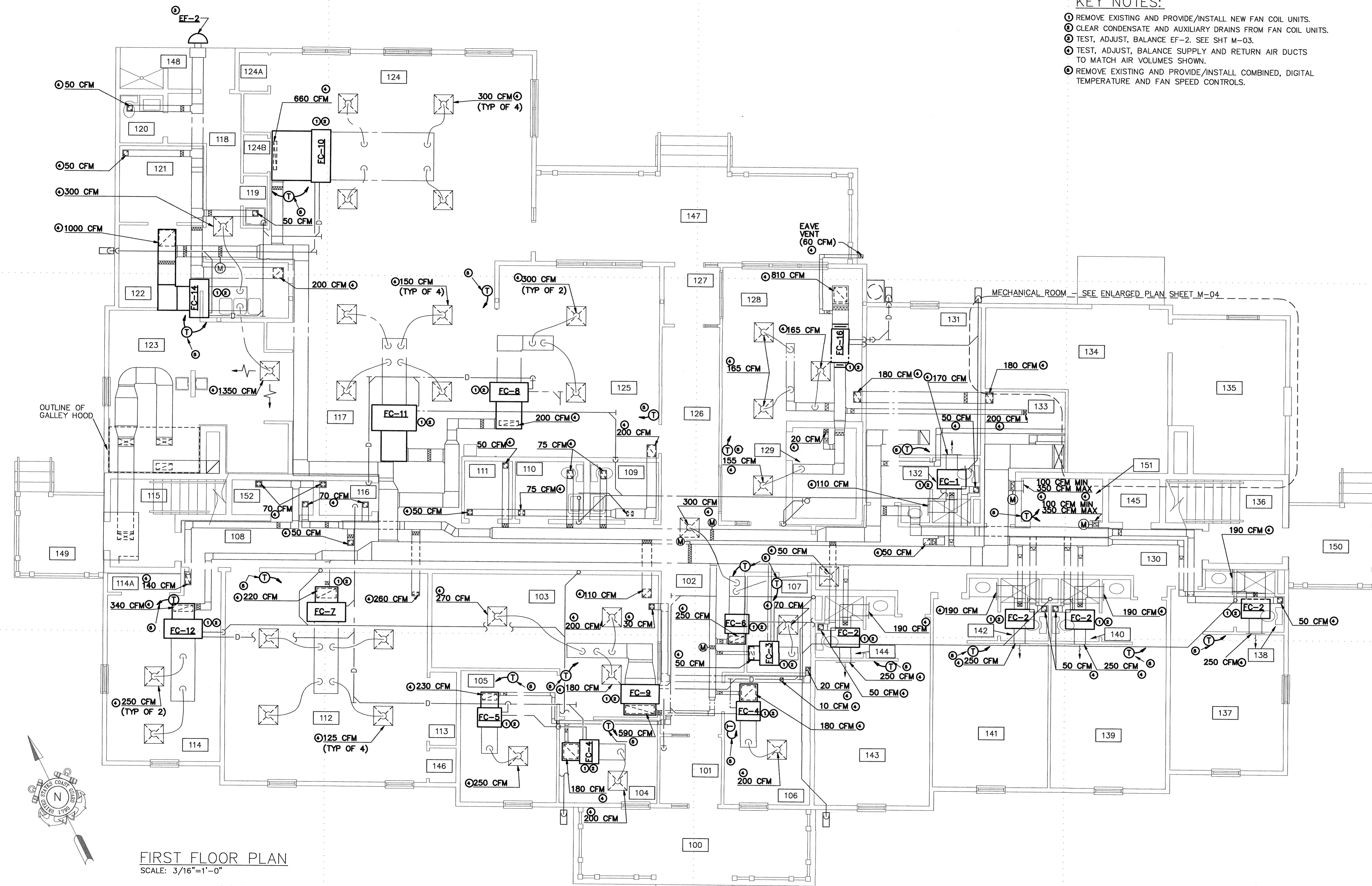
11/04/16  
DATE

PROJECT NUMBER 4668187	DRAWING NUMBER 8407-D
---------------------------	--------------------------

DISCIPLINE/SHT NO M-01	SHEET 2 OF 6
---------------------------	--------------

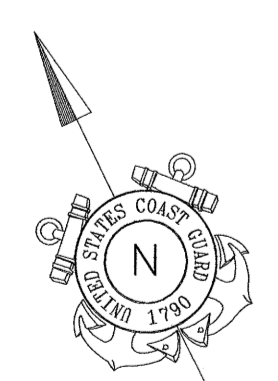
KEY NOTES:

- 1 REMOVE EXISTING AND PROVIDE/INSTALL NEW FAN COIL UNITS.
- 2 CLEAR CONDENSATE AND AUXILIARY DRAINS FROM FAN COIL UNITS.
- 3 TEST, ADJUST, BALANCE EF-2. SEE SHT M-03.
- 4 TEST, ADJUST, BALANCE SUPPLY AND RETURN AIR DUCTS TO MATCH AIR VOLUMES SHOWN.
- 5 REMOVE EXISTING AND PROVIDE/INSTALL COMBINED, DIGITAL TEMPERATURE AND FAN SPEED CONTROLS.



FIRST FLOOR PLAN

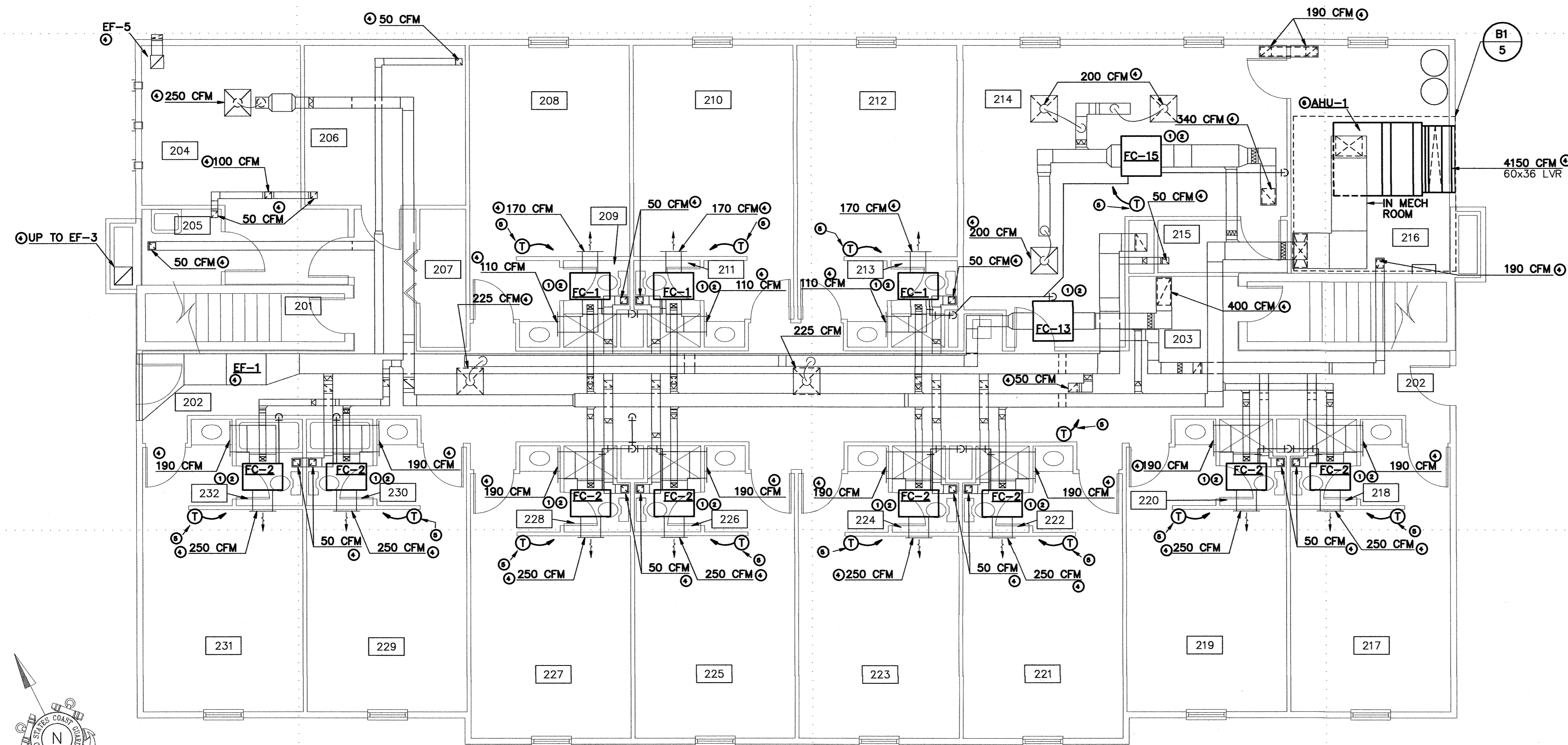
SCALE: 3/16"=1'-0"  
3/16" = 1'-0" 4' 8' 12'



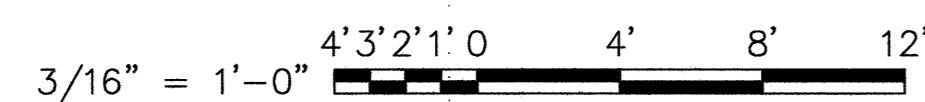
CONSULTANTS

**KEY NOTES:**

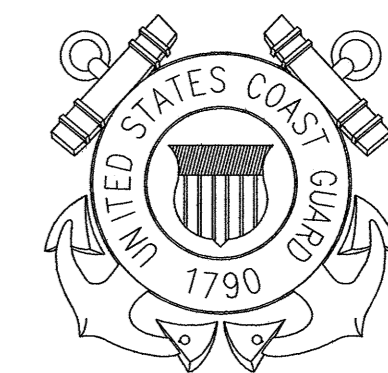
- ① REMOVE EXISTING AND PROVIDE/INSTALL NEW FAN COIL UNITS.
- ② CLEAR CONDENSATE AND AUXILIARY DRAINS FROM FAN COIL UNITS.
- ③ TEST, ADJUST, BALANCE EF-1, EF-3, EF-5. SEE SHT M-03.
- ④ TEST, ADJUST, BALANCE SUPPLY AND RETURN AIR DUCTS TO MATCH AIR VOLUMES SHOWN.
- ⑤ REMOVE EXISTING AND PROVIDE/INSTALL COMBINED, DIGITAL TEMPERATURE AND FAN SPEED CONTROLS.
- ⑥ REMOVE EXISTING AND PROVIDE/INSTALL NEW AIR HANDLING UNIT.



**SECOND FLOOR PLAN**  
 SCALE: 3/16"=1'-0"



**U. S. COAST GUARD  
 CIVIL ENGINEERING UNIT  
 CLEVELAND**



USCG. CEU CLEVELAND  
 1240 EAST 9TH STREET  
 CLEVELAND, OH 44199-2060

ISSUE

MARK	DATE	DESCRIPTION

A/E PROJECT NO:	
CAD FILE NAME:	C8407M02
DESIGNED BY:	EFW
DRAWN BY:	EFW
EDITED BY:	EFW
CHECKED BY:	BV

SCALE: AS SHOWN PLOT SCALE: 1:1

SHEET TITLE

**REPAIR HVAC IN STATION BLDG  
 CG STA LITTLE CREEK  
 VIRGINIA BEACH VA  
 STATION BUILDING  
 MECHANICAL  
 SECOND FLOOR PLAN**

REVIEWED BY: E. F. WISNESKI	REVIEWED BY: B. VRANKAR	REVIEWED BY: G. S. PLACZEK
PROJECT ENG.	BRANCH CHIEF	TECH. DIRECTOR

S. P. HANNIGAN, CDR APPROVING OFFICER	11/04/16 DATE
--	------------------

PROJECT NUMBER 4668187	DRAWING NUMBER 8407-D
DISCIPLINE/SHT NO M-02	SHEET 3 OF 6

USCG CEU  
CLEVELAND, OHIO  
(216) 902-6200

### AIR HANDLING UNIT SCHEDULE

MARK	TYPE	FAN SECTION					COIL (NOTE B)										NOTES		
		TOTAL CFM	MIN CFM (NOTE F)	EXTERNAL S.P. AT MAX FLOW (IN. WG) (NOTE A)	MIN MOTOR HP	RPM	COOLING CAPACITY					HEATING CAPACITY							
							CFM (NOTE G)	E.A.T. (°F) DB	E.A.T. (°F) WB	TOTAL (MBH)	SENSIBLE (MBH)	GPM	L.A.T. (°F) DB	L.A.T. (°F) WB	CFM	E.A.T. (°F)		L.A.T. (°F)	TOTAL CAP. (MBH)
AHU-1	2-SPEED HORIZONTAL DRAW-THRU	4527	2020	1.6	3.78	1245	3500	90	72	242.1	165.8	48.5	46.4	46.3	4527	22	64	244.7	STATION BUILDING OUTSIDE AIR

**NOTES:**  
 A. EXTERNAL STATIC PRESSURE DROP DOES NOT INCLUDE FILTERS, COOLING/HEATING COIL, MIXING BOX, FILTER LOADING OR CASING.  
 B. COIL COOLING CAPACITIES SHALL BE BASED ON 45° E.W.T. AND MAXIMUM 10° F. TEMPERATURE RISE. COIL HEATING CAPACITIES SHALL BE BASED ON 180° F. E.W.T. WITH A 20° F. TEMPERATURE DROP. MAXIMUM AIR PRESSURE DROP SHALL BE 1.0 IN. WG. MAXIMUM WATER PRESSURE DROP SHALL BE 10 FT. WG.  
 C. TOTAL STATIC PRESSURE SHALL INCLUDE A FILTER LOADING ALLOWANCE OF 0.25 IN. WG.  
 D. PIPE COIL DRAIN PANS TO THE NEAREST FLOOR DRAIN.  
 E. BALANCE COIL TO COOLING GPM, HEATING GPM SHALL NOT BE LESS THAN 25.1 GPM.  
 F. MIN OA CFM (LOW SPEED) AUTOMATIC DURING NIGHT TIME OPERATION AS INDEXED BY THE TIME CLOCK (TC-1).  
 G. CFM NOTED IS AIR FLOW THRU THE COIL AT HIGH FAN SPEED. THE DIFFERENCE BETWEEN COIL AND TOTAL AIR FLOW SHALL BE BY PASSED. SUPPLY AIR TEMPERATURE TO THE FAN COIL UNITS, INCLUDING FAN HEAT, SHALL BE AS FOLLOWS:  
 COOLING: 70° F DB, 64.3° F WB  
 HEATING: 64° F DB

### EXISTING FAN SCHEDULE

MARK	TYPE	DRIVE	DESCRIPTION	CFM (MAX/MIN)	EXT SP AT MAX FLOW (IN. WG)	MIN MOTOR HP	RPM	MAX SONE RATING	ELECTRICAL (VOLTS/PHASE)
EF-1	2-SPEED IN-LINE CENTRIFUGAL	BELT	PRIMARY BUILDING EXHAUST	2400/1640	0.5	3/4	866	10.3	460V/3ø
EF-2	POWER WALL VENTILATOR	BELT	EXHAUST-KITCHEN AREA	350/0	0.25	1/3	475	4	115V/1ø
EF-3	UPBLAST PRV	BELT	GALLEY HOOD EXHAUST	2500/0	1.5	2	650	10.5	460V/3ø
EF-5	CEILING	DIRECT	LAUNDRY ROOM EXHAUST	150/0	0.15	1/25	1366	2.5	115V/1ø

### FAN COIL UNIT SCHEDULE

MARK	ARRANGEMENT	FAN					COIL CAPACITY										QTY	
		SUPPLY CFM	SPEED	ESP IN. WG.	HP	OUTSIDE AIR CFM	COOLING					HEATING						
							TOTAL BTUH	SENSIBLE BTUH	E.A.T. °F DB	E.A.T. °F WB	L.A.T. °F DB	L.A.T. °F WB	GPM	BTUH	E.A.T. °F DB	E.A.T. °F WB		L.A.T. °F DB
FC-1	HORIZ	170	HIGH	0.10	1/30	60	3900	2860	75.3	64.5	59.7	57.0	-	2300	64.7	77.2	-	4
FC-2	HORIZ	250	HIGH	0.10	1/30	60	6080	4670	76.2	64.4	58.9	56.5	-	4370	66.4	82.6	-	12
FC-3	HORIZ	70	LOW	0.10	1/30	20	1100	820	75.9	66.4	65.0	60.6	-	500	65.7	72.3	-	1
FC-4	HORIZ	200	HIGH	0.125	1/30	20	4230	3740	77.4	63.9	60.1	57.0	-	1510	68.5	75.5	-	2
FC-5	HORIZ	250	HIGH	0.10	1/30	20	5290	4810	77.5	63.6	59.7	56.4	-	1780	68.8	75.4	-	1
FC-6	HORIZ	350	HIGH	0.125	1/12	100	7720	6310	75.9	63.6	59.2	56.2	-	3700	65.7	75.5	-	1
FC-7	HORIZ	500	HIGH	0.15	1/6	280	10,130	6700	73.6	65.4	61.2	59.0	-	7940	61.6	76.3	-	1
FC-8	HORIZ	600	HIGH	0.20	1/6	300	15,600	8560	73.3	65.4	59.3	57.2	-	8910	61.0	73.8	-	1
FC-9	HORIZ	650	HIGH	0.20	1/6	60	16,380	13,550	77.4	63.7	58.1	55.1	-	1680	68.6	71.0	-	1
FC-10	HORIZ	1200	HIGH	0.20	(2) 1/6	360	27,300	17,960	75.2	64.8	59.5	57.0	-	20,040	64.6	77.6	-	1
FC-11	HORIZ	600	HIGH	0.15	1/6	600	12,320	7010	70.0	64.3	59.7	57.6	-	10,360	55.0	72.2	-	1
FC-12	HORIZ	500	HIGH	0.20	1/6	160	9900	7290	75.6	65.8	62.1	59.6	-	5890	65.2	76.1	-	1
FC-13	HORIZ, DUCTED	450	HIGH	0.40	1/8	50	5870	5540	77.3	65.4	65.9	61.2	-	2960	68.3	74.4	-	1
FC-14	HORIZ, DUCTED	1650	HIGH	0.25	(2) 1/5	440	41,170	30,640	75.6	63.1	56.0	54.0	-	14,040	65.3	72.6	-	1
FC-15	HORIZ, DUCTED	600	HIGH	0.30	1/5	260	16,200	11,150	74.6	64.4	57.4	55.4	-	6610	63.5	73.7	-	1
FC-16	RECESSED HORIZ	870	HIGH	0.20	1/4	60	16,280	15,440	78.8	65.7	63.1	59.6	-	NOTE H	70.0	-	-	1

**NOTES:**  
 A. COOLING COIL CAPACITIES SHALL BE BASED ON 45° E.W.T. AND 10° F. WATER TEMPERATURE RISE. HEATING COIL CAPACITIES SHALL BE BASED ON 180° F. E.W.T. AND 20° F. WATER TEMPERATURE DROP.  
 B. ELECTRICAL SERVICE SHALL BE 115V/1ø, UNLESS NOTED OTHERWISE.  
 C. EXTERNAL STATIC PRESSURE DROP DOES NOT INCLUDE FILTERS, COOLING/HEATING COIL, FILTER LOADING OR CASING.  
 D. FOR FC-1 THRU FC-15, BALANCE COILS TO HEATING/COOLING GPM'S.  
 E. FC-1 AND FC-2 UNIT ENCLOSURES ARE CABINET MODELS WITH TELESCOPING FLIP DOWN PANEL AND DUCT COLLAR REAR RETURN TYPE.  
 F. FC-3 THRU FC-12 UNIT ENCLOSURES ARE FURRED IN CEILING MODEL TYPE.  
 G. FC-13 THRU FC-16 UNIT ENCLOSURES ARE CEILING MODEL WITH CASING TYPE.  
 H. FC-16 IS THE INDOOR UNIT FOR HEAT PUMP HP-1. PROVIDE FC-16 WITH SUPPLEMENTAL 3KW ELECTRIC HEATING COIL. HP-1 SHALL BE 208V, 1-PH, 15.3 MCA. MINIMUM HEAT PUMP HEATING CAPACITY SHALL BE 21.0 MBH WITH 47° F DB/43° F WB AIR ENTERING OUTDOOR UNIT AND 14.1 MBH WITH 17° F DB/15° F WB AIR ENTERING OUTDOOR UNIT. FC-16 SHALL BE 208V, 1PH.

### EXISTING BOILER SCHEDULE

MARK	TYPE	OUTPUT (MBH)	MAX FIRING RATE NATURAL GAS (CFH)	MIN BURNER HP	MIN GAS PRESS INLET (IN WG)
B-1	FIRETUBE	396	495	1/2	7

**NOTES:**  
 A. MAX WATER PRESSURE DROP SHALL BE 5 FEET HEAD AT 55 GPM.  
 B. MINIMUM GAS PRESSURE IS AT THE INLET OF THE GAS TRAIN.  
 C. BOILER SHALL HAVE 180° LWT, AND A 20° F ΔT.  
 D. BALANCE GPM WITH HEATING LOAD FROM STATION BLDG EQUIPMENT.

### EXISTING CHILLER SCHEDULE

MARK	TONS	CHILLED WATER		CONDENSER	COMPRESSOR	MAX/PRESSURE DROP	EVAPORATOR (FT W.G.)
		GPM	L.W.T. (°F)				
CH-1	40.9	98.3	45	95	2	46.9	15

**NOTES:**  
 A. BALANCE GPM WITH COOLING LOAD FROM STATION BLDG EQUIPMENT.

CONSULTANTS

U. S. COAST GUARD  
CIVIL ENGINEERING UNIT  
CLEVELAND



USCG. CEU CLEVELAND  
1240 EAST 9TH STREET  
CLEVELAND, OH 44199-2060

MARK	DATE	DESCRIPTION

A/E PROJECT NO:  
 CAD FILE NAME: C8407M03  
 DESIGNED BY: EFW  
 DRAWN BY: EFW  
 EDITED BY: EFW  
 CHECKED BY: BV

SCALE: AS SHOWN PLOT SCALE: NONE

SHEET TITLE  
**REPAIR HVAC IN STATION BLDG  
 CG STA LITTLE CREEK  
 VIRGINIA BEACH VA  
 STATION BUILDING  
 MECHANICAL  
 SCHEDULES**

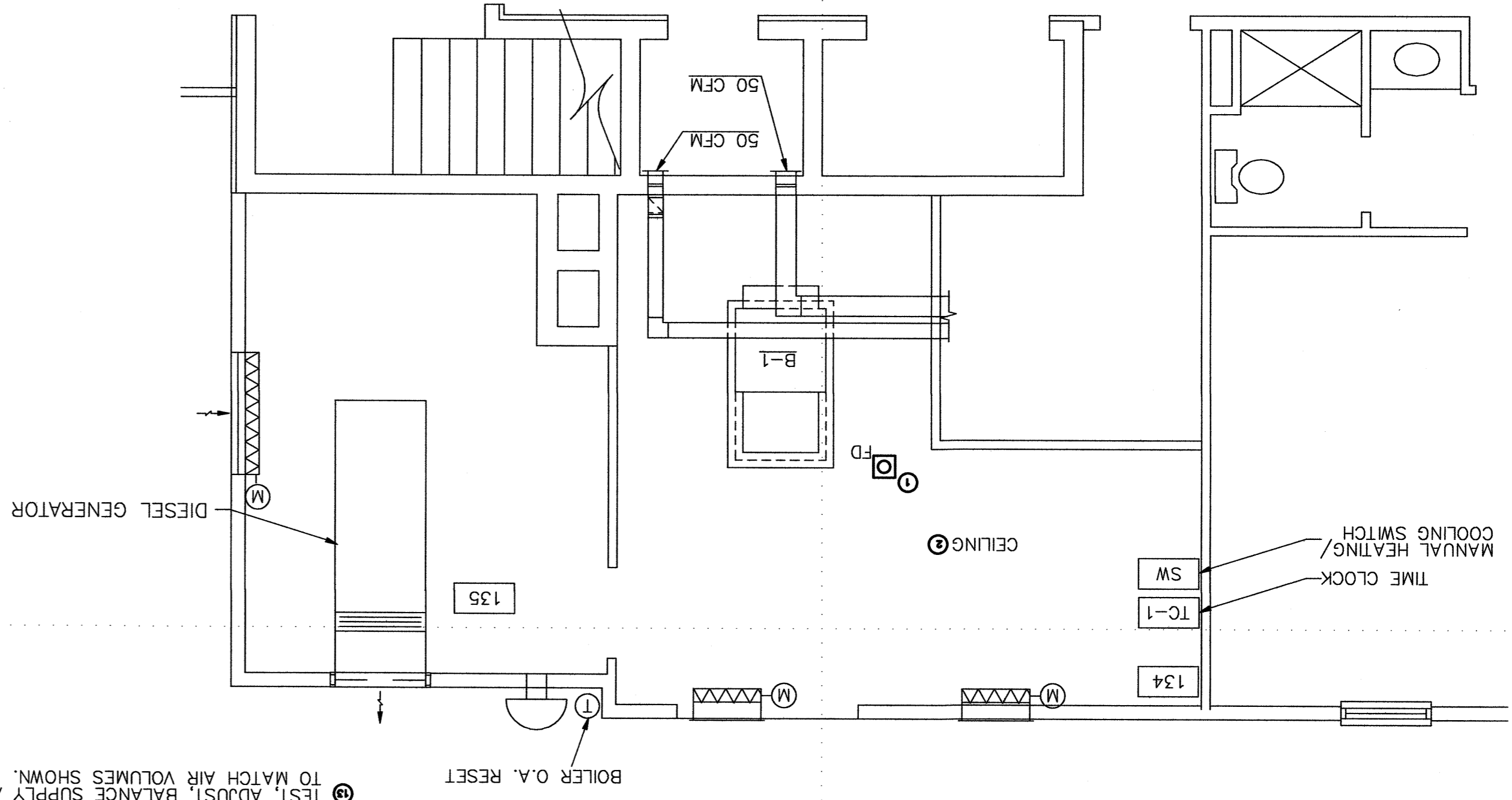
REVIEWED BY: E. F. WISNESKI  
 PROJECT ENG.  
 REVIEWED BY: B. VRANKAR  
 BRANCH CHIEF  
 REVIEWED BY: G. S. PLACZEK  
 TECH. DIRECTOR

S. P. HANNIGAN, CDR  
 APPROVING OFFICER  
 11/04/16  
 DATE

PROJECT NUMBER: 4668187  
 DRAWING NUMBER: 8407-D

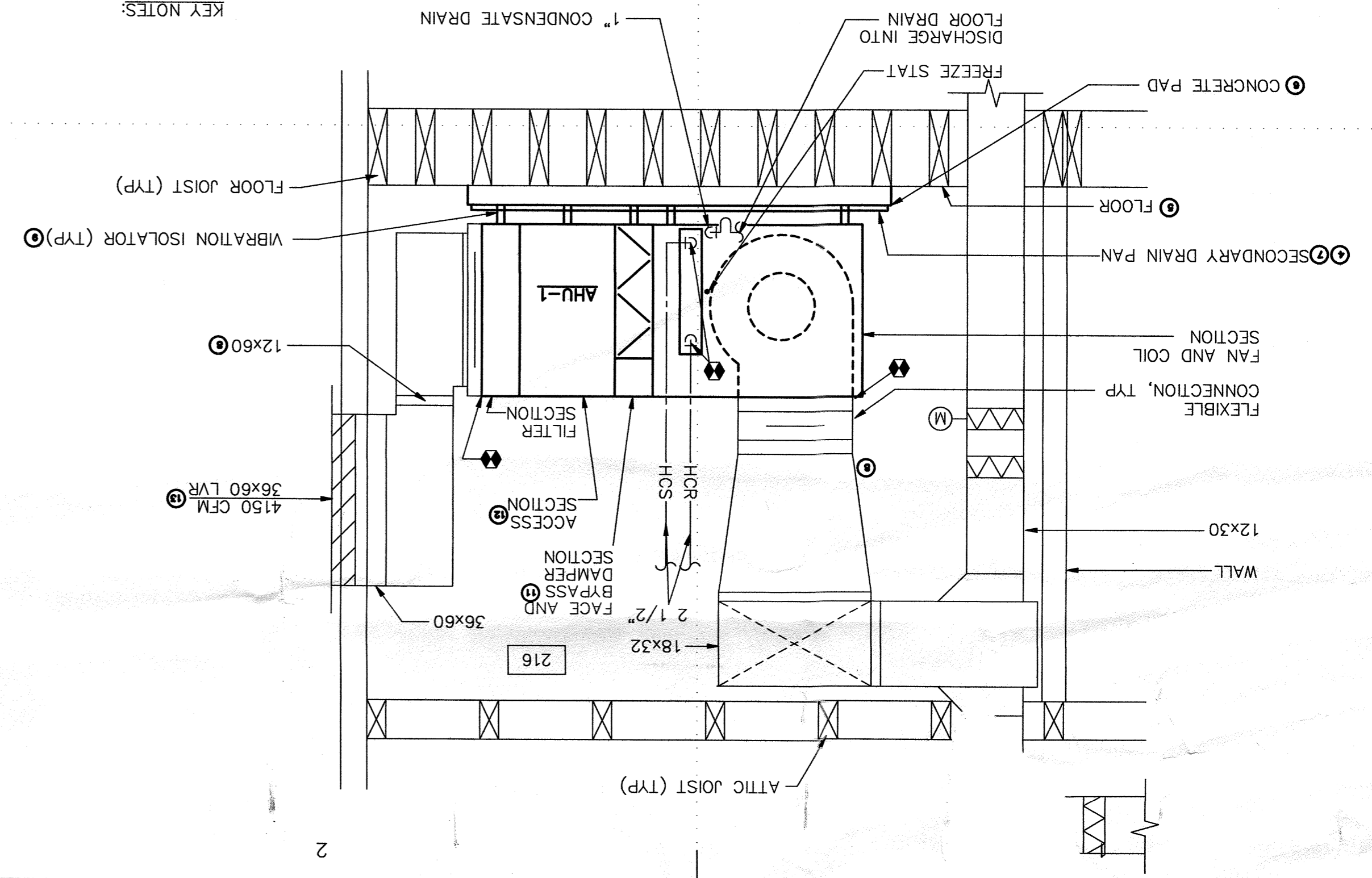
DISCIPLINE/SHT NO: M-03  
 SHEET 4 OF 6

ENLARGED PLAN - 1ST FLOOR MECHANICAL ROOM  
SCALE: NOT TO SCALE

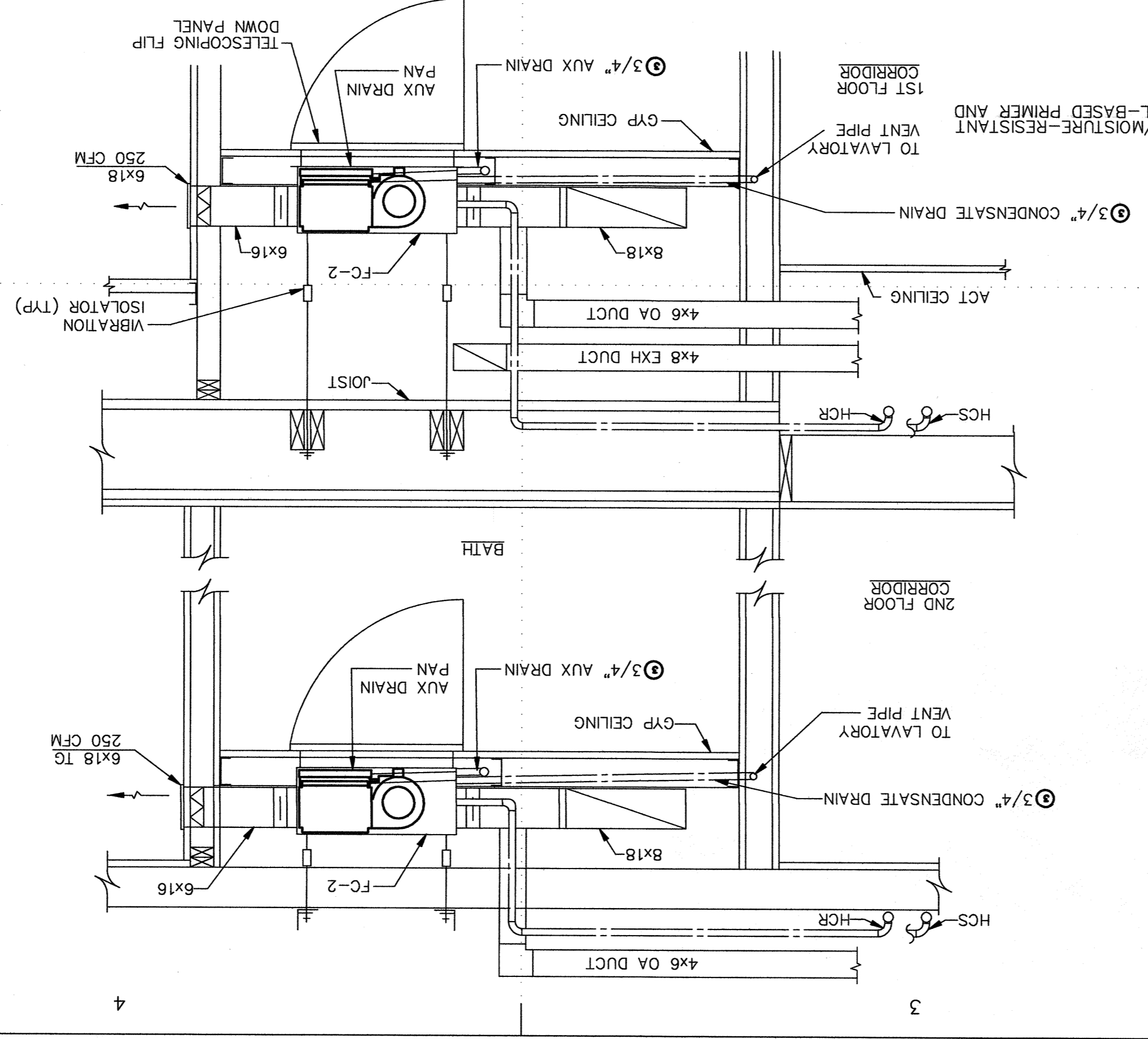


- KEY NOTES:
1. CLEAR FLOOR DRAIN.
  2. INSTALL 3.5" R13 BLANKET INSULATION AND MOLD/MOISTURE-RESISTANT TWO COATS OF WHITE LATEX PAINT.
  3. DRAW ON BOILER ROOM CEILING FINISH WITH OIL-BASED PRIMER AND CLEAR AUXILIARY AND CONDENSATE DRAIN LINES AND ANGLE AWAY FROM UNIT.
  4. ANGLE SECONDARY DRAIN PAN 1/8" PER FOOT IN TWO DIMENSIONS TOWARDS DRAIN.
  5. REPAIR WATER DAMAGED PLYWOOD SUBFLOOR TO MATCH EXISTING.
  6. INSTALL CAST-IN-PLACE CONCRETE HOUSEKEEPING PAD.
  7. SHALL SUPPORT ENTIRE SECONDARY DRAIN PAN FOOTPRINT. INSTALL THE FLOORING TO MATCH EXISTING INFORMATION. SEE SPEC SECTION 23 73 13 FOR INSTALLATION INFORMATION.
  8. SECONDARY DRAIN PAN SHALL BE AT LEAST 4" WIDER ON ALL SIDES THAN AHU-1.
  9. INSULATE DUCTWORK INTO AND OUT OF AHU-1.
  10. VIBRATION ISOLATORS UNDER AIR HANDLING UNIT NOT REQUIRED IF FAN AND MOTOR ARE INTERNALLY ISOLATED.
  11. REPLACE DRAIN VALVE.
  12. AIR HANDLING UNIT DAMPER ACTUATOR SHALL RECEIVE CONTROL INPUT FROM TC-1.
  13. ACCESS SECTION CAN BE COMBINED WITH ANOTHER SECTION.
  14. TEST, ADJUST, BALANCE SUPPLY AND RETURN AIR DUCTS TO MATCH AIR VOLUMES SHOWN.

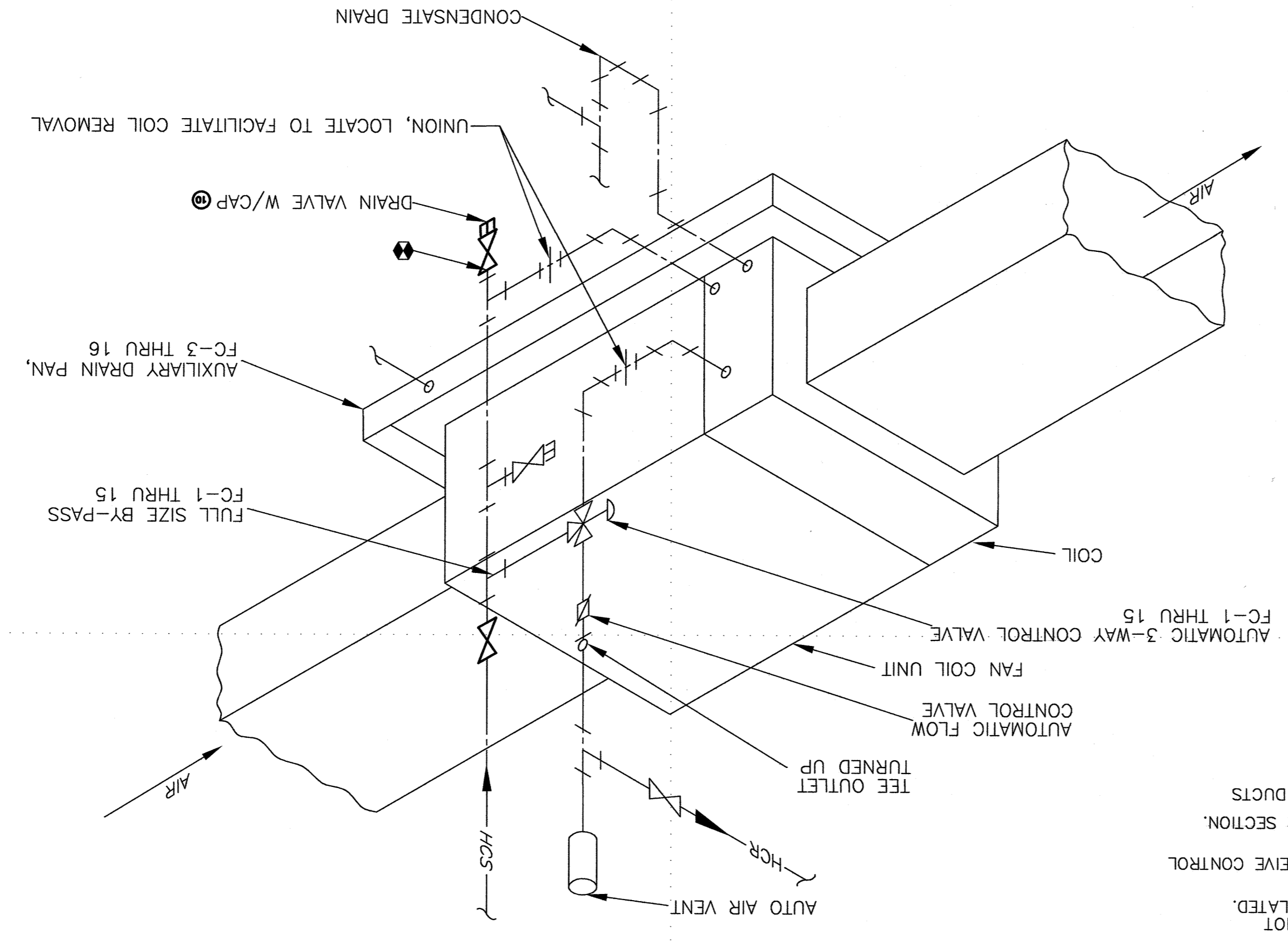
AHU-1 SECTION B1  
SCALE: NOT TO SCALE



FAN COIL UNIT DETAIL B3  
SCALE: NOT TO SCALE



FAN COIL UNIT W/ 3-WAY CONTROL VALVE  
SCALE: NOT TO SCALE



USCG CEU  
CLEVELAND, OHIO (216) 902-6200

CONSULTANTS

U. S. COAST GUARD  
CIVIL ENGINEERING UNIT  
CLEVELAND

USCG. CEU CLEVELAND  
1240 EAST 9TH STREET  
CLEVELAND, OH 44199-2060

MARK	DATE	DESCRIPTION

A/E PROJECT NO:  
CAD FILE NAME: C8407M04  
DESIGNED BY: EFW  
DRAWN BY: EFW  
EDITED BY: EFW  
CHECKED BY: BV

SCALE: AS SHOWN  
PLOT SCALE: 1:1

SHEET TITLE  
REPAIR HVAC IN STATION BLDG  
CG STA LITTLE CREEK  
VA  
STATION BUILDING  
MECHANICAL  
DETAILS

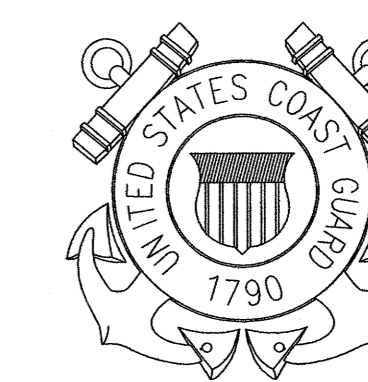
REVIEWED BY: E. F. WISNIEWSKI  
REVIEWED BY: B. WANKAR  
REVIEWED BY: G. S. PLACZEK  
PROJECT ENG. BRANCH CHIEF  
S. P. HANNINGHAM CDR  
APPROVING OFFICER  
DATE: 11/04/16

PROJECT NUMBER  
DRAWING NUMBER  
4668187  
8407-D

DISCIPLINE/SHT NO  
M-04  
SHEET 5 OF 6

CONSULTANTS

U. S. COAST GUARD  
 CIVIL ENGINEERING UNIT  
 CLEVELAND



USCG. CEU CLEVELAND  
 1240 EAST 9TH STREET  
 CLEVELAND, OH 44199-2060

ISSUE

MARK	DATE	DESCRIPTION

A/E PROJECT NO:  
 CAD FILE NAME: C8407M05  
 DESIGNED BY: EFW  
 DRAWN BY: EFW  
 EDITED BY: EFW  
 CHECKED BY: BV

SCALE: AS SHOWN PLOT SCALE: 1:1

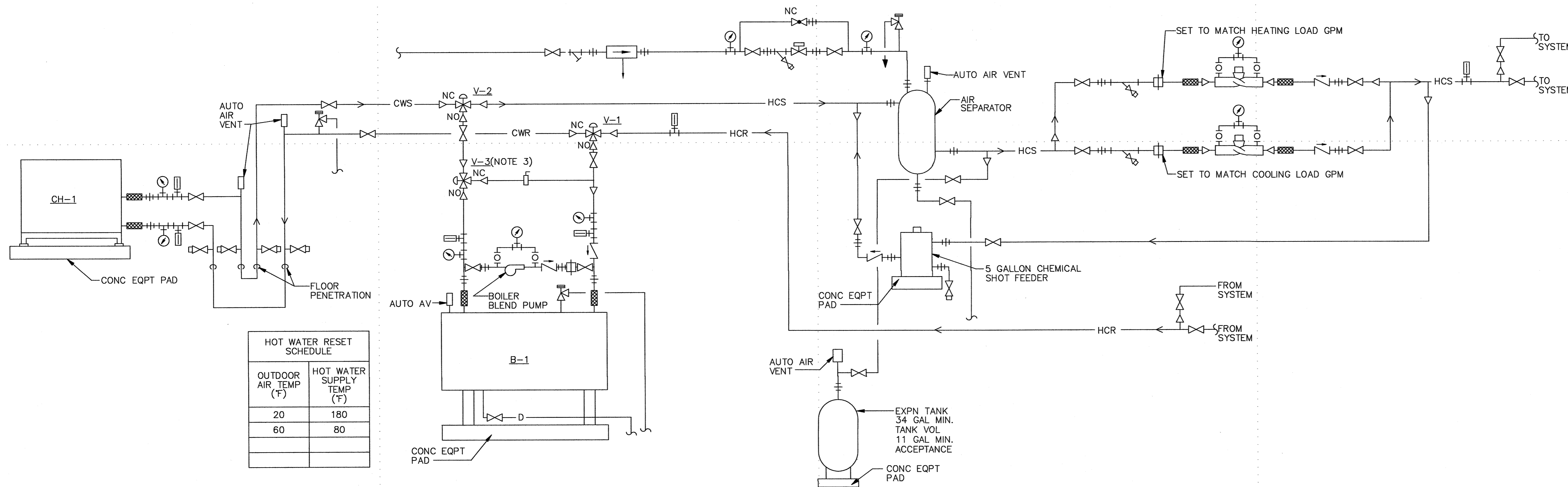
SHEET TITLE

REPAIR HVAC IN STATION BLDG  
 CG STA LITTLE CREEK  
 VIRGINIA BEACH VA  
 STATION BLDG  
 MECHANICAL  
 DIAGRAM

REVIEWED BY: E. F. WISNESKI	REVIEWED BY: B. VRANKAR	REVIEWED BY: G. S. PLACZEK
PROJECT ENG.	BRANCH CHIEF	TECH. DIRECTOR

S. P. HANNIGAN, CDR APPROVING OFFICER	11/04/16 DATE
--	------------------

PROJECT NUMBER 4668187	DRAWING NUMBER 8407-D
DISCIPLINE/SHT NO M-05	SHEET 6 OF 6



OUTDOOR AIR TEMP (°F)	HOT WATER SUPPLY TEMP (°F)
20	180
60	80

DUAL TEMPERATURE WATER FLOW DIAGRAM

NOT TO SCALE

NOTES:

1. BALANCE BOILER/CHILLER SYSTEM. NO NEW EQUIPMENT.
2. NC=NORMALLY CLOSED NO=NORMALLY OPEN
3. VALVE V-3 MODULATES TO MAINTAIN HOT WATER SUPPLY TEMP INDICATED.