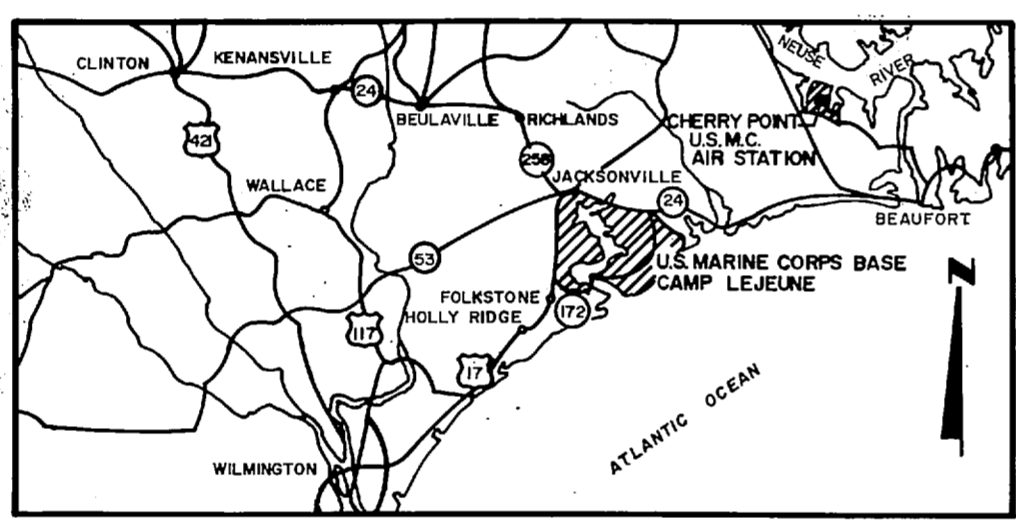


REVISIONS		
SYM	DESCRIPTION	DATE APPROVED

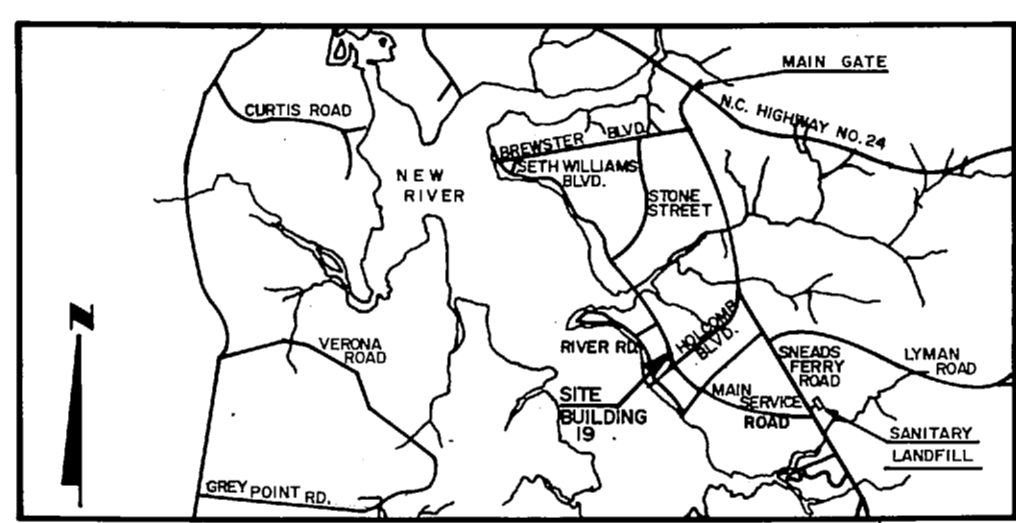
REPLACE HEATING AND AIR CONDITIONING SYSTEM

BUILDING 19

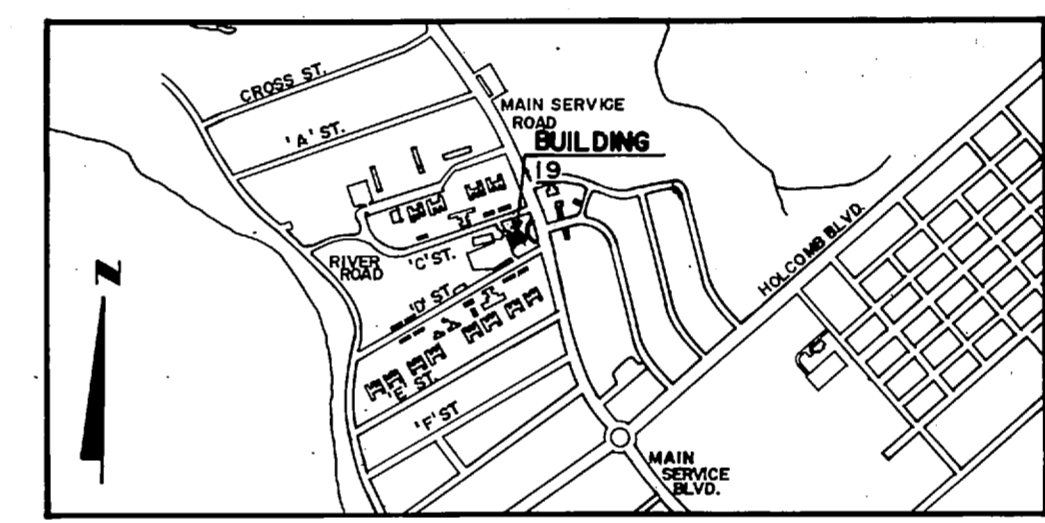
U.S. MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA



LOCATION MAP
1" = 13 MILES

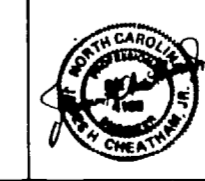
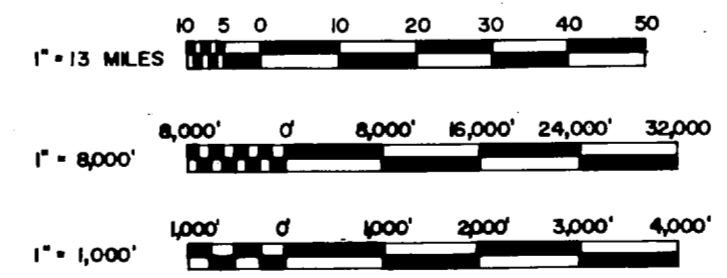


VICINITY MAP
1" = 8000'



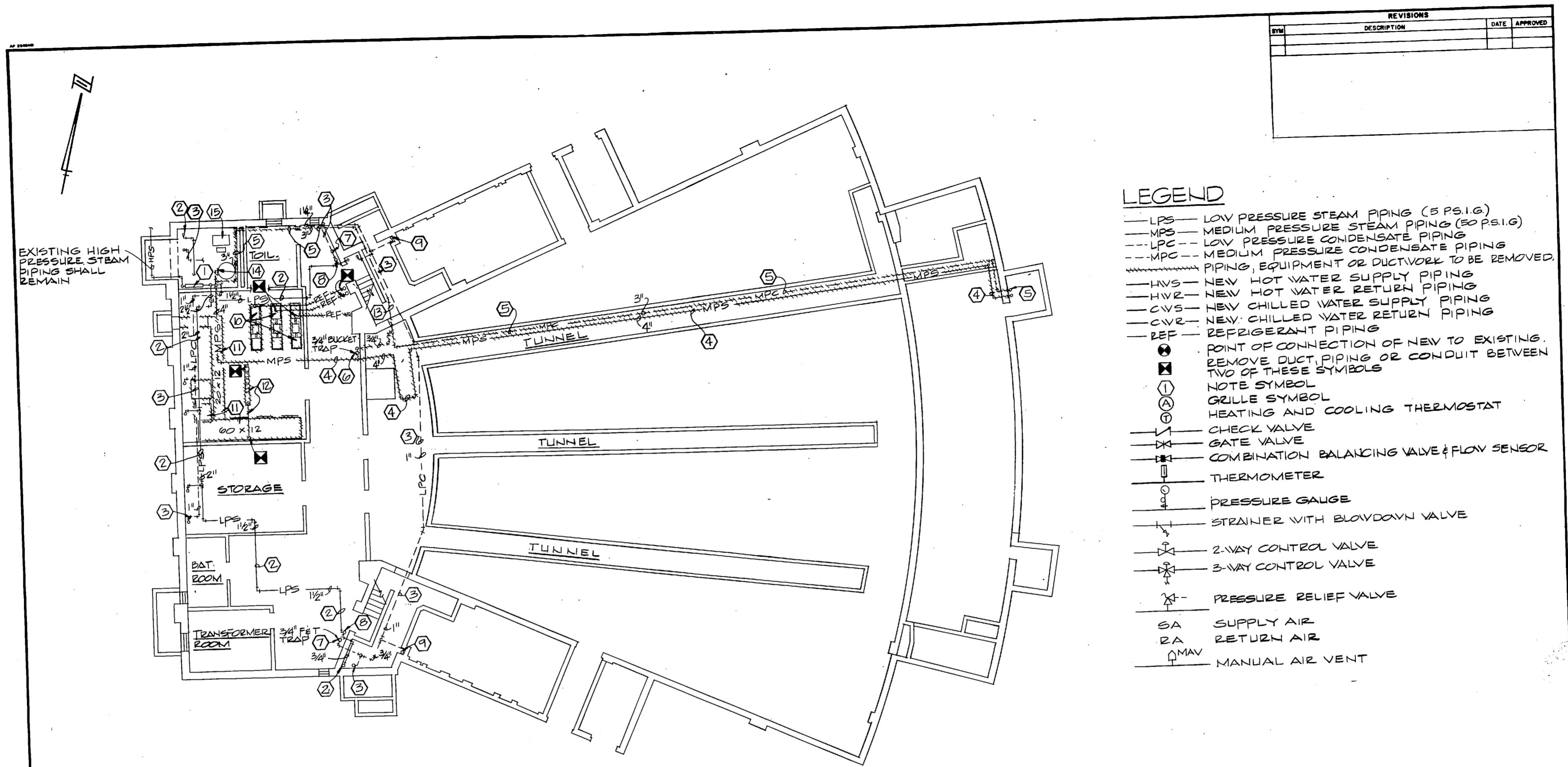
AREA MAP
BUILDING 19
1" = 1,000'

SCHEDULE OF DRAWINGS		
SHEET NUMBER	SHEET TITLE	NAVFAC DWG. NUMBER
C-1	TITLE SHEET	4100682
M-1	DEMOLITION WORK - SUBSTAGE AND TUNNEL PLAN	4100683
M-2	DEMOLITION WORK - ORCHESTRA FLOOR PLAN	4100684
M-3	DEMOLITION WORK - MEZZANINE AND BALCONY PLAN	4100685
M-4	DEMOLITION WORK - MACHINE ROOM FLOOR PLAN	4100686
M-5	NEW MECHANICAL WORK - SUBSTAGE AND TUNNEL PLAN	4100687
M-6	NEW MECHANICAL WORK - ORCHESTRA FLOOR PLAN	4100688
M-7	NEW MECHANICAL WORK - MEZZANINE AND BALCONY PLAN	4100689
M-8	NEW MECHANICAL WORK - MACHINE ROOM FLOOR PLAN	4100690
M-9	ENLARGED MECHANICAL ROOM PLAN AND ISOMETRIC	4100691
M-10	ENLARGED MECHANICAL ROOM PLAN AND SECTIONS	4100692
M-11	SECTIONS AND DETAILS	4100693
M-12	DETAILS AND CONTROLS	4100694
M-13	SCHEDULES	4100695
E-1	ELECTRICAL PLAN AND DETAILS	4100696
E-2	PANEL SCHEDULES AND DETAILS	4100697



C-1 CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WILMINGTON, NORTH CAROLINA DES. DM. DR. DM. CHK. JHC JR. PROJ. MGR. JHC JR. CO. ENGR. JHC JR. DATE: 10/15/82 SHEET NO. 1 OF 16 1" = 1,000'		ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. REPLACE HEATING AND AIR CONDITIONING SYSTEM, BUILDING 19 TITLE SHEET NAVFAC DRAWING NO. 4100682 SIZE CODE BENT. NO. F 80091 CONSTR. CONTR. NO. N62470-B2-B-4579 SCALE: GRAPHIC SPEC. 05-82-4579 SHEET 1 OF 16
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REVISIONS		
BY	DESCRIPTION	DATE APPROVED

- LEGEND**
- LPS — LOW PRESSURE STEAM PIPING (5 PS.I.G.)
 - MPS — MEDIUM PRESSURE STEAM PIPING (50 PS.I.G.)
 - LPC — LOW PRESSURE CONDENSATE PIPING
 - MPC — MEDIUM PRESSURE CONDENSATE PIPING
 - PIPING, EQUIPMENT OR DUCTWORK TO BE REMOVED.
 - HVS — NEW HOT WATER SUPPLY PIPING
 - HVR — NEW HOT WATER RETURN PIPING
 - CVS — NEW CHILLED WATER SUPPLY PIPING
 - CVR — NEW CHILLED WATER RETURN PIPING
 - REF — REFRIGERANT PIPING
 - — POINT OF CONNECTION OF NEW TO EXISTING.
 - ⊠ — REMOVE DUCT, PIPING OR CONDUIT BETWEEN TWO OF THESE SYMBOLS
 - ① — NOTE SYMBOL
 - ⊙ — GRILLE SYMBOL
 - ⊙ — HEATING AND COOLING THERMOSTAT
 - ⊥ — CHECK VALVE
 - ⊥ — GATE VALVE
 - ⊥ — COMBINATION BALANCING VALVE & FLOW SENSOR
 - ⊥ — THERMOMETER
 - ⊥ — PRESSURE GAUGE
 - ⊥ — STRAINER WITH BLOWDOWN VALVE
 - ⊥ — 2-WAY CONTROL VALVE
 - ⊥ — 3-WAY CONTROL VALVE
 - ⊥ — PRESSURE RELIEF VALVE
 - SA — SUPPLY AIR
 - RA — RETURN AIR
 - ⊥ — MANUAL AIR VENT

**DEMOLITION WORK
SUB-STAGE AND TUNNEL PLAN**

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

DEMOLITION NOTES: (FOR DRAWING M-1 ONLY)

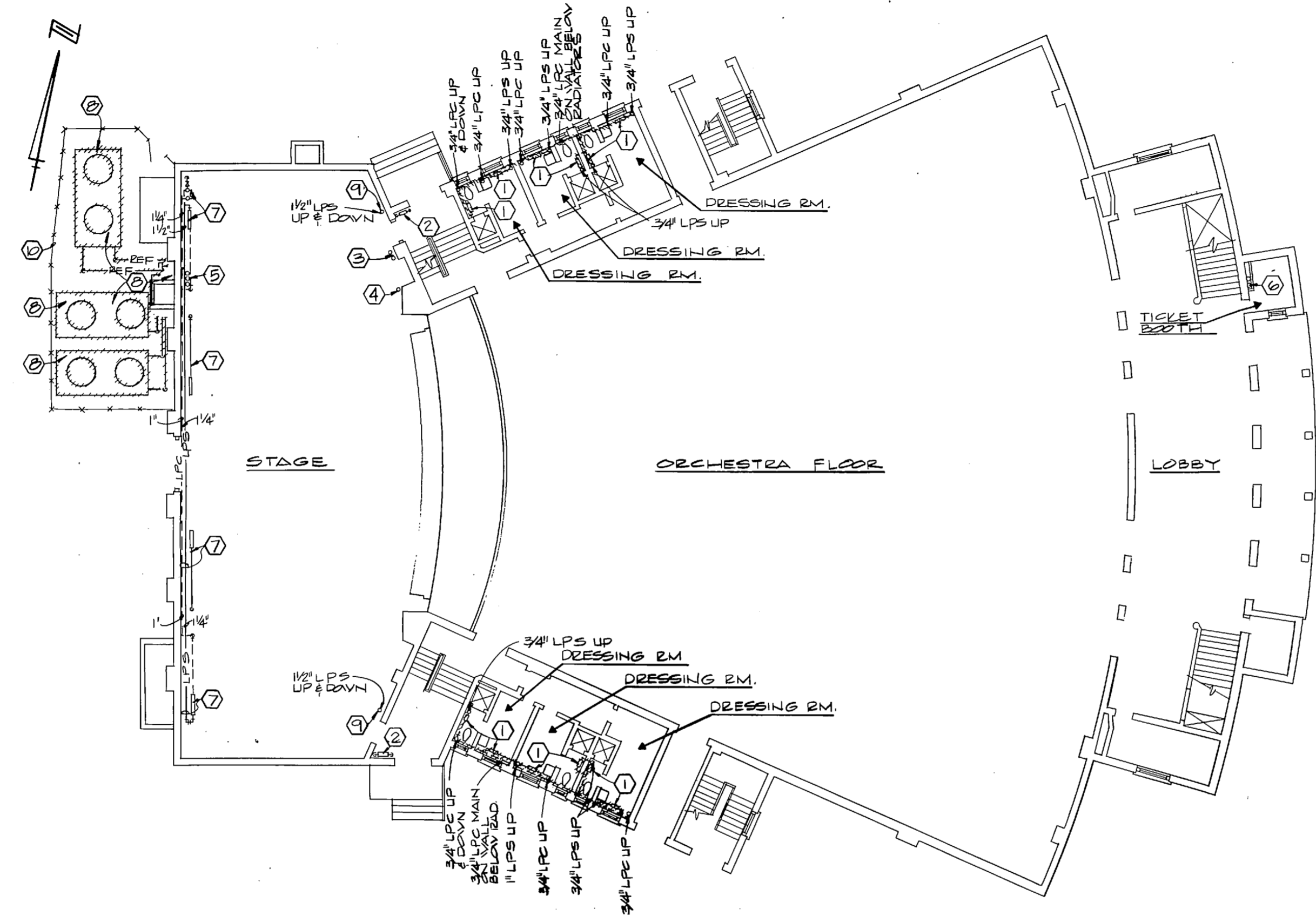
- ① EXISTING STEAM PRESSURE REDUCING STATION SHALL REMAIN AND BE RE-USED.
- ② EXISTING LPS PIPING SHALL REMAIN AND BE RE-USED. EXISTING LPC PIPING SHALL REMAIN AND BE RE-USED. REMOVE EXISTING MPS PIPING. PIPING IS INSULATED WITH ASBESTOS.
- ③ REMOVE EXISTING MPC PIPING.
- ④ REMOVE EXISTING TRAP.
- ⑤ EXISTING TRAP SHALL REMAIN AND BE RE-USED.
- ⑥ CAP EXISTING 1/2" LPS PIPING.
- ⑦ CAP EXISTING 3/4" LRC PIPING AT FLOOR ABOVE.
- ⑧ REMOVE EXISTING 50 HP MOTORS AND COMPRESSORS INCLUDING ALL POWER WIRING, CONTROL WIRING AND ALL REFRIGERANT PIPING TO POINT INDICATED.
- ⑨ REMOVE EXISTING MECHANICAL ROOM VENTILATION FAN AND ALL ASSOCIATED DUCTWORK, GRILLES AND POWER WIRING.
- ⑩ REMOVE EXISTING 440V. 3Ø ELECTRICAL PANEL, WIRING THROUGH STARTERS AND ALL SUPPORTS AND CONDUIT TO POINT INDICATED.
- ⑪ EXISTING MPC PIPING IN THIS AREA SHALL BE ABANDONED. REPAIR OPENING WHERE PIPE PASSES THROUGH WALL TO MATCH EXISTING.
- ⑫ REMOVE EXISTING 3" MPC PIPING TO POINT WHERE PIPING CONNECTS TO EXISTING COIL IN EXISTING DOMESTIC WATER HEATER.
- ⑬ EXISTING CONDENSATE RECEIVER AND PUMP SHALL REMAIN AND BE RE-USED.



CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WASHINGTON, NORTH CAROLINA DES. DM DR. DM CHK. JMC JR. PROJ. MGR. JMC JR. EMP. JMC JR. DATE: 11/24 PROJECT:		DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 DEMOLITION WORK SUB-STAGE AND TUNNEL PLAN		M-1



10-10000

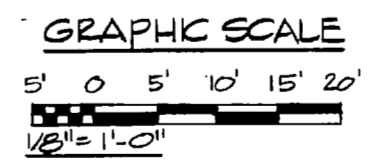


**DEMOLITION WORK
ORCHESTRA FLOOR PLAN**
SCALE: 1/8" = 1'-0"

DEMOLITION NOTES: (DRAWING M-2 ONLY)

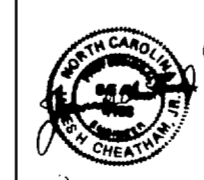
- ① REMOVE EXISTING RADIATOR, VALVES AND ALL ASSOCIATED LOW PRESSURE STEAM AND CONDENSATE PIPING. EXISTING PIPING IS NOT INSULATED. FILL PIPE OPENINGS IN FLOOR WITH CONCRETE TO MATCH EXISTING FLOOR.
- ② EXISTING RADIATOR SHALL REMAIN AND BE RE-USED.
- ③ EXISTING 3/8" COPPER REFRIGERANT LINES SHALL REMAIN IN PLACE AND BE USED FOR HWS & HWZ PIPING.
- ④ ONE (1) EXISTING 3/8" COPPER REFRIGERANT LINE SHALL BE ABANDONED IN PLACE AND NOT RE-USED.
- ⑤ EXISTING 1/2" COPPER REFRIGERANT PIPING, FROM A POINT 10' ABOVE STAGE TO MACHINE ROOM, SHALL BE CAPPED AND ABANDONED IN PLACE.
- ⑥ REMOVE EXISTING FURRING AND EXISTING 1" MPS PIPING AND 1" MPC PIPING. STEAM PIPING IS INSULATED WITH ASBESTOS.
- ⑦ EXISTING LPS AND LPC PIPING AND RADIATORS FOR STAGE HEATING SYSTEM SHALL REMAIN AND BE RE-USED.
- ⑧ REMOVE EXISTING AIR COOLED CONDENSERS, INCLUDING CONCRETE SUPPORTS, ALL ELECTRICAL POWER AND CONTROL WIRING STARTERS AND DISCONNECT SWITCHES AND ALL 3/8" REF PIPING TO COMPRESSORS AND ALL 1/2" REF PIPING TO A POINT 10' ABOVE STAGE INSIDE BUILDING. REPAIR ALL PIPE OPENINGS IN WALL.

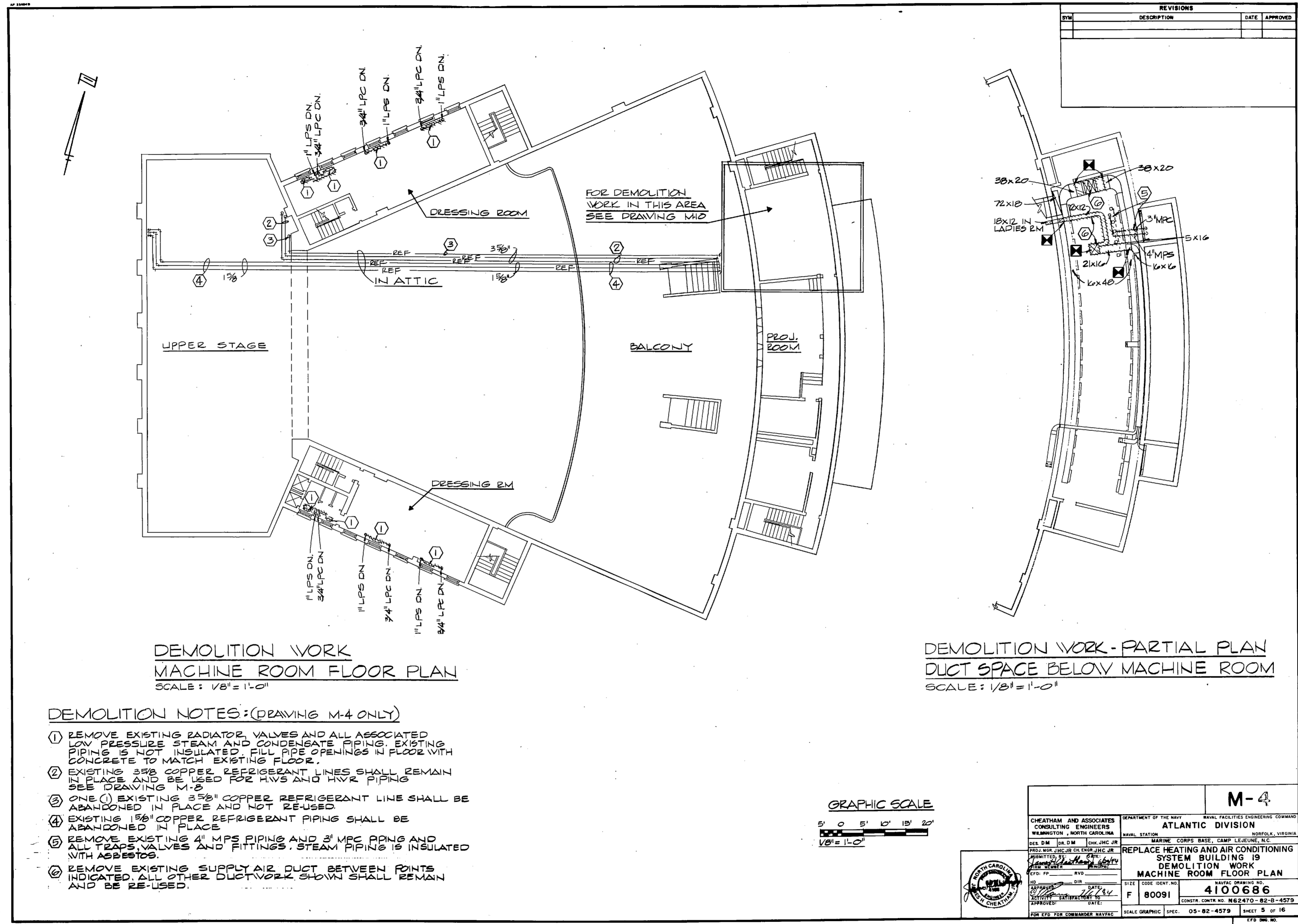
- ⑨ REMOVE EXISTING 1/2" LPS PIPING. PIPING IS NOT INSULATED.
- ⑩ REMOVE EXISTING CHAIN LINK FENCE DURING REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION OF NEW EQUIPMENT. RE-INSTALL FENCE.



REVISIONS		
SYM	DESCRIPTION	DATE APPROVED

M-2	
CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WELINGTON, NORTH CAROLINA	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, NC NORFOLK, VIRGINIA
DES. D.M. DR. D.M. CHK. J.H.C. JR. PROJ. MGR. J.H.C. JR. / ENGR. J.H.C. JR. SUBMITTED BY: J.H.C. JR. DATE: 7/18/84 DRAWN BY: J.H.C. JR. DATE: 7/18/84 ACTIVITY: SATISFACTORY TO: DATE: 7/18/84	REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 DEMOLITION WORK ORCHESTRA FLOOR PLAN
SIZE: F CODE IDENT. NO.: 80091	NAVIC DRAWING NO.: 4100684 CONSTR. CONTR. NO.: N62470-82-B-4579
SCALE: GRAPHIC	SPEC.: 05-82-4579 SHEET 3 OF 16



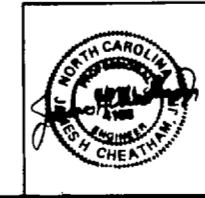
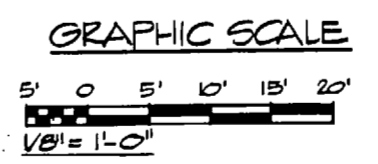


REVISIONS		
SYM	DESCRIPTION	DATE APPROVED

DEMOLITION WORK
MACHINE ROOM FLOOR PLAN
 SCALE: 1/8" = 1'-0"

DEMOLITION WORK - PARTIAL PLAN
DUCT SPACE BELOW MACHINE ROOM
 SCALE: 1/8" = 1'-0"

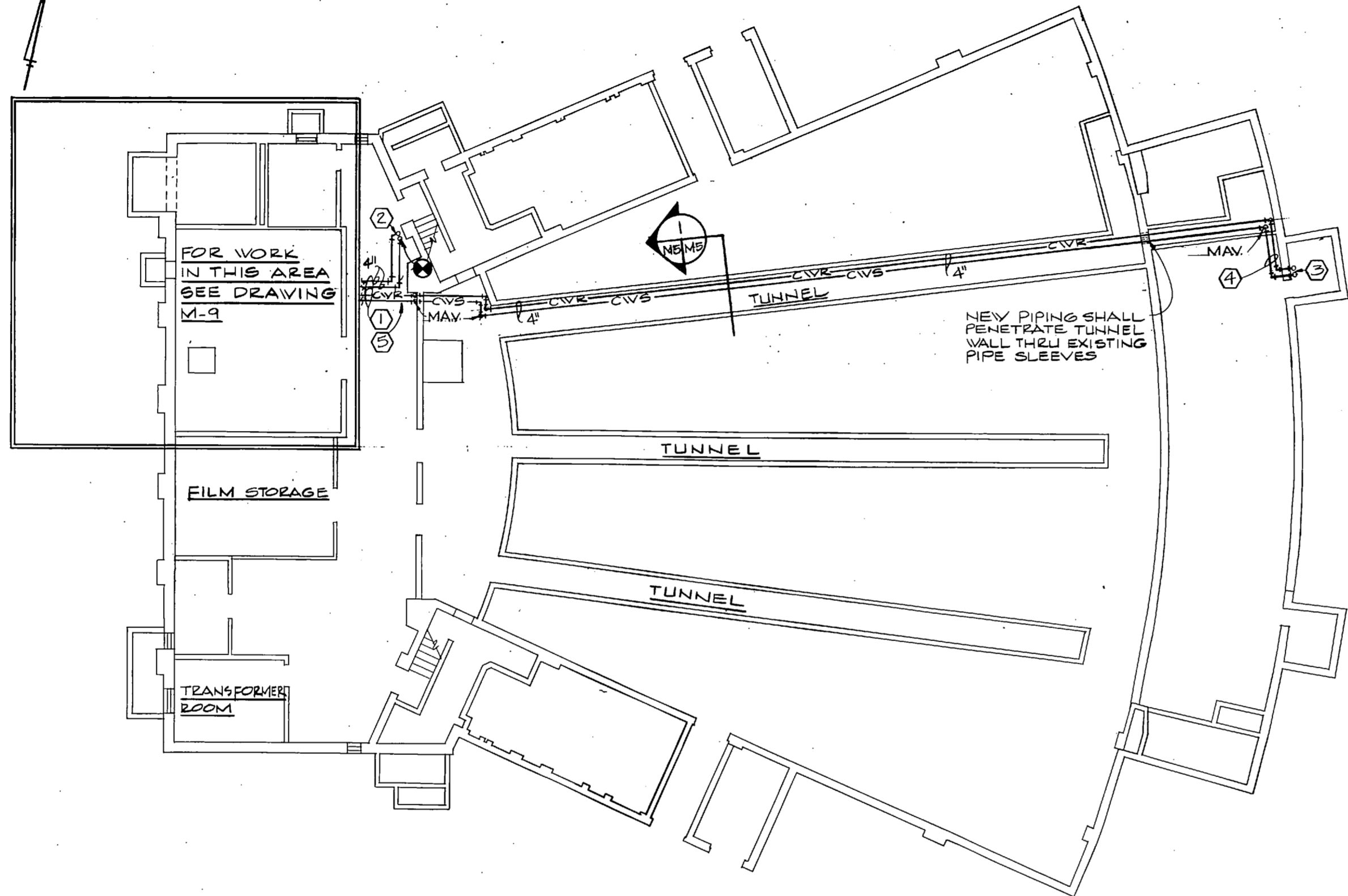
- DEMOLITION NOTES: (DRAWING M-4 ONLY)**
- ① REMOVE EXISTING RADIATOR, VALVES AND ALL ASSOCIATED LOW PRESSURE STEAM AND CONDENSATE PIPING. EXISTING PIPING IS NOT INSULATED. FILL PIPE OPENINGS IN FLOOR WITH CONCRETE TO MATCH EXISTING FLOOR.
 - ② EXISTING 3/8" COPPER REFRIGERANT LINES SHALL REMAIN IN PLACE AND BE USED FOR H.V.S AND H.V.R PIPING. SEE DRAWING M-3.
 - ③ ONE ① EXISTING 3/8" COPPER REFRIGERANT LINE SHALL BE ABANDONED IN PLACE AND NOT RE-USED.
 - ④ EXISTING 1/2" COPPER REFRIGERANT PIPING SHALL BE ABANDONED IN PLACE.
 - ⑤ REMOVE EXISTING 4" MPS PIPING AND 3" MPC PIPING AND ALL TRAPS, VALVES AND FITTINGS. STEAM PIPING IS INSULATED WITH ASBESTOS.
 - ⑥ REMOVE EXISTING SUPPLY AIR DUCT BETWEEN POINTS INDICATED. ALL OTHER DUCTWORK SHOWN SHALL REMAIN AND BE RE-USED.



CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WELMINGTON, NORTH CAROLINA		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, NC NORFOLK, VIRGINIA	
DES. DM	DR. DM	CHK. JHC JR	DATE: 12/1/2010
PROJ. MGR. JHC JR		REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19	
IDENTIFIED BY: JHC JR		DEMOLITION WORK	
DATE: 12/1/2010		MACHINE ROOM FLOOR PLAN	
SCALE: GRAPHIC		SIZE: F 80091	NAVFAC DRAWING NO.: 4100686
FOR EFD FOR COMMANDER NAVFAC		CONSTR. CONTR. NO. N62470-82-B-4579	SHEET 5 OF 16



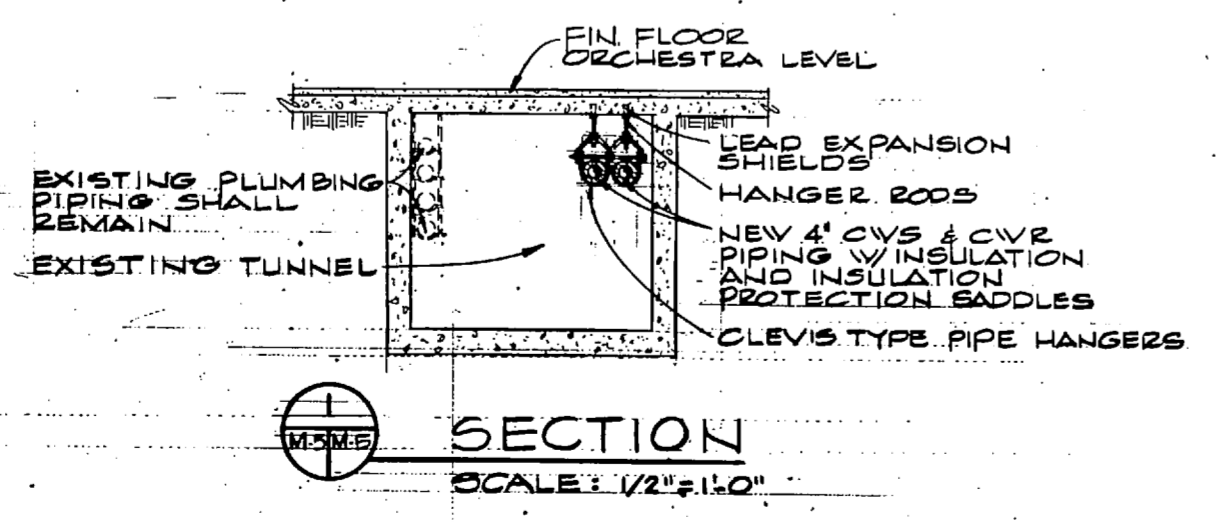
REVISIONS		
NO.	DESCRIPTION	DATE APPROVED



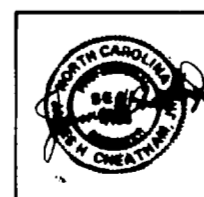
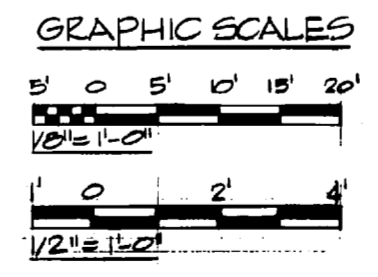
NOTES: (FOR DRAWING M-5 ONLY)

- ① NEW HOT WATER SUPPLY AND HOT WATER RETURN PIPING AND CHILLED WATER SUPPLY AND CHILLED WATER RETURN PIPING SHALL BE SUSPENDED FROM CEILING STRUCTURE OF SUB-STAGE AREA.
- ② CONNECT NEW 4" HWS & HWR PIPING TO EXISTING 3/8" COPPER REFRIGERANT PIPING AT CEILING. PROVIDE DIELECTRIC UNIONS WHERE PIPING CONNECTS.
- ③ NEW 4" CVS & 4" CVR PIPING UP. SEE DRAWING M-6 FOR CONTINUATION.
- ④ PIPING SHALL BE ROUTED BELOW STAIRS
- ⑤ COORDINATE LOCATION OF NEW PIPING WITH EXISTING DOMESTIC HOT AND COLD WATER PIPING IN THIS AREA.

**NEW MECHANICAL WORK
SUB-STAGE AND TUNNEL PLAN**
SCALE: 1/8" = 1'-0"

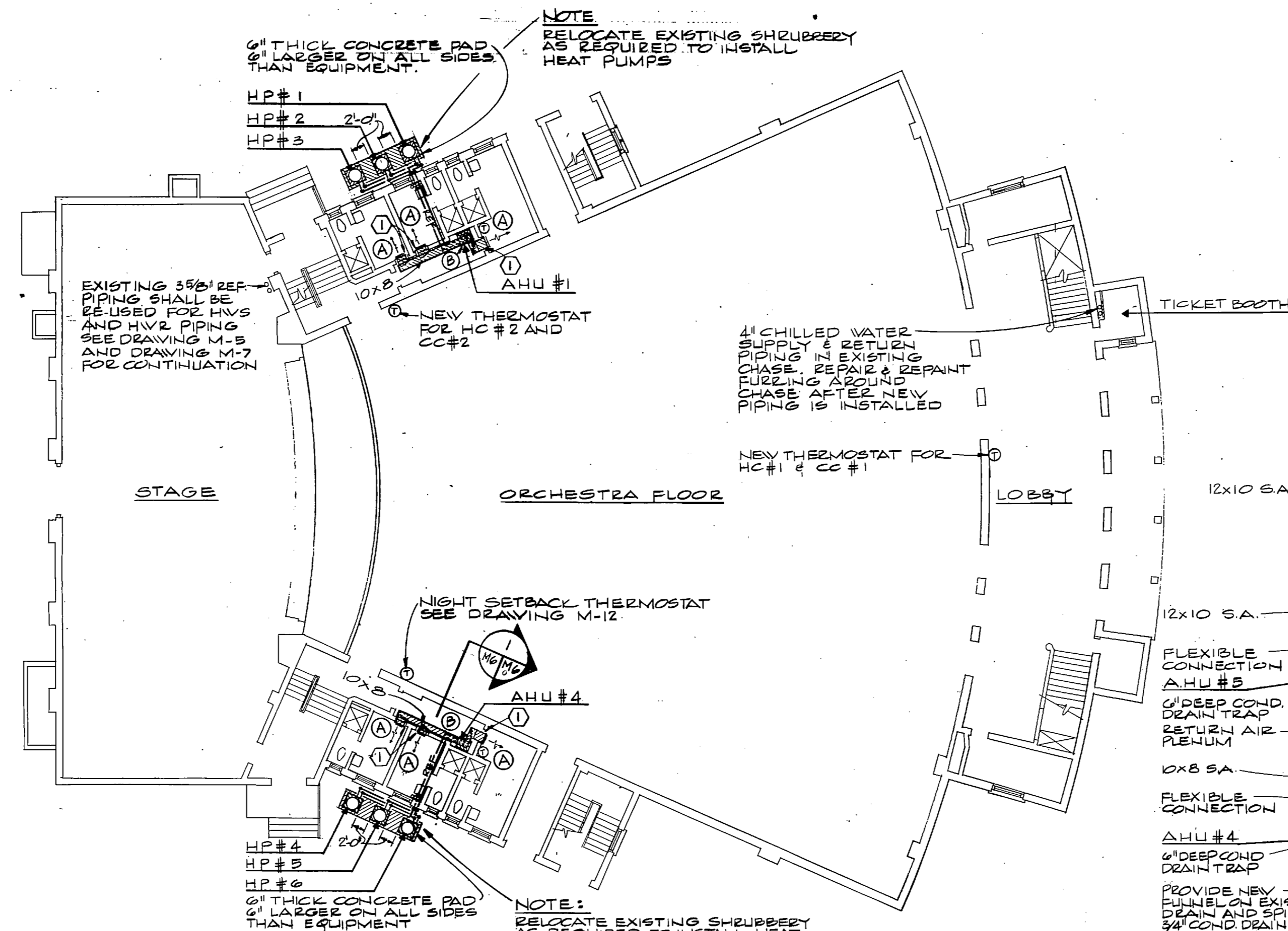


**SECTION
SCALE: 1/2" = 1'-0"**



CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WELLSVILLE, NORTH CAROLINA		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C.	
DES. D.M. PROJ. MGR. J.H.C. JR. SUBMITTED BY J.H.C. JR. DATE 11/24/57	CHK. J.H.C. JR. DATE 11/24/57	REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 NEW MECHANICAL WORK SUBSTAGE AND TUNNEL PLAN	NAVY DRAWING NO. 4100687
NO. 80091	DATE 11/24/57	CONSTR. CONTR. NO. N62470-82-B-4579	SCALE GRAPHIC SPEC. 05-82-4579 SHEET 6 OF 16

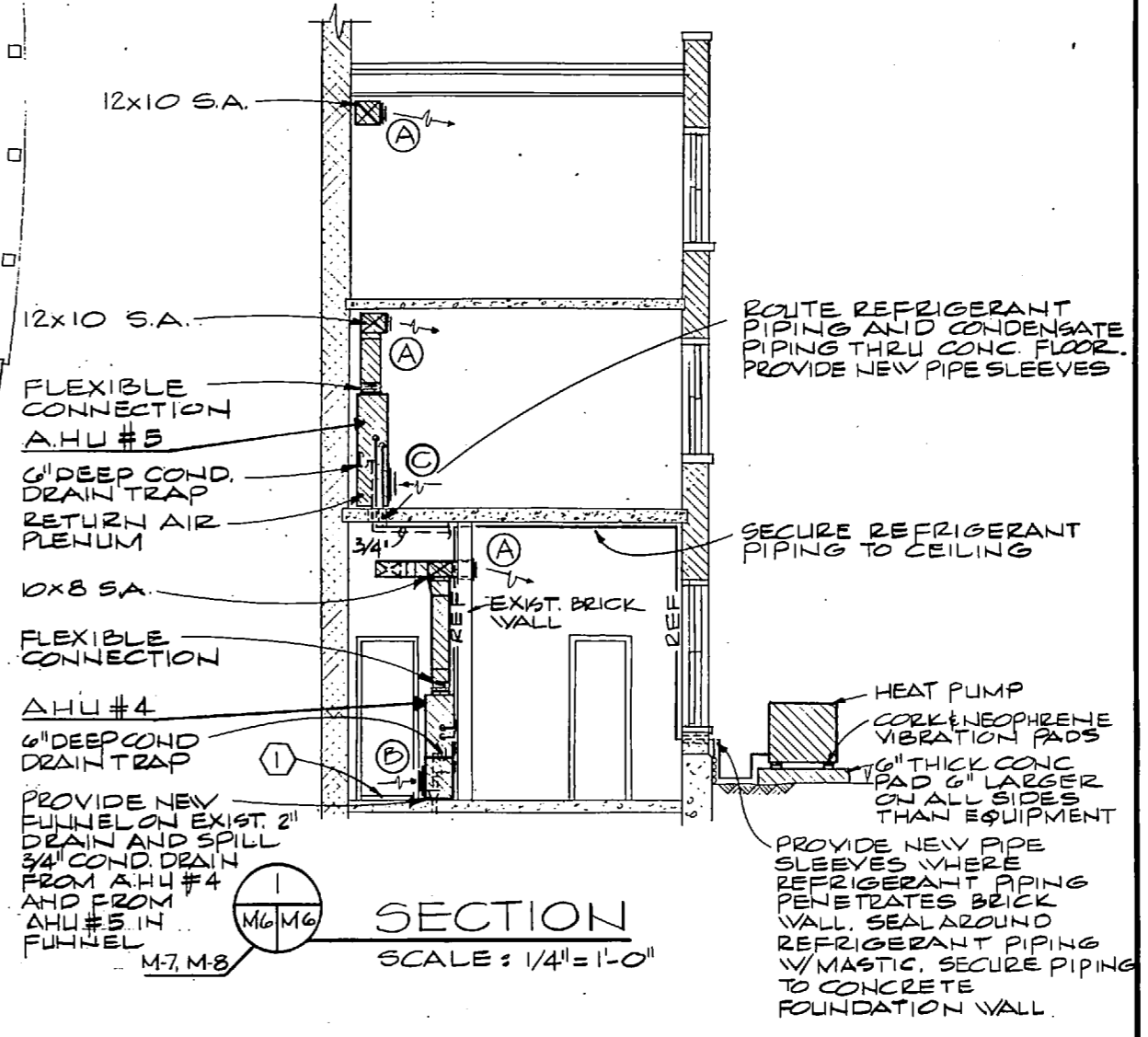
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED



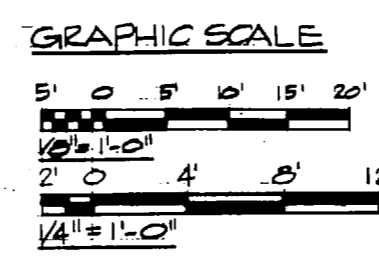
NOTES: (FOR DRAWING M-6 ONLY)

① UNDERCUT EXISTING WOOD DOOR AND KICKPLATE 1/2" TO PROVIDE FOR RETURN AIR FROM DRESSING ROOMS.

**NEW MECHANICAL WORK
ORCHESTRA FLOOR PLAN**
SCALE: 1/8" = 1'-0"

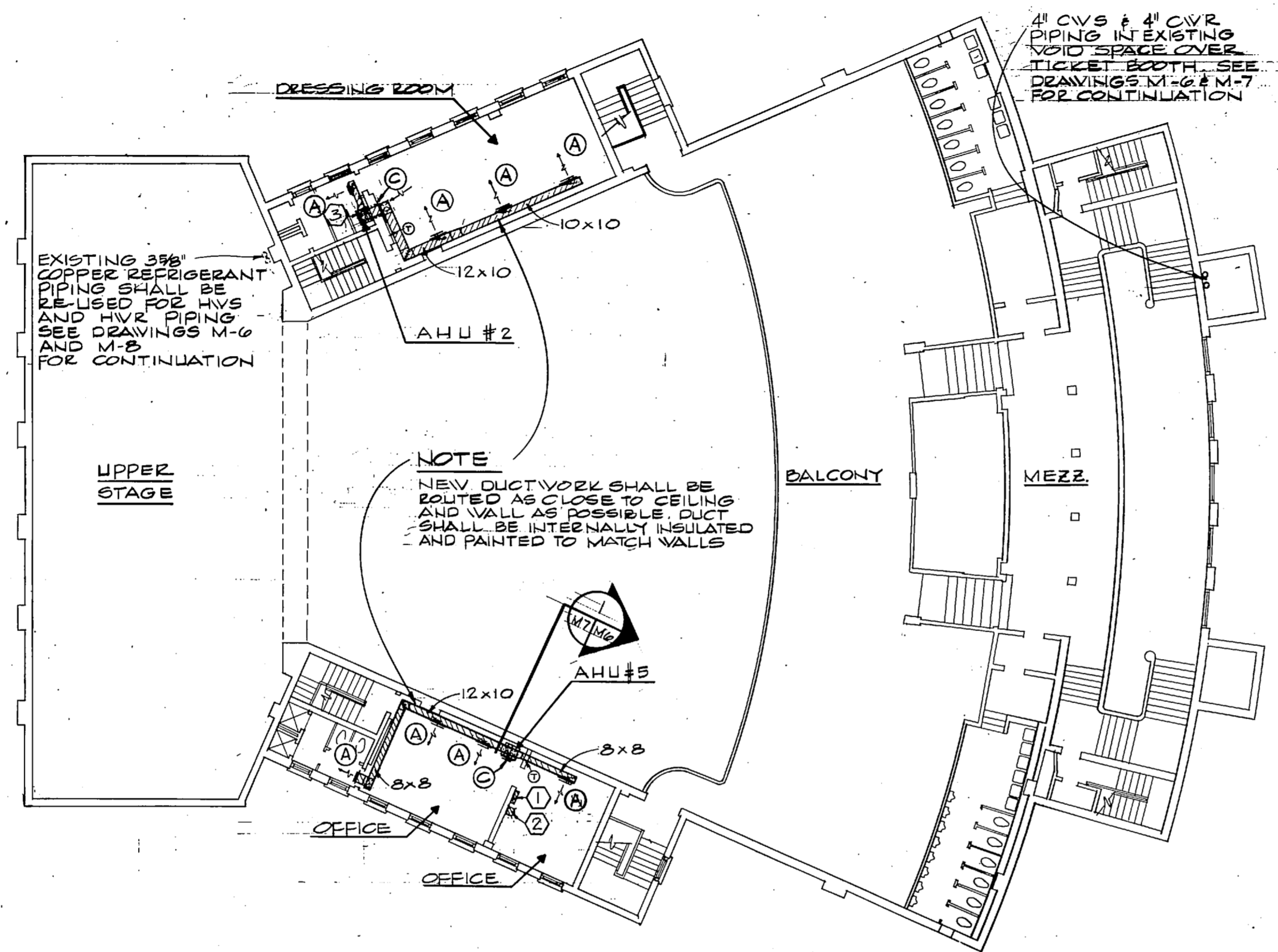


**SECTION
SCALE: 1/4" = 1'-0"**



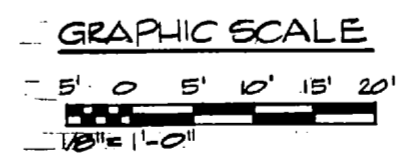
CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WILMINGTON, NORTH CAROLINA PROJ. NO. JHC-19 OR ENR-19C JR DATE: 11/14/44 DRAWN BY: [Signature] CHECKED BY: [Signature]		DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. NORFOLK, VIRGINIA	
REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 NEW MECHANICAL WORK ORCHESTRA FLOOR PLAN		DRAWING NO. 4100688	
SIZE CODE IDENT. NO. F 80091		CONSTR. CONTR. NO. H62470-82-B-4578	
SCALE GRAPHIC SPEC. 05-82-4578		SHEET 8 OF 16	

REVISIONS		
NO.	DESCRIPTION	DATE APPROVED

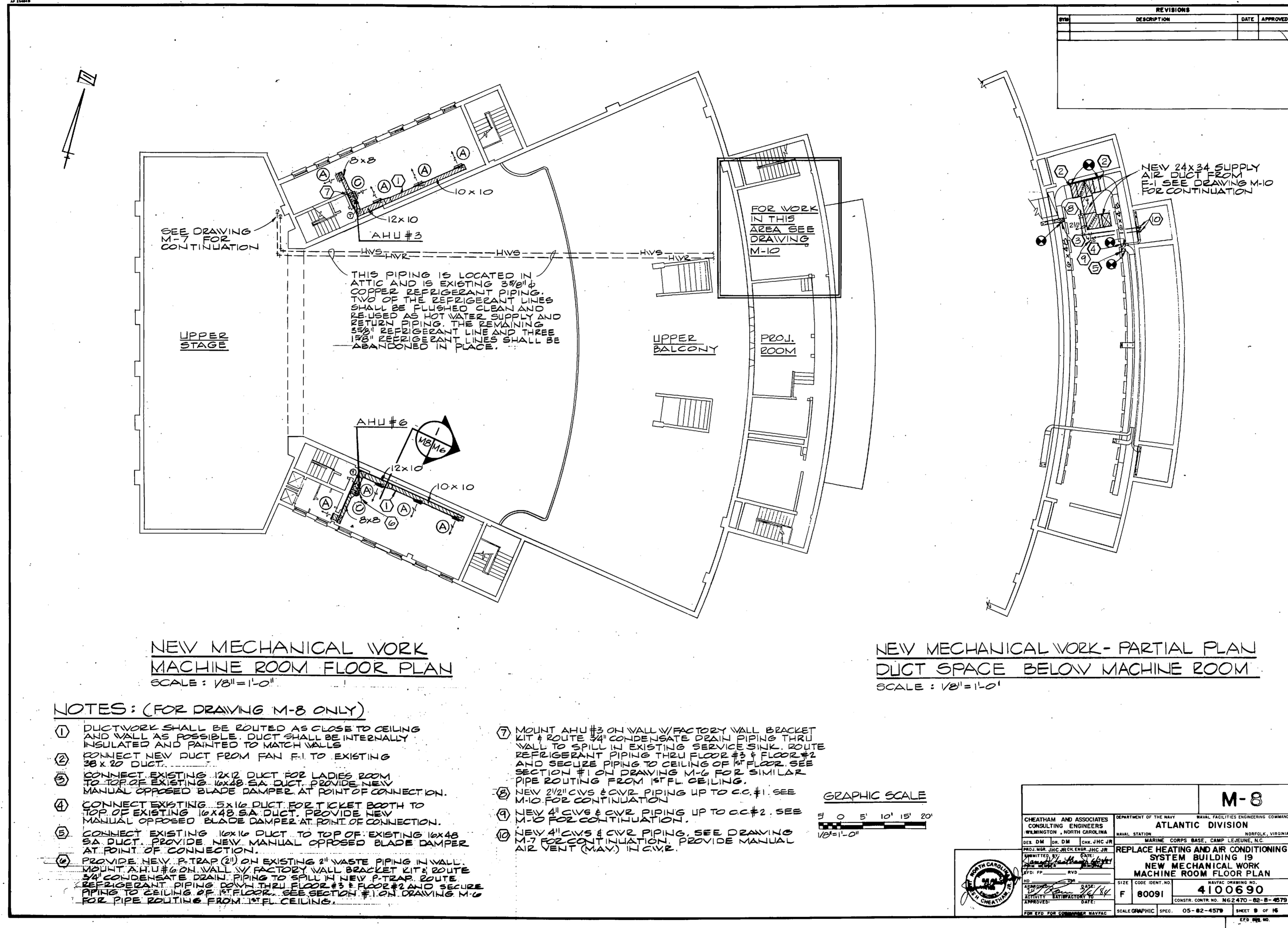


- NOTES: (FOR DRAWING M-7 ONLY)**
- NEW HEATING AND A/C CONTROL PANEL SEE CONTROL DIAGRAM ON DRAWING M-12
 - PROVIDE SMOKE DETECTOR INDICATOR LIGHT MOUNTED 7'-0" ABOVE FLOOR. LIGHT SHALL INDICATE SMOKE CONDITION FROM NEW IONIZATION DETECTOR LOCATED IN MACHINE ROOM.
 - ROUTE 3/4" CONDENSATE DRAIN PIPING DOWN TO DRAIN BESIDE AHU #1. ROUTE REFRIGERANT PIPING ON CEILING OF FLOOR BELOW. SECTION #1 OF DRAWING M-6 INDICATES SIMILAR PIPE ROUTING. EXTEND R.A. DUCT THRU EXISTING BRICK WALL AND PROVIDE RA GRILLE IN DRESSING ROOM.

NEW MECHANICAL WORK
MEZZANINE AND BALCONY PLAN
 SCALE: 1/8" = 1'-0"



		M-7	
		CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WELMINGTON, NORTH CAROLINA	
DEPT. OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION		NAVAL STATION NORFOLK, VIRGINIA	
PROJ. MGR. JMC JR. CH. ENGR. JHC JR. SUBMITTED BY: <i>JHC JR.</i> DATE: <i>1/14/82</i>		MARINE CORPS BASE, CAMP LEJEUNE, N.C. REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 NEW MECHANICAL WORK MEZZANINE AND BALCONY PLAN	
APPROVED: <i>JHC JR.</i> DATE: <i>1/14/82</i>		SIZE: CODE IDENT. NO. F 80091 DRAWING NO.: 4100689	
SCALE: GRAPHIC		SPEC: OS-82-4579 SHEET 8 OF 16	



REVISIONS		
BY	DESCRIPTION	DATE APPROVED

SEE DRAWING M-7 FOR CONTINUATION

THIS PIPING IS LOCATED IN ATTIC AND IS EXISTING 3/8" COPPER REFRIGERANT PIPING. TWO OF THE REFRIGERANT LINES SHALL BE FLUSHED CLEAN AND RE-USED AS HOT WATER SUPPLY AND RETURN PIPING. THE REMAINING 5/8" REFRIGERANT LINE AND THREE 1/2" REFRIGERANT LINES SHALL BE ABANDONED IN PLACE.

FOR WORK IN THIS AREA SEE DRAWING M-10

NEW 24x34 SUPPLY AIR DUCT FROM F-1 SEE DRAWING M-10 FOR CONTINUATION

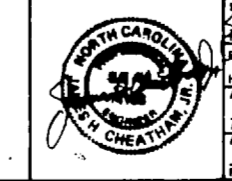
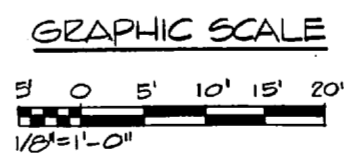
**NEW MECHANICAL WORK
MACHINE ROOM FLOOR PLAN**
SCALE: 1/8"=1'-0"

**NEW MECHANICAL WORK - PARTIAL PLAN
DUCT SPACE BELOW MACHINE ROOM**
SCALE: 1/8"=1'-0"

NOTES: (FOR DRAWING M-8 ONLY)

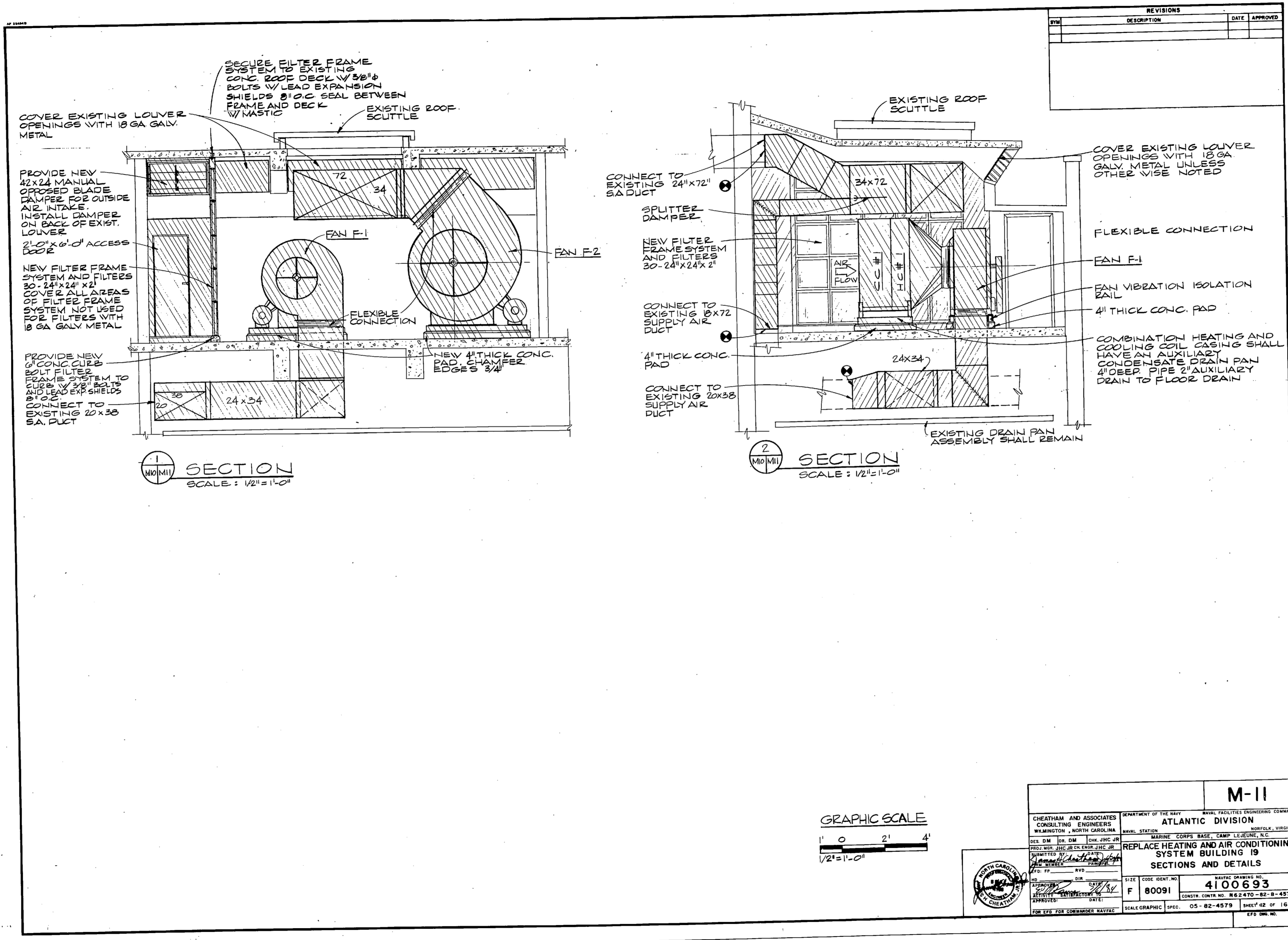
- ① DUCTWORK SHALL BE ROUTED AS CLOSE TO CEILING AND WALL AS POSSIBLE. DUCT SHALL BE INTERNALLY INSULATED AND PAINTED TO MATCH WALLS.
- ② CONNECT NEW DUCT FROM FAN F-1 TO EXISTING 36x20 DUCT.
- ③ CONNECT EXISTING 12x12 DUCT FOR LADIES ROOM TO TOP OF EXISTING 16x48 SA DUCT. PROVIDE NEW MANUAL OPPOSED BLADE DAMPER AT POINT OF CONNECTION.
- ④ CONNECT EXISTING 5x16 DUCT FOR TICKET BOOTH TO TOP OF EXISTING 16x48 SA DUCT. PROVIDE NEW MANUAL OPPOSED BLADE DAMPER AT POINT OF CONNECTION.
- ⑤ CONNECT EXISTING 16x16 DUCT TO TOP OF EXISTING 16x48 SA DUCT. PROVIDE NEW MANUAL OPPOSED BLADE DAMPER AT POINT OF CONNECTION.
- ⑥ PROVIDE NEW P-TRAP (21) ON EXISTING 2" WASTE PIPING IN WALL. MOUNT A.H.U.#6 ON WALL W/ FACTORY WALL BRACKET KIT & ROUTE 3/4" CONDENSATE DRAIN PIPING TO SPILL IN NEW P-TRAP. ROUTE REFRIGERANT PIPING DOWN THRU FLOOR #3 & FLOOR #2 AND SECURE PIPING TO CEILING OF 1ST FLOOR. SEE SECTION #1 ON DRAWING M-6 FOR PIPE ROUTING FROM 1ST FL CEILING.

- ⑦ MOUNT A.H.U.#3 ON WALL W/ FACTORY WALL BRACKET KIT & ROUTE 3/4" CONDENSATE DRAIN PIPING THRU WALL TO SPILL IN EXISTING SERVICE SINK. ROUTE REFRIGERANT PIPING THRU FLOOR #3 & FLOOR #2 AND SECURE PIPING TO CEILING OF 1ST FLOOR. SEE SECTION #1 ON DRAWING M-6 FOR SIMILAR PIPE ROUTING FROM 1ST FL CEILING.
- ⑧ NEW 2 1/2" CVS & CVR PIPING UP TO CC.#1. SEE M-10 FOR CONTINUATION.
- ⑨ NEW 4" CVS & CVR PIPING UP TO CC.#2. SEE M-10 FOR CONTINUATION.
- ⑩ NEW 4" CVS & CVR PIPING. SEE DRAWING M-7 FOR CONTINUATION. PROVIDE MANUAL AIR VENT (MAY) I/CVR.

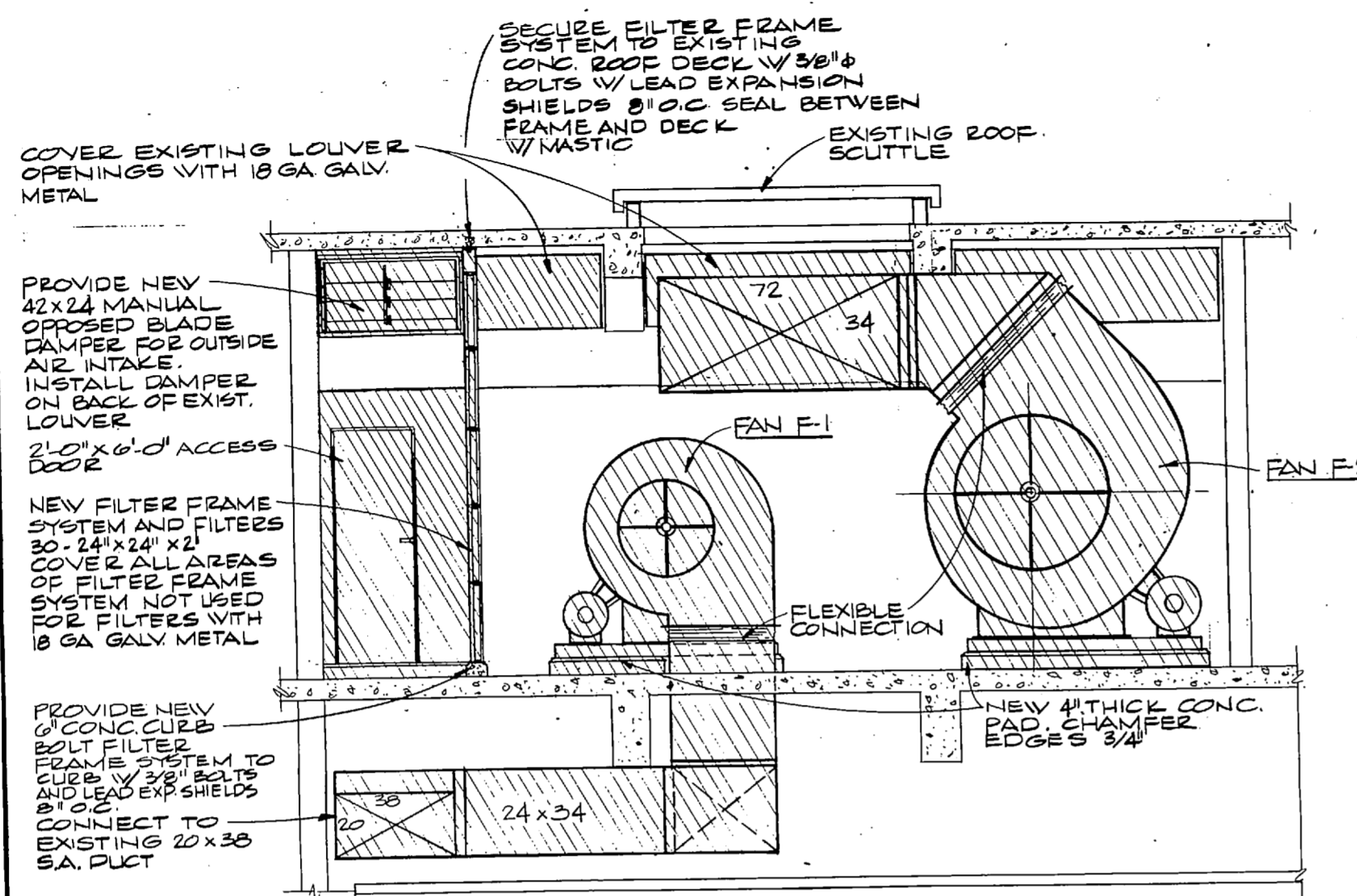


CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WILMINGTON, NORTH CAROLINA		DEPARTMENT OF THE NAVY ATLANTIC DIVISION MARINE CORPS BASE, CAMP LEJEUNE, N.C. NORFOLK, VIRGINIA	
DES. DM. JHC, JR.	CHK. JHC, JR.	PROJ. MGR. JHC, JR.	CLIENT. JHC, JR.
DRAWN BY: JHC, JR.		DATE: 11/14/57	
CHECKED BY: JHC, JR.		DATE: 11/14/57	
APPROVED BY: JHC, JR.		DATE: 11/14/57	
TITLE: PROJECT ENGINEER		SCALE: GRAPHIC	
PROJECT: REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19		SPEC: 05-82-4579	
DRAWING NO.: 4100690		SHEET 8 OF 16	

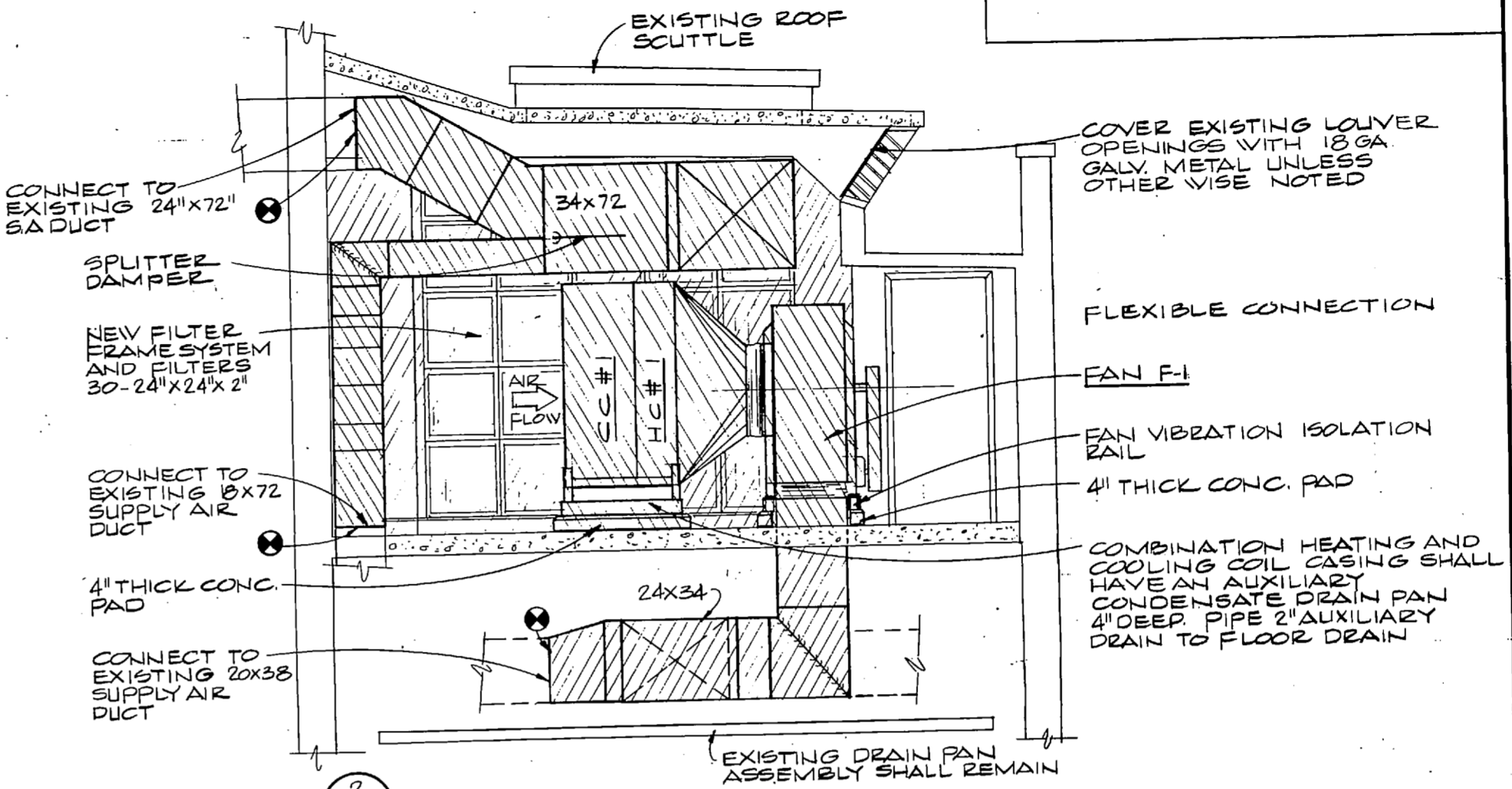




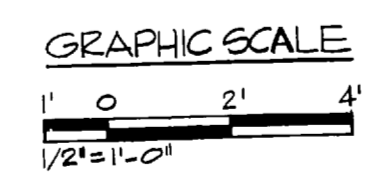
REVISIONS			
BY	DESCRIPTION	DATE	APPROVED



SECTION 1
SCALE: 1/2" = 1'-0"



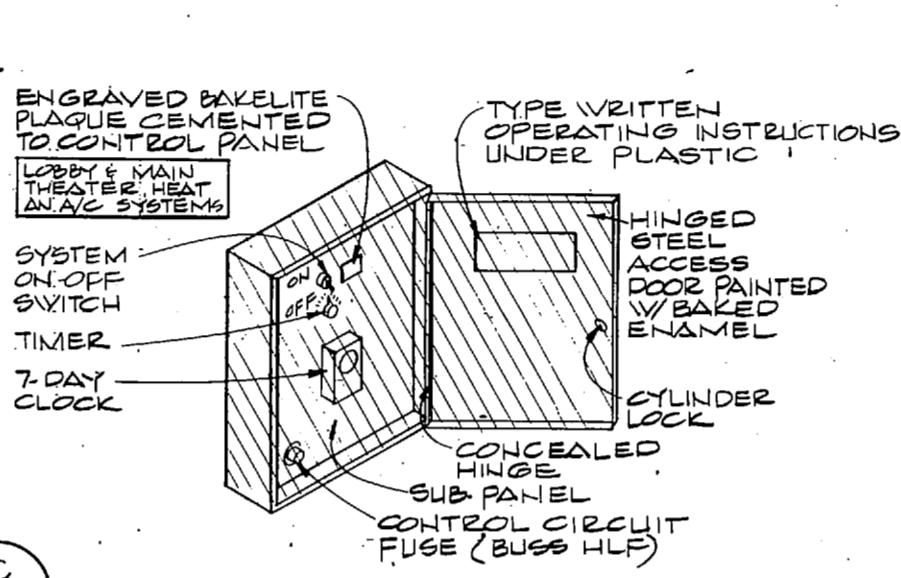
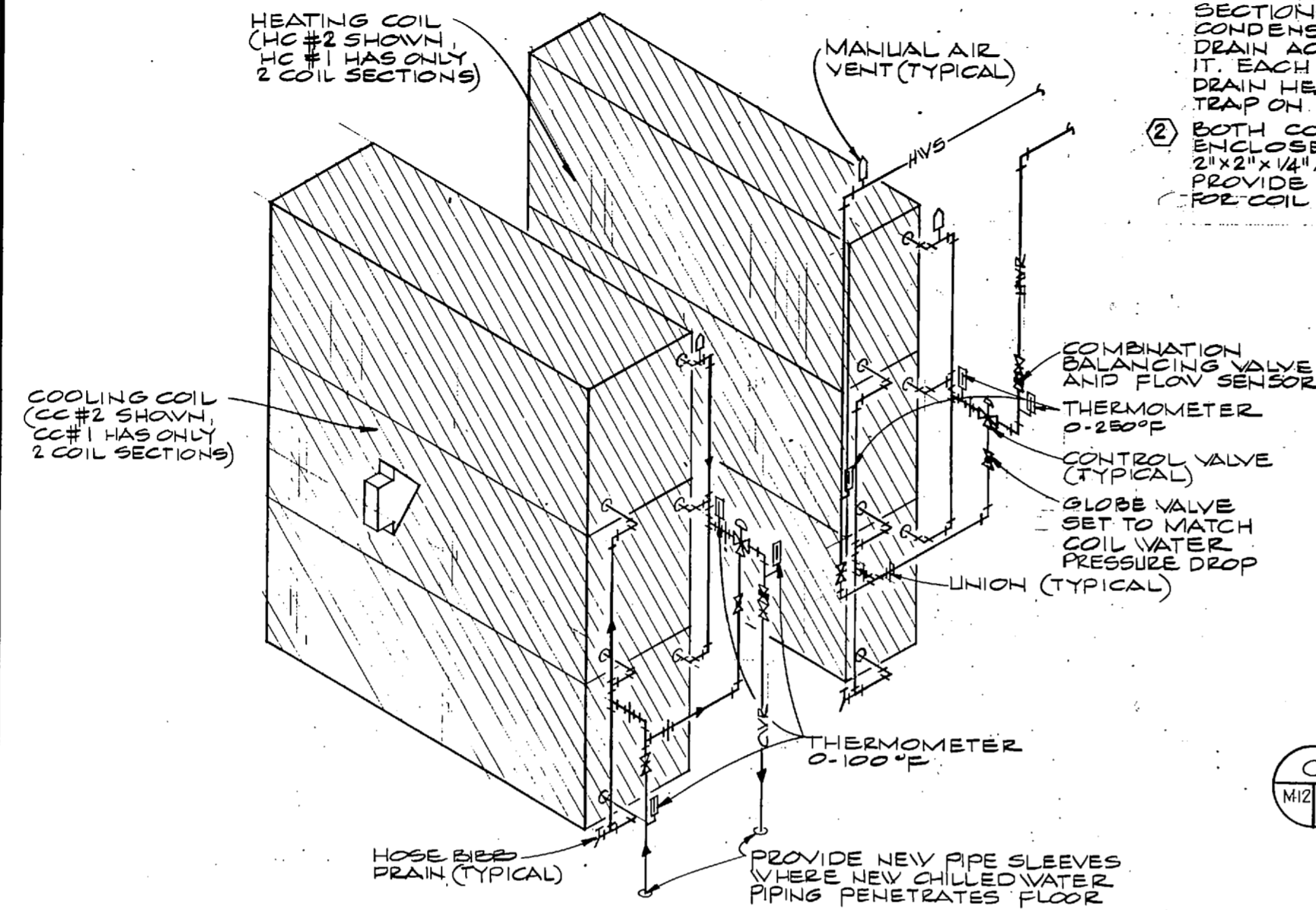
SECTION 2
SCALE: 1/2" = 1'-0"



		M-11	
		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NAVAL STATION NORFOLK, VIRGINIA MARINE CORPS BASE, CAMP LEJEUNE, N.C.	
CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WILMINGTON, NORTH CAROLINA		PROJECT: REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 SECTIONS AND DETAILS	
DES. DM. DR. DM. CHK. JHC JR. PROJ. MGR. JHC JR. CK. ENGR. JHC JR. SUBMITTED BY: <i>[Signature]</i> DATE: 7/1/84 CHECKED BY: <i>[Signature]</i> DATE: 7/1/84 APPROVED: <i>[Signature]</i> DATE: 7/1/84	SIZE: F CODE: 80091	NAVFAC DRAWING NO.: 4100693 CONSTR. CONTR. NO. M 62470-82-B-4579	SCALE: GRAPHIC SPEC. 05-82-4579 SHEET: 42 OF 16 EFD ORG. NO.

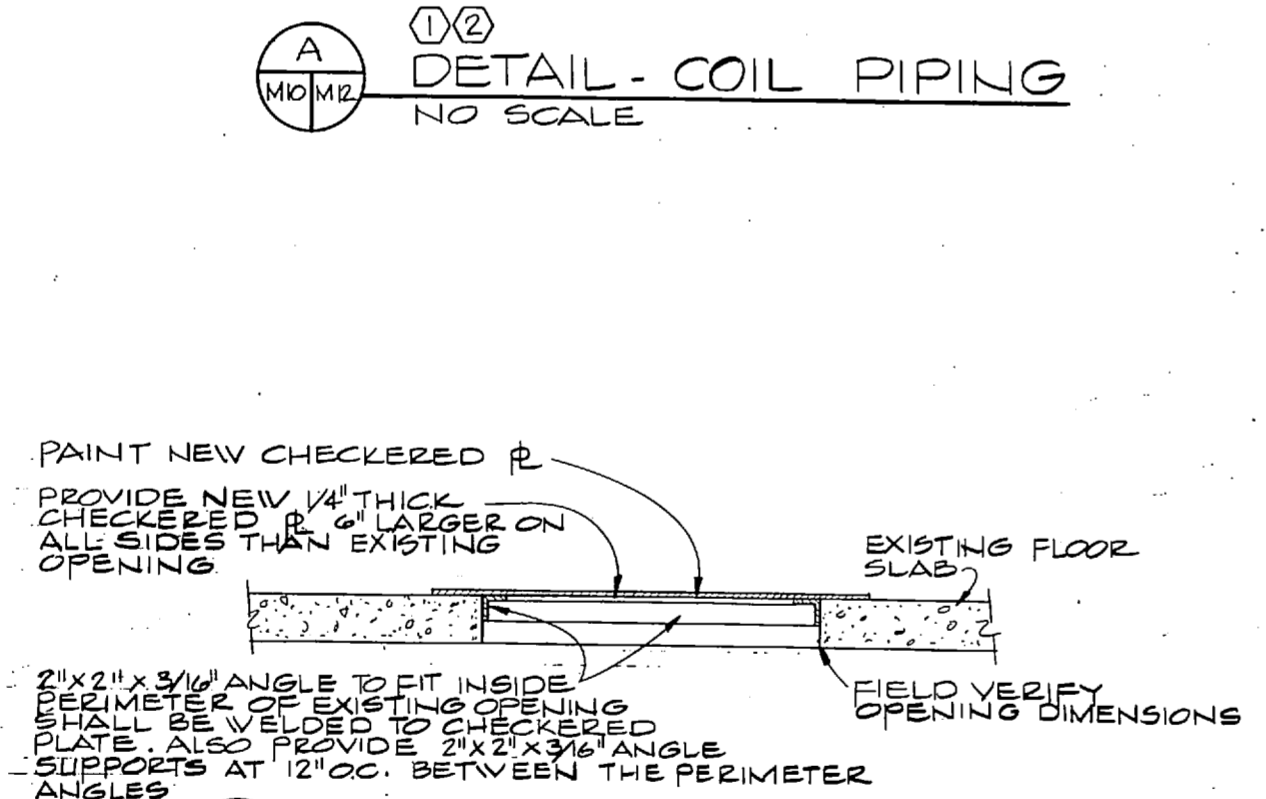
COIL NOTES:

- COOLING COIL #1 SHALL BE TWO COIL SECTIONS HIGH AND COOLING COIL #2 SHALL BE THREE COIL SECTIONS HIGH. EACH COIL SECTION SHALL HAVE A CONDENSATE DRAIN PAN SO THAT CONDENSATE WILL NOT DRAIN ACROSS THE FACE OF THE COIL SECTION BELOW IT. EACH DRAIN PAN SHALL BE PIPED TO A 2" CONDENSATE DRAIN HEADER. PROVIDE A 6" DEEP CONDENSATE DRAIN TRAP ON HEADER AND PIPE CONDENSATE TO FLOOR DRAIN.
- BOTH COOLING COIL AND HEATING COIL SHALL BE ENCLOSED IN A SINGLE 16 GA. GALV. CASING. PROVIDE A 2"x2"x1/4" ANGLE SUPPORT FRAME AND LEGS 1/2"x6"x1/4" BASE PL. PROVIDE AN ACCESS DOOR ON EACH SIDE OF COIL FOR COIL AND PAN CLEANING.

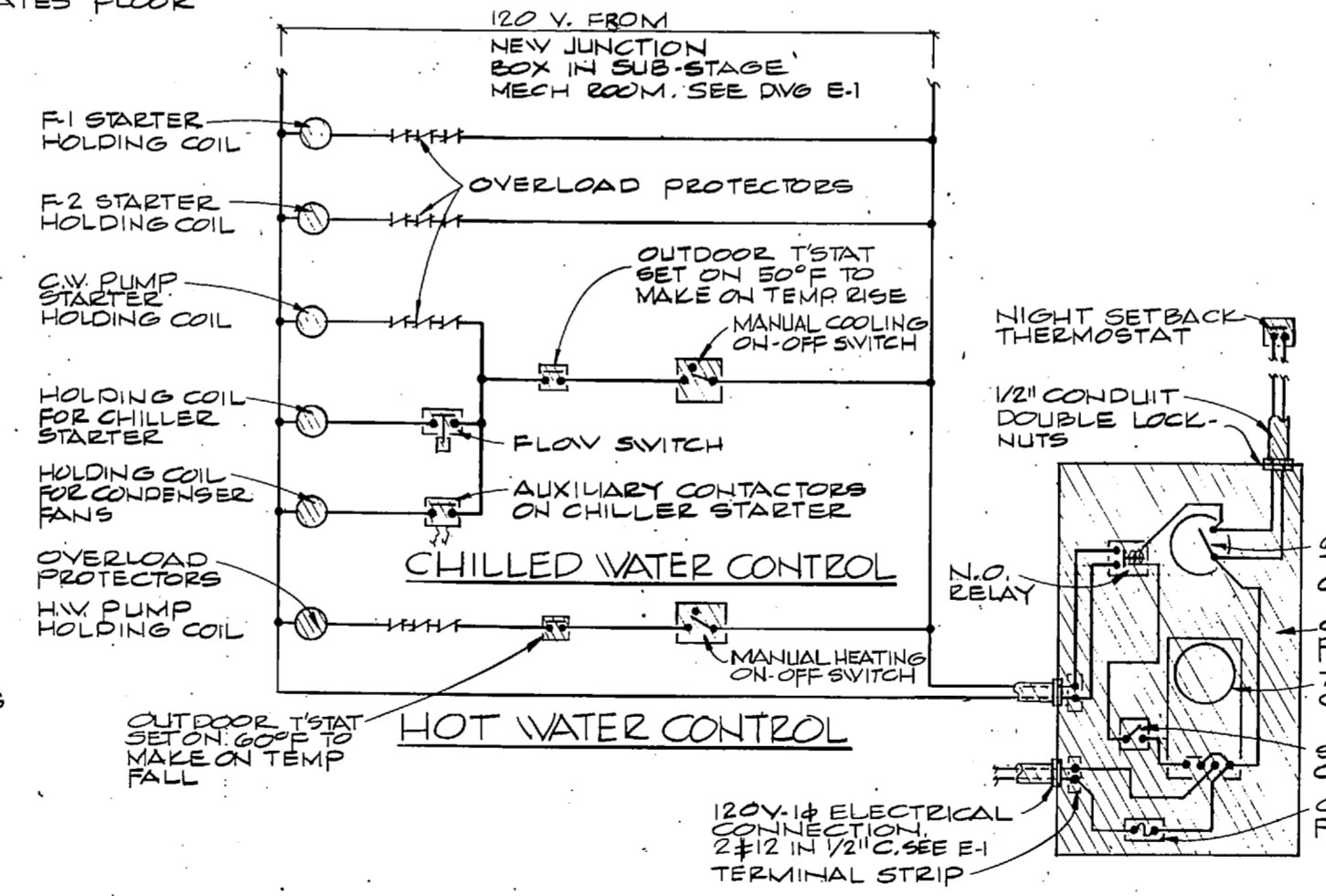


DETAIL - CONTROL PANEL
NO SCALE

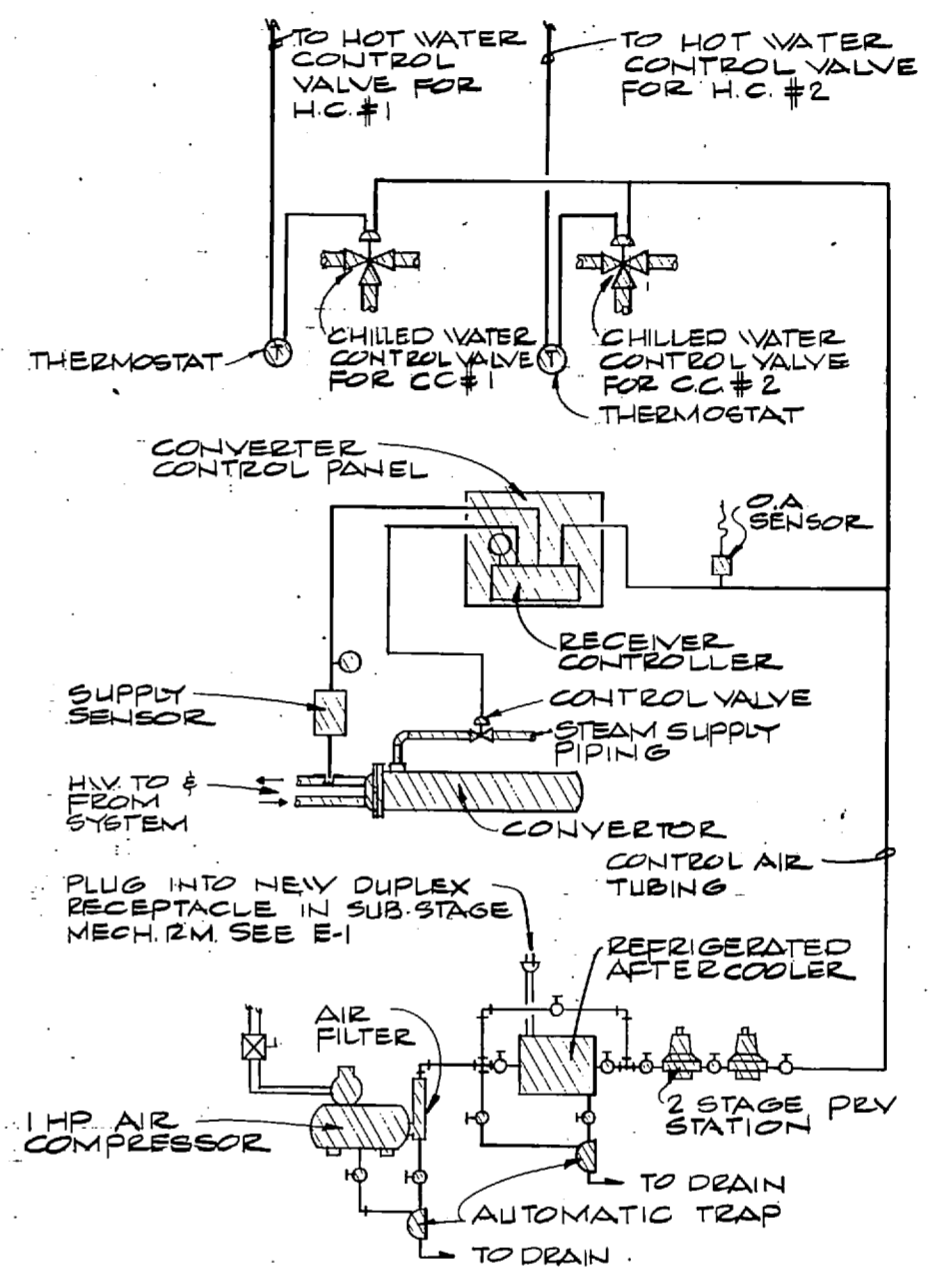
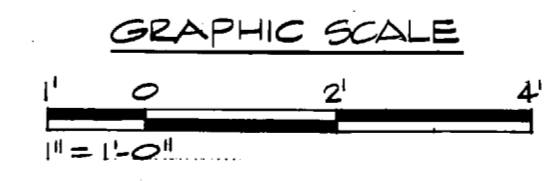
DETAIL - COIL PIPING
NO SCALE



DETAIL - FLOOR SLAB REPAIR
SCALE: 1" = 1'-0"



CONTROL DIAGRAM
NO SCALE



CONTROL AIR COMPRESSOR DIAGRAM
NO SCALE

REVISIONS		
BY	DESCRIPTION	DATE APPROVED

M-12

CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WELMINGTON, NORTH CAROLINA

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NORFOLK, VIRGINIA

NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C.

REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 DETAILS AND CONTROLS

DES. DM OR DM CHK. JHC JR. PROJ. NO. JHC/JR/DM/JHC JR. SUBMITTED BY (DATE) APPROVED BY (DATE) EFD: PP RVD

SIZE CODE IDENT. NO. NAVFAC DRAWING NO. F 80091 4100694

CONSTR. CONTR. NO. N62470-82-B-4579

SCALE GRAPHIC SPEC. 05-82-4579 SHEET 12 OF 16

CHILLER SCHEDULE											
SYMBOL	CAPACITY IN TONS OF REF. #	COOLER			CONDENSER SECTION				ELECTRICAL		REMARKS
		LVT	GRM	MAX P.D.	C.F.M.	COIL FACE AREA	NO. OF FANS	OD AIR TEMP.	VOLTAGE	AMPS #	
CHILLER	100	44F	240	10'	75000	174 FT ²	2 @ 7.5HP	95°F	460V 3φ	2 CIR @ 151 AMPS	

* BASED ON 005 FOULING FACTOR
 ** AMPS ARE FOR MIN CIRCUIT AMPS. (CONDENSER FANS INCLUDED)

PUMP SCHEDULE									
SYMBOL	GPM	HEAD IN FEET	H.P.	R.P.M.	MINIMUM % EFFICIENCY	ELECTRICAL		TYPE	REMARKS
						VOLTAGE	PHASE		
P-1	200	55	5	1750	73%	460V	3	BASE MTD. END SUCTION	
P-2	240	60	5	1750	75%	460V	3	BASE MTD. END SUCTION	

CONVERTER SCHEDULE								
SYMBOL	CAPACITY IN MBH	TUBES			SHELL		FOULING FACTOR	REMARKS
		GPM	EWT	LVT	STEAM PRESS. PSIG.	LB/HR		
CONVERTER	2000	200	160°F	180°F	50	2000	.001	

* PRESSURE ENTERING STEAM SUPPLY VALVE
 ** MAXIMUM WATER PRESSURE DROP THRU TUBES IS 2 PSIG.

HEAT PUMP SCHEDULE											
AIR HANDLING UNIT						OUTDOOR UNIT			HEAT PUMP HEATING CAPACITY IN BTU/HR *	HEAT PUMP COOLING CAPACITY IN BTU/HR **	
SYM	CFM	SP	HP	AUX. ELEC. HEAT	ELECTRICAL	SYM	ELECTRICAL VOLTS	MIN BR. CIR. AMP.			REMARKS
AHU#1	600	25"	1/8	5 KW	208V-1φ	HP#1	208V-1φ	14.6		10,300	18,000
AHU#2	800	25"	1/4	7.5 KW		HP#2		17.3		12,900	24,000
AHU#3	800	25"	1/4	7.5 KW		HP#3		17.3		12,900	24,000
AHU#4	600	25"	1/8	5 KW		HP#4		14.6		10,300	18,000
AHU#5	800	25"	1/4	7.5 KW		HP#5		17.3		12,900	24,000
AHU#6	800	25"	1/4	7.5 KW		HP#6		17.3		12,900	24,000

* HEATING CAPACITY BASED ON 70°F DB INDOOR ENTERING AIR TEMPERATURE AND 17°F DB OUTDOOR AIR TEMPERATURE.
 ** BASED ON ARI. CONDITIONS.

FAN SCHEDULE							
SYMBOL	CFM	SP	RPM	HP	ELECTRICAL	TYPE	REMARKS
F-1	8000	2"	799	5	208V-3φ	CENTRIFUGAL	
F-2	34000	2.5"	600	25	208V-3φ	CENTRIFUGAL	

REVISIONS		
SYM	DESCRIPTION	DATE APPROVED

HEATING COIL SCHEDULE											
SYMBOL	CFM	MIN. COIL FACE AREA	MAX. AIR PRESS. DROP	ENT. AIR °F.	LVG. AIR °F.	CAPACITY IN MBH **	GPM.	WATER			REMARKS
								MAX. P.D.	ENT. °F.	LVG. °F.	
HC #1	8000	17	.2"	60°	117°	500	50	10FT	180°F	160°F	
HC #2	34000	63	.2"	60°	101°	1500	150	10FT	180°F	160°F	

* COIL DIMENSIONS SHALL BE SAME AS COOLING COIL.
 ** COIL SHALL HAVE A MINIMUM OF 2 ROWS AND 8 FINS PER INCH.

COOLING COIL SCHEDULE (SEE COIL NOTES DRAWING M-12)												
SYMBOL	CFM	MIN. COIL FACE AREA (TOTAL)	MAX. AIR PRESS. DROP	ENT. AIR °F.	LVG. AIR °F.	CAPACITY IN MBH *	GPM	WATER			REMARKS	
								MAX. P.D.	ENT. °F.	LVG. °F.		
CC #1	8000	17	1.15"	80°	68°	523°	52.1°	240	48	10FT	44°	54°
CC #2	34000	63	1.15"	80°	68°	523°	52.1°	960	192	10FT	44°	54°

* COIL SHALL HAVE A MINIMUM OF 6 ROWS AND 14 FINS PER INCH.

REGISTER & GRILLE SCHEDULE					
SYM	CFM	NECK SIZE	DESCRIPTION	RUNOUT SIZE	REMARKS
(A)	200	12 x 8	SIDEWALL SUPPLY REGISTER	—	
(B)	600	16 x 16	RETURN AIR GRILLE	—	*
(C)	800	18 x 18	↓	—	*

* VERIFY THAT RETURN AIR GRILLES WILL FIT IN RETURN AIR PLENUM SECTION OF AIR HANDLING UNITS SUPPLIED.

CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WELMINGTON, NORTH CAROLINA DES. DM [initials] DR. DM [initials] CHK. JHC JR. PROJ. MGR. JHC JR. ARCH. ENGR. JHC JR. SUBMITTED BY: [initials] DATE: [initials] BY: [initials] DATE: [initials] APPROVED: [initials] DATE: [initials]		DEPARTMENT OF THE NAVY ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. REPLACE HEATING AND AIR CONDITIONING SYSTEM BUILDING 19 SCHEDULES	
		NAVY FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA	
APPROVED: [initials] DATE: [initials] FOR EFD FOR COMMANDER NAVFAC		NAVFAC DRAWING NO. 4100695 SIZE CODE IDENT. NO. F 80091 CONSTR. CONTR. NO. N62470-B2-B-4579 SCALE GRAPHIC SPEC. 05-82-4579 SHEET 14 OF 16 EFD Dwg. No.	



1000

1000

1117

A PANEL SCHEDULE
 TYPE BOLT ON MOUNTING SURFACE ENCLOSURE NEMA-1
 VOLTS 480/277 MAIN 480 SHORT CKT. RATING 3000 RMS SYS.

CKT. NO.	CKT. BRKR. TRIP	DESCRIPTION	PHASE LOADING			CKT. NO.	CKT. BRKR. TRIP	DESCRIPTION	PHASE LOADING		
			A	B	C				A	B	C
1	225/3	CHILLER	2167	2167	2167	2	225/3	CHILLER	2166	2167	2167
3	30/3	PUMP P-1	1667	1667	1667	4	30/3	PUMP P-2	1666	1667	1667
5	150/3	TRANSFORMER	2500	2500	2500						
SUB-TOTAL			6004	6004	6002	SUB-TOTAL			6002	6004	6004
TOTAL PANEL LOAD = 282,200 AMPS = 340											

NOTES:

B PANEL SCHEDULE
 TYPE BOLT ON MOUNTING SURFACE ENCLOSURE NEMA-1
 VOLTS 208/120 MAIN 300 SHORT CKT. RATING 10,000 RMS SYS.

CKT. NO.	CKT. BRKR. TRIP	DESCRIPTION	PHASE LOADING			CKT. NO.	CKT. BRKR. TRIP	DESCRIPTION	PHASE LOADING		
			A	B	C				A	B	C
1	100/3	HP #1, HP #2 & HP #3	2780	2780	2780	2	100/3	HP #4, HP #5 & HP #6	2780	2780	2780
3	100/3	AHU #1, AHU #2 & AHU #3	7083	7083	7084	4	100/3	AHU #4, AHU #5 & AHU #6	7083	7083	7084
5	20/2	CONTROL AIR COMP.	915	915	1000	6	20/1	CHILLER CONTROLS	1000		
7	20/1	RECEPT. (AFTER COOLER)			1000	8	20/1	CONTROL J-BOX	1000		
9	20/1	CONTROL PANEL			1000						
SUB-TOTAL			10776	10776	10864	SUB-TOTAL			10863	10863	10864
TOTAL PANEL LOAD = 4095 AMPS = 178											

NOTES:

REVISIONS		
SYM.	DESCRIPTION	DATE APPROVED

SCHEDULE OF CIRCUIT BREAKER CLASSIFICATION

CLASS	INTERRUPTING RATING		RANGE OF CURRENT	POLES
	SYMMETRICAL AMPS	VOLTS		
12a	10,000	120/208	15-100	1 OR 2
12b	10,000	240	15-225	2 OR 3
21a	30,000	480	70-800	2 OR 3

E-2

CHEATHAM AND ASSOCIATES CONSULTING ENGINEERS WILMINGTON, NORTH CAROLINA	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NAVAL STATION MARINE CORPS BASE, CAMP LEJEUNE, N.C.
DES. BY: Dr. DM CHK. BY: JHC JR. PROJ. MGR. JHC JR. DATE: 11/14/44	REPLACE HEATING AND AIR CONDITIONING SYSTEM, BUILDING 19 PANEL SCHEDULES AND DETAILS
APPROVED: [Signature] DATE: 11/14/44	SIZE: F CODE IDENT. NO.: 80091 NAVFAC DRAWING NO.: 4100697 CONSTR. CONTR. NO. 62470-82-B-4579
FOR EFD FOR COMMANDER NAVFAC	SCALE: GRAPHIC SPEC. 05-82-4579 SHEET 16 OF 16

