

**MECHANICAL LEGEND**

- CEILING SUPPLY AIR DIFFUSER
- CEILING RETURN AIR REGISTER
- TURNING VANES IN RECTANGULAR DUCT
- FLEXIBLE ROUND DUCT
- NEW DUCTWORK, EQUIPMENT
- SPLITTER DAMPER
- AIR EXTRACTOR BLADES IN SUPPLY DUCT
- THERMOSTAT
- IONIZATION SMOKE DETECTOR
- POINT OF CONNECTION NEW TO EXISTING
- FIRE DAMPER
- SHUT OFF DAMPER
- DIRECTION OF FLOW INDICATOR
- VAV BOX
- HW-S HOT WATER SUPPLY
- HW-R HOT WATER RETURN
- CHWS CHILLED WATER SUPPLY
- CHWR CHILLED WATER RETURN
- HPS HIGH PRESSURE STEAM
- MPS MEDIUM PRESSURE STEAM
- PC PUMPED CONDENSATE
- V VENT PIPING
- PW POTABLE WATER
- MPRC MEDIUM PRESSURE CONDENSATE RETURN
- CD CONDENSATE DRAIN
- SPC STATIC PRESSURE CONTROLLER, SEE CONTROLS SHEET M-11
- TOS TIMED OVERRIDE SWITCH
- AQ AQUASTAT
- TEE
- ELBOW
- WPRV WATER PRESSURE REDUCING VALVE
- GV GLOBE VALVE
- DV DRAIN VALVE W/HOSE END
- PR (C) PIPE REDUCER (CONCENTRIC)
- PG (4 1/2") PRESSURE GAUGE - 4 1/2" DIAL FACE W/PRESSURE SNUBBER
- FPC FLEXIBLE PIPE CONNECTOR
- GV GATE VALVE
- CV CHECK VALVE
- PRV PRESSURE RELIEF VALVE
- SV Steamer w/blowdown valve
- VC VALVE COCK (SQUARE HEAD)
- PR (E) PIPE REDUCER (ECCENTRIC)
- UNION
- THERMOMETER
- BV Butterfly valve gear operated w/memory stops
- TC TIME CLOCK
- PU PIPE UP
- PD PIPE DOWN
- NLLT NIGHT LOW LIMIT THERMOSTAT
- AA AUDIBLE ALARM
- RAG Relief air grille with horizontal backdraft damper & neck stubbed into attic space.

**KEYED NOTES (THIS SHEET ONLY)**

- 1 FOR DUCT ROUTING CUT THROUGH EXISTING DRAFT BARRIER CONSISTING OF 2 LVS SHEETED W/ GYPSUM WALL BOARD, PROVIDE DUCT COLLAR ON EACH SIDE & RESTORE DRAFT BARRIER INTEGRITY.
- 2 FOR DUCT ROUTING CUT EXISTING TERRA COTTA FIREWALL, PACK OPENING W/ MINERAL OR GLASS FIBER INSULATION & SEAL W/ MASTIC OF MORTAR. PROVIDE FIRE DAMPERS IN SUPPLY & RETURN DUCT AS INDICATED.
- 3 EXISTING TERRA COTTA FIREWALL.
- 4 1/2" CONDENSATE DRAIN LINES FROM AHU DRAIN PANS... SPILL ONTO SPLASH BLOCK @ GRADE.
- 5 PROVIDE 32" x 24" O.A. INTAKE LOUVER IN 8" CMU WALL. LOUVER SHALL HAVE 45° STATIONARY BLADES, BE OF ALUMINUM CONSTRUCTION & HAVE INTEGRAL 3/16" MESH BIRD SCREEN.
- 6 SPILL CONDENSATE ONTO SPLASH BLOCK @ GRADE. SEE SECTION M-3 M-10.
- 7 CONDENSATE DRAIN LINES FROM DRIP & AUXILIARY DRAIN PANS. SLOPE MINIMUM 1/8" PER FOOT.
- 8 OUTSIDE AIR DUCT ROUTED THROUGH ATTIC SPACE.
- 9 BUTT O.A. DUCT TO SCREEN @ EXISTING ROOF LOUVER. PROVIDE 3/16" MESH BIRD SCREEN BANNED TO DUCT. FLARE DUCT TO 16" x 16" @ OPENING.
- 10 DUCT MOUNTED HW COIL. REFER TO SCHEDULE SHEET M-8 & PIPING PLAN SHEET M-5.
- 11 FLOOR MOUNTED VERTICAL CABINET FAN COIL UNIT W/ HW & CHW COILS. REFER TO INSTALLATION DETAIL M-3 M-4 M-11 & SCHEDULE SHEET M-5.
- 12 M-5 PENETRATE EXISTING 12" CMU WALL FOR O.A. INTAKE. INSTALL NEW WALL EXHAUST FAN EF-1. SEE DETAIL M-3 M-4 M-6 & SCHEDULE SHEET M-9.
- 13 CHW FAN COIL UNIT MOUNTED IN ATTIC. SEE DETAIL M-3 M-4 M-5 & SCHEDULE SHEET M-9.
- 14 VERTICAL DRAIN THRU AIR HANDLING UNIT PAD MOUNTED IN MECHANICAL ROOM. SEE SECTION M-4 & SCHEDULE SHEET M-8.

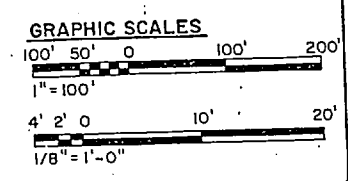
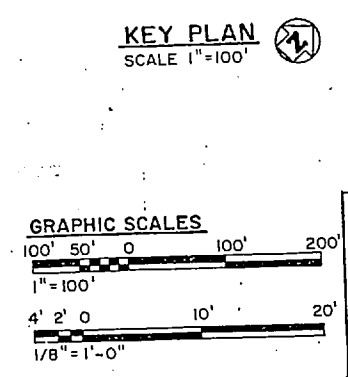
**ABBREVIATIONS**

- |                          |                           |                       |
|--------------------------|---------------------------|-----------------------|
| AHU AIR HANDLING UNIT    | HC HEATING COIL           | RA RETURN AIR         |
| C COMMON PORT            | HC HOLDING COIL           | SA SUPPLY AIR         |
| CF CABINET FAN COIL UNIT | HP HEAT PUMP              | TSTAT THERMOSTAT      |
| CH CHILLER               | HW HOT WATER              | CP CONTROLS PANEL     |
| CHW CHILLED WATER        | NC NORMALLY CLOSED        | TOR TIMED OVERRIDE    |
| CW COLD (POTABLE) WATER  | NLL NIGHT LOW LIMIT       | CLK CLOCK             |
| DH DUCT HEATER           | NO NORMALLY OPEN          | AUX AUXILIARY CONTACT |
| FC FAN COIL UNIT         | O.A. OUTSIDE AIR          |                       |
| FS FLOW SWITCH           | MPS MEDIUM PRESSURE STEAM |                       |

**GENERAL NOTES**

ALL SUPPLY & RETURN DUCT WORK EXCEPT THAT IN VAULT IS SHOWN TERMINATED AT CEILING MOUNTED DIFFUSERS AND GRILLES. IT IS THE INTENT THAT THE FINAL FEW FEET (TO 5') OF DISTRIBUTION DUCT WORK CONNECTIONS TO DIFFUSERS AND GRILLES SHALL BE ROUND PREINSULATED FLEXIBLE DUCT TO ALLOW HINGOR SHIFTING OF CEILING GRIDS IN FUTURE AS A RESULT OF NEW PARTITIONS OR LAY IN CEILINGS. SUPPLY AND RETURN DUCT RAINS SHALL BE RECTANGULAR GALVANIZED STEEL WITH ROUND BRANCH DUCT TAKEOFFS. SEE DETAIL ROUND DUCT CONNECTION SHEET M-11. DUCT ROUTING IS GENERALLY DIAGRAMMATIC AND DEVIATIONS MADE AS A RESULT OF FIELD DETERMINED OBSTRUCTION MAY BE NECESSARY AND WILL BE ALLOWED PROVIDED DUCT AREA IS NOT REDUCED AND STRUCTURAL MEMBERS ARE UNALTERED. REFER TO BUILDING SECTIONS SHEET M-9 FOR PROPOSED ROUTING OF DUCT THROUGH STRUCTURAL MEMBERS.

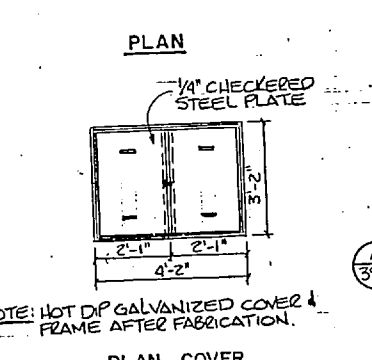
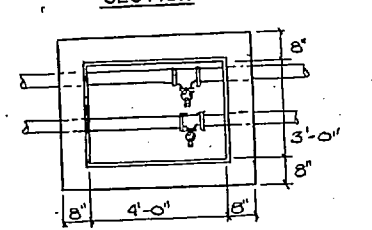
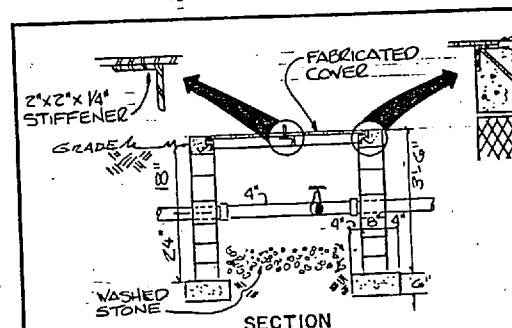
**BUILDING 1005 SW - HVAC PLAN**  
SCALE 1/8" = 1'-0"



RECORD DRAWING LETTER DATED 20 APRIL 88		<b>M-3</b>	
HENRY VON CEMEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28402		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND <b>MARINE CORPS BASE</b> CAMP LEJEUNE, NORTH CAROLINA	
DES. TMH	DR. SMC	MARINE CORPS BASE REPLACE HVAC SYSTEMS BLDG. NO. 1005	
CHK. DER	SUBMITTED BY	SW WINGS HVAC PLAN	
DESIGN DIR.	APPROVED: PWD OR DIC	DATE	SIZE
DATE 7/15/85	DATE	80091	F
SATISFACTORY TO:	DATE	NAVFAC DRAWING NO. 4126453	CONSTR. CONTR. NO. N62470-84-B-7937
		SCALE: GRAPHIC SPEC.	05-84-7937 SHEET 4 OF 16

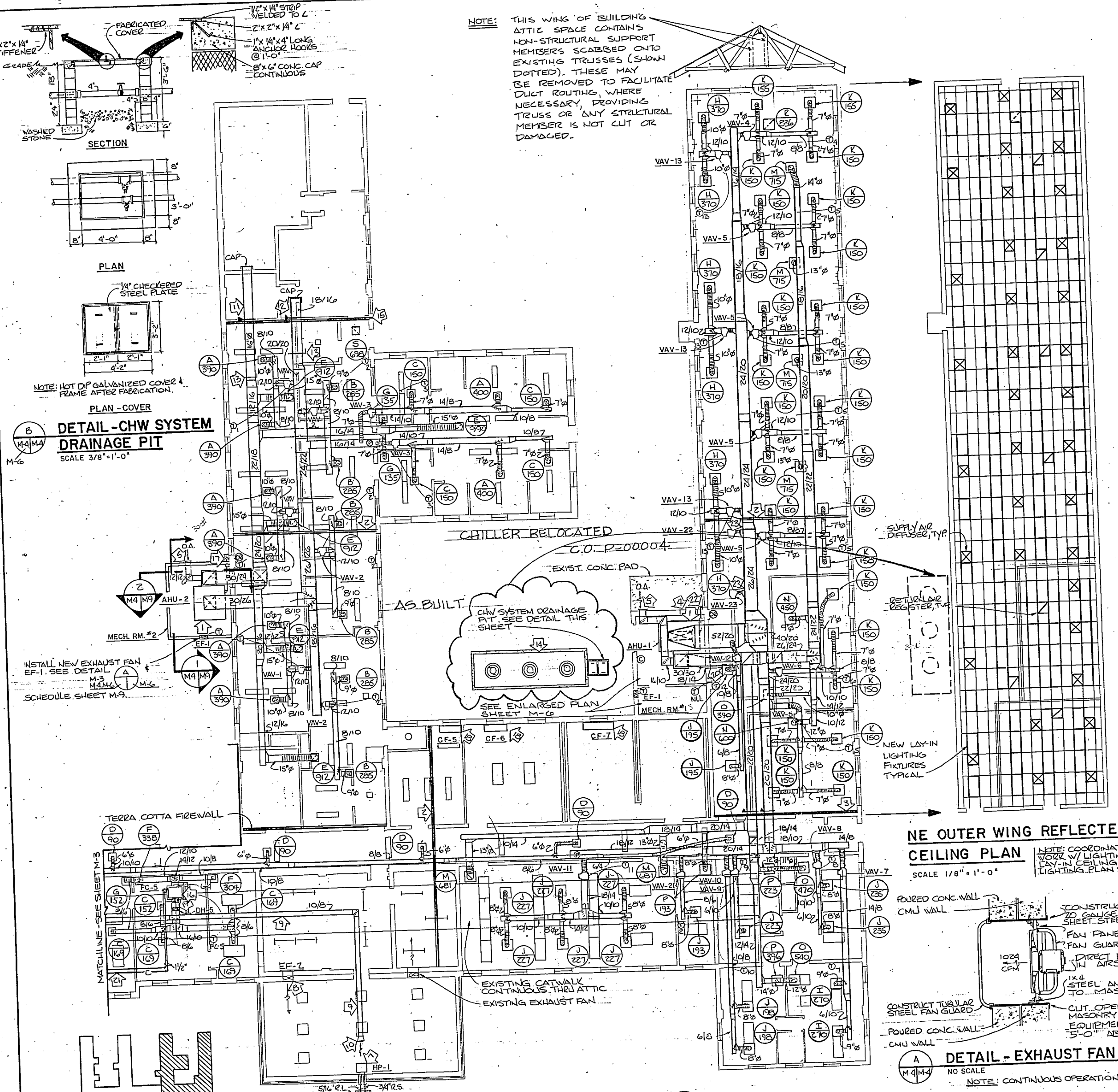


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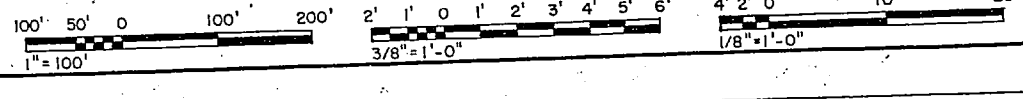
**DETAIL - CHW SYSTEM DRAINAGE PIT**  
SCALE 3/8" = 1'-0"

**NOTE:** THIS WING OF BUILDING ATTIC SPACE CONTAINS NON-STRUCTURAL SUPPORT MEMBERS SCABBED ONTO EXISTING TRUSSES (SHOWN DOTTED). THESE MAY BE REMOVED TO FACILITATE DUCT ROUTING, WHERE NECESSARY, PROVIDING TRUSS OR ANY STRUCTURAL MEMBER IS NOT CUT OR DAMAGED.

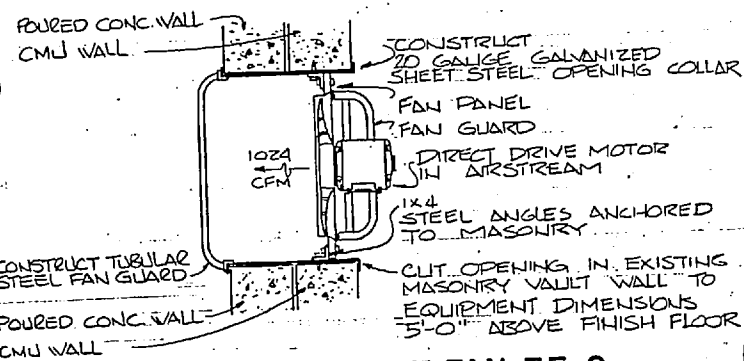


**KEY PLAN**  
SCALE 1" = 100'

**BUILDING 1005 NE - HVAC PLAN**  
SCALE 1/8" = 1'-0"



**NE OUTER WING REFLECTED CEILING PLAN**  
SCALE 1/8" = 1'-0"



**DETAIL - EXHAUST FAN EF-2**  
NO SCALE  
NOTE: CONTINUOUS OPERATION.

**KEYED NOTES (THIS SHEET ONLY)**

- VERTICAL DRAIN THRU AIR HANDLING UNIT PAD MOUNTED IN MECHANICAL ROOM. SEE SECTION M-4 & SCHEDULE SHEET M-8.
- FOR DUCT ROUTING CUT EXISTING DRAFT BARRIER CONSISTING OF TRUSS SHEETED W/ GYPSUM WALL BOARD. PROVIDE DUCT COLLAR ON EACH SIDE & RESTORE DRAFT BARRIER INTEGRITY.
- FOR DUCT ROUTING CUT EXISTING TERRA COTTA FIREWALL. PACK OPENING WITH MINERAL OR GLASS FIBER INSULATION & SEAL WITH MASTIC OF MORTAR. PROVIDE FIRE DAMPERS IN SUPPLY & RETURN DUCT AS INDICATED.
- BLOCK UP EXISTING OPENINGS IN CMU WALL AND PAINT TO MATCH EXISTING EXTERIOR SURFACE.
- PROVIDE 32" x 24" O.A. INTAKE LOUVER IN 8" CMU WALL. LOUVER SHALL HAVE 45° STATIONARY BLADES, BE OF ALUMINUM CONSTRUCTION & HAVE INTEGRAL 3/16" MESH BIRD SCREEN.
- PAD MOUNTED HEAT PUMP CONDENSING UNIT. SEE SCHEDULE SHEET M-9. PAD SHALL BE 3000 PSI CONCRETE REINFORCED W/ 6x6" x 2.9' x 2.9' x 6" THICK.
- SPLIT SYSTEM HEAT PUMP INDOOR VERTICAL AIR HANDLING UNIT & AUXILIARY ELECTRIC HEAT COIL. SEE SCHEDULE SHEET M-9.
- EXHAUST FAN EF-2 MOUNTED IN EXISTING CONCRETE MASONRY WALL. SEE SCHEDULE SHEET M-9 & DETAIL M-4.
- OUTSIDE AIR DUCT ROUTED THROUGH ATTIC SPACE.
- BUTT O.A. DUCT TO SCREEN AT EXISTING ROOF LOUVER. PROVIDE 3/16" MESH BIRD SCREEN BANNED TO DUCT. FLARE DUCT TO 16" x 16" AT OPENING.
- RECTANGULAR RETURN AIR DUCT ROUTED IN ATTIC SPACE FOR FUTURE SERVICES. CAP END OF DUCT.
- RECTANGULAR SUPPLY AIR DUCT ROUTED IN ATTIC SPACE FOR FUTURE SERVICES. CAP END OF DUCT.
- SHUT OFF DAMPER IN SUPPLY OR RETURN DUCT TO ISOLATE BRANCH SECTIONS PRESENTLY NOT USED. SHUT AWAY RIGHT.
- PAD MOUNTED NOMINAL 100 TON RECIPROCATING AIR COOLED CHILLER. REFER TO PIPING PLAN SHEET M-6 & SCHEDULE SHEET M-8.
- FOR DUCT ROUTING CUT EXISTING CONCRETE MASONRY FIREWALL. REFER TO NOTE 12 ABOVE.
- CMU FAN COIL UNIT MOUNTED IN ATTIC. SEE DETAIL I & SCHEDULE SHEET M-8.
- CONDENSATE DRAIN FROM AHU-1 1/2" SPILL ONTO SPLASH BLOCK.
- FLOOR MOUNTED CABINET FAN COIL UNIT W/ HW & CHW COILS. REFER TO INSTALLATION DETAIL I & SCHEDULE SHEET M-8. PENETRATE EXISTING 12" CMU WALL FOR O.A. INTAKE.
- DUCT MOUNTED HV COIL. REFER TO SCHEDULE SHEET M-8 & PIPING PLAN SHEET M-5.
- PROVIDE NEW 42" x 24" GALVANIZED STEEL RA GRILLE IN EXISTING WALL OPENING. TRANSITION TO NEW 20" x 18" R.A. DUCT. 1384 CFM W/ OPPOSED BLADE DAMPER.
- CONDENSATE DRAIN LINES FROM DRIP & AUXILIARY DRAIN PANS. SLOPE MINIMUM 1/8" PER FOOT.
- CONDENSATE DRAIN LINES FROM AHU DRAIN PANS, 1/2" SPILL ONTO EXISTING CONCRETE PAD.
- VAV BOXES PROVIDED FOR FUTURE BUILDING ADDITION. INSTALL BOX IN FULL CLOSED POSITION W/O DISTRIBUTION DUCTWORK.

**GENERAL NOTES**

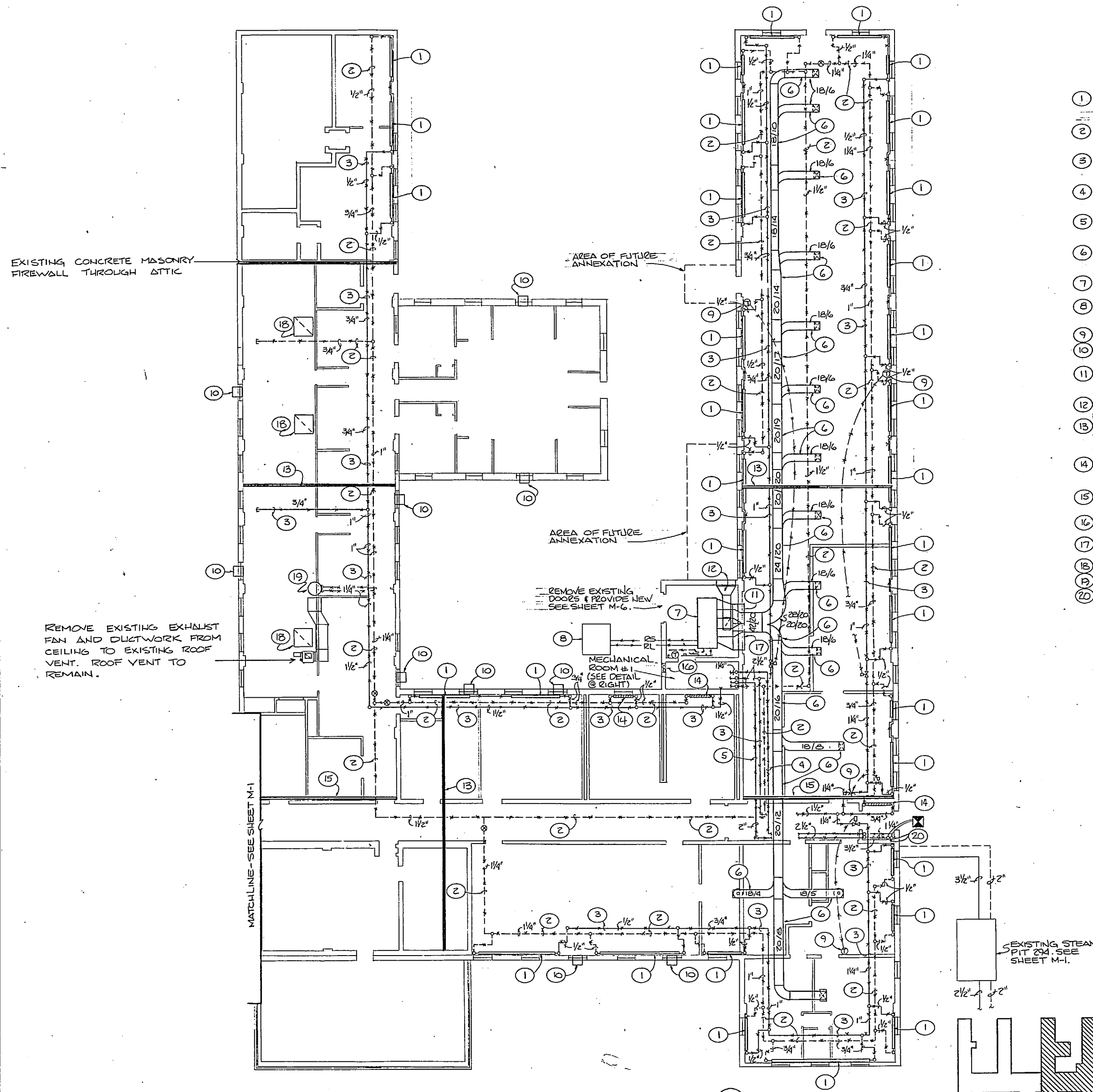
ALL SUPPLY & RETURN DUCT WORK EXCEPT THAT IN VAULT IS SHOWN TERMINATED AT CEILING MOUNTED DIFFUSERS AND GRILLES. IT IS THE INTENT THAT THE FINAL FEET (TO 5') OF DISTRIBUTION DUCT WORK CONNECTIONS TO DIFFUSERS AND GRILLES SHALL BE ROUND PREINSULATED FLEXIBLE DUCT TO ALLOW MINOR SHIFTING OF CEILING GRIDS IN FUTURE AS A RESULT OF NEW PARTITIONS OR LAY IN CEILINGS. SUPPLY AND RETURN DUCT HAINS SHALL BE RECTANGULAR GALVANIZED STEEL WITH ROUND BRANCH DUCT TAKEOFFS. SEE DETAIL ROUND DUCT CONNECTION SHEET M-11. DUCT ROUTING IS GENERALLY DIAGRAMMATIC AND DEVIATIONS MADE AS A RESULT OF FIELD DETERMINED OBSTRUCTION MAY BE NECESSARY AND WILL BE ALLOWED PROVIDED DUCT AREA IS NOT REDUCED AND STRUCTURAL MEMBERS ARE UNALTERED. REFER TO BUILDING SECTIONS SHEET M-9 FOR PROPOSED ROUTING OF DUCT THROUGH STRUCTURAL MEMBERS.

<b>RECORD DRAWING</b>		<b>20 APRIL 88</b>		<b>M-4</b>	
LETTER DATED		DATE		DEPARTMENT OF THE NAVY	
HENRY VON OESSEN & ASSOCIATES		CONSULTING ENGINEERS & PLANNERS		WILMINGTON, NORTH CAROLINA 28402	
MARINE CORPS BASE		CAMP LEJEUNE, NORTH CAROLINA		MARINE CORPS BASE	
REPLACE HVAC SYSTEMS		BLDG. NO. 1005		NE WINGS HVAC PLAN	
DESIGNER: TMH		DATE: 7/18/87		NAVFAC DRAWING NO. 4126454	
CHECKED: J. J. J.		DATE: 7/18/87		CONSTR. CONTR. NO. N62470-84-B-7937	
APPROVED: P. W. O. DIC		DATE: 7/18/87		SCALE: GRAPHIC SPEC. 05-64-7937	
SATISFACTORY TO:		DATE:		SHEET 5 OF 16	



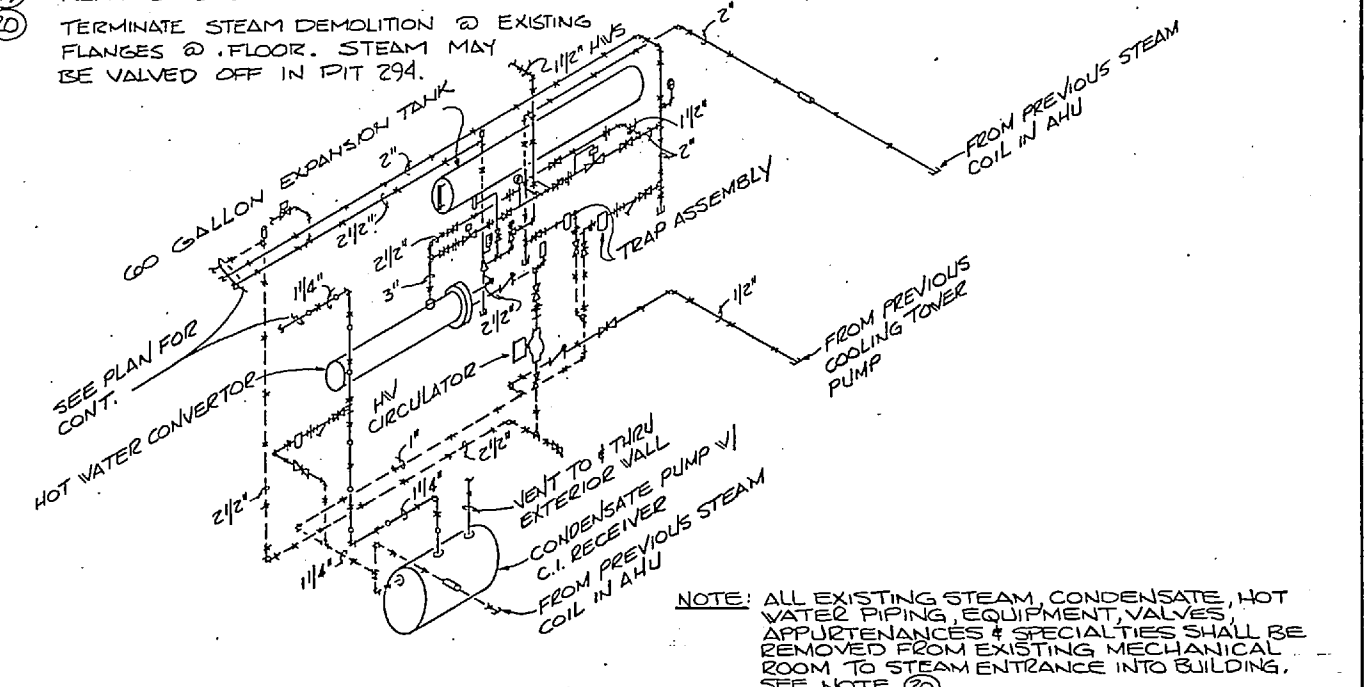


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**DEMOLITION KEYED NOTES (THIS SHEET ONLY)**

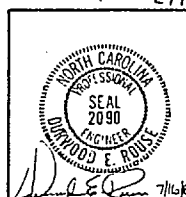
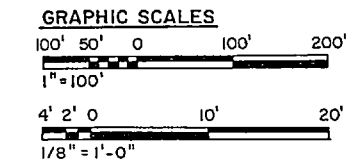
- ① REMOVE EXISTING WALL FIN HV RADIATION UNITS & ASSOCIATED VALVES & FITTINGS. REMOVE ALL OBSTRUCTIONS TO REPLACEMENT UNITS (REFER TO NEW WORK PLAN SHEET M-4). REMOVE HW SUPPLY & RETURN RISERS INTO ATTIC SPACE. PATCH ALL UNUSED OPENINGS THROUGH CEILING.
- ② REMOVE EXISTING HW RETURN PIPING, INSULATION, HANGERS & SUPPORTS. ROUTED IN ATTIC SPACE REMOVE ALL CONTROL & BALANCING VALVES & ALL CONNECTED APPURTENANCES. REFER TO NOTE 13 & 15.
- ③ REMOVE EXISTING HW SUPPLY PIPING, INSULATION, HANGERS & SUPPORTS. ROUTED IN ATTIC SPACE. REMOVE ALL CONTROL & BALANCING VALVES & ALL CONNECTED APPURTENANCES. REFER TO NOTE 13 & 15.
- ④ REMOVE EXISTING 1 1/2" CONDENSATE RETURN PIPING FROM MECHANICAL ROOM TO EXISTING FLANGE AT FLOOR IN VESTIBULE. REFER TO DETAIL BELOW FOR REMOVAL OF STEAM PIPING IN MECHANICAL ROOM. REFER TO NOTE 15.
- ⑤ REMOVE EXISTING 2-2 1/2" HIGH PRESSURE STEAM SUPPLY PIPING FROM MECHANICAL ROOM TO EXISTING 2 1/2" FLANGE AT VESTIBULE FLOOR. REFER TO DETAIL BELOW FOR REMOVAL OF STEAM PIPING IN MECHANICAL ROOM. REFER TO NOTE 15.
- ⑥ REMOVE EXISTING LOW PRESSURE SUPPLY DUCTWORK, FITTINGS & ALL AIR DISTRIBUTION APPARATUS ROUTED IN ATTIC SPACE. REMOVE ASSOCIATED CEILING DIFFUSERS & PROVIDE VAPOR BARRIER OVER OPENINGS & 2-19 FIBROGLASS BATT INSULATION.
- ⑦ REMOVE EXISTING VERTICAL AIR HANDLING UNIT COILS, FILTERS, CONTROLS, DUCTWORK, ETC. IN ITS ENTIRETY. REMOVE POWER WIRING & CONDUIT BACK TO PANEL.
- ⑧ REMOVE EXISTING PAD MOUNTED CONDENSING UNIT & REFRIGERANT LIQUID & SUCTION LINES TO AIR HANDLING UNIT. REMOVE DISCONNECT SWITCHES & POWER WIRING & CONDUIT BACK TO PANEL. REMOVE ALL CONTROL WIRING CONDUIT.
- ⑨ REMOVE WALL THERMOSTATS & ALL CONTROL WIRING BACK TO ASSOCIATED EQUIPMENT.
- ⑩ REMOVE EXISTING WINDOW AIR CONDITIONING UNITS. REPAIR ANY DAMAGES TO EXISTING WINDOWS. DELIVER REMOVED UNITS TO BASE WAREHOUSE AS DIRECTED.
- ⑪ REMOVE EXISTING SIDE WALL RETURN AIR GRILLE & LOW PRESSURE RETURN AIR DUCTWORK TO AHU IN MECHANICAL ROOM. PATCH & PAINT EXISTING CMU WALL TO MATCH EXISTING SURFACES.
- ⑫ REMOVE EXISTING OUTSIDE AIR DAMPER & DUCTWORK TO AHU.
- ⑬ EXISTING DRAFTSTOP CONSISTING OF TRUSS SHEATHED WITH 1/2" GYPSUM WALL BOARD ON EACH SIDE. OPENINGS RESULTING FROM PENETRATIONS BY REMOVED DUCT, PIPE, ETC. SHALL BE PATCHED WITH IDENTICAL MATERIALS TO RESTORE DRAFT INTEGRITY OF EACH BARRIER.
- ⑭ REMOVE EXISTING CAST IRON RADIATORS & ASSOCIATED VALVES & FITTINGS. REMOVE ALL OBSTRUCTIONS TO REPLACEMENT UNITS (REFER TO NEW WORK PLAN SHEET M-4). REMOVE HW SUPPLY & RETURN RISERS INTO ATTIC SPACE. PATCH ALL UNUSED OPENINGS THROUGH CEILING.
- ⑮ EXISTING TERRACOTTA FIREWALL. OPENINGS THAT CANNOT BE USED FOR NEW CONSTRUCTION SHALL BE PATCHED WITH IDENTICAL MATERIALS TO RESTORE FIRE & DRAFT INTEGRITY OF EACH BARRIER.
- ⑯ REMOVE EXISTING SIDEWALL VENTILATION FAN & POWER CIRCUIT. TEMPORARILY WEATHERPROOF WALL OPENING UNTIL INSTALLATION OF NEW FAN. SEE NOTE 17 & SHEET M-6.
- ⑰ REMOVE EXISTING 42" X 24" SIDEWALL RA. GRILLE. OPENING TO BE REUSED. REFER TO NEW HVAC PLAN SHEET M-4.
- ⑱ REMOVE EXISTING GRAVITY VENT DUCT FROM CEILING TO EXISTING ROOF TURBINE. ROOF TURBINE TO REMAIN.
- ⑲ REMOVE EXISTING HW UNIT HEATER & BRANCH HW PIPING.
- ⑳ TERMINATE STEAM DEMOLITION @ EXISTING FLANGES @ FLOOR. STEAM MAY BE VALVED OFF IN PIT 294.



**DETAIL MECHANICAL ROOM #1 EQUIPMENT ISOMETRIC**  
NO SCALE

**BUILDING 1005 NE - DEMOLITION PLAN**  
SCALE 1/8" = 1'-0"

**KEY PLAN**  
SCALE 1" = 100'



RECORD DRAWING LETTER DATED 20 APRIL 88		<b>M-2</b>	
HENRY VON OESSEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28402		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND <b>MARINE CORPS BASE</b> CAMP LEJEUNE, NORTH CAROLINA	
DES. TMH	DR. SMC	MARINE CORPS BASE CAMP LEJEUNE, N.C.	
CHK. DER	REPLACE HVAC SYSTEMS BLDG. NO. 1005		
SUBMITTED BY: [Signature]		NE WINGS DEMOLITION PLAN	
DESIGN DIR. [Signature]	DATE 7/13/85	SIZE F	CODE IDENT. NO. 4126452
APPROVED: PWD DS DIC	DATE 7/13/85	CONSTR. CONTR. NO. N62470-84-B-7937	NAVFAC DRAWING NO. 4126452
SATISFACTORY TO: [Signature]	DATE 7/13/85	SCALE: GRAPHIC SPEC. 05-04-7937	SHEET 3 OF 16



REVISIONS		
NO.	DESCRIPTION	DATE

CW COIL SCHEDULE																
TAG	AIR SIDE						WATER SIDE						REMARKS			
	MBH	SIZE	ROWS	CFM	ATD	FACE VEL (FPM)	APD	EAT	LAT	GPM	WTR	WPD		EWT	LWT	
CC-1	227.1	25"x28"	4	834	20.0	497	.37	77	45	45.3	10°	59	45	55	21	MOUNTED IN AHU #1
CC-2	189.7	25"x28"	6	698	20.4	508	.46	77	45	37.9	10°	17	45	55	17	MOUNTED IN AHU #2
CC-3	148	17"x21"	6	545	20.5	466	.41	77	45	29.6	10°	10	45	55	14	MOUNTED IN AHU #3
CC-4	226.6	25"x28"	4	834	20.0	495	.35	77	45	45.3	10°	59	45	55	21	MOUNTED IN AHU #4

\* COIL CAPACITY IS SELECTED FOR ANTICIPATED LOAD FOR OCCUPANCY OF PRESENTLY UNOCCUPIED AREA OF WING.

COILS INCREASED TO HANDLE TOTAL HEATING LOAD C.O.P. 00004

CHILLER SCHEDULE															
UNIT MARK	NOM TONS	TOTAL CAPAC. KW	EER	COMPRESSOR			EVAPORATOR		COND. PAN CFM	ENT. COND. AIR	MIN. LOW AMBIANT STARTING	VOLTAGE	EWT	LWT	REMARKS
				NO.	NOM TONS	UNLOADING	GPM	PD							
CH-1	100	129.7	9.7	2	50	4	194	6'	76900	91	40	480/30	55	45	AIR COOLED RECIPROCATING

HW COIL SCHEDULE																
ZONE	AIR SIDE						WATER SIDE						REMARKS			
	MBH	SIZE	ROWS	CFM	ATR	FACE VEL (FPM)	APD	EAT	LAT	GPM	WTD	WPD		EWT	LWT	
HC-1	184	24"x28"	2	834	20.1	619	.17	68	88.1	13.9	26.5	0.6	180	153.5	6	MOUNTED IN AHU #1
HC-2	163.8	24"x28"	2	698	21.4	698	.20	68	89.4	11.6	28.2	0.4	180	151.8	5.3	MOUNTED IN AHU #2
HC-3	125.7	24"x28"	2	545	21.1	641	.23	68	89.1	8.2	30.7	0.2	180	149.3	3.7	MOUNTED IN AHU #3
HC-4	184	24"x28"	2	834	20.1	618	.17	68	88.1	13.9	26.5	0.6	180	153.5	6.5	MOUNTED IN AHU #4
DH-1	23.6	12"x12"	2	788	27.5	788	.46	68	95.5	2.4	20	0.1	180	160	1.1	DUCT MOUNTED @ FC-1
DH-2	29.7	12"x14"	2	984	27.6	843	.52	68	95.6	3	20.1	0.1	180	159.9	1.4	DUCT MOUNTED @ FC-2
DH-3	46.1	12"x20"	2	1464	28.8	878	.55	68	96.8	4.4	21	0.2	180	160	2	DUCT MOUNTED @ FC-3
DH-5	25.4	12"x16"	2	848	30.2	836	.22	68	98.2	2.5	22.1	0.1	180	157.9	1	DUCT MOUNTED @ FC-5

PUMP SCHEDULE									
UNIT MARK	GPM	TDH	RPM	HP	VOLTAGE	SERVICE	WATER TEMP.	TYPE	
P-1	194	70'	1750	5	480/30	CV	55°	BASE MOUNTED END SUCTION CENTRIFUGAL	
P-2	69	28'	1750	2	208/30	HV	160°	INLINE BRONZE FITTED CENTRIFUGAL	
P-3	69	48'	1750	2	208/30	HV	160°	INLINE BRONZE FITTED CENTRIFUGAL	
P-4	9	120'	3500	1/2	208/30	COND	210°	DUPLEX 23 GAL. RECEIVER	

CABINET FAN COIL UNIT SCHEDULE																									
MARK ON PLAN	BLOWER DATA				COOLING DATA				HEATING DATA				FILTER SIZE & TYPE	3-WAY CONTR. VALVE SIZE & TYPE	PIPING RUNOUT SIZE										
	MIN CFM	O.A. CFM	TYPE	HP / WATTS	ENT. AIR TEMP. DB.	W.B.	MBH CAP.	CHILLED WATER GPM	ENT. AIR TEMP. DB.	HOT WATER CAP. GPM	ENT. AIR TEMP. DB.	W.B.				MBH CAP.	CHILLED WATER GPM								
CF-1	300	30	DIR.	1/2	20/10	3'-4"	78	64.5	8.1	5.5	4.5	1.3	2.7	68	9.7	180	1.9	1.9	1/2	1.6	1/2	9	3/4	3/4	
CF-2	320	32	DIR.	1/2	20/10	3'-4"	78	64.5	8.1	5.5	4.5	1.3	2.7	68	10.48	180	2.1	1.1	1.1	1/2	1.6	1/2	9	3/4	3/4
CF-3	480	48	DIR.	1/2	20/10	4'-8"	78	64.5	13.1	8.8	4.5	1.9	4	68	15.55	180	3.11	2.3	2.3	1/2	1.6	1/2	1.4	3/4	3/4
CF-4	475	48	DIR.	1/2	20/10	4'-8"	78	64.5	12.9	8.8	4.5	1.9	4	68	15.3	180	3.06	2.2	2.2	1/2	1.6	1/2	1.4	3/4	3/4
CF-5	245	25	DIR.	1/2	20/10	3'-4"	78	64.5	6.7	4.5	4.5	1.2	2.5	68	7.9	180	1.58	.5	.5	1/2	1.6	1/2	.7	3/4	3/4
CF-6	540	54	DIR.	1/2	20/10	4'-8"	78	64.5	14.7	9.9	4.5	2.1	5.3	68	17.5	180	3.5	2.6	2.6	1/2	1.6	1/2	1.5	3/4	3/4
CF-7	300	30	DIR.	1/2	20/10	3'-4"	78	64.5	8.1	5.5	4.5	1.3	2.7	68	9.7	180	1.9	1.0	1.0	1/2	1.6	1/2	9	3/4	3/4

STEAM/HW CONVERTOR									
TOTAL MBH	GPM	EWT	LWT	WPD	ENT. STEAM PRESS.	* /HR STEAM	* /HR COND.	TUBE PASSES	HEATING SURFACE FT <sup>2</sup>
1664	156	160	180	1.0	40 PS.I.	1252	980	2	42

AIR HANDLING UNIT SCHEDULE														
UNIT MARK	CFM	O.A. CFM	ESP H <sub>2</sub> O	BHP	FAN DIA.	OUTLET VEL.	CW COIL	HW COIL	FILTER SECTION			CONFIGURATION	REMARKS	
									NO.	TYPE	SIZE			
AHU-1	834	836	1 1/2"	3.85	20"	1673	CC-1	HC-1	6	T.A.	18.8	VERTICAL CRAW THRU	FORWARD CURVED W/ INLET VANES	
AHU-2	698	698	1 1/2"	2.97	20"	1397	CC-2	HC-2	6	T.A.	15.9	VERTICAL CRAW THRU	FORWARD CURVED W/ INLET VANES	
AHU-3	545	545	1 1/2"	2.22	20"	1329	CC-3	HC-3	5	T.A.	15.4	VERTICAL CRAW THRU	FORWARD CURVED W/ INLET VANES	
AHU-4	834	834	1 1/2"	3.85	20"	1669	CC-4	HC-4	6	T.A.	18.8	VERTICAL CRAW THRU	FORWARD CURVED W/ INLET VANES	

\* TOTAL SQUARE FEET C.O.P. 00004 COILS INCREASED TO HANDLE TOTAL HEATING LOAD

WALL FIN CONVERTORS (180° EWT) *									
UNIT	MBH HEATING	GPM	LINEAL FT FIN TUBE	INSTALLED HEIGHT	ELEMENTS	ROWS	EDR	REMARKS	
A	6.87	.69	8'-6"	15 1/2"	1/4 STEEL	1	28.66	ELIMINATED ENTIRELY EXCEPT WHERE SHOWN ON FLOOR PLANS	
B	2.00	.20	2'-6"	15 1/2"	1/4 STEEL	1	8.33	AS BUILT	
C	3.20	.32	4'-0"	15 1/2"	1/4 STEEL	1	13.33	AS BUILT	
D	4.80	.48	6'-0"	15 1/2"	1/4 STEEL	1	19.9	AS BUILT	
E	4.40	.44	5'-6"	15 1/2"	1/4 STEEL	1	18.33	AS BUILT	
F	2.40	.24	3'-0"	15 1/2"	1/4 STEEL	1	10.0	AS BUILT	
G	9.6	.96	12'-0"	15 1/2"	1/4 STEEL	1	39.98	AS BUILT	
H	8.0	.80	10'-0"	15 1/2"	1/4 STEEL	1	33.2	AS BUILT	
I	6.40	.64	8'-0"	15 1/2"	1/4 STEEL	2	26.7	AS BUILT	
J	5.60	.56	7'-0"	15 1/2"	1/4 STEEL	1	23.3	AS BUILT	
K	4.00	.40	5'-0"	15 1/2"	1/4 STEEL	1	16.66	AS BUILT	
L	6.40	.64	8'-0"	15 1/2"	1/4 STEEL	1	26.7	AS BUILT	

NOTE: EX. (R) UNIT MARKS SUBSCRIPTED WITH THE LETTER 'R' INDICATE THAT UNITS ARE RECESSED IN EXISTING PARTITION, GYPSUM WALLS AND THAT WALLS WILL REQUIRE CUTTING, PATCHING & PAINTING IN ORDER TO INSTALL PIPING. SEE DETAIL SHEET S-1.

\* ELEMENTS, VALVES, FITTINGS, ETC. SHALL BE IN CONTINUOUS ENCLOSURE WITH INSIDE & OUTSIDE MITRED CORNERS AROUND COLUMNS. ACCESS PANELS IN LIEU OF ACCESS DOORS SHALL BE USED FOR VALVE ACCESS.

RECORD DRAWING LETTER DATED	20 APRIL 88	M-8
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		
DES. TMH	MARINE CORPS BASE	
DR. SMC	REPLACE HVAC SYSTEMS	
CHK. DER	BLDG. NO. 1005	
SUBMITTED BY: [Signature]	MECHANICAL EQUIPMENT SCHEDULES	
DESIGN DIR. [Signature]	DATE	SIZE
APPROVED: PWD OR OIC [Signature]	DATE	CODE IDENT. NO.
SATISFACTORY TO: [Signature]	DATE	NAVAC DRAWING NO.
		4126458
		CONSTR. CONTR. NO. N62470-84-B-7937
		SHEET 9 OF 16





REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

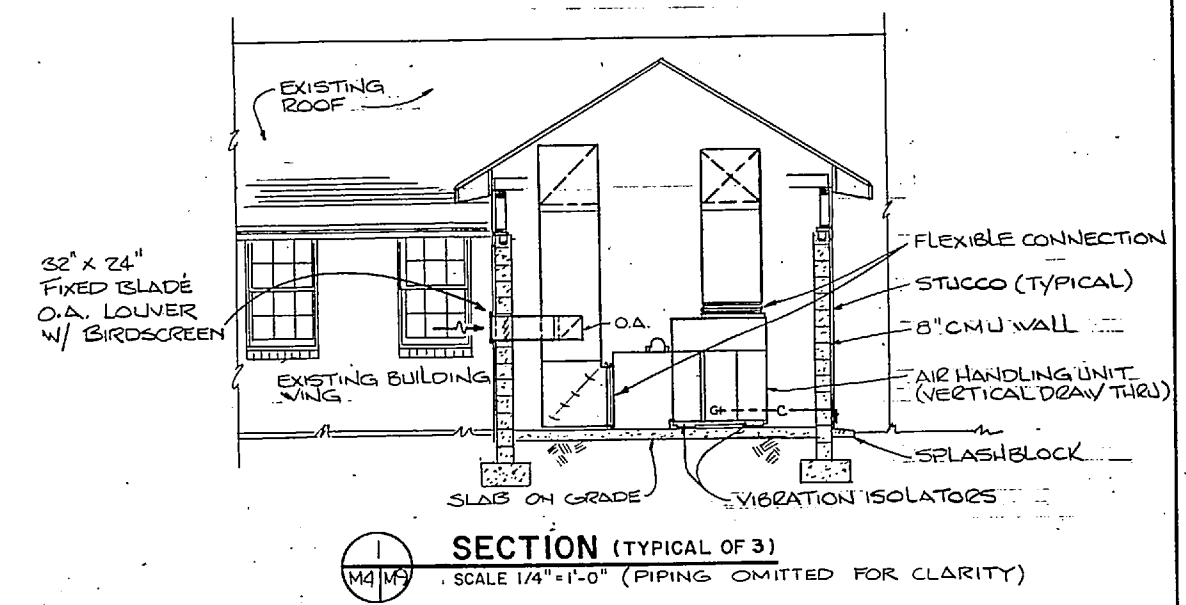
HEAT PUMP SCHEDULE																
MARK ON PLAN	INDOOR FAN SECTION										OUTDOOR SECTION				REMARKS	
	CFM	MBH COOLING		HEATING SECTION			INDOOR FAN		COMPRESSOR COND. FAN		ENT. AIR	COND.				
	TOTAL	SENSIBLE	MBH	ELEC. CAP.	STAGES	COMPR. CAP.	VOLTAGE	ESP.	H.P.	VOLT & PHASE	NO.	KW	HP	EDB °F	LEWB °F	
HP-1	1125	30.2	20.4	15.4	5 KW.	75.4	208/1	1/3"	1/2	208/1	1	5.47	1	1/6	90	79

\* CAPACITY @ 17° F. OUTSIDE TEMPERATURE.

FAN COIL UNIT SCHEDULE																			
MARK ON PLAN	BLOWER DATA				COOLING DATA						FILTER SIZE & TYPE	3-WAY CONTR. VALVE COOLING	PIPING RUNOUT SIZE	COIL APD	O.A. CFM				
	CFM	TOT. S.P.	TYPE DRIVE	HP/RPM	VOLTS/PHASE	NO. ROWS	ENT. AIR TEMP. D.B.	W.B.	MBH CAP.	CHILLED WATER EWT						GPM	PD/FT.		
FC-1	780	1"	BELT	1/2	120/10	4	78	64.5	214	14.47	45	4.28	1.7	15"x24" T.A.	1/2	1.9	1"	33	71
FC-2	984	1 1/4"	BELT	1/2	120/10	4	78	64.5	217	18.05	45	5.34	1.8	15"x24" T.A.	1/2	2.4	1"	40	88
FC-3	1464	1 1/2"	BELT	3/4	200/14	4	78	64.5	398	26.9	45	7.95	5.3	15"x24" T.A.	1/2	3.6	1 1/4"	55	132
FC-4	810	3/4"	BELT	1/2	120/10	4	78	64.5	219	14.5	45	4.4	1.75	15"x24" T.A.	1/2	2	1"	35	0
FC-5	848	3/4"	BELT	1/2	120/10	4	78	64.5	23	15.6	45	3.12	1.6	15"x24" T.A.	1/2	1.4	1"	36	85

NOTE: MANUFACTURER SHALL SELECT SENSIBLE CAPACITY NOT TO EXCEED 10% OF THAT INDICATED. MANUFACTURER SHALL SELECT SENSIBLE & LATENT CAPACITY NOT LESS THAN THAT INDICATED.

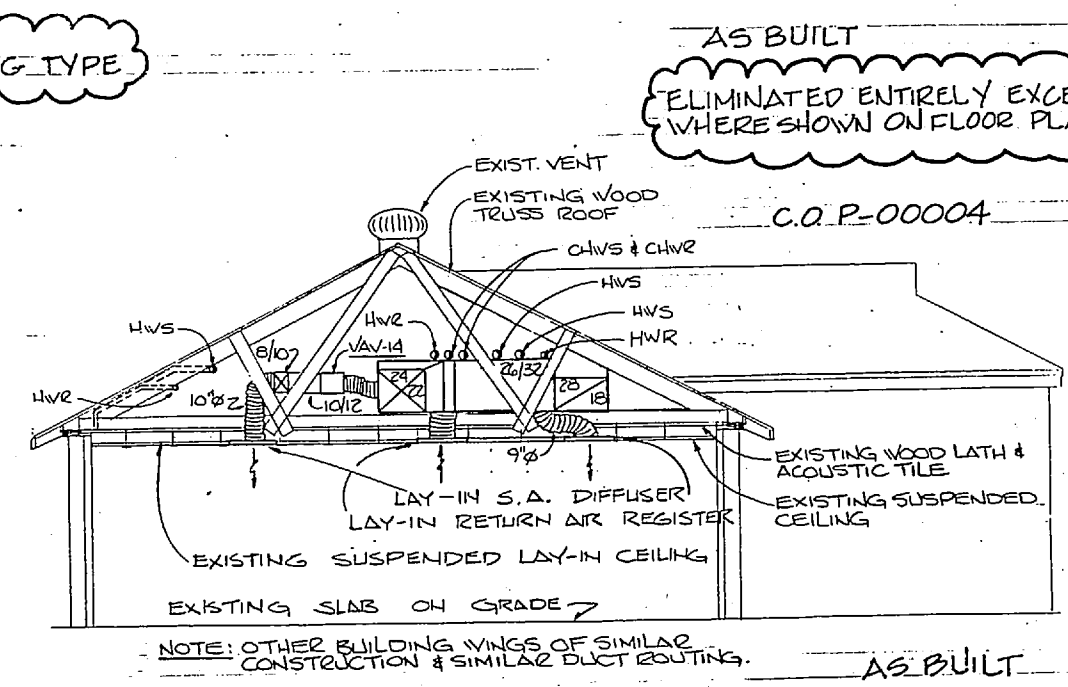
DIFFUSER & GRILLE SCHEDULE					
MARK	NECK SIZE CONNECTION	AIR PATTERN	TYPE OF MOUNTING	REMARKS	
(A)	14"Ø	4-WAY	SURFACE	PERFORATED FACE W/ OPPOSED BLADE DAMPERS	
(B)	12"Ø				
(C)	8"Ø				
(D)	6"Ø				
(E)	22"x22"	RETURN		PERFORATED FACE W/ OPPOSED BLADE DAMPERS & SQUARE TO ROUND ADAPTORS	
(F)	16"x16"				
(G)	12"x12"				
(H)	10"x10"				
(I)	14"Ø	4-WAY	LAY-IN	PERFORATED FACE W/ OPPOSED BLADE DAMPERS	
(J)	12"Ø				
(K)	10"Ø				
(L)	8"Ø				
(M)	22"x22"	RETURN		PERFORATED FACE W/ OPPOSED BLADE DAMPERS & SQUARE TO ROUND ADAPTORS	
(N)	18"x18"				
(O)	14"x14"				
(P)	12"x12"				
(Q)	10"x10"				
(R)	20"x20"	RELIEF		COUNTERBALANCED BACKDRAFT DAMPER. EXTEND NECK UP INTO ATTIC SPACE	
(S)			SURFACE	PERFORATED FACE W/ OPPOSED BLADE DAMPERS	



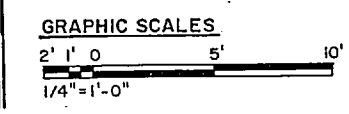
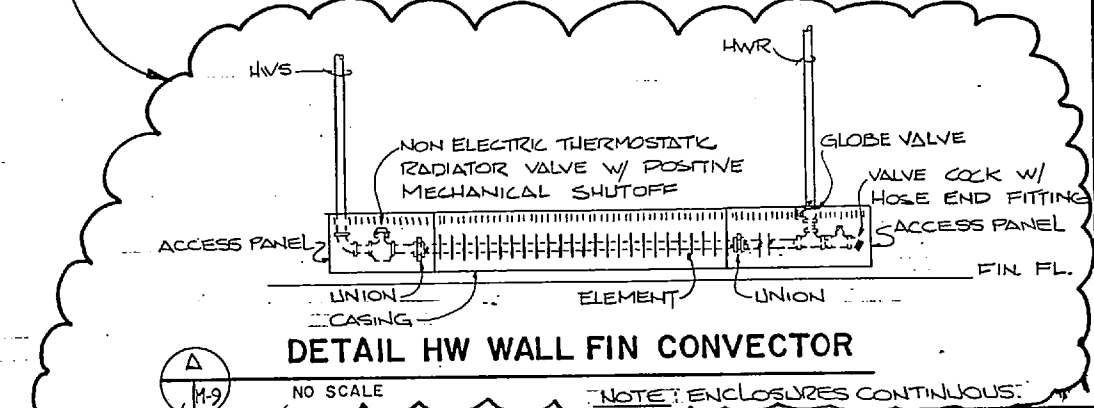
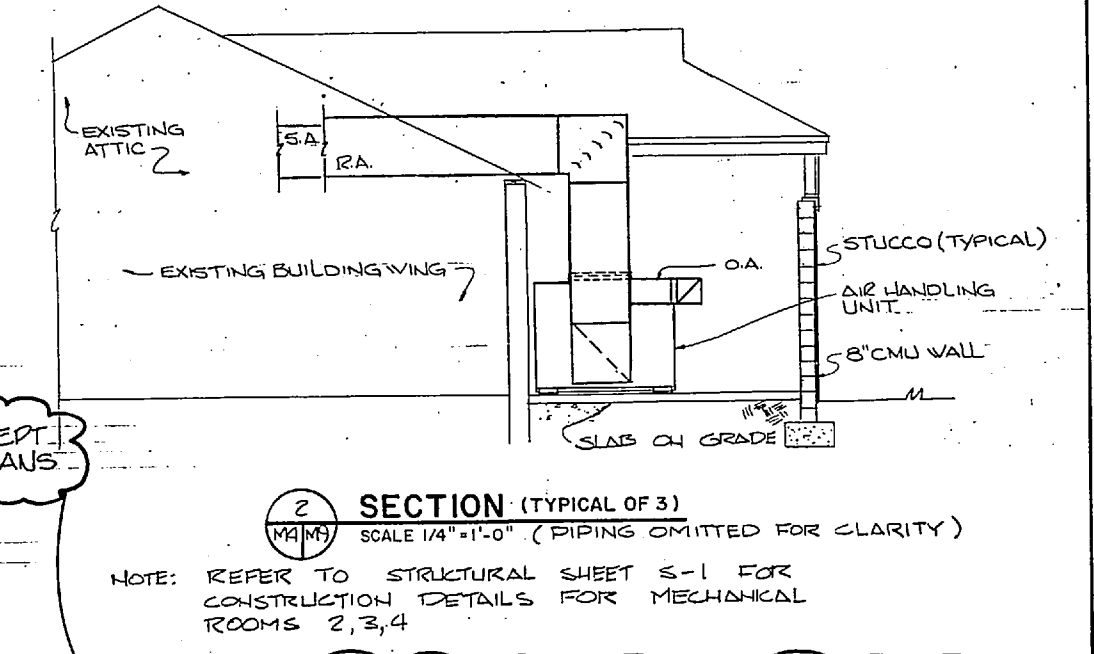
EXHAUST FAN SCHEDULE						
UNIT	CFM	S.R.	HP	RPM	VOLTAGE	REMARKS
EF-1	250	.25	1/4	1530	120V/1Ø	AXIAL PROPELLER WALL EXHAUST W/ BIRDSCREEN & TOTALLY ENCLOSED MOTOR
EF-2	1024	.10	1/2	1725	120V/1Ø	DIRECT DRIVE 12" PROPELLER W/ FAN GUARDS BOTH SIDES

VAV BOX SCHEDULE						
MARK	COOLING MINIMUM CFM AT BOX INLET	S.P. INLET SIZE	INLET SIZE	MAXIMUM N.C. AT OUTLET 1" WG	MINIMUM VOLUME SETTING	REMARKS
VAV-1	780	.10	9"	33	450	PRESSURE INDEPENDENT LOW PRESSURE BOXES
VAV-2	855	.12	9"	34	450	
VAV-3	700	.11	8"	33	350	
VAV-4	610	.08	8"	32	350	
VAV-5	600	.08	8"	32	350	
VAV-6	450	.08	7"	31	255	
VAV-7	540	.11	7"	33	255	
VAV-8	470	.09	7"	31	255	
VAV-9	223	.07	5"	37	140	
VAV-10	396	.12	6"	34	200	
VAV-11	1362	.11	12"	31	800	
VAV-12	390	.10	6"	35	230	
VAV-13	740	.10	8"	33	350	
VAV-14	770	.1	9"	33	450	
VAV-15	654	.1	8"	32	350	
VAV-16	329-346	.09	6"	33	200	
VAV-17	380	.10	6"	33	200	
VAV-18	742	.12	8"	33	350	
VAV-19	720	.10	9"	33	450	
VAV-20	658	.10	8"	33	350	
VAV-21	193	.06	5"	36	140	

VAV'S HEATING & COOLING TYPE  
C.O.P. 00004



VAV BOX SCHEDULE (CONT'D)						
MARK	COOLING MINIMUM CFM AT BOX INLET	S.P. INLET SIZE	INLET SIZE	MAXIMUM N.C. AT OUTLET 1" WG	MINIMUM VOLUME SETTING	REMARKS
VAV-22	350	.09	6"	33	200	PRESSURE INDEPENDENT LOW PRESSURE BOXES
VAV-23	150	.08	4"	37	90	"
VAV-24	364	.07	8"	31	350	"
VAV-25	940	.10	10"	34	550	"



RECORD DRAWING  
LETTER DATED 20 APRIL 88

HENRY VON OESSEN & ASSOCIATES  
CONSULTING ENGINEERS & PLANNERS  
WILMINGTON, NORTH CAROLINA 28402

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA

DES. TMH  
DR. SMC  
CHK. DER  
SUBMITTED BY: [Signature]  
DESIGN DIR. [Signature]  
APPROVED: PWO OR DIC [Signature]  
SATISFACTORY TO: [Signature]

MARINE CORPS BASE  
REPLACE HVAC SYSTEMS  
BLDG. NO. 1005

MECHANICAL EQUIPMENT SCHEDULES & SECTIONS

CODE IDENT. NO. 80091  
NAVFAC DRAWING NO. 4126459  
CONSTR. CONTR. NO. N62470-B-84-7937  
SCALE: GRAPHIC | SPEC. 05-B4-7937 SHEET 10 OF 16

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