

REPLACE HVAC SYSTEMS

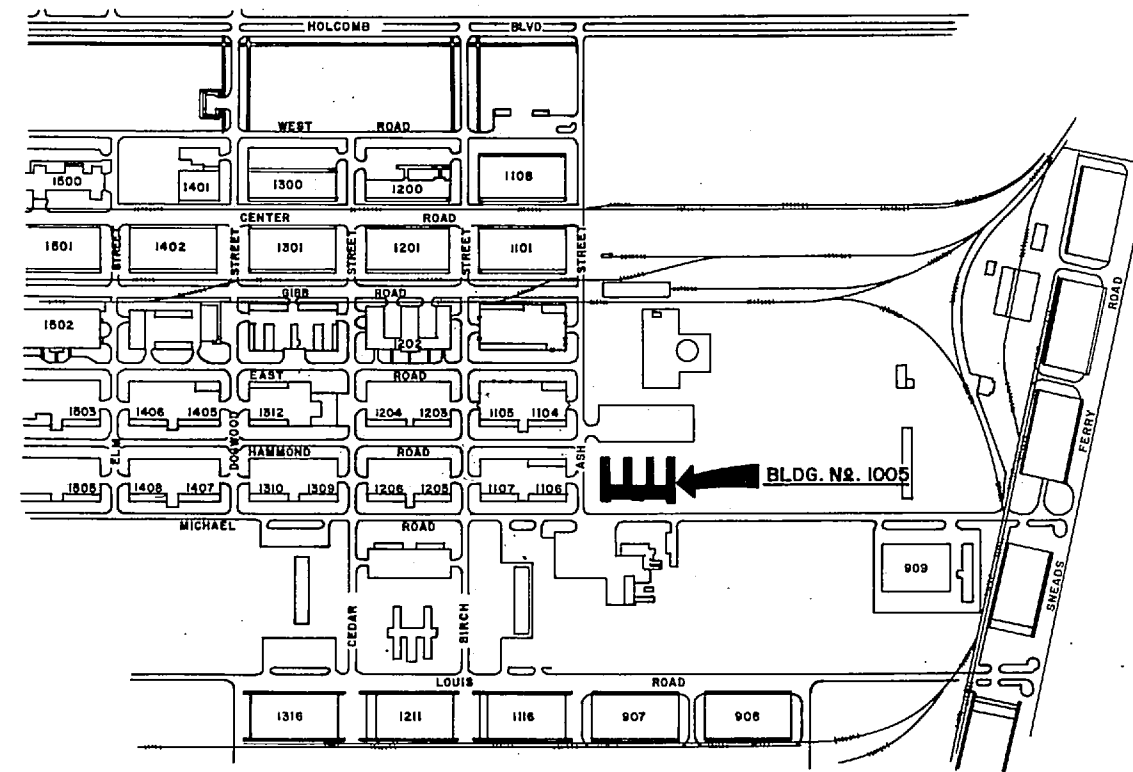
BLDG. N^o 1005

MARINE CORPS BASE

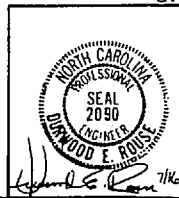
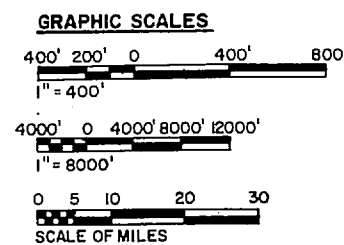
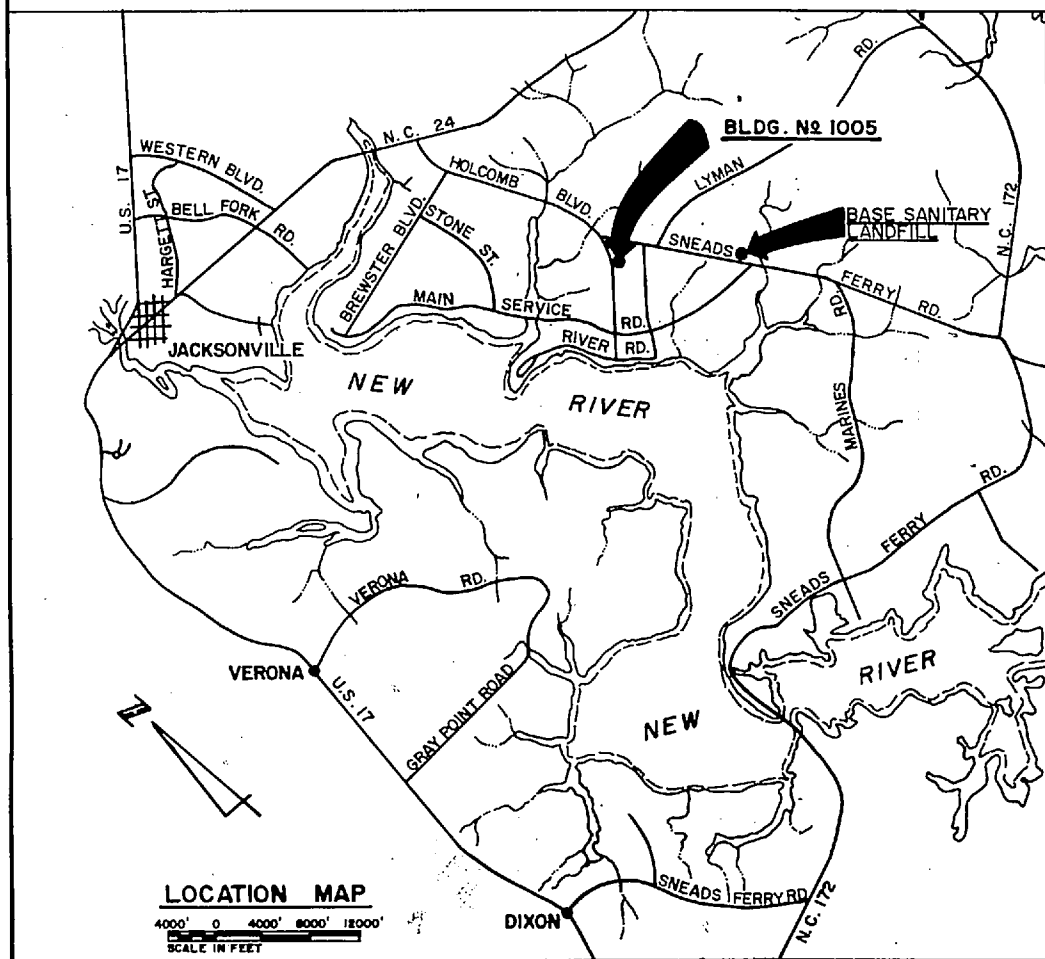
CAMP LEJEUNE, N.C.

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

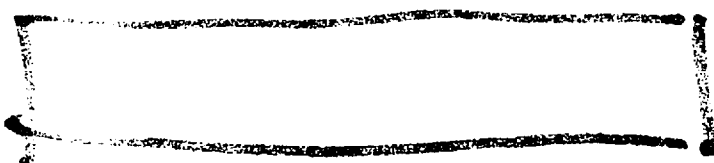
SCHEDULE OF DRAWINGS		
SHT. NO.	NAVFAC DWG. NO.	TITLE
CS-1	4126450	COVER SHEET
M-1	4126451	SW WINGS DEMOLITION PLAN
M-2	4126452	NE WINGS DEMOLITION PLAN
M-3	4126453	SW WINGS HVAC PLAN
M-4	4126454	NE WINGS HVAC PLAN
M-5	4126455	SW WINGS PIPING PLAN
M-6	4126456	NE WINGS PIPING PLAN & ENLARGED MECHANICAL ROOM PLAN
M-7	4126457	MECHANICAL ROOM I PIPING ISOMETRIC
M-8	4126458	MECHANICAL EQUIPMENT SCHEDULES
M-9	4126459	MECHANICAL EQUIPMENT SCHEDULES & SECTIONS
M-10	4126460	MECHANICAL DETAILS
M-11	4126461	DETAILS & CONTROL DRAWINGS
S-1	4126462	NEW MECHANICAL ROOM(S) PLANS & DETAILS
E-1	4126463	ELECTRICAL PLANS & DETAILS
E-2	4126464	ELECTRICAL PLANS & DETAILS
E-3	4126465	ELECTRICAL PLANS & DETAILS



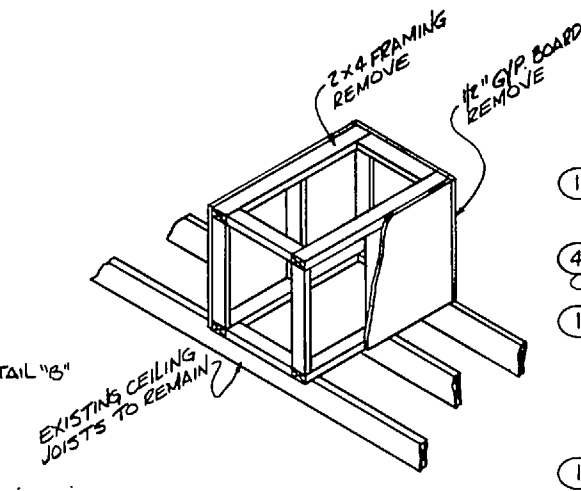
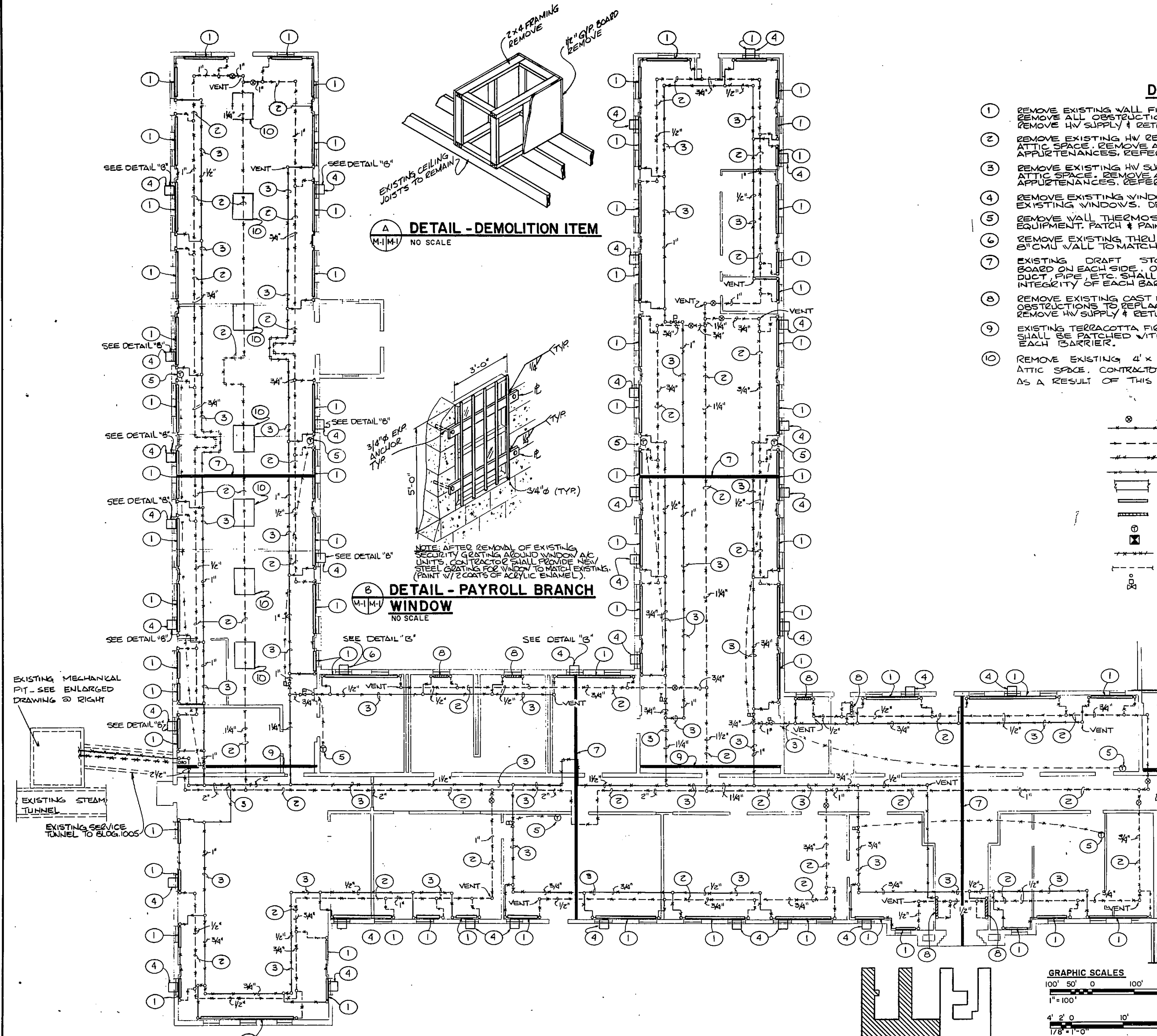
PARTIAL SITE PLAN
SCALE 1" = 400'



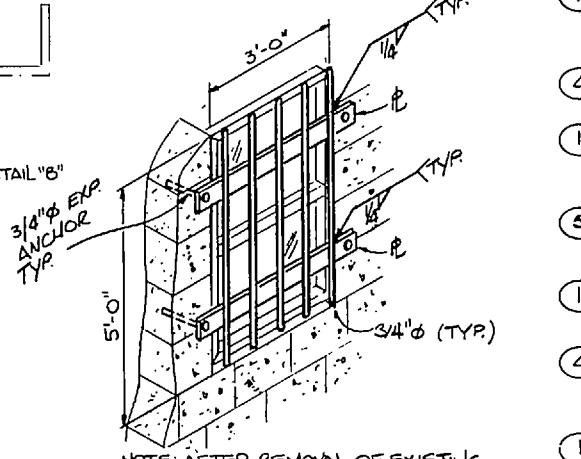
HENRY VON OESSEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28402		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA MARINE CORPS BASE CAMP LEJEUNE, N.C. REPLACE HVAC SYSTEMS BLDG. N^o 1005	
DES. DER.	DR. SMC	DATE	SIZE
CHK. DER.		DATE	CODE IDENT. NO.
SUBMITTED BY:		DATE	NAVFAC DRAWING NO.
DESIGN DIR.		DATE	4126450
APPROVED: ENGR' OR DICG		DATE	CONSTR. CONTR. NO. N62470-84-B-7937
SATISFACTORY TO:		DATE	SCALE: GRAPHIC SPEC. 05-84-7937 SHEET 1 OF 16



REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED



DETAIL - DEMOLITION ITEM
M-1141
NO SCALE

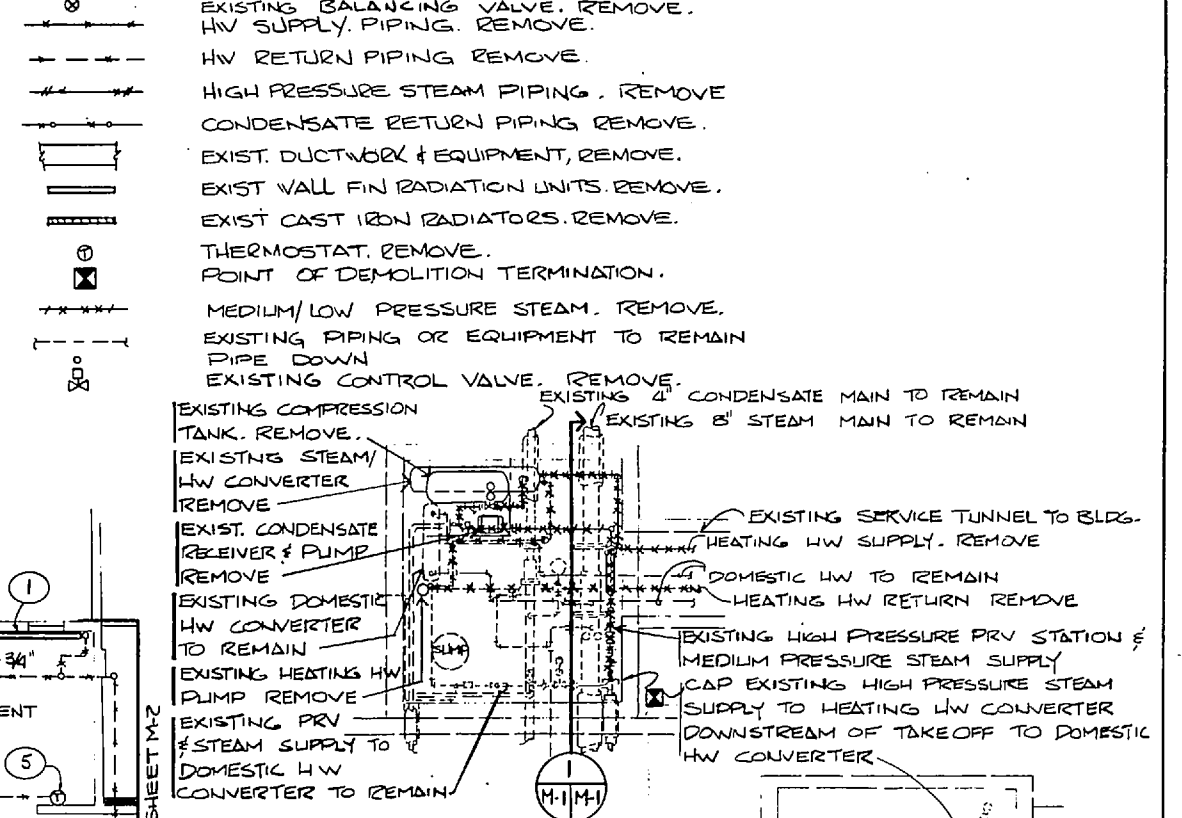


DETAIL - PAYROLL BRANCH WINDOW
M-1141
NO SCALE

DEMOLITION KEYED NOTES (THIS SHEET ONLY)

- 1 REMOVE EXISTING WALL FIN HW RADIATION UNITS & ASSOCIATED VALVES & FITTINGS. REMOVE ALL OBSTRUCTIONS TO REPLACEMENT UNITS (REFER TO NEW WORK PLAN SHEET M-5). REMOVE HW SUPPLY & RETURN RISERS INTO ATTIC SPACE. PATCH ALL UNUSED OPENINGS THRU 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 7 & 9.
- 3 REMOVE EXISTING HW SUPPLY PIPING, INSULATION, HANGERS & SUPPORTS. ROUTED IN ATTIC SPACE. REMOVE ALL CONTROL & BALANCING VALVES & ALL CONNECTED APPURTENANCES. REFER TO NOTE 7 & 9.
- 4 REMOVE EXISTING WINDOW AIR CONDITIONING UNITS. REPAIR ANY DAMAGES TO EXISTING WINDOWS. DELIVER UNITS TO BASE MAINTENANCE WAREHOUSE AS DIRECTED.
- 5 REMOVE WALL THERMOSTATS & ALL CONTROL WIRING BACK TO ASSOCIATED EQUIPMENT. PATCH & PAINT WALL.
- 6 REMOVE EXISTING THRU WALL AIR CONDITIONING UNIT. PATCH OPENING & PAINT EXISTING 8\"/>

DEMOLITION LEGEND



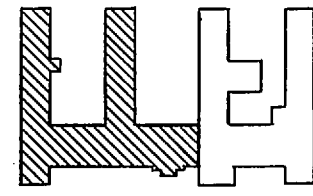
EXISTING MECHANICAL PIT PLAN

SCALE 1/4" = 1'-0"

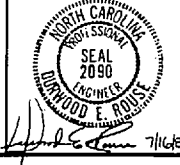
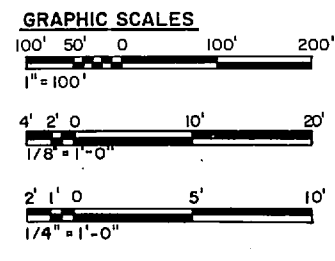
SECTION

SCALE 1/4" = 1'-0"

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



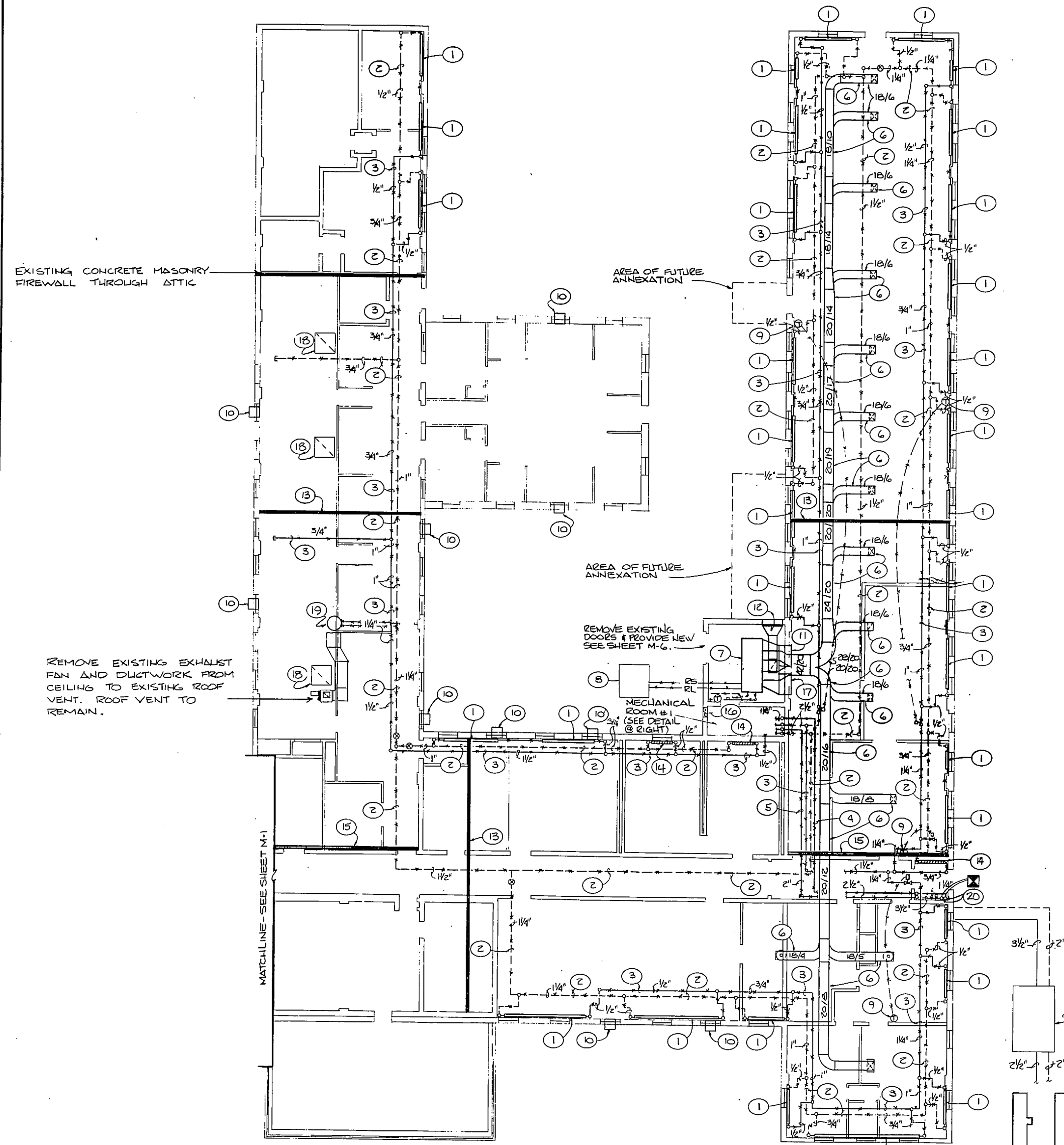
KEY PLAN
SCALE 1" = 100'



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	MR. SMC	MARINE CORPS BASE	CAMP LEJEUNE, N.C.
CHK. DER	DATE 7/2/85	REPLACE HVAC SYSTEMS	BLDG. NO. 1005
SUBMITTED BY [Signature]	DATE 7/2/85	SW WINGS DEMOLITION PLAN	
APPROVED: SWO OR DIC [Signature]	DATE 7/2/85	SIZE F	COST IDENT. NO. 80091
REGION DIR. [Signature]	DATE 7/2/85	SCALE: GRAPHIC	SPEC: 05-84-7937
SATISFACTORY TO: [Signature]		NAVAC DRAWING NO. 4126451	
		CONSTR. CONTR. NO. N62470-84-B-7937	
		SHEET 2 OF 16	



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED



EXISTING CONCRETE MASONRY FIREWALL THROUGH ATTIC

AREA OF FUTURE ANNEXATION

REMOVE EXISTING EXHAUST FAN AND DUCTWORK FROM CEILING TO EXISTING ROOF VENT. ROOF VENT TO REMAIN.

REMOVE EXISTING DOORS & PROVIDE NEW SEE SHEET M-6.

MECHANICAL ROOM #1 (SEE DETAIL @ RIGHT)

MATCHLINE - SEE SHEET M-1

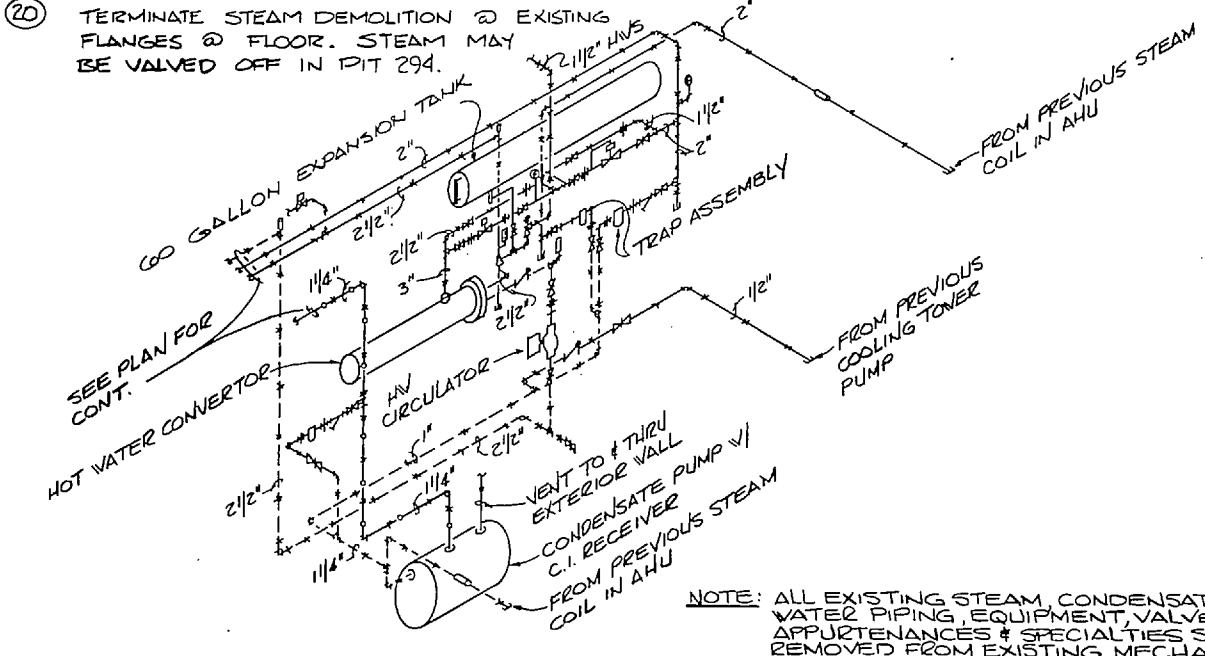
EXISTING STEAM PIT (M-1) SEE SHEET M-1.

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

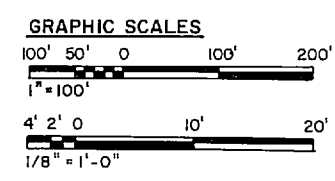
KEY PLAN
SCALE 1" = 100'

DEMOLITION KEYED NOTES (THIS SHEET ONLY)

- 1 REMOVE EXISTING WALL FIN HW 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 THRU 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" 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 2-1/2" HIGH PRESSURE STEAM SUPPLY PIPING FROM MECHANICAL ROOM TO EXISTING 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 & R-19 FIBROUS GLASS 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 SIDEWALL RETURN AIR GRILLE & LOW PRESSURE RETURN AIR DUCTWORK TO AHU IN MECHANICAL ROOM. PATCH & PAINT EXISTING 8" 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 THRU 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 18, SHEET M-6.
- 17 REMOVE EXISTING 42" x 24" SIDEWALL R.A. 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.

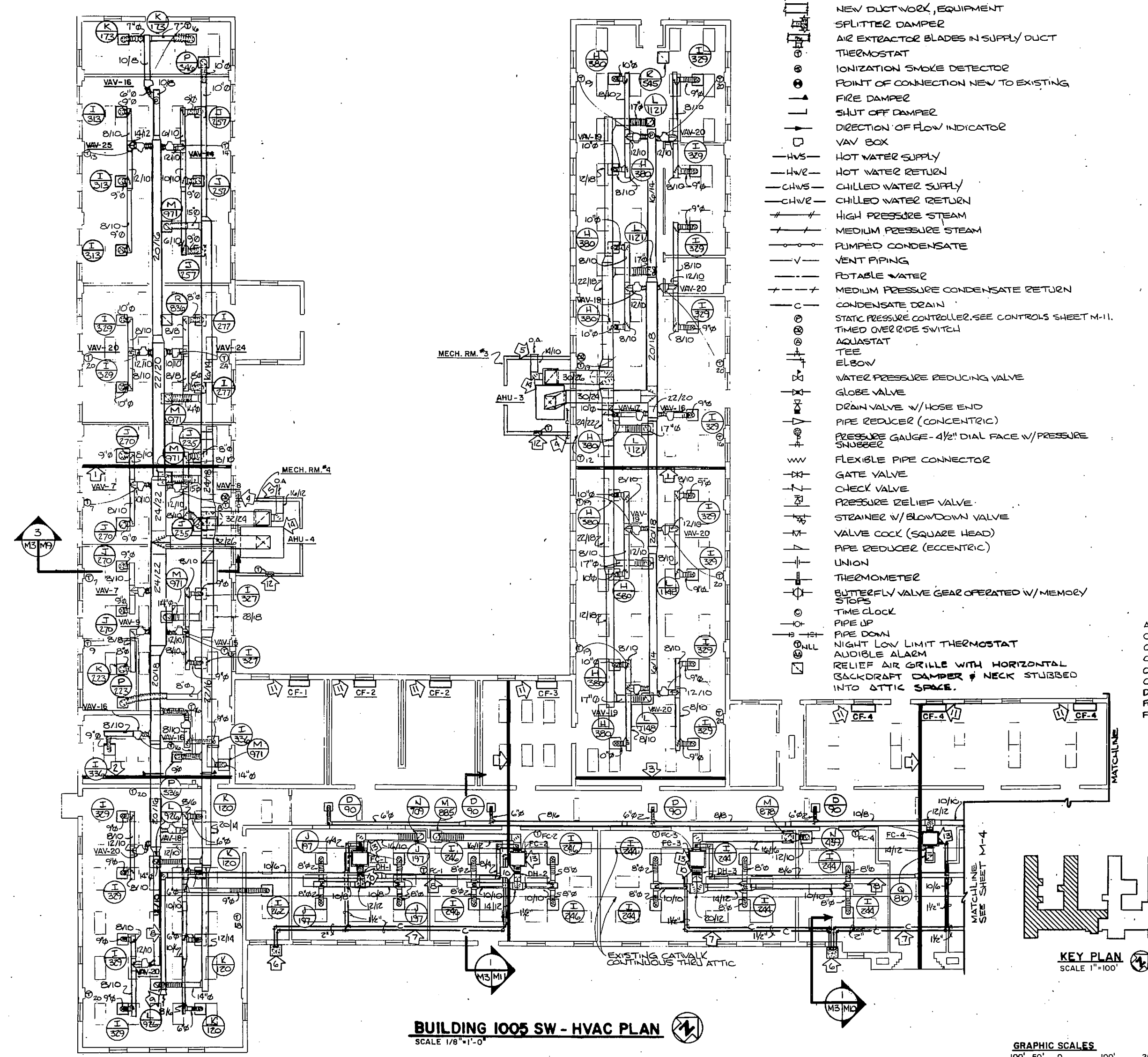


DETAIL MECHANICAL ROOM #1 EQUIPMENT ISOMETRIC
NO SCALE



M-2	
HENRY VON OESEB & 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	MARINE CORPS BASE CAMP LEJEUNE, N.C.
DR. SMC	REPLACE HVAC SYSTEMS
CHK. DER	BLDG. No. 1005
NE WINGS DEMOLITION PLAN	
APPROVED: PWD OR OIC	DATE: 7/19/83
SIZE: F	CODE IDENT. NO.: 80091
NAVAC DRAWING NO.: 4126452	CONSTR. CONTR. NO. 662470-84-B-7937
SCALE: GRAPHIC	SPEC. 05-84-7937 SHEET 3 OF 16





MECHANICAL LEGEND

- CEILING SUPPLY AIR DIFFUSER
- CEILING RETURN AIR REGISTER
- TURNING VANES IN RECTANGULAR DUCT
- FLEXIBLE ROUND DUCT
- NEW DUCT WORK, 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
- HW-R
- CHWS
- CHWR
- HP
- MP
- PC
- V
- PW
- MPR
- CD
- SPC
- TOS
- AQ
- T
- E
- WPRV
- G
- DV
- PR
- PG
- FPC
- GV
- CV
- PRV
- SB
- VC
- ER
- U
- TH
- BV
- TC
- PU
- PD
- NLLT
- AA
- RA

KEYED NOTES (THIS SHEET ONLY)

- 1 FOR DUCT ROUTING CUT THROUGH EXISTING DRAFT BARRIER CONSISTING OF 2 LAYERS 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 OR 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 GLAZES, USE OF ALUMINUM CONSTRUCTION & HAVE INTEGRAL 3/16" MESH BIRD SCREEN.
- 6 SPILL CONDENSATE ONTO SPLASH BLOCK @ GRADE. SEE SECTION M-3.
- 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 Banded 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 & SCHEDULE SHEET M-8.
- 12 M-8. PENETRATE EXISTING 12" CMU WALL FOR O.A. INTAKE. INSTALL NEW WALL EXHAUST FAN EF-1. SEE DETAIL M-3 & SCHEDULE SHEET M-9.
- 13 CHW FAN COIL UNIT MOUNTED IN ATTIC. SEE DETAIL M-3 & SCHEDULE SHEET M-9.
- 14 VERTICAL DRAIN THRU AIR HANDLING UNIT PAD MOUNTED IN MECHANICAL ROOM. SEE SECTION M-3 & SCHEDULE SHEET M-8.

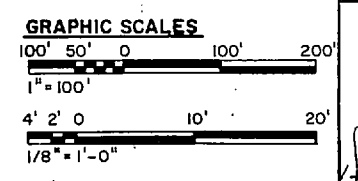
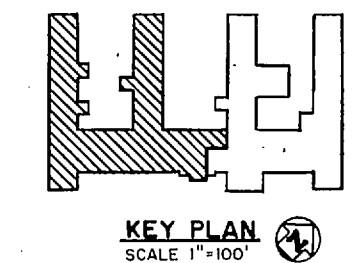
ABBREVIATIONS

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
CN	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 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.

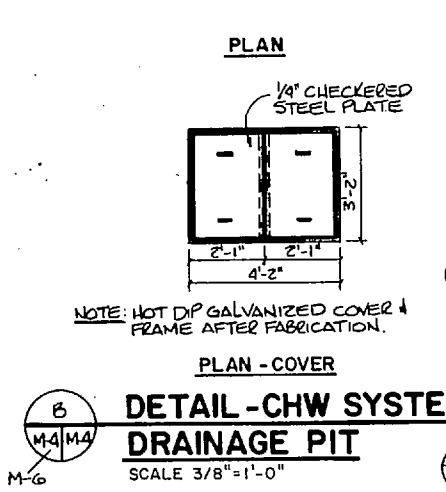
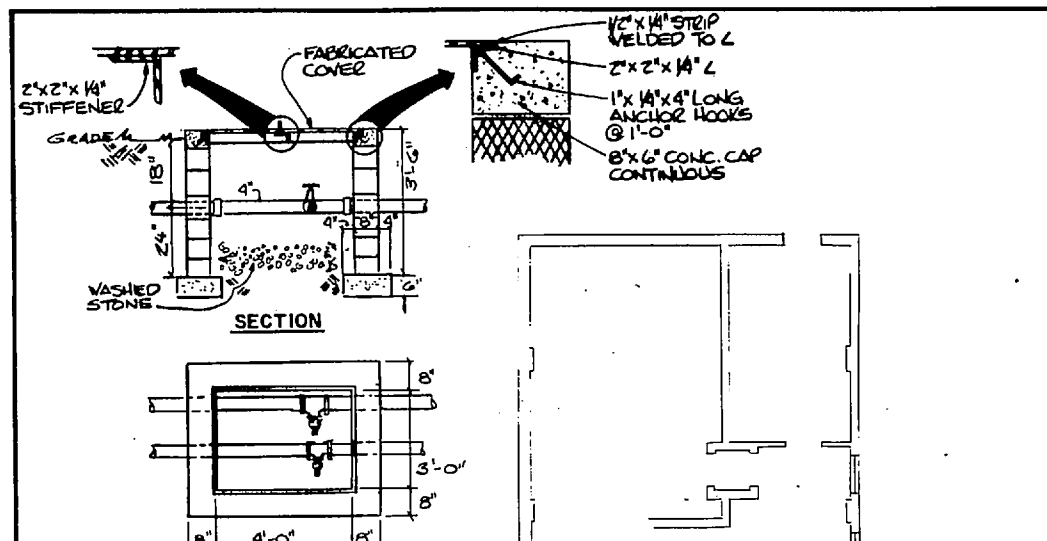
BUILDING 1005 SW - HVAC PLAN
SCALE 1/8"=1'-0"



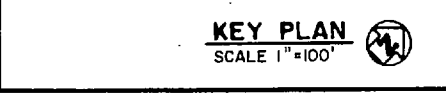
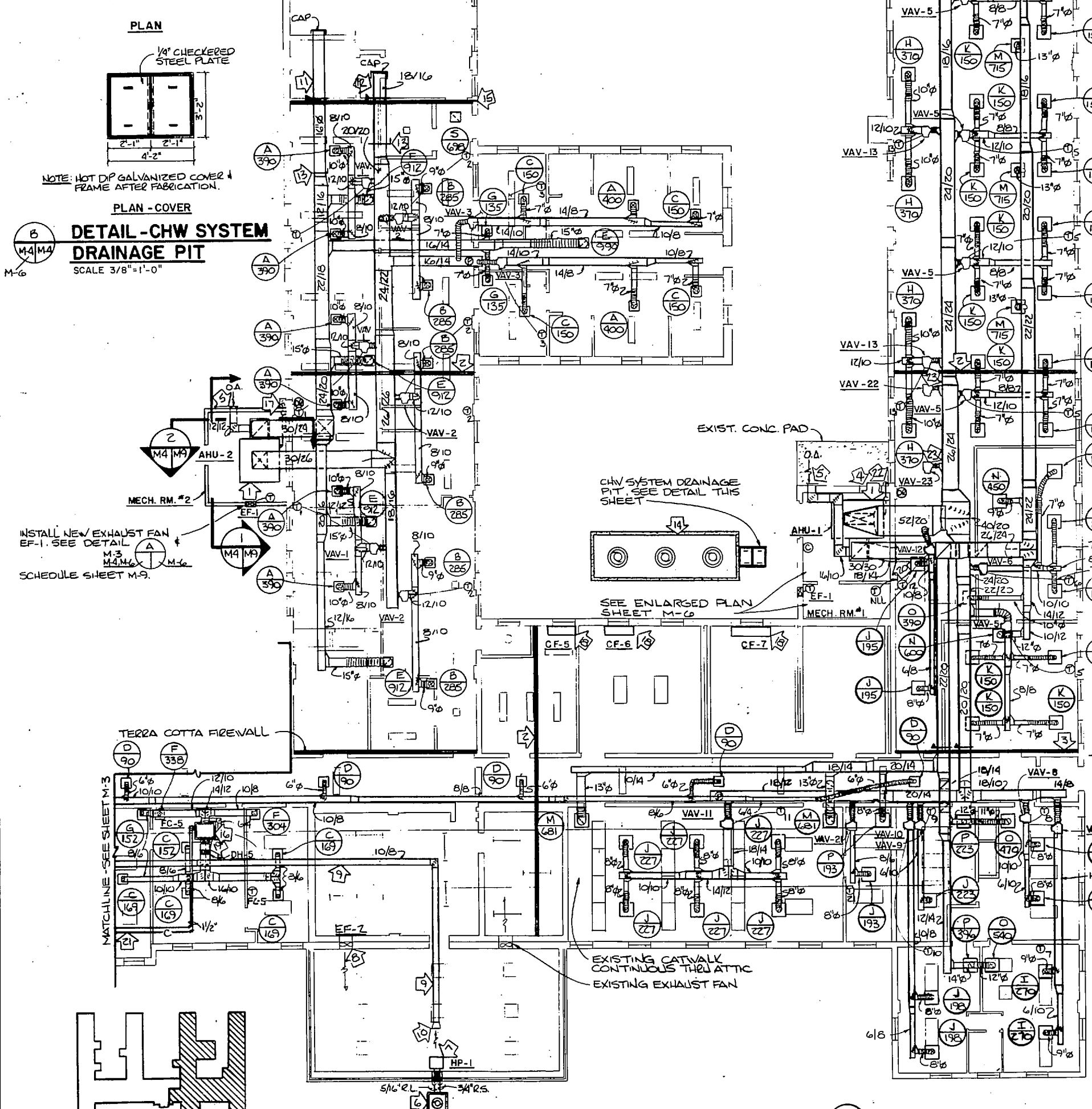
M-3	
HENRY VON OESEB & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28403	
MARINE CORPS BASE	
REPLACE HVAC SYSTEMS BLDG. NO. 1005	
SW WINGS HVAC PLAN	
APPROVED: <i>[Signature]</i> DATE: 7/14/83	SCALE: GRAPHIC
DATE: 7/14/83	DATE: 7/14/83
DATE: 7/14/83	DATE: 7/14/83



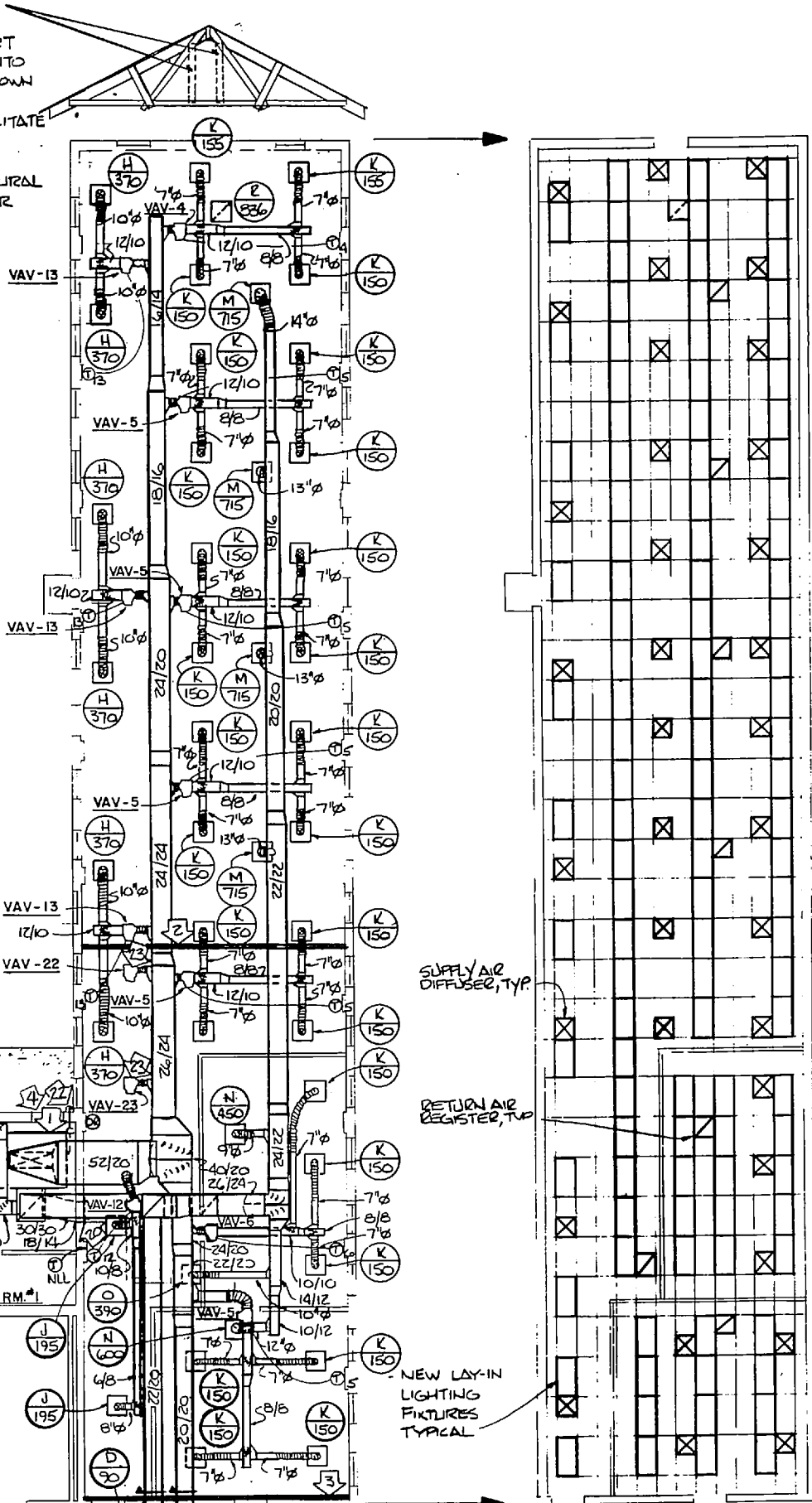
REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED



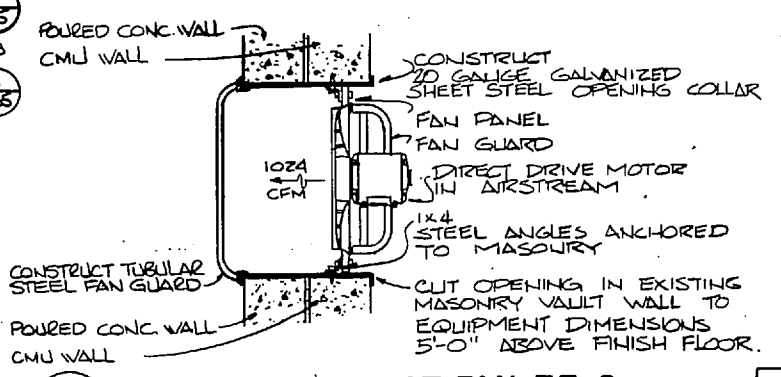
NOTE: THIS WING OF BUILDING ATTIC SPACE CONTAINS NON-STRUCTURAL SUPPORT MEMBERS SCABISED ONTO EXISTING TRUSSES (SHOWN DOTTED). THESE MAY BE REMOVED TO FACILITATE DUCT ROUTING, WHERE NECESSARY, PROVIDING TRUSS OR ANY STRUCTURAL MEMBER IS NOT CUT OR DAMAGED.



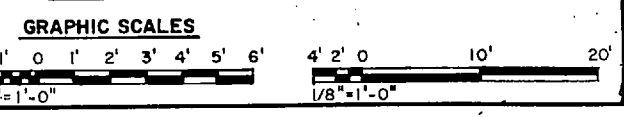
BUILDING 1005 NE - HVAC PLAN
SCALE 1/8" = 1'-0"



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



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



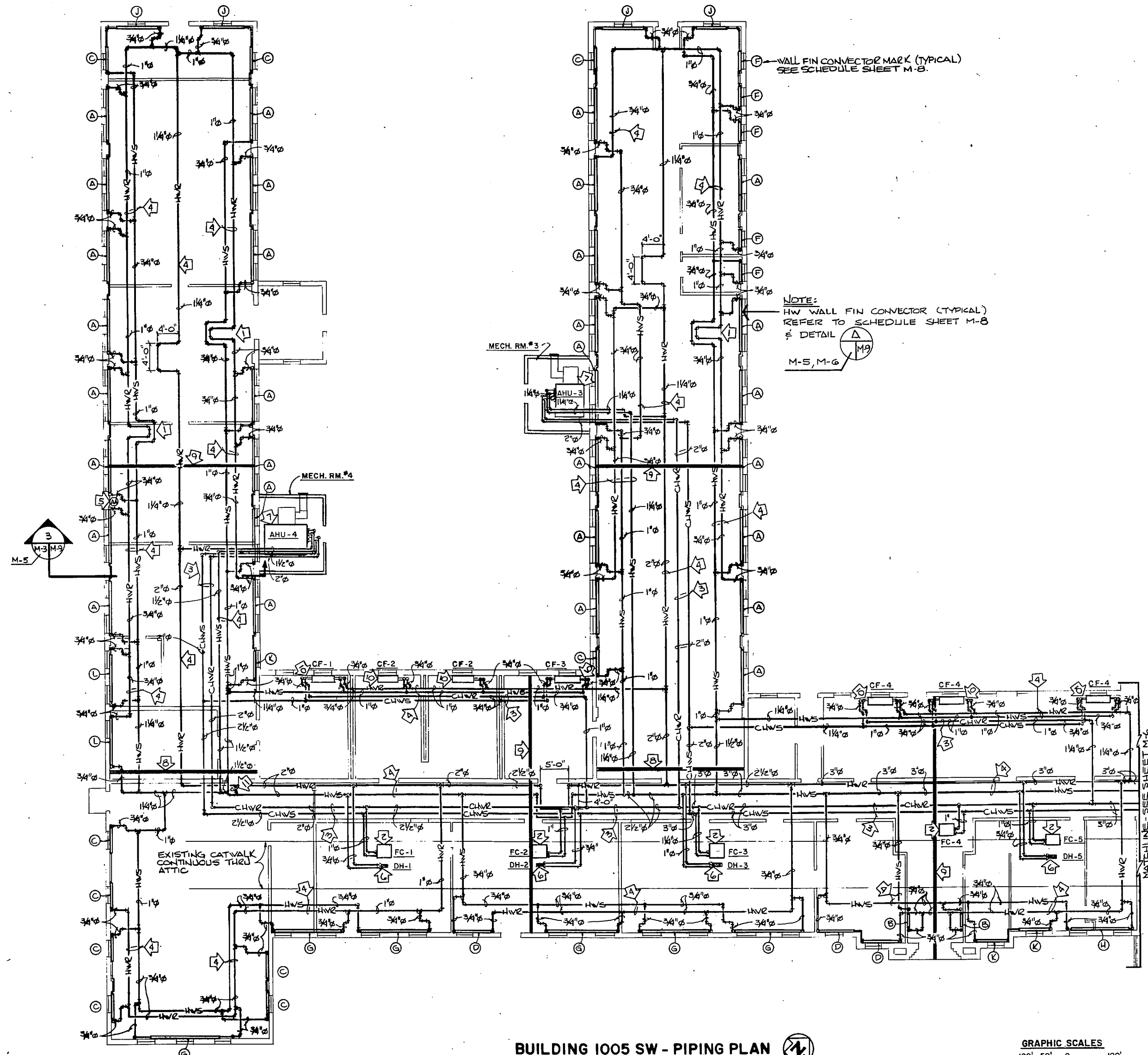
- KEYED NOTES (THIS SHEET ONLY)**
- VERTICAL DRAIN THROUGH AIR HANDLING UNIT PAD MOUNTED IN MECHANICAL ROOM. SEE SECTION M-4 & SCHEDULE SHEET M-8.
 - FOR DUCT ROUTING CUT EXISTING DRAFT BARRIER CONSISTING OF TRUSS SHEETED W/ GYPSUM WALL BOARD. PROVIDE DUCT COLLAR ON EACH SIDE & RESTORE DRAFT BARRIER INTEGRITY.
 - FOR DUCT ROUTING CUT EXISTING TERRAZA 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 OPENING 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 3/4" MESH BIRDSCREEN.
 - PAD MOUNTED HEAT PUMP CONDENSING UNIT. SEE SCHEDULE SHEET M-9. PAD SHALL BE 3000 PSI CONCRETE REINFORCED W/ 6X6- V.2.9 X V.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.
 - BUILT O.A. DUCT TO SCREEN AT EXISTING ROOF LOUVER. PROVIDE 3/16" MESH BIRDSCREEN BANDED TO DUCT. FLANGE 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 AIR TIGHT.
 - 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 (2) ABOVE.
 - CHW FAN COIL UNIT MOUNTED IN ATTIC. SEE DETAIL M-1 & SCHEDULE SHEET M-8.
 - CONDENSATE DRAIN FROM AHU - 1/2" SPILL ONTO SPLASHBLOCK.
 - FLOOR MOUNTED CABINET FAN COIL UNIT W/ HW & CHW COILS. REFER TO INSTALLATION DETAIL M-3 & SCHEDULE SHEET M-8. PENETRATE EXISTING 12" CMU WALL FOR O.A. INTAKE.
 - DUCT MOUNTED HW 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" RA. DUCT. 1584 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 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.

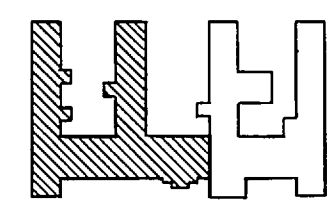
		DEPARTMENT OF THE NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		M-4	
				NAVFAC DRAWING NO. 4126454	
DES. T.M.H. DR. S.M.C. CHK. DER. SUBMITTED BY: [Signature] DESIGN DIR. [Signature] APPROVED: P.M.O. DIC [Signature] SATISFACTORY TO: [Signature]	MARINE CORPS BASE REPLACE HVAC SYSTEMS BLDG. NO. 1005 NE WINGS HVAC PLAN	DATE: 7/8/89 SCALE: GRAPHIC	CAMP LEJEUNE, N.C. CAMP LEJEUNE, N.C. CONSTR. CONTR. NO. N62470-84-B-7937 SHEET 5 OF 16	2771	

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED

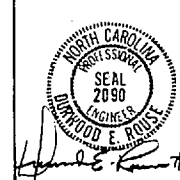
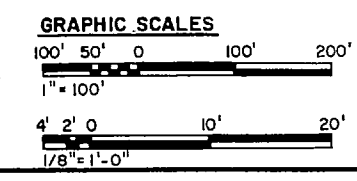


KEYED NOTES (SHEET M-5 & M-6 ONLY)

- ① EXPANSION LOOP IN ATTIC. SEE DETAIL FOR DIMENSIONS. M-5, M-6, M-10
- ② CHW FAN COIL UNIT LOCATED IN ATTIC. DUCTWORK DELETED FROM THIS DRAWING FOR CLARITY. REFER TO SHEET M-314 FOR DUCTWORK, DETAILS & SCHEDULE SHEET M-8. M-3, M-4, M-5, M-6, M-10
- ③ CHILLED WATER DISTRIBUTION PIPING ROUTED IN ATTIC SPACE. PROVIDE ESCUTCHEON PLATES @ ALL PENETRATIONS IN CEILING. M-3, M-4, M-5
- ④ HOT WATER DISTRIBUTION PIPING ROUTED IN ATTIC SPACE. PROVIDE ESCUTCHEON PLATES @ ALL PENETRATIONS IN CEILING.
- ⑤ REMOTE SWITCHED AUDIBLE ALARM & LED FOR CHILLED WATER SYSTEM FREEZESTAT. M-4, M-9
- ⑥ DUCT MOUNTED HW COIL. REFER TO SCHEDULE SHEET M-8 & DETAIL M-3, M-4, M-5, M-6, M-10
- ⑦ AIR HANDLING UNIT IN MECHANICAL SPACE. REFER TO SCHEDULE SHEET M-8 & TYPICAL SECTION
- ⑧ EXISTING TERRA COTTA FIREWALL IN ATTIC SPACE. PROVIDE ESCUTCHEONS FOR ALL PIPE PENETRATIONS. CUT & PATCH WALL.
- ⑨ EXISTING DRAFT BARRIER IN ATTIC SPACE CONSISTING OF TRUSS SHEATHED WITH 1/2" GYPSUM WALL BOARD EACH SIDE. PROVIDE ESCUTCHEONS FOR ALL PIPE PENETRATIONS & DRESS OPENING WITH JOINT COMPOUND.
- ⑩ FLOOR MOUNTED VERTICAL CABINET FAN COIL UNIT. SEE SCHEDULE SHEET M-8 & DETAIL M-3, M-4, M-5, M-11
- ⑪ MANUAL ADJUSTABLE PRESSURE RELIEF VALVE SET FOR 30 PSI.



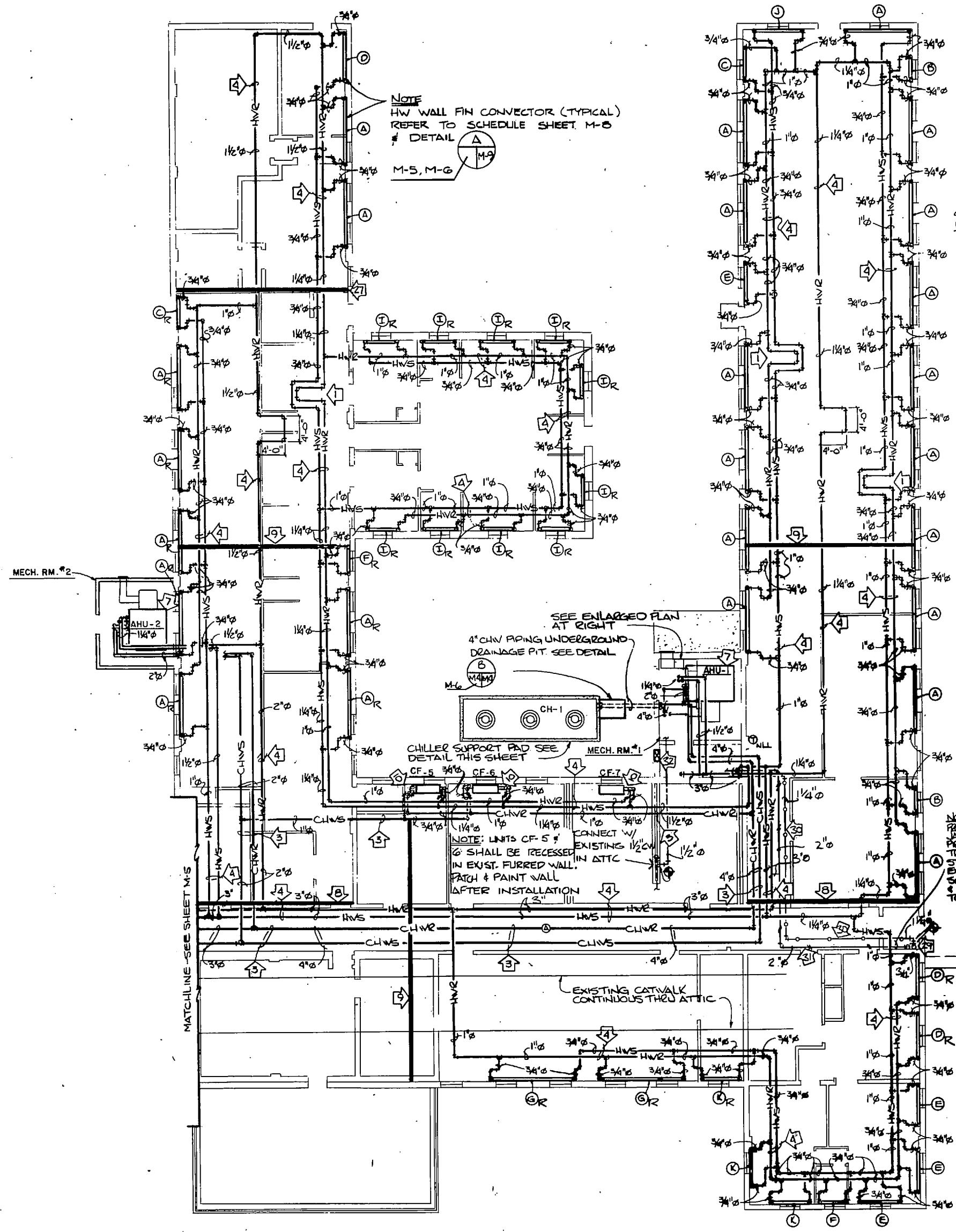
BUILDING 1005 SW - PIPING PLAN
SCALE 1/8"=1'-0"



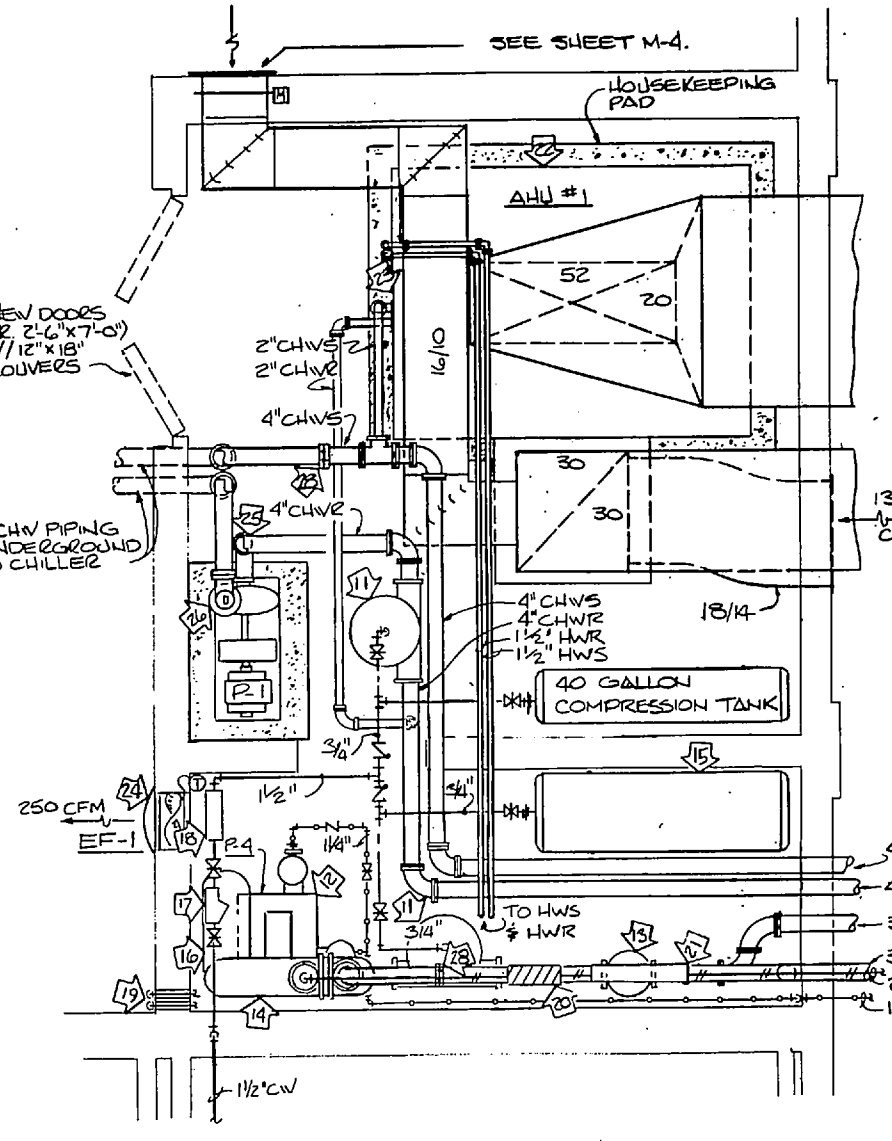
HENRY VON OESSEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28403		M-5	
		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA MARINE CORPS BASE CAMP LEJEUNE, N.C. REPLACE HVAC SYSTEMS BLDG. NO. 1005 SW WINGS PIPING PLAN	
DESIGNED BY: TMH DR. SMC CHK. DER SUBMITTED BY: [Signature] DESIGN NO.: 2444 APPROVED: [Signature] DATE: 7/4/55 MANUFACTURED BY: DATE:	SIZE: F CORR. ORNT. NO.: 80091 SCALE: GRAPHIC SHEET 6 OF 16	NAVFAC DRAWING NO.: 4126455 CONSTR. CONTR. NO. NS2470-04-B-7937 SCALE: GRAPHIC SHEET 6 OF 16	NAVFAC DRAWING NO.: 4126455 CONSTR. CONTR. NO. NS2470-04-B-7937 SCALE: GRAPHIC SHEET 6 OF 16



REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED



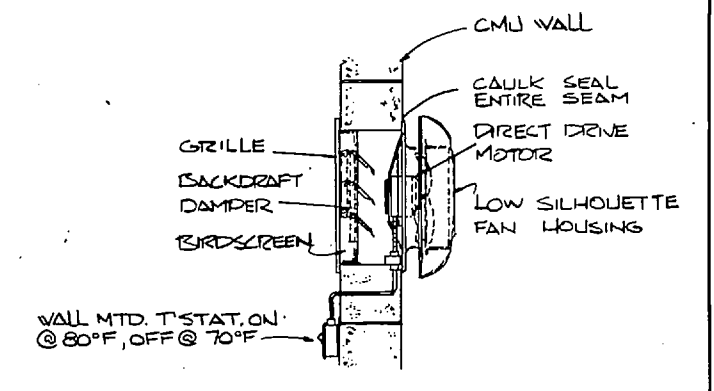
BUILDING 1005 NE - PIPING PLAN
SCALE 1/8"=1'-0"



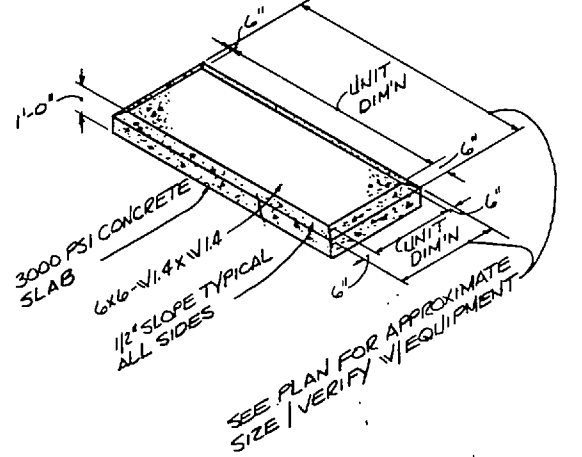
ENLARGED MECHANICAL ROOM PLAN
SCALE 1/2"=1'-0"

KEYED NOTES (KEYED NOTES 1-10 ON SHEET M-5)

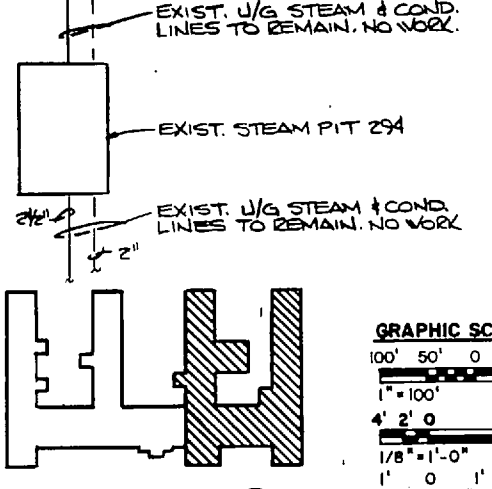
- 1 INLINE LINE SIZE AIR SEPARATOR W/ REMOVABLE BASKET STRAINER
- 2 PAD MOUNTED DUPLEX CONDENSATE PUMP W/ MINIMUM 20 GALLON VENTED CONDENSATE RECEIVER.
- 3 PARALLEL INLINE BRONZE FITTED CENTRIFUGAL HV CIRCULATING PUMPS P-2 & P-3. SEE SCHEDULE SHEET M-8 & DETAIL M-6
- 4 STEAM/HV CONVERTER. REFER TO SCHEDULE SHEET M-8 & DETAIL M-6
- 5 80 GALLON HV ASME COMPRESSION TANK SUSPENDED FROM CEILING.
- 6 15 GALLON ASME RATED STEEL FLASH TANK.
- 7 1/2" REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY W/ INTEGRAL STRAINER.
- 8 WATER PRESSURE REDUCING STATION RELIEF VALVE SET FOR 30 PSI.
- 9 2" VENT FROM P&V STATION & 1 1/4" VENT FROM CONDENSATE RECEIVER PIPED THRU WALL & DOWN TO WITHIN 12" OF GRADE. SEE PIPING ISOMETRIC SHEET M-7.
- 10 EXIST. 1/2" STEAM & COND. LINES TO REMAIN. NO WORK.
- 11 EXIST. STEAM PIT 294
- 12 EXIST. 1/2" STEAM & COND. LINES TO REMAIN. NO WORK.



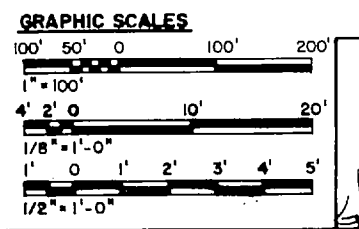
DETAIL-EXHAUST FAN (EF-1)
NO SCALE



DETAIL - CHILLER SUPPORT PAD
NO SCALE



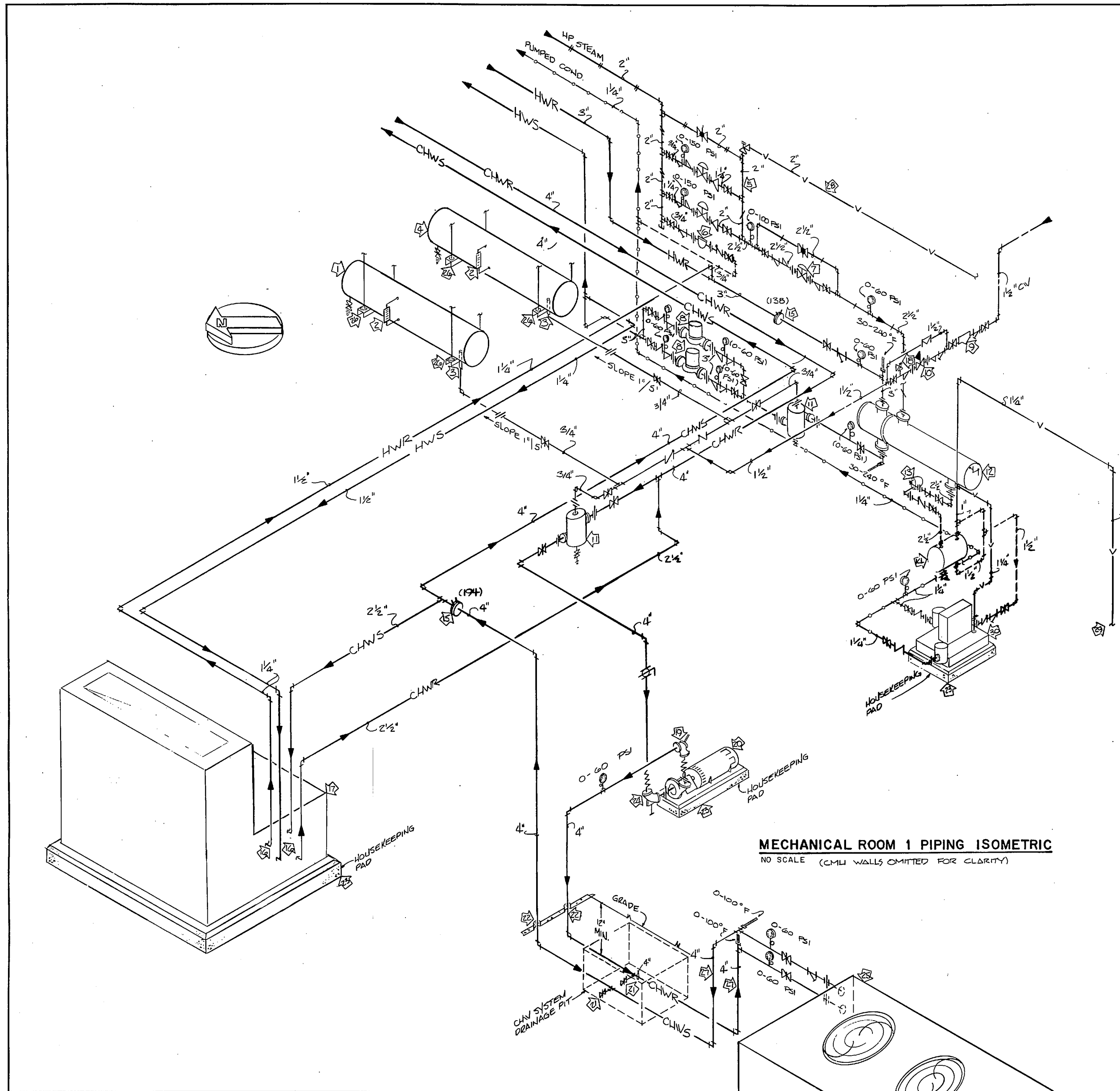
KEY PLAN
SCALE 1"=100'



M-6	
HENRY VON OESSEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28405	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA	
DES. TMH	MARINE CORPS BASE CAMP LEJEUNE, N.C.
CHK. SMC	REPLACE HVAC SYSTEMS
APP. DER	BLDG. NO. 1005
DESIGN NO. 74112	NE WINGS PIPING PLAN & ENLARGED MECHANICAL ROOM PLAN
APPROVED: PVP, USNCC	DATE: 05-94
DATE: 7/11/00	SCALE: GRAPHIC
DATE: 7/11/00	DATE: 05-94-7937
DATE: 7/11/00	SHEET 7 OF 16



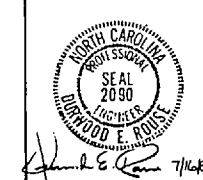
REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED



KEYED NOTES (THIS SHEET ONLY)

- 1 40 GALLON CHW ASME COMPRESSION TANK SUSPENDED AT CEILING.
- 2 WATER LEVEL INDICATING GAUGE FOR COMPRESSION TANK.
- 3 COMPRESSION TANK FITTING.
- 4 80 GALLON HW ASME COMPRESSION TANK SUSPENDED AT CEILING.
- 5 PARALLEL HIGH PRESSURE STEAM PRESSURE REDUCING STATION, SEE DETAIL (H) FOR CAPACITIES, ETC.
M6, M7, M10
- 6 INVERTED BUCKET STEAM TRAP - 60 #/42, 100 PSI ΔP.
- 7 STEAM/HW CONVERTOR CONTROL VALVE, SEE DETAIL (S) FOR CAPACITIES, ETC.
M6, M7, M10
- 8 PARALLEL INLINE BRONZE FITTED CENTRIFUGAL HW CIRCULATING PUMPS P-2 & P-3. SEE SCHEDULE SHEET M-8 & DETAIL (C).
M6, M7, M10
- 9 1/2" REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY W/ INTEGRAL STRAINER.
- 10 WATER PRESSURE REDUCING STATION RELIEF VALVE SET FOR 30 PSI.
- 11 INLINE, LINE SIZE, AIR SEPARATOR W/ REMOVABLE BASKET STRAINER.
- 12 STEAM/HW CONVERTOR. REFER TO SCHEDULE SHEET M-8 & DETAIL (B).
M6, M7, M10
- 13 FLOAT & THERMOSTATIC STEAM TRAP 3917 #/42, 40 PSI ΔP.
- 14 15 GAL. ASME RATED STEEL FLASH TANK.
- 15 LINE SIZE ORifice PLATE TYPE FLOW MEASURING DEVICE - GPM NOTED IN PARENTHESES.
- 16 WATER COIL CONNECTIONS, FOR PIPING REFER TO DETAIL (A).
M6, M7, M10
- 17 NEW PAD MOUNTED DRAIN THRU AIR HANDLING UNIT. REFER TO SCHEDULE SHEET M-8.
- 18 PRESSURE RELIEF VALVE SET FOR 30 PSI.
- 19 TRIPLE DUTY, BALANCING CHECK & SHUTOFF VALVE.
- 20 BASE MOUNTED END SUCTION CENTRIFUGAL CHW CIRCULATING PUMP P-1. REFER TO SCHEDULE SHEET M-8 & DETAIL (G).
M6, M7, M10
- 21 1/2" DRAINDOWN VALVES W/ LOCKGUARD. GRADE ALL PIPING TO THIS POINT.
- 22 CUT & PATCH EXISTING MECHANICAL ROOM SLAB TO INSTALL BELOW GRADE PIPING.
- 23 6" HOUSEKEEPING PAD SIZED TO EQUIPMENT 3000 P.S.I. REINFORCED CONCRETE W/ CHAMFERED EDGES.
- 24 SUCTION DIFFUSER W/ REMOVABLE MESH STRAINER.
- 25 NOMINAL 100 TON AIR COOLED RECIPROCATING CHILLER CC-1. REFER TO SCHEDULE SHEET M-8.
- 26 C 3 X 6 STEEL CHANNEL SUSPENDED BY 5/8" THREADED STEEL RODS.
- 27 TRACE ALL EXPOSED EXTERIOR CHW PIPING W/ MINIMUM 7 WATTS/LINEAL FOOT HEAT TRACING TAPE.
- 28 PIPE 2" VENT LINE FROM STEAM PRV STATION RELIEF VALVE OUTSIDE & ELBOW DOWN TO WITHIN 12" OF GRADE.
- 29 PIPE 1 1/4" VENT LINE FROM CONDENSATE RECEIVER/FLASH TANK OUTSIDE BUILDING & ELBOW DOWN TO WITHIN 12" OF GRADE.
- 30 PAD MOUNTED DUPLEX CONDENSATE PUMP W/ MINIMUM 20 GALLON VENTED CONDENSATE RECEIVER, R-4. SEE SCHEDULE SHEET M-8 & DETAIL (E).
M6, M7, M10
- 31 PRESSURE RELIEF VALVE SET FOR 30 PSI.

MECHANICAL ROOM 1 PIPING ISOMETRIC
NO SCALE (CMU WALLS OMITTED FOR CLARITY)



M-7	
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	
MARINE CORPS BASE CAMP LEJEUNE, N.C. REPLACE HVAC SYSTEMS BLDG. NO. 1005	
MECHANICAL ROOM 1 PIPING ISOMETRIC	
DES. TMH DR. TMH CHK. DER SUBMITTED BY: [Signature] DESIGN DIR. [Signature]	APPROVED: PWO OR DIC DATE: 7/14/85
SIZE: F CODE IDENT. NO.: 80091	NAVAC DRAWING NO.: 4126457
CONSTR. CONTR. NO. N62470-84-B-7937	
SCALE: GRAPHIC SPEC. 05-84-7937 SHEET 8 OF 16	



REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

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	MIN. CV
CC-1	2271	24"x28"	4	8364	20.0	497	.37	77	44.5	45.3	10°	5.9	45	55	21	MOUNTED IN AHU #1
CC-2	1897	24"x60"	6	6987	20.4	508	.46	77	44.5	37.9	10°	1.7	45	55	17	MOUNTED IN AHU #2
CC-3	148	12"x28"	6	5451	20.5	466	.41	77	44.5	29.6	10°	1.0	45	55	14	MOUNTED IN AHU #3
CC-4	2266	24"x28"	4	8345	20.0	495	.35	77	44.5	45.3	10°	5.9	45	55	21	MOUNTED IN AHU #4

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

CHILLER SCHEDULE															
UNIT MARK	NOM TONS	TOTAL COMP. KW	EER	COMPRESSOR		EVAPORATOR	COND. FAN CFM	ENT. COND. AIR	MIN. LOW AMBIANT STARTING	VOLTAGE	EWT	LWT	REMARKS		
				NO.	STEPS UNLOADING										
CH-1	100	129.7	9.7	2	50	4	194	8'	7600	91	40	480/34	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	WTR	WPD		EWT	LWT	MIN. CV
HC-1	184	24"x28"	2	8364	20.1	497	.17	68	88.1	13.9	26.5	0.6	180	153.5	6	MOUNTED IN AHU #1
HC-2	638	24"x60"	2	6987	21.4	498	.26	68	89.4	11.6	28.2	0.4	180	151.8	5.3	MOUNTED IN AHU #2
HC-3	1257	24"x51"	2	5451	21.1	441	.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	8345	20.1	418	.17	68	88.1	13.9	26.5	0.6	180	153.5	6.5	MOUNTED IN AHU #4
DH-1	23.6	12"x16"	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	27.4	843	.52	68	95.6	3	20	0.1	180	159	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	636	.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	430/34	CW	55°	BASE MOUNTED END SUCTION CENTRIFUGAL	
P-2	69	48'	1750	2	208/34	HW	160°	INLINE BRONZE FITTED CENTRIFUGAL	
P-3	69	48'	1750	2	208/34	HW	160°	INLINE BRONZE FITTED CENTRIFUGAL	
P-4	9	120'	3500	1/2	208/34	COND	210°	DUPLEX W/ 23 GAL. RECEIVER	

CABINET FAN COIL UNIT SCHEDULE																									
MARK ON PLAN	BLOWER DATA					COOLING DATA					HEATING DATA					FILTER SIZE	3-WAY CONTR. VALVE	PIPING RUNOUT SIZE							
	MIN CFM	O.A. CFM	TYPE DRIVE	HP	VOLTS/PHASE	UNIT LENGTH	ENT. AIR TEMP. D.B.	ENT. AIR TEMP. W.B.	CHILLED WATER T.O.T. SENS. EWT	CHILLED WATER GPM	CHILLED WATER PD (FT)	ENT. AIR TEMP.	CAP MBH	HOT WATER EWT	HOT WATER GPM				HOT WATER PD (FT)	SIZE B TYPE	COOLING SIZE	HEATING SIZE	RUNOUT SIZE		
CF-1	300	30	D12	1/2	115	120/10	3'-4"	78	64.5	8.1	5.5	45	1.3	2.7	68	9.7	180	1.94	1.0	1/2	1/2	9	3/4	3/4	
CF-2	320	32	D12	1/2	115	120/10	3'-4"	—	—	—	—	—	—	—	68	10.48	180	2.1	1.1	1/2	1/2	1.0	—	3/4	
CF-3	480	48	D12	1/2	115	120/10	4'-8"	78	64.5	15.1	8.8	45	1.9	4	68	15.55	180	3.11	2.3	1/2	25	1/2	1/4	3/4	3/4
CF-4	475	48	D12	1/2	115	120/10	4'-8"	78	64.5	12.9	8.8	45	1.9	4	68	15.3	180	3.06	2.2	1/2	25	1/2	1/4	3/4	3/4
CF-5	245	25	D12	1/2	115	120/10	3'-4"	78	64.5	6.7	4.5	45	1.2	2.5	68	7.9	180	1.58	.5	1/2	55	1/2	7	3/4	3/4
CF-6	540	54	D12	1/2	115	120/10	4'-8"	78	64.5	14.7	9.9	45	2.1	5.3	68	17.5	180	3.5	2.6	1/2	—	1/2	1.5	—	3/4
CF-7	300	30	D12	1/2	115	120/10	3'-4"	—	—	—	—	—	—	—	68	9.7	180	1.94	1.0	1/2	1/2	9	—	3/4	

STEAM/HW CONVERTOR									
TOTAL MBH	GPM	EWT	LWT	WPD	ENT. STEAM PRESS.	#/HR STEAM	#/HR COND.	TUBE PASSES	HEATING SURFACE FT ²
1664	156	160	180	1.0	40 PSI.	1252	980	2	42

AIR HANDLING UNIT SCHEDULE														
UNIT MARK	CFM	O.A. CFM	ESP H ₂ O	BHP RPM	FAN DIA.	OUTLET VEL.	CW COIL	HW COIL	FILTER SECTION			CONFIGURATION	REMARKS	
									NO.	TYPE	SIZE			
AHU-1	8364	836	1 1/2"	3.85	2411	20'	1673	CC-1	HC-1	6	T.A.	18.8	VERTICAL DRAW THRU	FORWARD CURVED W/ INLET VANES
AHU-2	6987	698	1 1/2"	2.97	2411	20'	1397	CC-2	HC-2	6	T.A.	15.9	VERTICAL DRAW THRU	FORWARD CURVED W/ INLET VANES
AHU-3	5451	545	1 1/2"	2.23	2411	18 3/4"	1329	CC-3	HC-3	5	T.A.	13.4	VERTICAL DRAW THRU	FORWARD CURVED W/ INLET VANES
AHU-4	8345	834	1 1/2"	3.81	2411	20'	1669	CC-4	HC-4	6	T.A.	18.8	VERTICAL DRAW THRU	FORWARD CURVED W/ INLET VANES

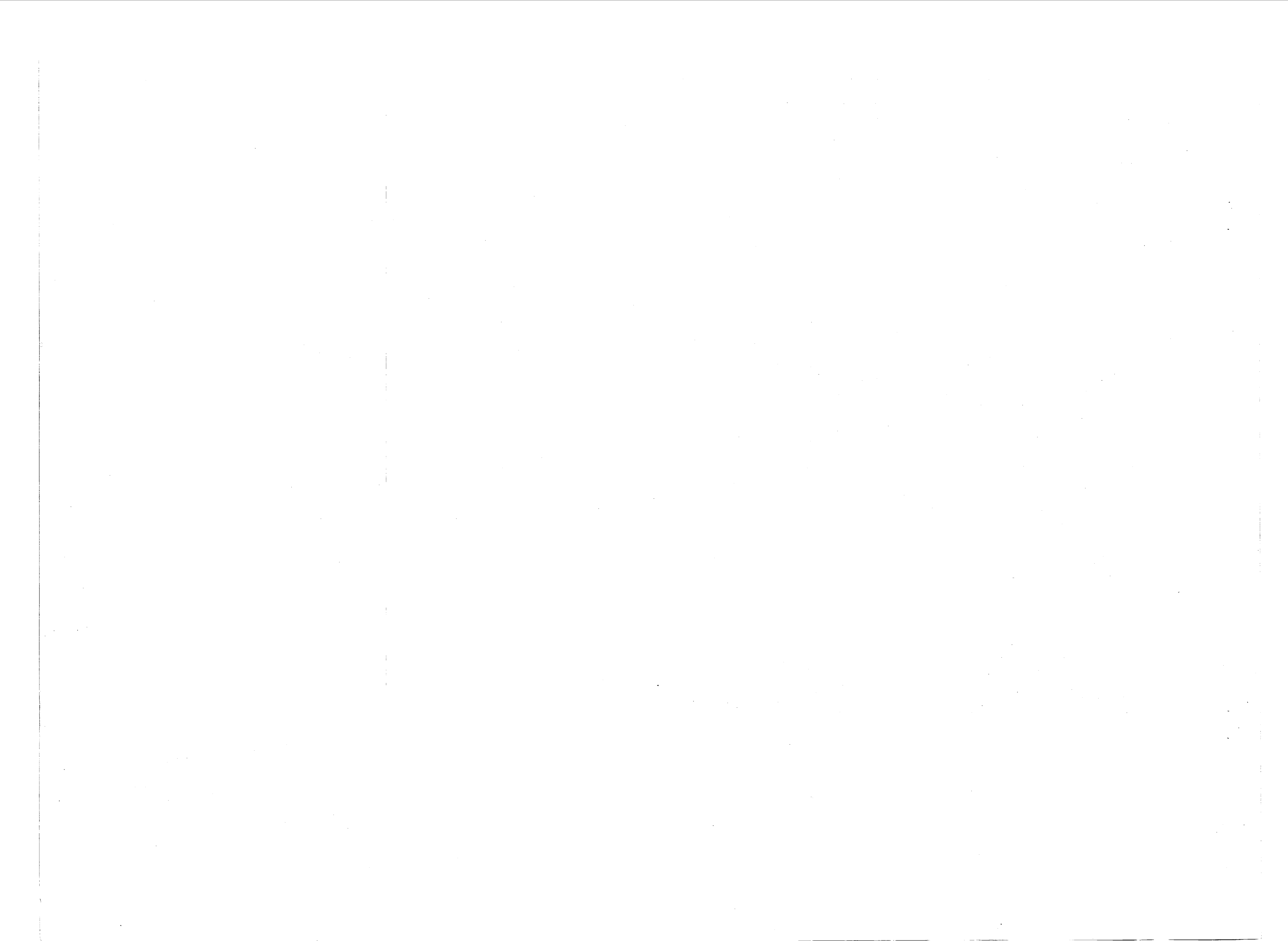
* TOTAL SQUARE FEET

WALL FIN CONVERTORS (180° EWT) *							
UNIT	MBH HEATING	GPM	LINEAL FT. FIN TUBE	INSTALLED HEIGHT	ELEMENTS	ROWS	EDR
(A)	6.87	.69	8'-6"	15 1/2"	1/4" STEEL	1	28.66
(B)	2.00	.20	2'-6"	—	1/4" STEEL	1	8.33
(C)	3.20	.32	4'-0"	—	1/4" STEEL	1	13.33
(D)	4.80	.48	6'-0"	—	1/4" STEEL	1	19.9
(E)	4.40	.44	5'-6"	—	1/4" STEEL	1	18.33
(F)	2.40	.24	3'-0"	—	1/4" STEEL	1	10.0
(G)	.96	.96	12'-0"	—	1/4" STEEL	1	39.98
(H)	8.0	.80	10'-0"	—	1/4" STEEL	1	33.2
(I)	6.40	.64	4'-0"	18 1/2"	1/4" STEEL	2	26.7
(J)	6.60	.66	7'-0"	15 1/2"	1/4" STEEL	1	23.3
(K)	4.00	.40	5'-0"	—	1/4" STEEL	1	16.66
(L)	6.40	.64	8'-0"	—	1/4" STEEL	1	26.7

NOTE: EX. (O) UNIT MARKS SUBSCRIPTED WITH THE LETTER 'R' INDICATE THAT UNITS ARE RECESSED IN EXISTING PLASTERED, GYPSUM WALLS AND THAT WALLS WILL REQUIRE CUTTING, DRESSING & PAINTING IN ORDER TO INSTALL UNITS. 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.

		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA	
		MARINE CORPS BASE CAMP LEJEUNE, N.C. REPLACE HVAC SYSTEMS BLDG. NO. 1005 MECHANICAL EQUIPMENT SCHEDULES	
2711 DES. TMH CHK. DMC SUBMITTED BY: <i>[Signature]</i> DESIGN BY: <i>[Signature]</i> APPROVED: PWD, DA OIC SATISFACTORY TO: <i>[Signature]</i>	DATE: <i>[Date]</i> DATE: <i>[Date]</i>	SIZE: F CODE IDENT. NO.: 80091 NAVFAC DRAWING NO.: 4126458 CONSTR. CONTR. NO. 162470-84-B-7937 SCALE: GRAPHIC SPEC.	M-0 SHEET 9 OF 15



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.		COND.					
	TOTAL	SENSIBLE	MBH	ELEC CAP	STAGES	HP	VOLTS	HP	NO.	HP	NO.	HP	NO.	HP			
HP-1	1125	30.2	20.4	15.4	5kW	1	15.4	208/1	1/3"	1/2	208/1	1	3.47	1 1/4	90	79	SPLIT SYSTEM W/ VERTICAL CONFIGURATION INDOOR UNIT

* CAPACITY @ 17° F. OUTSIDE TEMPERATURE

FAN COIL UNIT SCHEDULE																				
MARK ON PLAN	BLOWER DATA					COOLING DATA					FILTER SIZE & TYPE	3-WAY CONTR. VALVE	PIPING RUNOUT SIZE	COIL APP	O.A. CFM					
	CFM	TOT S.P.	TYPE	HP	RPM	VOLTS/PHASE	NO. ROWS	ENT. AIR TEMP	MBH CAP	CHILLED WATER						WGT GPM	PD (FT)	COOLING	SIZE	Cv
FC-1	720	1"	BELT	1/2	1200	120/1φ	4	78	64.5	21.4	14.47	45	4.28	1.7	15" X 24" T.A.	1/2	1.9	1"	.33	71
FC-2	984	1 1/4"	BELT	1/2	1200	120/1φ	4	78	64.5	21.7	18.05	45	5.34	1.8	15" X 24" T.A.	1/2	2.4	1"	.40	88
FC-3	1464	1 1/2"	BELT	1/2	1200	120/1φ	4	78	64.5	21.9	26.9	45	7.95	5.3	15" X 24" T.A.	1/2	3.6	1 1/4"	.55	132
FC-4	810	7/8"	BELT	1/2	1200	120/1φ	4	78	64.5	21.9	14.5	45	4.4	1.75	15" X 24" T.A.	1/2	2	1"	.35	0
FC-5	848	3/4"	BELT	1/2	1200	120/1φ	4	78	64.5	23	15.6	45	3.12	1.6	15" X 24" T.A.	1/2	1.4	1"	.36	85

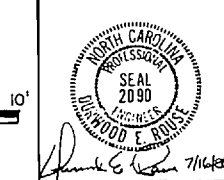
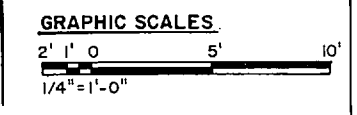
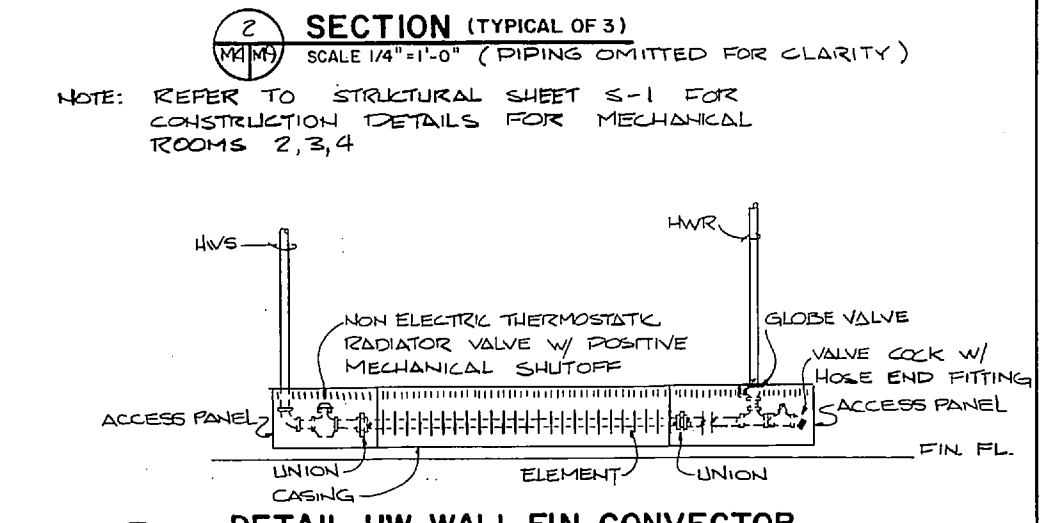
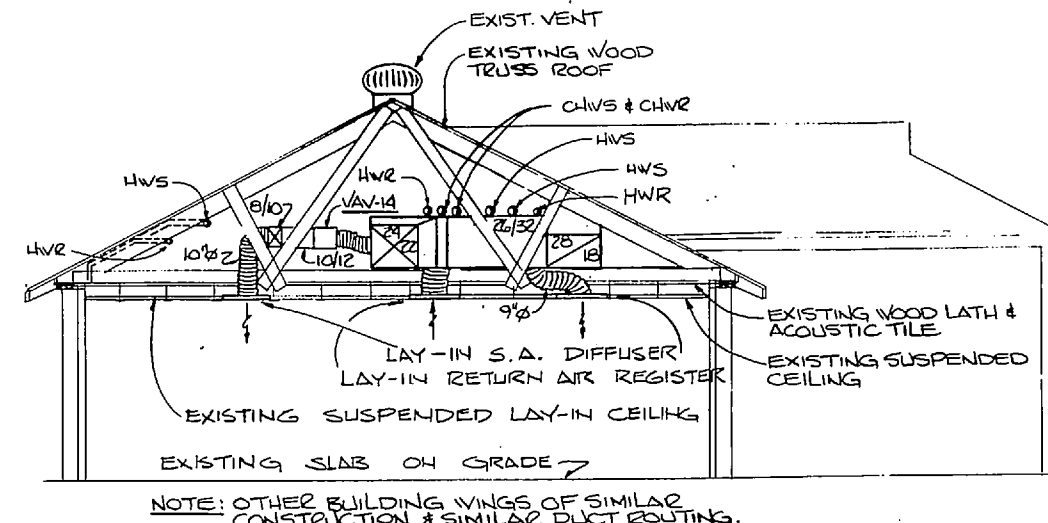
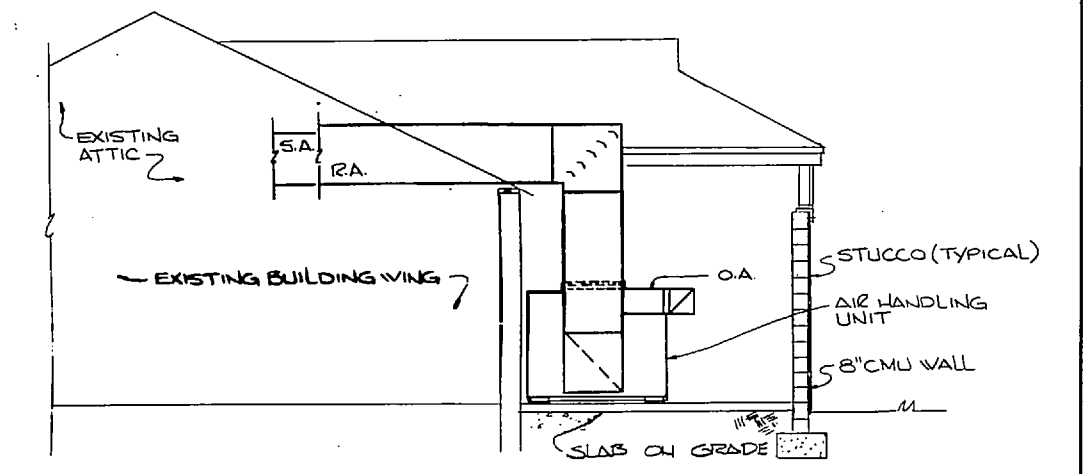
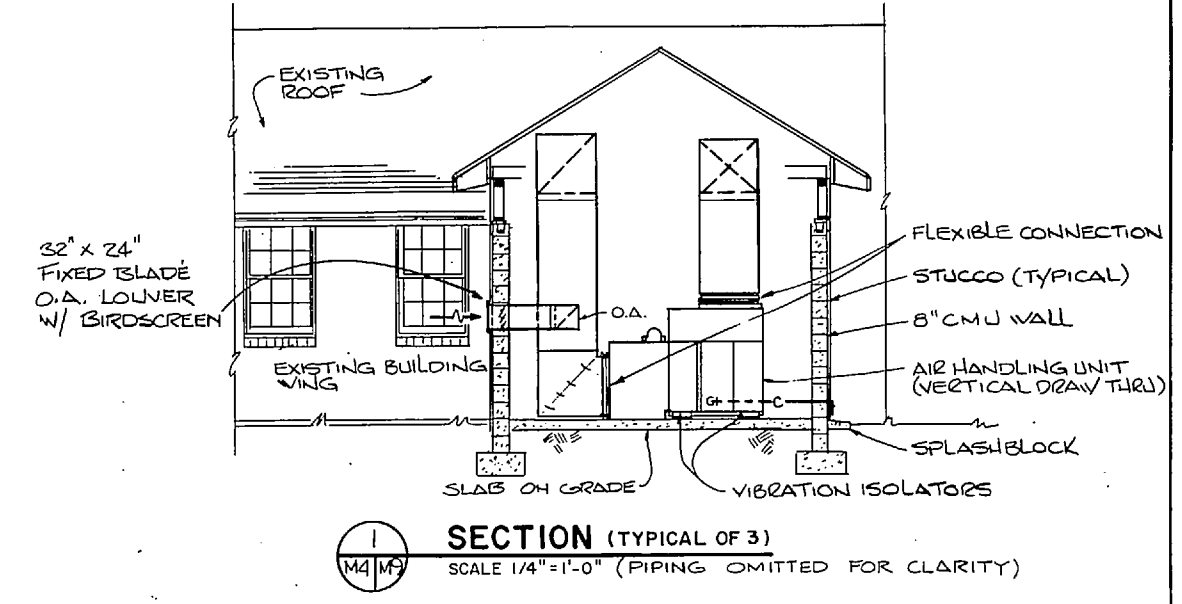
NOTE: MANUFACTURER SHALL SELECT SENSIBLE CAPACITY NOT TO EXCEED 10% OF THAT INDICATED. MANUFACTURER SHALL SELECT SENSIBLE & LATENT CAPACITY NOT LESS THAN THAT INDICATED.

DIFFUSER & GRILLE SCHEDULE					
MARK	NECK SIZE CONNECTION	AIR PATTERN	TYPE OF MOUNTING	REMARKS	
(A)	14"φ	4-WAY	SURFACE	PERFORATED FACE W/ OPPOSED BLADE DAMPERS	
(B)	12"φ				
(C)	8"φ				
(D)	6"φ				
(E)	22" X 22"	RETURN		PERFORATED FACE W/ OPPOSED BLADE DAMPERS & SQUARE TO ROUND ADAPTORS	
(F)	16" X 16"				
(G)	12" X 12"				
(H)	10" X 10"				
(I)	14"φ	4-WAY	LAY-IN	PERFORATED FACE W/ OPPOSED BLADE DAMPERS	
(J)	12"φ				
(K)	10"φ				
(L)	8"φ				
(M)	22" X 22"	RETURN		PERFORATED FACE W/ OPPOSED BLADE DAMPERS & SQUARE TO ROUND ADAPTORS	
(N)	18" X 18"				
(O)	14" X 14"				
(P)	12" X 12"				
(Q)	10" X 10"				
(R)	23" X 23"	RELIEF		COUNTERBALANCED JACKSCRAFT DAMPER. EXTEND NECK UP INTO ATTIC SPACE	
(S)			SURFACE	PERFORATED FACE W/ OPPOSED BLADE DAMPERS	

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

VAV BOX SCHEDULE						
MARK	COOLING CFM	MINIMUM S.P. AT BOX INLET	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	323-346	.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 BOX SCHEDULE (CONT'D)						
MARK	COOLING CFM	MINIMUM S.P. AT BOX INLET	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	344	.07	8"	31	350	"
VAV-25	940	.10	10"	34	550	"



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

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

MARINE CORPS BASE - CAMP LEJEUNE, NC
REPLACE HVAC SYSTEMS
BLDG. NO. 1005

MECHANICAL EQUIPMENT SCHEDULES & SECTIONS

APPROVED: PWD OR DDC
DATE: 7/1/11
SATISFACTORY TO: [Signature]

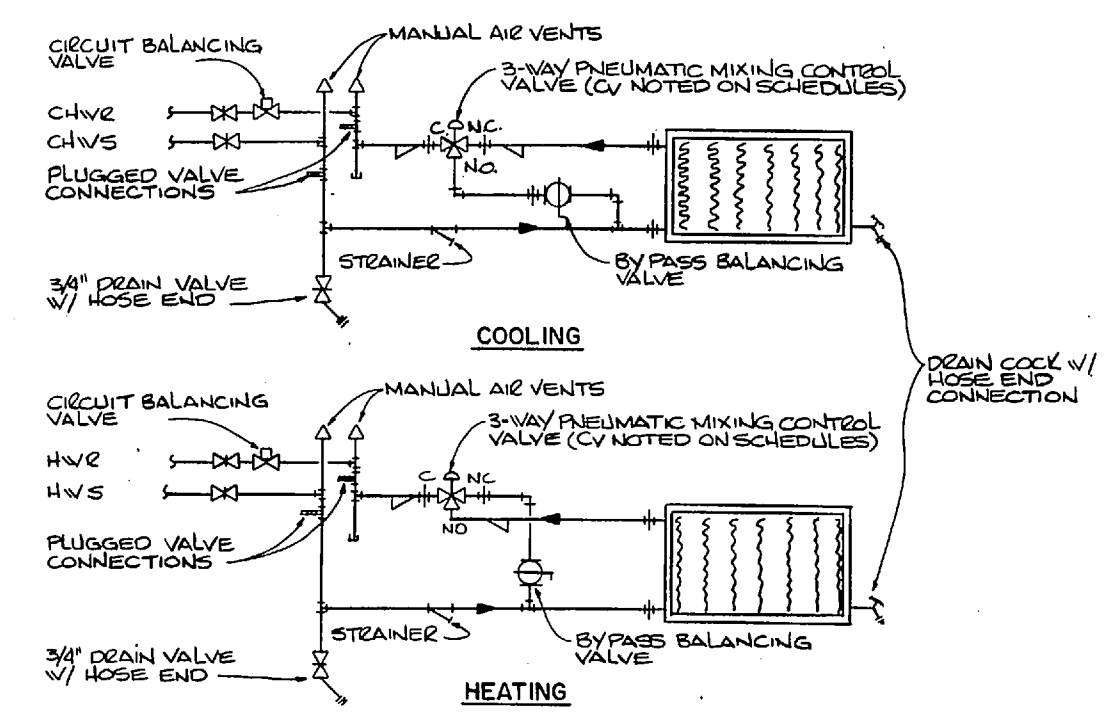
REG. TMH
DR. SMC
CHK. DER
SUBMITTED BY: [Signature]

REGION NO. [Blank]
DATE: [Blank]

SIZE: F
CODE IDENT. NO.: 80091
NAVFAC DRAWING NO.: 4126459
CONSTR. CONTR. NO. N62470-B-94-7937
SCALE: GRAPHIC | SPEC. 05-84-7937 | SHEET 10 OF 16

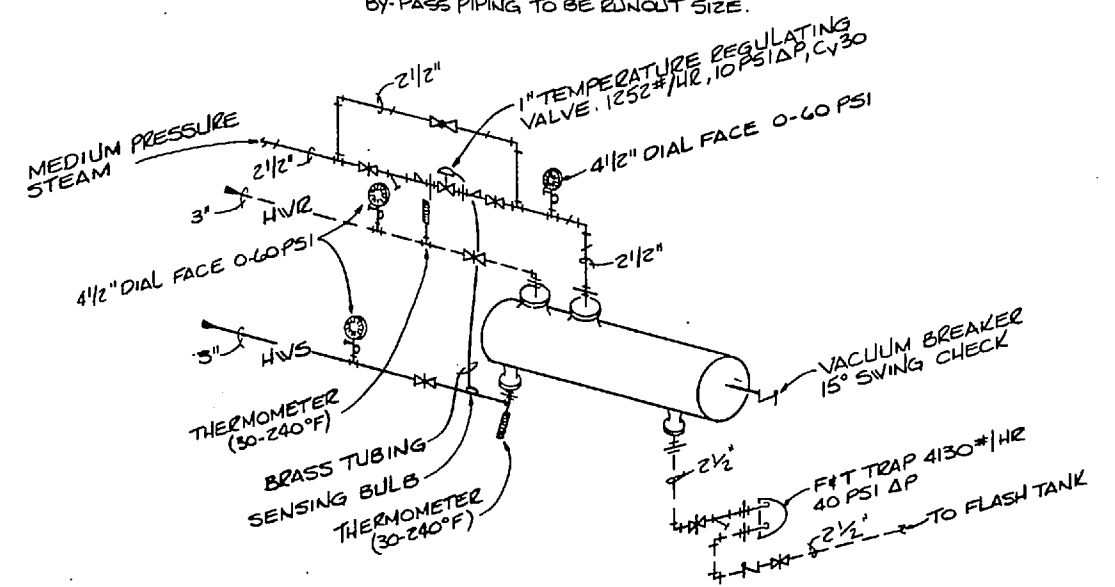


REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

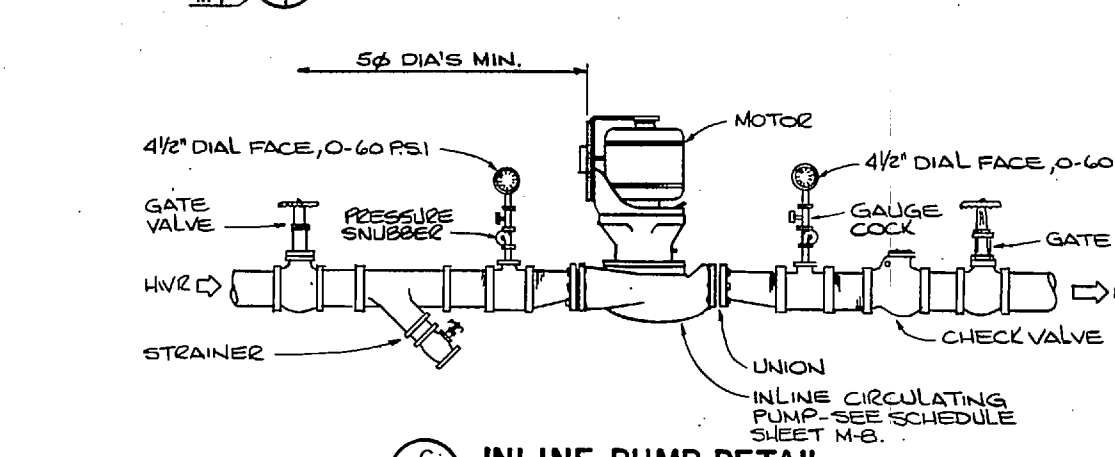


A **DETAIL HW/CHW COIL CONNECTIONS**
NO SCALE

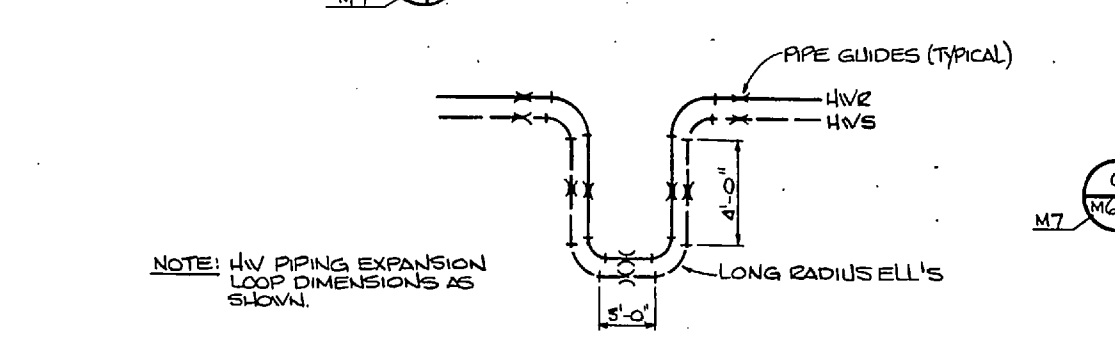
NOTES: SEE PIPING FLOOR PLANS FOR RUNOUT SIZES.
BYPASS PIPING TO BE RUNOUT SIZE.



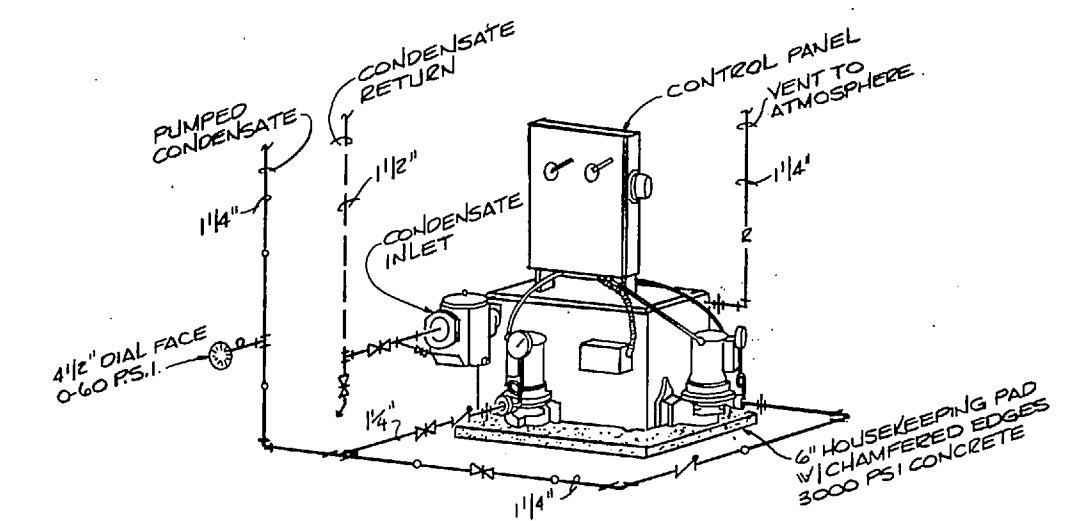
B **STEAM / HW CONVERTOR DETAIL**
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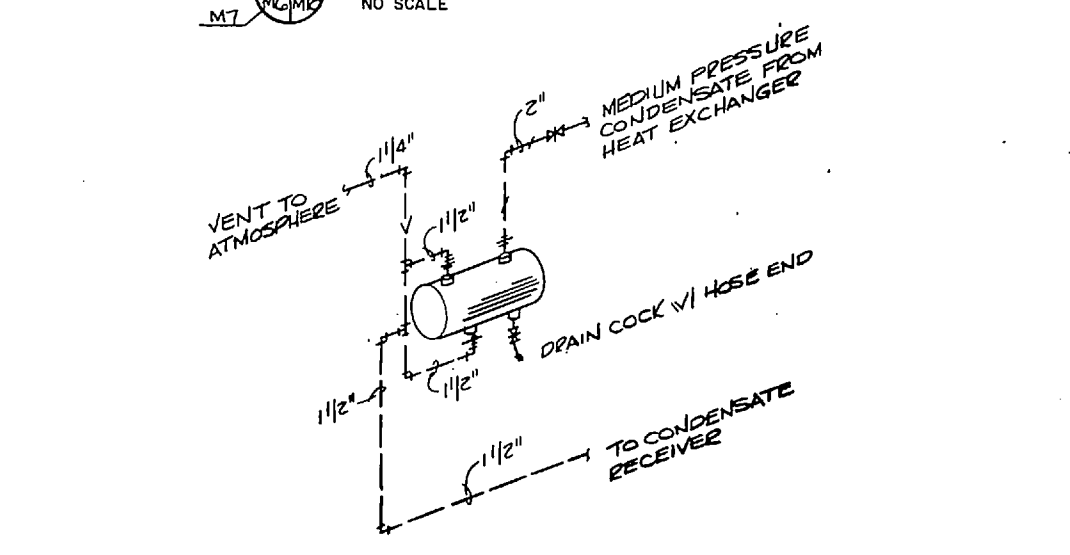
C **INLINE PUMP DETAIL**
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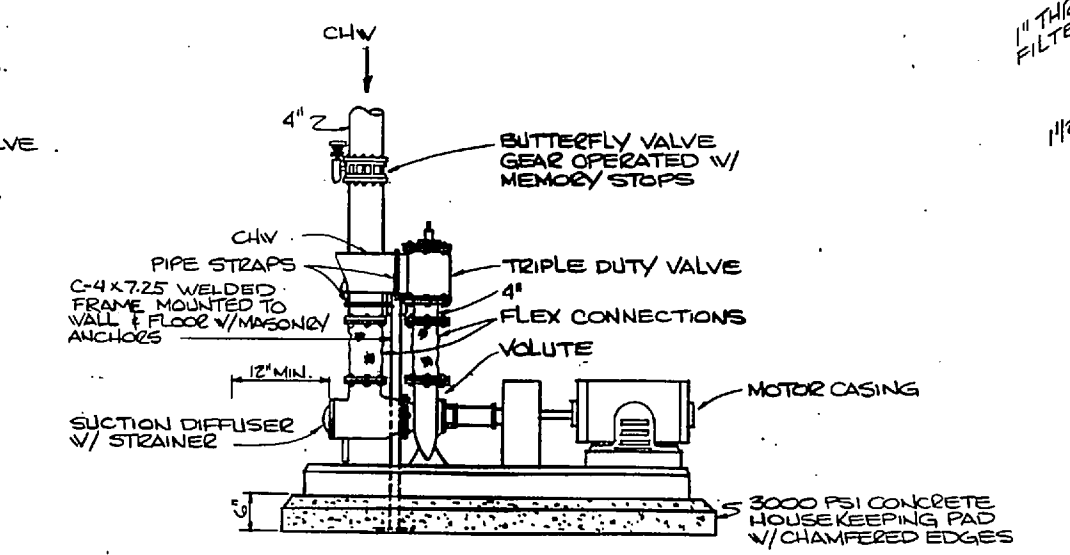
D **AHU HW PIPING EXPANSION LOOP DETAIL**
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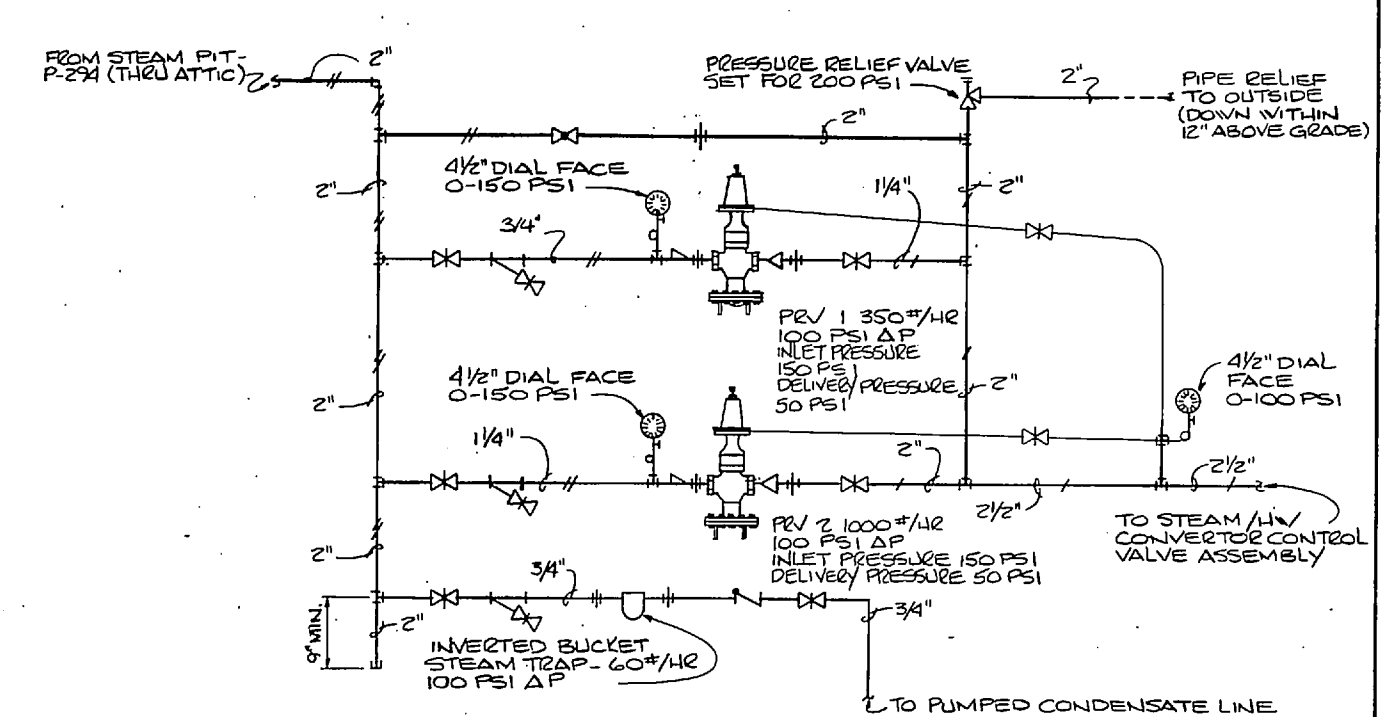
E **CONDENSATE PUMP DETAIL**
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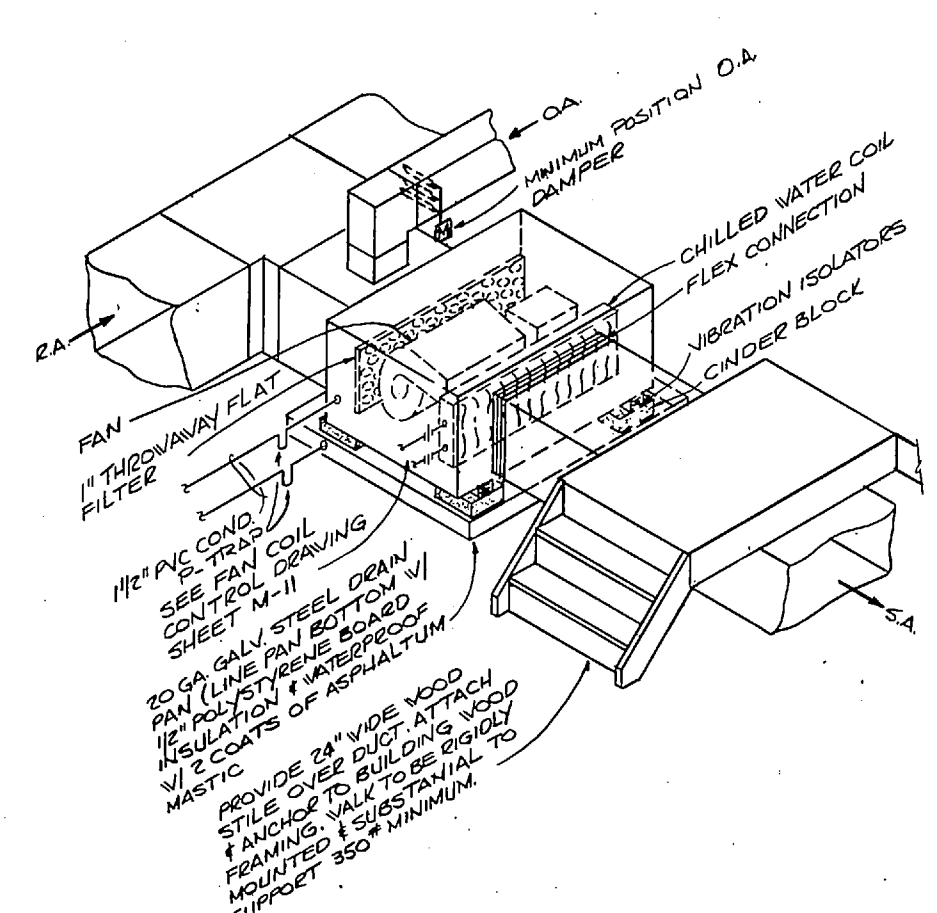
F **FLASH TANK DETAIL**
NO SCALE



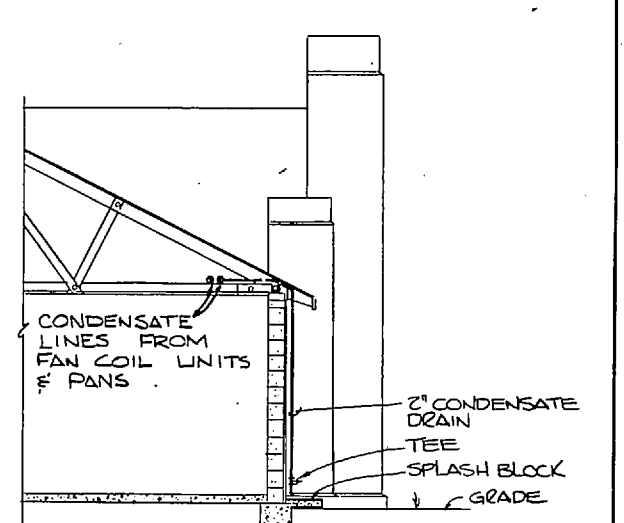
G **TYPICAL END SUCTION BASE MOUNTED PUMP DETAIL**
NO SCALE



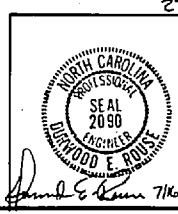
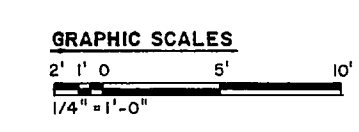
H **DETAIL PARALLEL HIGH PRESSURE REDUCING STATION**
NO SCALE



I **FAN COIL UNIT DETAIL**
NO SCALE

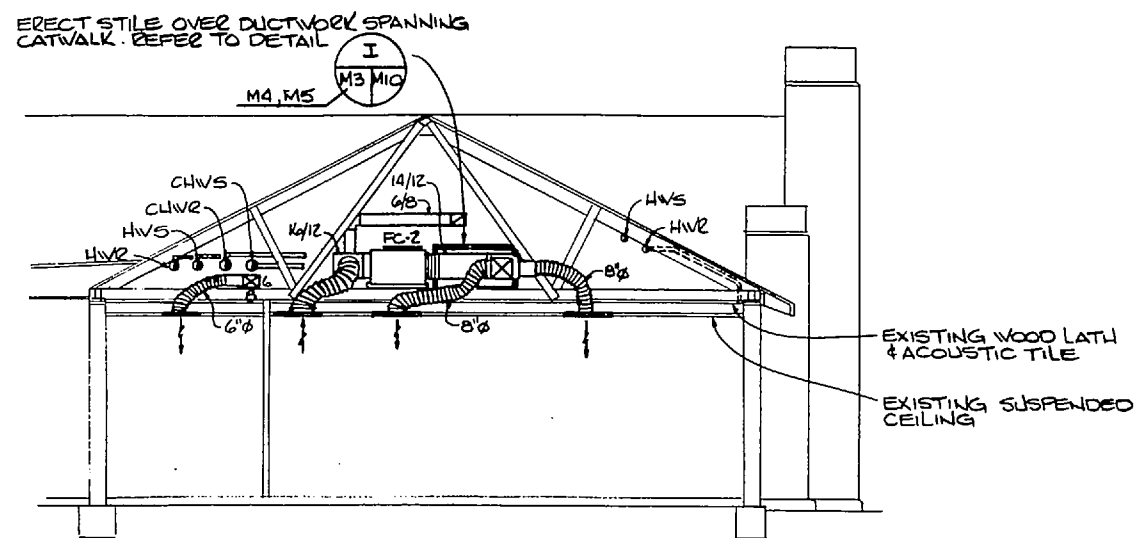


J **SECTION**
SCALE 1/4"=1'-0"

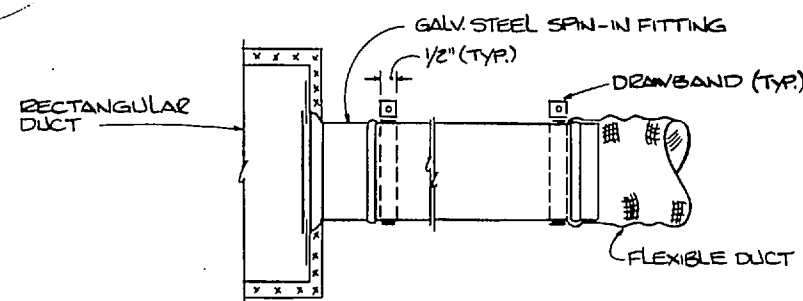


M-10	
HENRY VON OESSEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28402	DEPARTMENT OF THE NAVY - NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA
DES. TMH DR. SMC CHK. DER SUBMITTED BY: [Signature] APPROVED: PWD OR JLLC [Signature] SATISFACTORY TO: [Signature]	MARINE CORPS BASE CAMP LEJEUNE, N.C. REPLACE HVAC SYSTEMS BLDG. No. 1005 MECHANICAL DETAILS SIZE: F CODE IDENT. NO.: 80091 NAVFAC DRAWING NO.: 4126460 CONST. CONTR. NO. NS2470-84-B-7937 SCALE: GRAPHIC SPEC. 05-84-7937 SHEET 11 OF 16

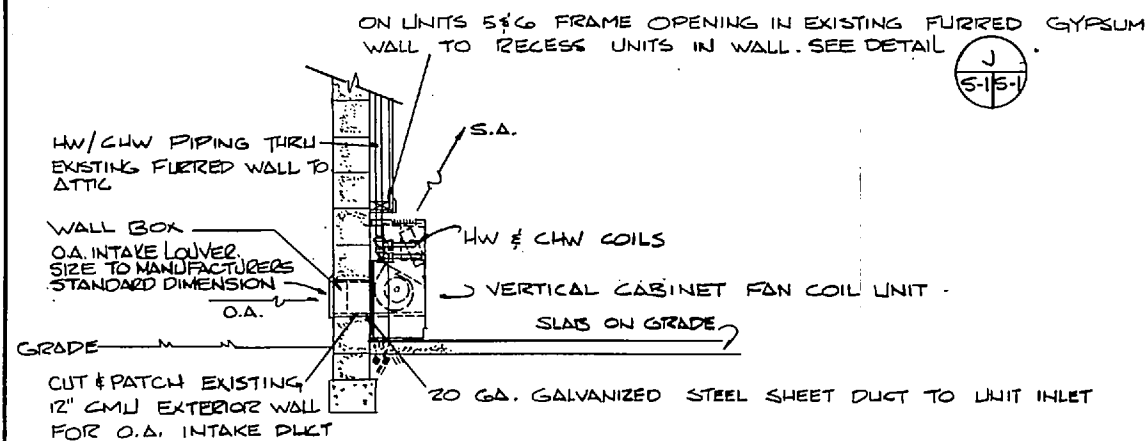




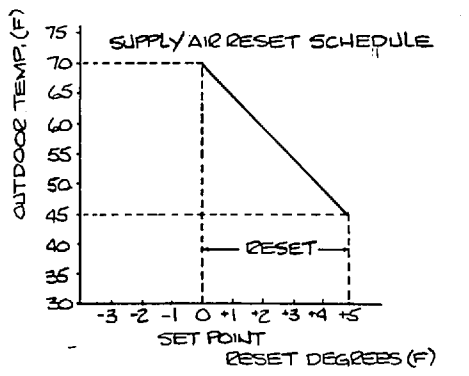
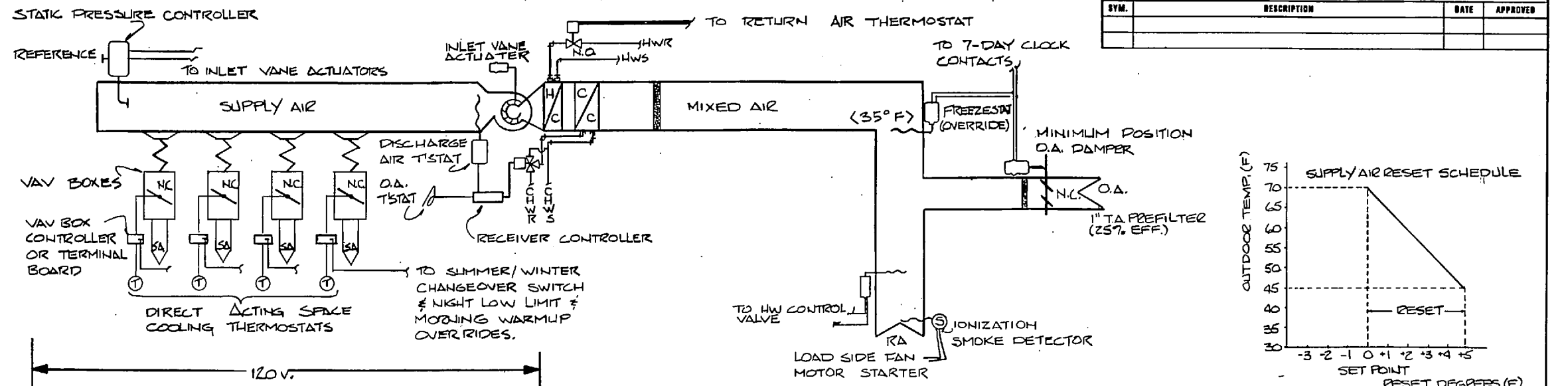
SECTION I
SCALE 1/4"=1'-0"



TYPICAL FLEXIBLE DUCT/RIGID DUCT CONNECTION
NO SCALE



DETAIL VERTICAL CABINET FAN COIL UNIT
NO SCALE



COLD DECK RESET SCHEDULE

SEQUENCE OF OPERATION

ALLU SEQUENCE OF OPERATION: BUILDING HVAC SYSTEMS SHALL BE SCHEDULED BY A 7-DAY CLOCK WITH 12-HOUR SPRING RESERVE, NIGHT LOW LIMIT, MORNING WARM-UP & 0-6 HOUR ADJUSTABLE MANUAL OVERRIDES. DURING OCCUPIED HOURS, FANS SHALL CYCLE ON AUTO LEGS OF HOA SWITCHES, SUPPLYING AIR TO VAV BOXES & RETURNING AIR FROM VAV ZONES THROUGH DUCTED RETURN. A STATIC PRESSURE SENSOR LOCATED IN TERMINAL O.A. DUCT (PRIMARY SIDE OF VAV) SHALL MODULATE INLET VANES ON SUPPLY AIR FANS INDEXED BY SYSTEM SUPPLY STATIC PRESSURE AS VAV BOXES CLOSE. SA FAN INLET VANES OR DISCHARGE DAMPERS WILL RESTRICT AIR DELIVERY. IONIZATION SMOKE DETECTOR IN RETURN AIR STREAM SHALL SHUT DOWN AIR HANDLING UNIT FANS ON CONDITIONS OF FIRE. N.C. MINIMUM POSITION O.A. DAMPER SHALL OPEN WHEN SUPPLY AIR FAN IS RUNNING EXCEPT DURING MORNING WARMUP & NIGHT SET BACK CYCLES. IN ADDITION, A LOW LIMIT THERMOSTAT IN MIXED AIR STREAM SHALL CLOSE O.A. DAMPER. DISCHARGE AIR STREAM THERMOSTAT SHALL CONTROL 3-WAY CHW DIVERTING VALVE TO MAINTAIN SUPPLY AIR TEMPERATURE RESET BY O.A. THERMOSTAT PER SCHEDULE.

A MANUAL SUMMER/WINTER CHANGE-OVER SWITCH SHALL BE WALL MOUNTED IN MECHANICAL ROOM NUMBER 1. IN COOLING SETTING, ACTUATOR WILL CLOSE CONVERTOR STEAM CONTROL VALVE & LOCK OUT HW PUMPS. IN HEATING MODE CHILLER COMPRESSORS SHALL BE LOCKED OUT. AN AQUASTAT POSITIONED ON ATTIC CHW PIPING SHALL CYCLE CHW PUMP WHEN O.A. TEMPERATURE FALLS BELOW 35°F. (V/REMOTE SWITCHED AUDIBLE ALARM & LED. SEE PIPING FLOOR PLAN SHEET M-5 FOR LOCATION.)

IN COOLING MODE, VAV BOXES WILL BE CONTROLLED BY WALL MOUNTED DIRECT ACTING SPACE THERMOSTATS. ON A RISE IN SPACE TEMPERATURE, NORMALLY OPEN DAMPERS WILL ROTATE TO MAXIMUM POSITION. ON A PEAK LOAD, COLD DECK DISCHARGE AIR TEMPERATURE SHALL BE INDEXED TO O.A. TEMPERATURE PER SCHEDULE ABOVE. RECEIVER CONTROLLED SHALL MODULATE CHW DIVERTING VALVE N.O. TO BYPASS, TO ACHIEVE REFERENCED DISCHARGE TEMPERATURE.

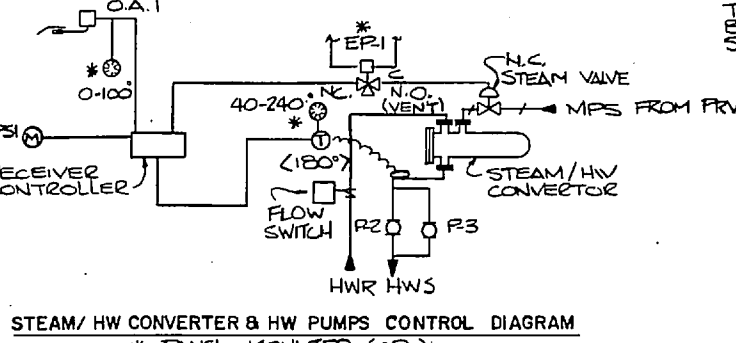
IN HEATING MODE, N.C. VAV DAMPERS SHALL ROTATE TO MINIMUM POSITION SETTINGS NOTED ON SCHEDULE EXCEPT DURING NIGHT LOW LIMIT OR MORNING WARMUP CYCLES IN WHICH THEY WILL GO FULL OPEN. AIR HANDLING UNIT SHALL CIRCULATE (CONTINUOUSLY DURING OCCUPIED HOURS), FOR VENTILATION, AIR HEATED BY PERIMETER WALL FIN UNITS AND INTRODUCE OUTSIDE AIR. UNIT MOUNTED HW COIL SHALL COME ON (2-WAY VALVE) TO SUCH TIME AS RETURN AIR TEMPERATURE REACHES 70°F.

SEQUENCE OF OPERATION & SYSTEM CONTROL SCHEMATIC SHALL BE POSTED ON WALL IN A METAL FRAME BEHIND GLASS IN EACH MECHANICAL ROOM WITH OPERATING INSTRUCTIONS.

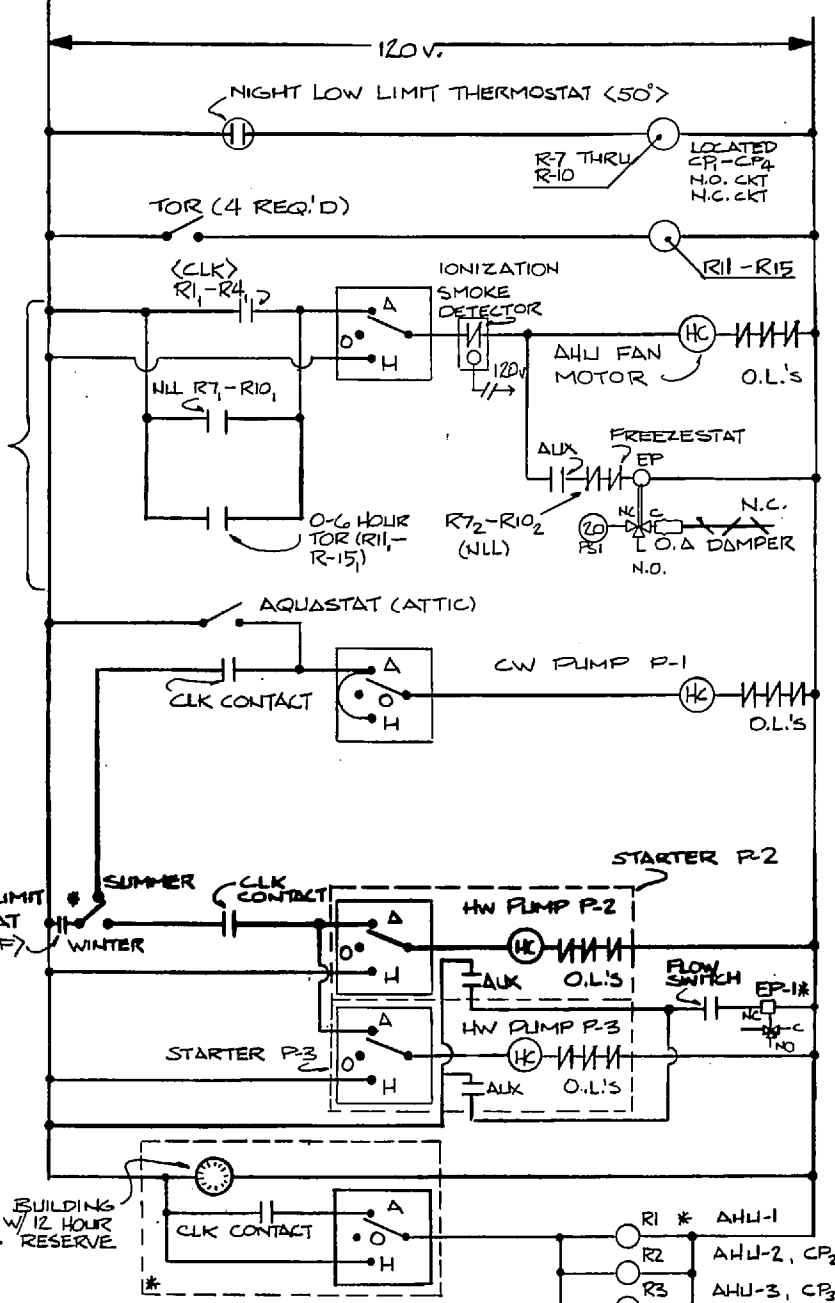
STEAM / HW CONVERTOR HW PUMPS SEQUENCE OF OPERATION

PARALLEL HW PUMPS SHALL BE BROUGHT ON BY 7-DAY BUILDING CLOCK TEMPERATURE REGULATOR FOR STEAM / HW CONVERTOR. SHALL BE INDEXED BY HVS TEMPERATURE TO MAINTAIN RESET TEMPERATURE. FLOW SWITCH IN HW'S OR SUMMER CHANGE-OVER SWITCH WILL CAUSE EP-1 SWITCH IN CONTROL LINE TO N.C. TEMPERATURE REGULATOR VALVE OFF STEAM TO CONVERTOR. IF NEITHER PUMP IS RUNNING, HW RESET SCHEDULE SHALL BE ESTABLISHED BY O.A. THERMOSTAT. EITHER HW PUMP MAY BE BROUGHT ON MANUALLY THROUGH HOA SWITCHES.

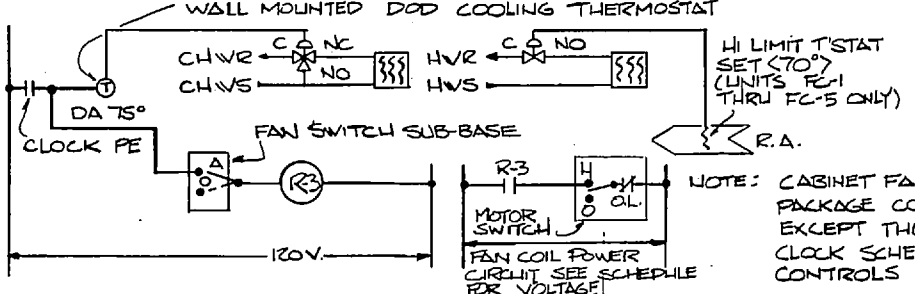
HW RESET SCHEDULE	
O.A. (°F)	LWT (°F)
70	190
70	120



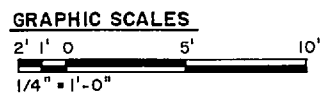
STEAM / HW CONVERTOR & HW PUMPS CONTROL DIAGRAM
* PANEL MOUNTED (CP)



* LOCATED IN MASTER CONTROL PANEL CP, IN MECH. RM. #1



DIRECT ACTING SPACE THERMOSTAT SHALL CONTROL MODULATING 3-WAY CHW VALVE. FAN SHALL RUN CONTINUOUSLY UNLESS SWITCHED TO OFF POSITION ON THERMOSTAT SUB-BASE. SWITCHED TO OFF POSITION, H.W. CONTROL VALVE WILL ALLOW HEATING UNTIL RETURN AIR TEMPERATURE REACHES 70°F (MORNING WARMUP). ENTIRE CONTROL CIRCUIT SHALL BE ON 7-DAY CLOCK SCHEDULED TO SHUTDOWN UNITS AT NIGHT & BE BROUGHT ON DURING MORNING WARMUP & DURING OCCUPIED HRS.

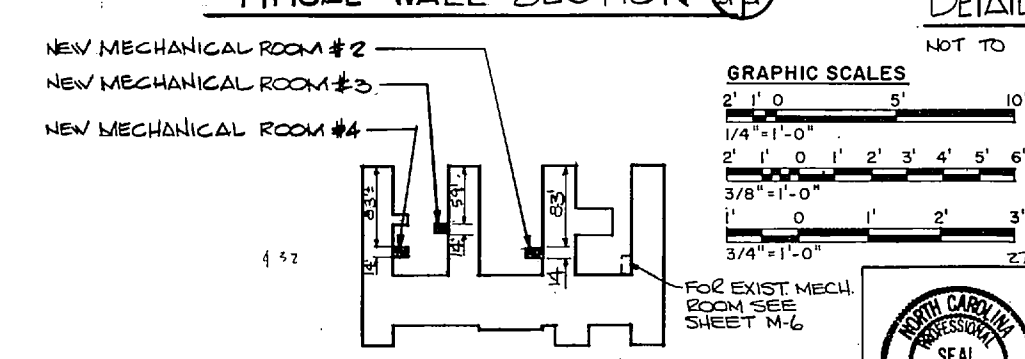
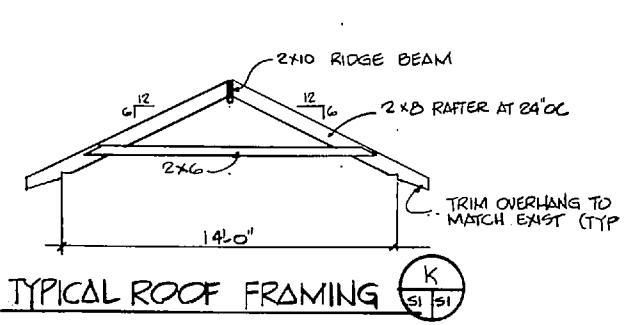
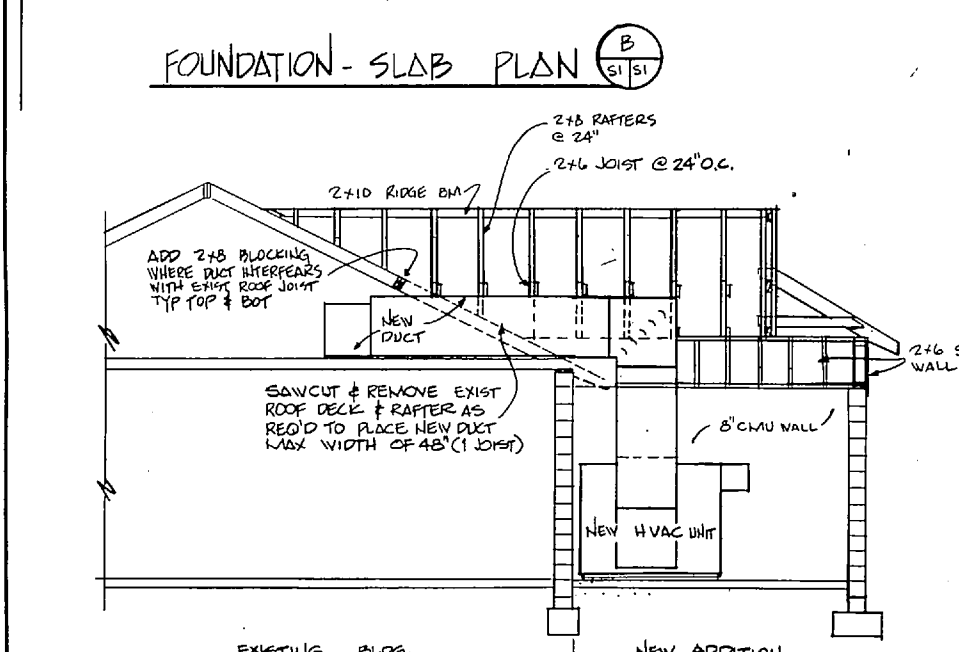
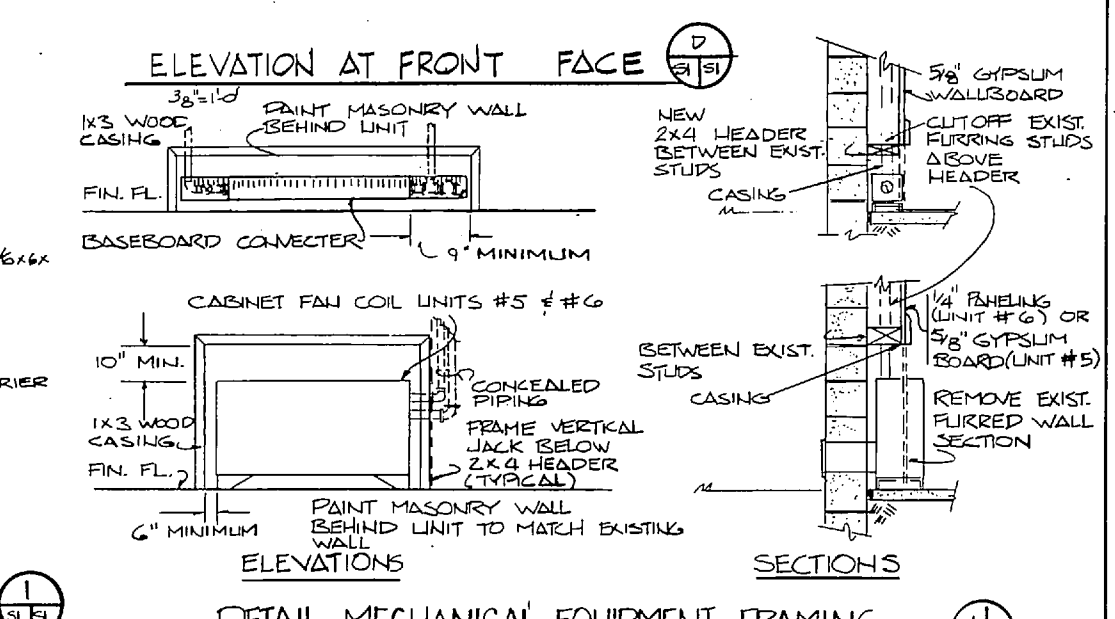
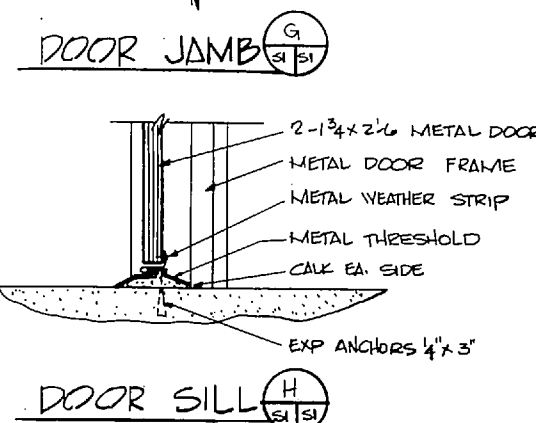
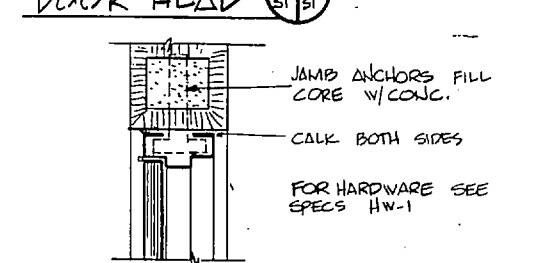
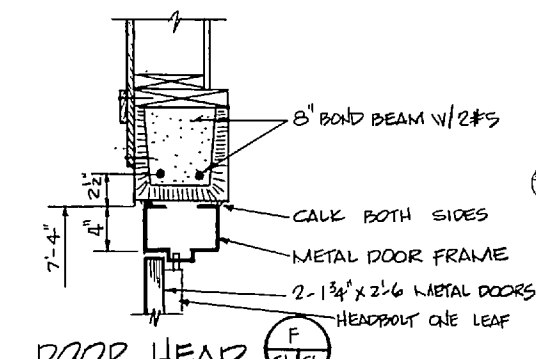
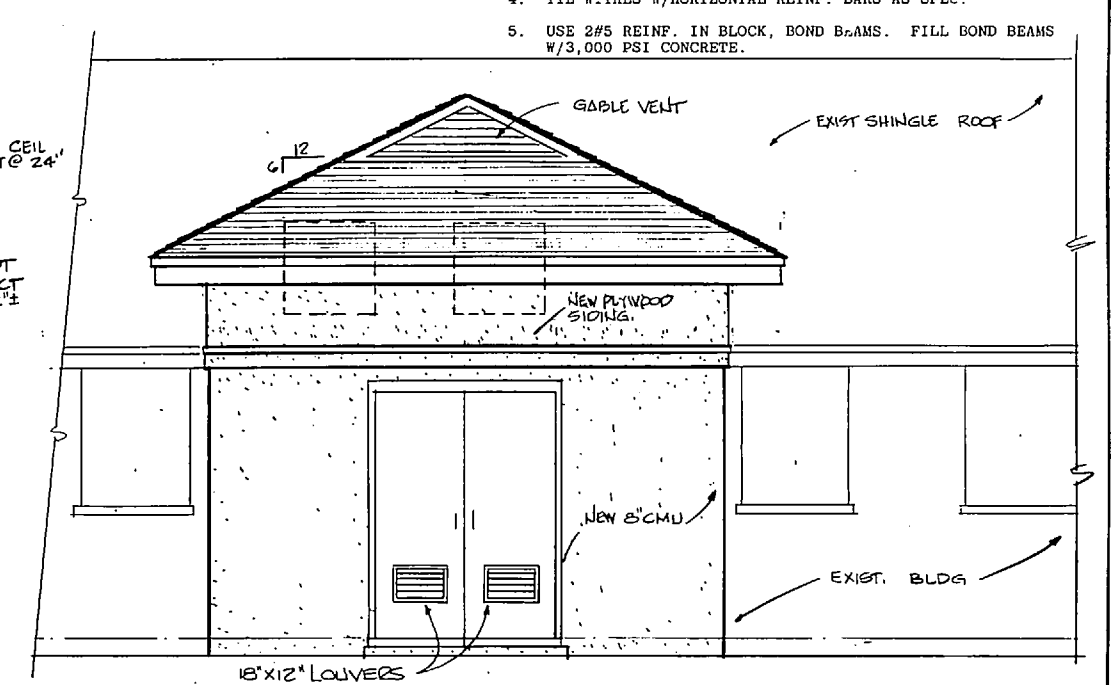
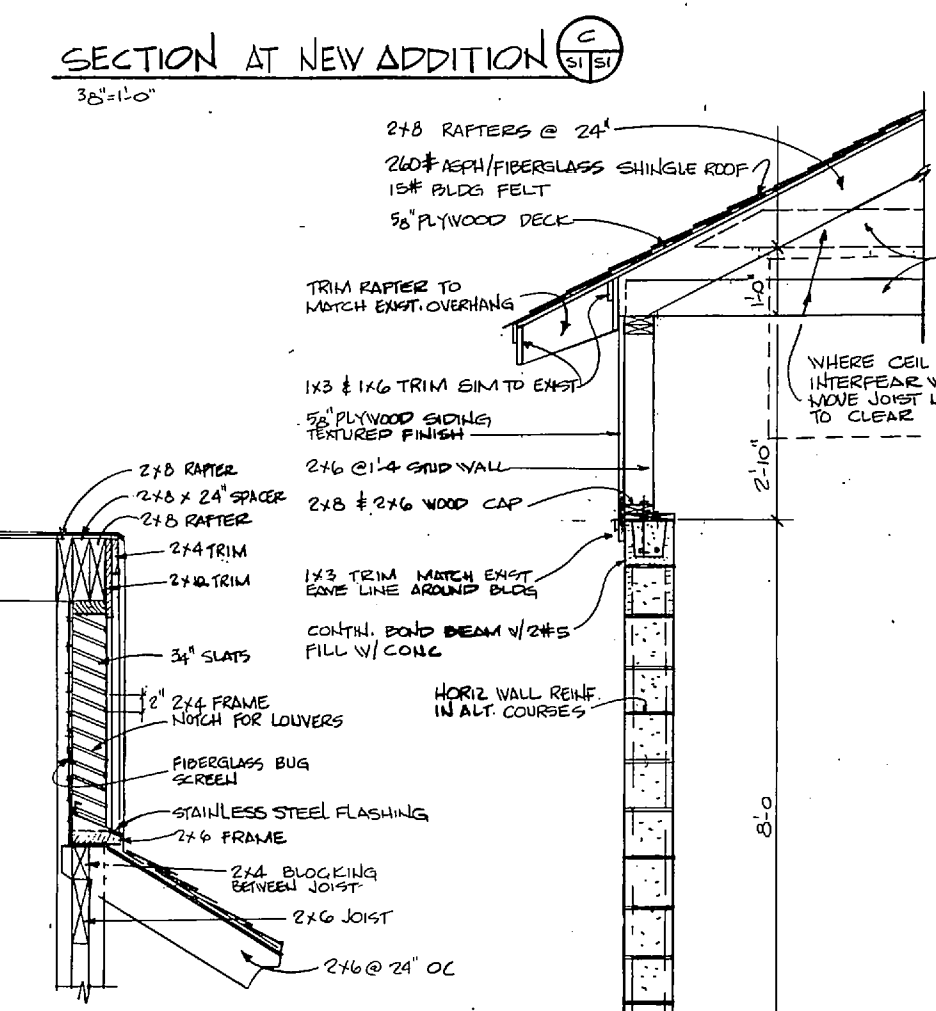
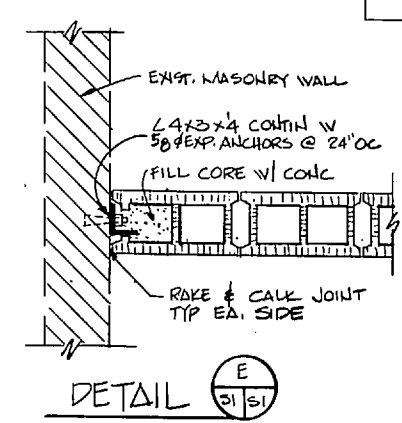
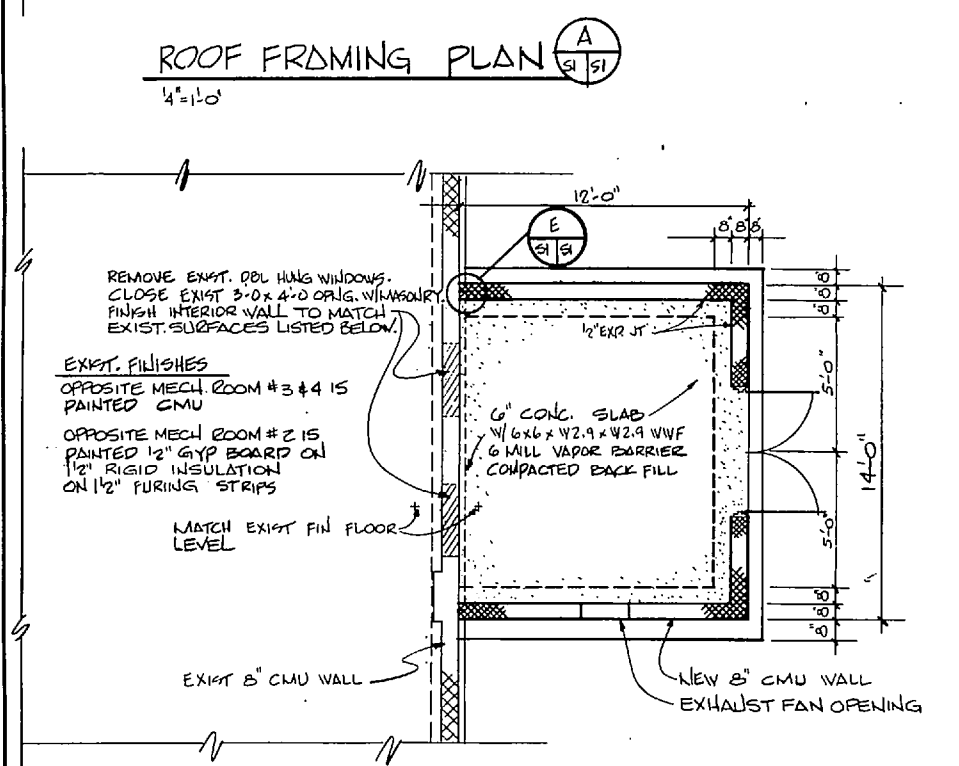
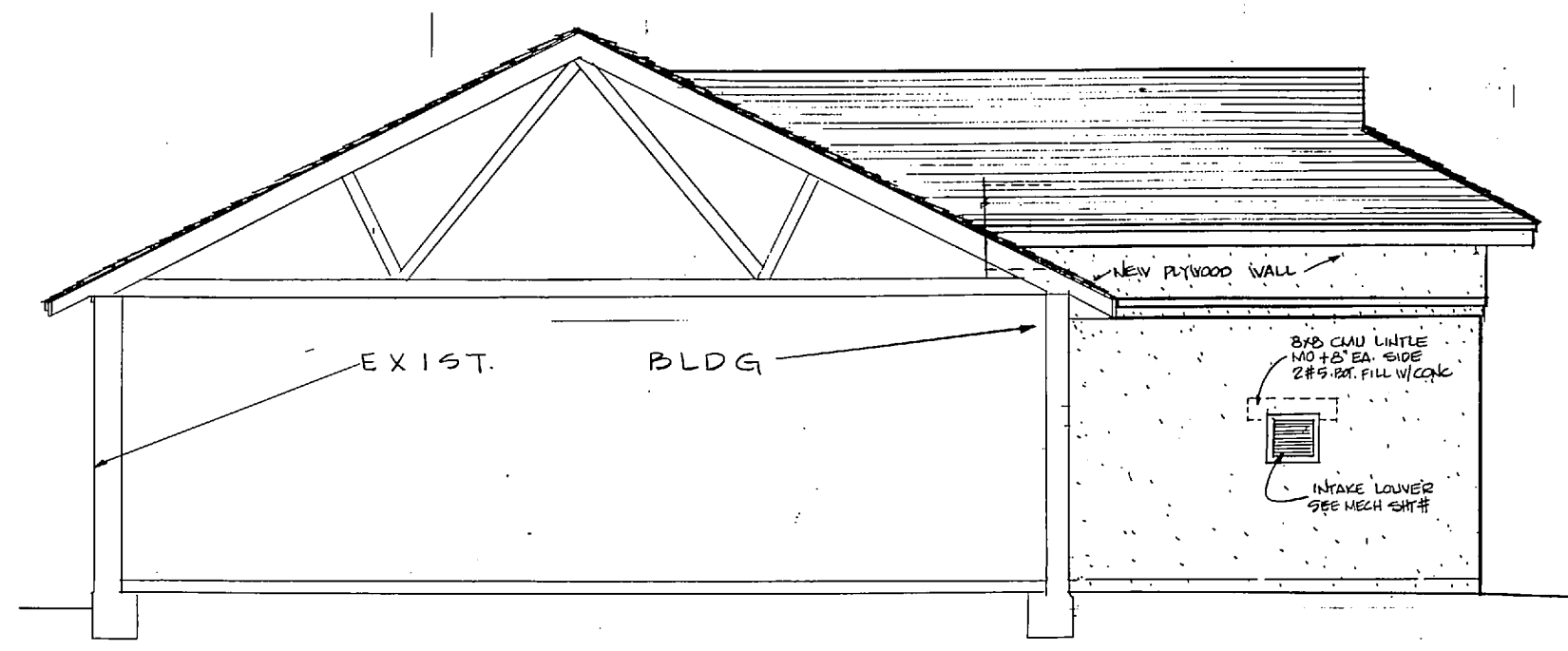
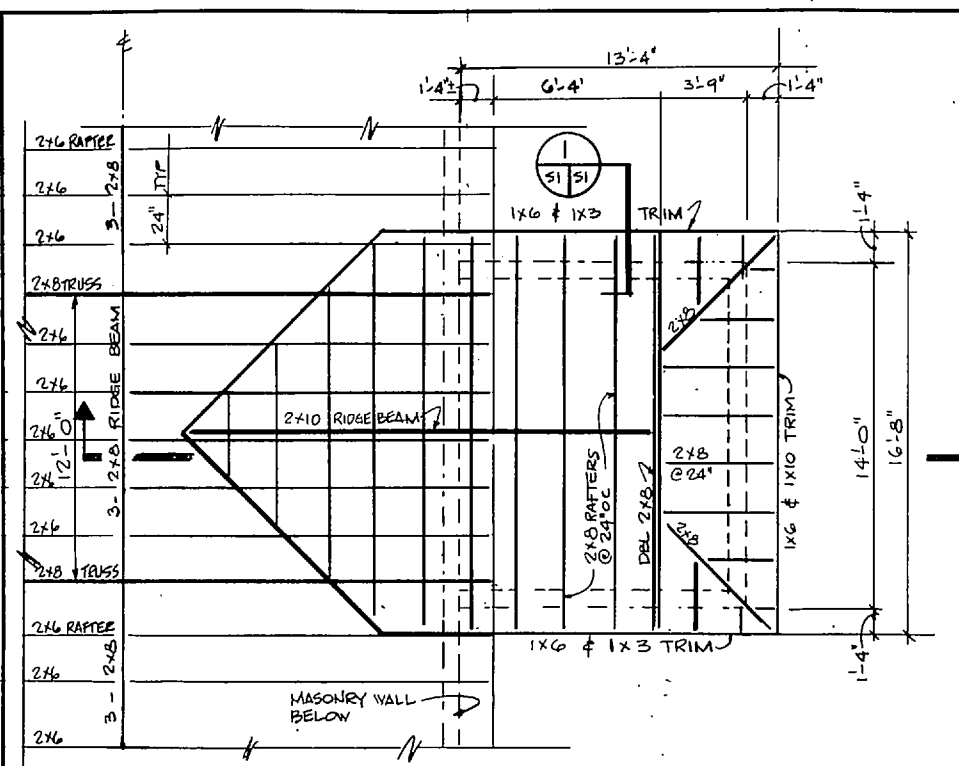


M-11 HENRY MCM DESEN & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28402		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA	
DES. T.M.H. DR. S.M.C. T.M.H. CHK. DER. SUBMITTED BY: [Signature] DESIGN DIR.: [Signature]		MARINE CORPS BASE REPLACE HVAC SYSTEMS BLDG. NO. 1005 DETAILS & CONTROL DRAWINGS	
APPROVED: [Signature] SATISFACTORY TO: [Signature]		SIZE CODE IDENT. NO. F 80091 NAVY DRAWING NO. 4126461 CONSTR. CONTR. NO. N62470-84-B-7937 SCALE: GRAPHIC SPEC. 05-84-7937 SHEET 12 OF 16	



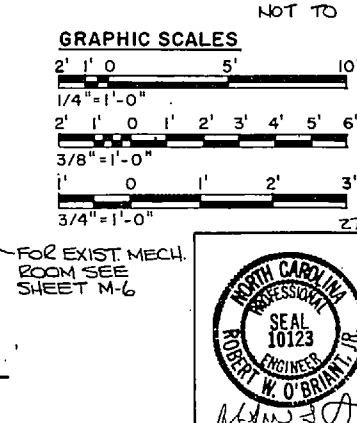
REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

- GENERAL STRUCTURAL NOTES**
- GENERAL: DESIGN LIVE LOADS = ROOF - 30 PSF, FLOORS - 100 PSF, BASIC WIND DESIGNATION, 120 MPH.
- FOUNDATIONS:**
- FOOTING DESIGN BASED ON ALLOWABLE SOIL PRESSURE OF 2,000 PSF.
 - BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE 2'-0" BELOW FINISH GRADE OR 1'-0" BELOW EXISTING GRADE, WHICHEVER IS LOWER.
- CONCRETE:**
- CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS: FOOTINGS - 3,000 PSI, SLAB ON GRADE - 3,000 PSI.
 - REINF. STEEL ASTM 615, GRADE 40, WELDED WIRE MESH ASTM A185.
 - CLEAR CONCRETE COVER ON REINF.: FOOTINGS - 3", SLABS ON GRADE - 1-1/2".
 - DOWELS & CONTIN. REINF. SHALL HAVE A MIN. LAP OF 24 BAR DIAM. OR 12" MIN.
 - PROVIDE AIR ENTRAINMENT OF 4 TO 6 PERCENT.
 - REINF. CONC. WORK SHALL CONFORM TO LATEST EDITION OF A.C.I. CODE.
- STRUCTURAL MASONRY:**
- ALL EXTERIOR & 8" LOAD BEARING INTERIOR MASONRY WALLS ARE CONSIDERED STRUCTURAL MASONRY.
 - COMPRESSIVE STRENGTH OF MASONRY UNITS, CLAY UNITS - 2,500 PSI, CONC. UNITS - GRADE A.
 - COMPRESSIVE STRENGTH OF MORTAR AT 28 DAYS TO BE 1,800 PSI MIN. TYPE M OR S.
 - TIE W/THES W/HORIZONTAL REINF. BARS AS SPEC.
 - USE 2#5 REINF. IN BLOCK, BOND B.A.M.S. FILL BOND BEAMS W/3,000 PSI CONCRETE.



AREA	FINISH SCHEDULE					REMARKS
	FLOOR	BASE	WALLS	CEILING	ROOF	
MECHANICAL ROOM #2	CONC. TRVL FINISH	NONE	EXPOSED STUD OR CMU	None	EXPOSED RAFTERS & JOIST	
MECHANICAL ROOM #3	do	do	do	do	do	
MECHANICAL ROOM #4	do	do	do	do	do	

NEW EXT. WALLS	8" CMU - 1 COAT CMU FILLER AND 2 COATS FINISH (COLOR PLUMWOOD SIDING - 1 COAT FILLER/PRIMER 2 COATS FINISH BY OICC)
DOOR & FRAME	GALV. PRIME & 2 COATS METAL PAINT COLOR BY OICC



8-1

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

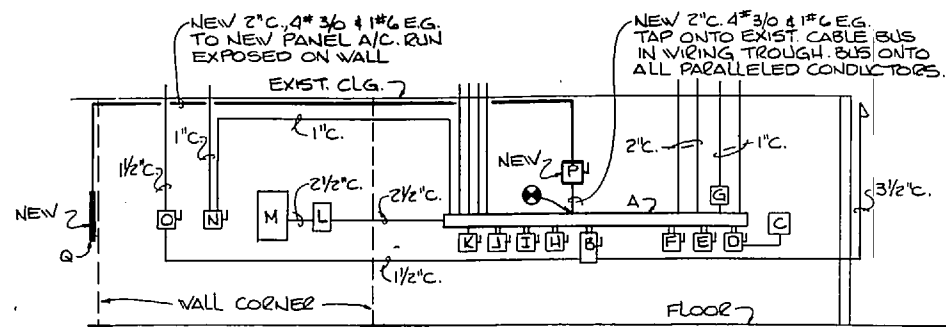
DES. ROB
CHK. ROB
SUBMITTED BY [Signature]
DESIGN DATE: 7/18/05
APPROVED: [Signature]
SATISFACTORY TO: [Signature]

DATE: 7/18/05

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
MARINE CORPS BASE CAMP LEJEUNE, N.C.
REPLACE HVAC SYSTEMS
BLDG. NO. 1005

NEW MECHANICAL ROOM(S) PLANS & DETAILS

NAVAFAC DRAWING NO. 4126462
CONSTR. CONTR. NO. 62470-04-B-7937
SCALE: GRAPHIC SPEC. 05-84-7937 SHEET 13 OF 16

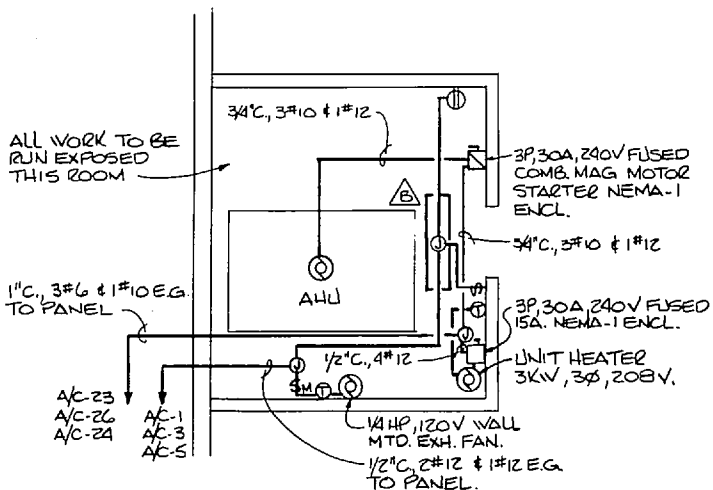


ELEVATION - ELECT. EQUIP. ROOM
NO SCALE

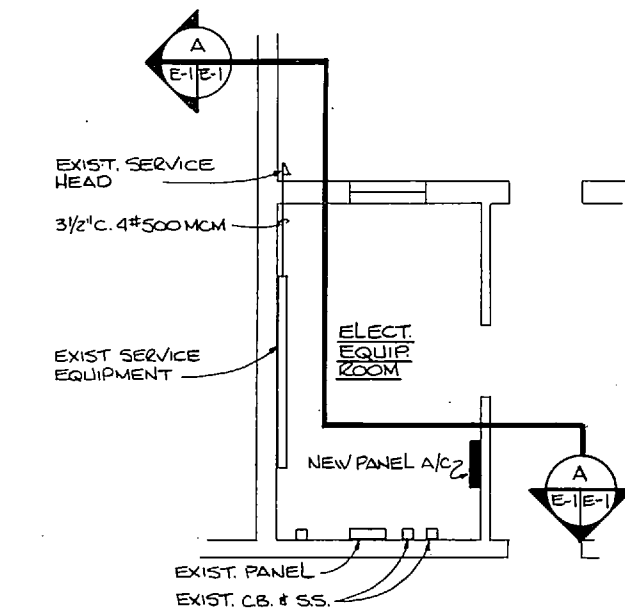
SCHEDULE OF EQUIPMENT (ALL EXIST. UNLESS NOTED OTHERWISE)

A. 4"x6"x2" WIRING TROUGH	H. 3P 100A S.S.	O. 3P 30A S.S.
B. 3P 400A MAIN SWITCH	I. 3P 100A S.S.	P. NEW 3P 200A 240V SAFETY SWITCH, NEMA-1 ENCL. FUSED 200A
C. 8/C LOAD CT2	J. 3P 60A S.S.	
D. 3P 60A S.S.	K. 3P 100A S.S.	Q. NEW PANEL A/C. SEE SCHEDULE
E. 3P 100A S.S.	L. 3P 200A S.S.	
F. 3P 100A S.S.	M. PANELBOARD	
G. 3P 60A S.S.	N. 3P 30A S.S.	

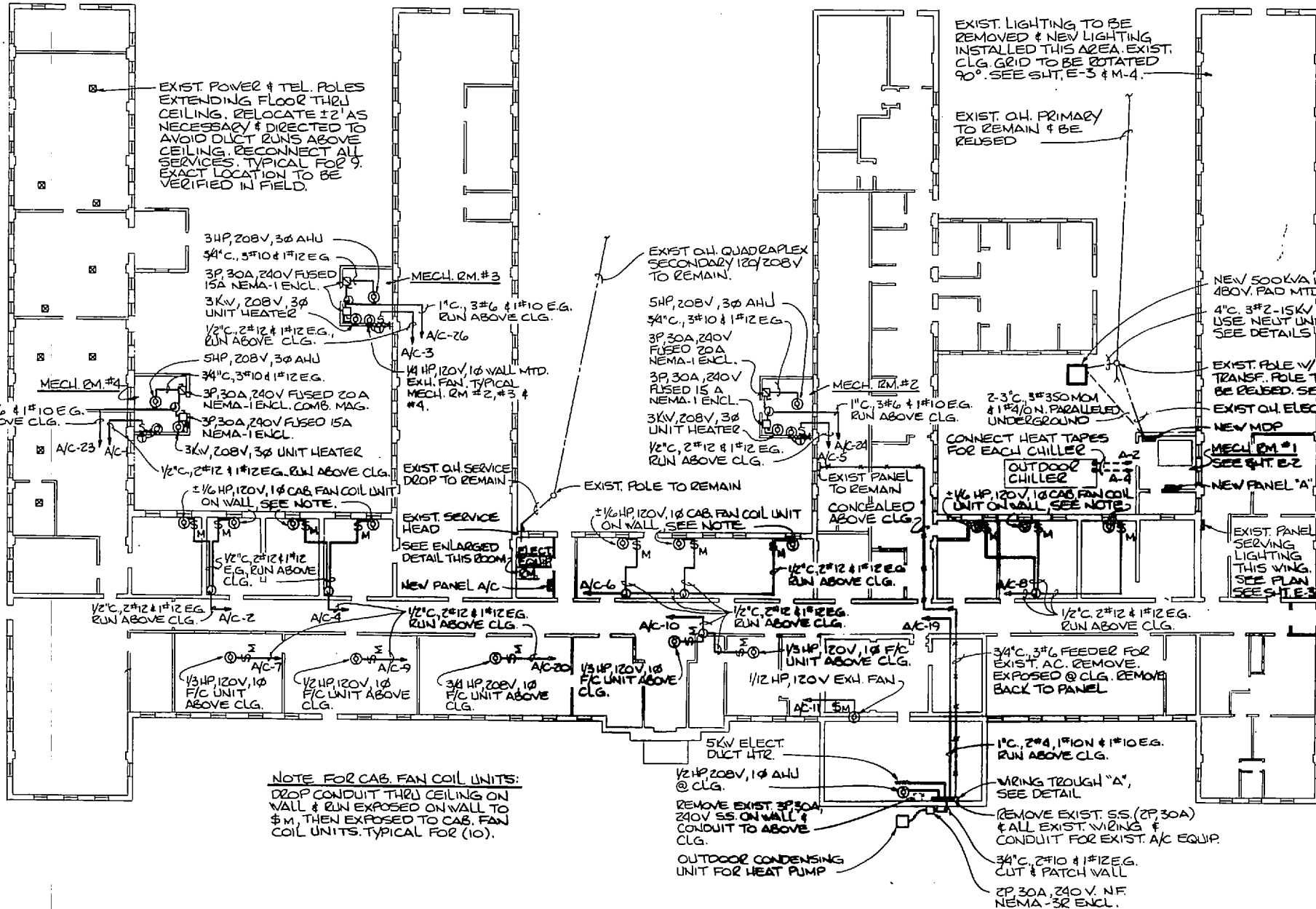
NOTE: ALL EXISTING EQUIPMENT TO REMAIN & CONTINUE TO BE USED.



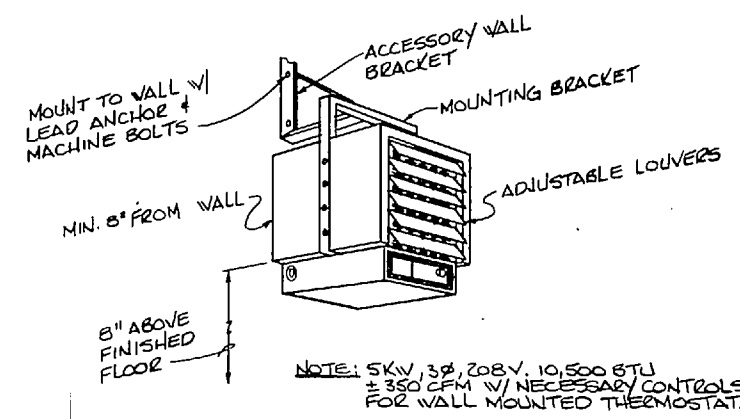
TYPICAL DETAIL FOR MECH. ROOM'S NO. 2,3 & 4
SCALE 1/4"=1'-0"



PLAN - ELECT. EQUIP. ROOM
SCALE 1/4"=1'-0"



ELECTRICAL FLOOR PLAN
SCALE 1/16"=1'-0"



TYPICAL UNIT HEATER DETAIL
NO SCALE

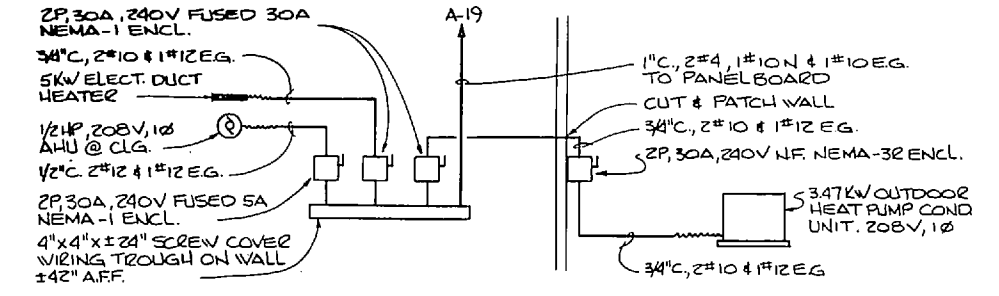
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED

ELECTRICAL LEGEND

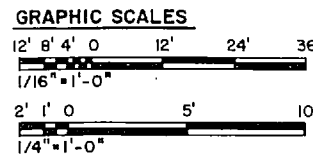
- NEW BRANCH CIRCUIT OR FEEDER CONDUIT TO BE RUN EXPOSED.
- EXISTING BRANCH CIRCUIT OR FEEDER CONDUIT TO REMAIN.
- EXISTING BRANCH CIRCUIT OR FEEDER CONDUIT TO BE REMOVED.
- NEW HOME RUN TO PANELBOARD INDICATED. NUMBER INDICATES CIRCUIT NO. IN PANELBOARD.
- HEAVY DUTY SAFETY SWITCH, FUSED OR UNFUSED, NEMA TYPE, AS SHOWN.
- ⊙ MOTOR - SIZE, VOLTAGE, PHASE, ETC. AS SHOWN.
- ▭ PANELBOARD. SEE SCHEDULES.
- ⊕ MANUAL MOTOR SWITCH WITH OVER LOAD PROTECTION. SURFACE MOUNTED ON WALL NEAR MOTOR CONTROLLED.
- ⊞ SINGLE POLE SWITCH MOUNTED 48" AFF. 20A, 120V SURFACE MOUNTED.
- ⊞ COMBINATION FUSED SAFETY SWITCH & MAGNETIC MOTOR STARTER. FUSE & STARTER SIZES AS REQUIRED BY MOTOR. FURNISHED. AUXILIARY CONTACTS, CONTROLS, ETC. AS SPECIFIED.
- SHORT LENGTH OF LIQUIDTIGHT FLEXIBLE CONDUIT. SAME SIZE AS FEEDER OR BRANCH CIRCUIT CONDUIT. STANDARD FLEXIBLE CONDUIT MAY BE USED FOR LIGHTING FIXTURE CONNECTIONS ABOVE LAY-IN CEILING(S).
- ⊞ EXISTING SURFACE MOUNTED 2'x4' LAMP LIGHTING FIXTURE. REMOVE, INCLUDING HANGER RODS WHERE NECESSARY & BRANCH CIRCUIT WIRING.
- ⊞ NEW 2'x4' LAY-IN TRIGGER AS SCHEDULED.
- ⊞ JUNCTION BOX. SIZE & TYPE AS SHOWN 1/2" AS REQUIRED FOR LOCATION.
- ⊞ EXISTING POWER & TELEPHONE POLE EXTENDING ABOVE CEILING. RELOCATE. SEE NOTE ON DRAWINGS.
- ⊞ DUPLEX GROUNDING CONVENIENCE OUTLET. SURFACE MOUNTED 36" AFF. 20A, 120V.
- ⊞ LINE VOLTAGE THERMOSTAT MOUNTED 60" AFF.

ABBREVIATIONS

A	AMPERE	MAG	MAGNETIC
AHU	AIR HANDLING UNIT	MIN	MINIMUM
AFF	ABOVE FINISHED FLOOR	NF	NON FUSED
ASSY	ASSEMBLY	OH	OVER HEAD
COMB	COMBINATION	P	POLE
CU	COPPER	PR1	PRIMARY
CLG.	CEILING	SS	SAFETY SWITCH
DIST	DISTRIBUTION	SEC.	SECONDARY
EG	EQUIPMENT GROUND	UH	UNIT HEATER
ENCL	ENCLOSURE	V	VOLT
FC	FAN COIL	Ø	PHASE
HD	HARD DRAWN		
JB	JUNCTION BOX		



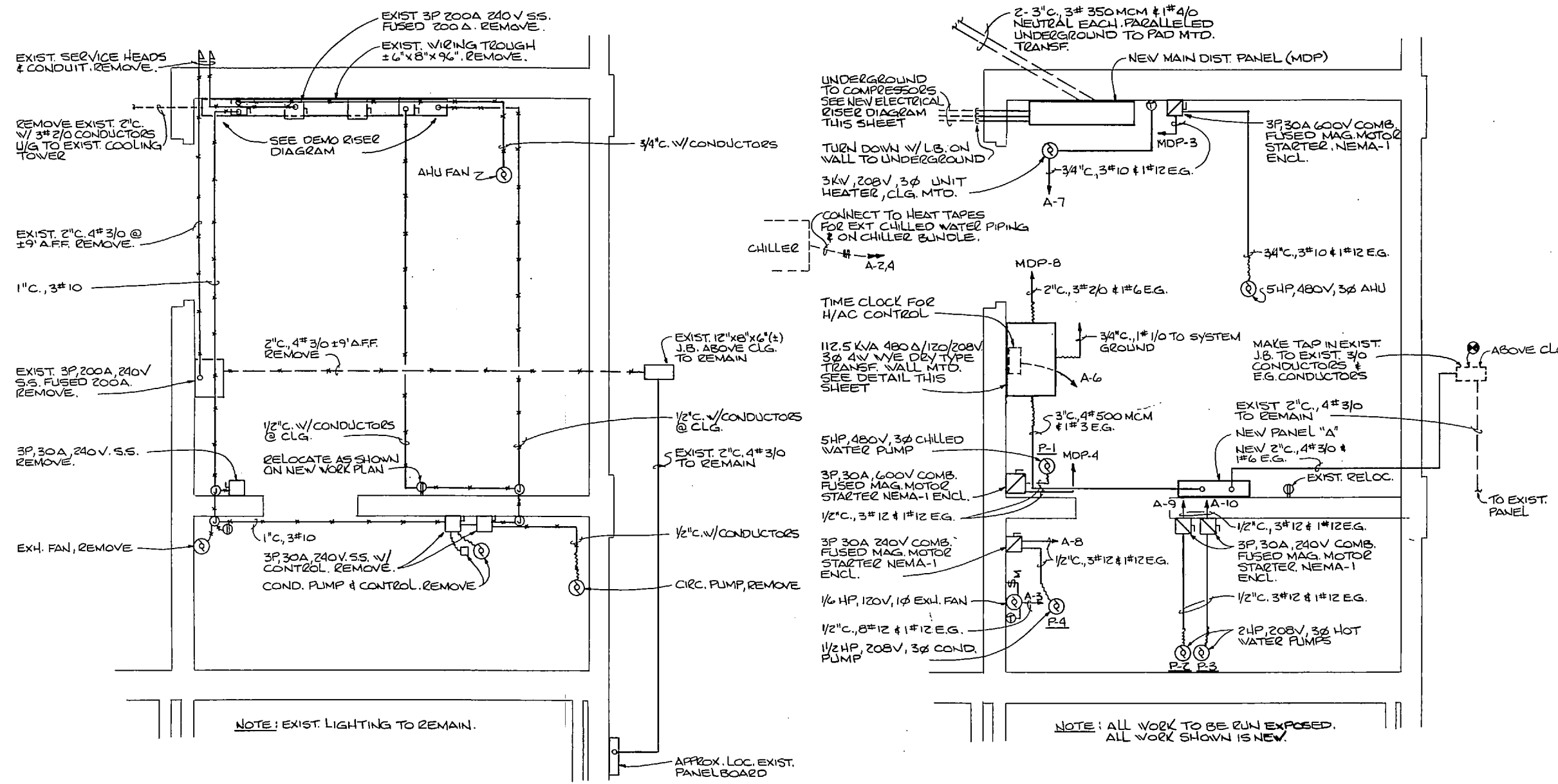
DETAIL - WIRING TROUGH "A" IN VAULT
NO SCALE



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. DER DR. SMC	CHK. DER	MARINE CORPS BASE REPLACE HVAC SYSTEMS BLDG. NO. 1005	CAMP LEJEUNE, N.C.
SUBMITTED BY	DESIGN DIR.	ELECTRICAL PLANS & DETAILS	
APPROVED: PWD, DR OIC	DATE	SIZE F	CODE IDENT. NO. 80091
SATISFACTORY TO:	DATE	NAVAC DRAWING NO. 4126463	CONSTR. CONTR. NO. N62470-84-B-7937
SCALE: GRAPHIC		SPEC.	05-84-7937 SHEET 14 OF 16

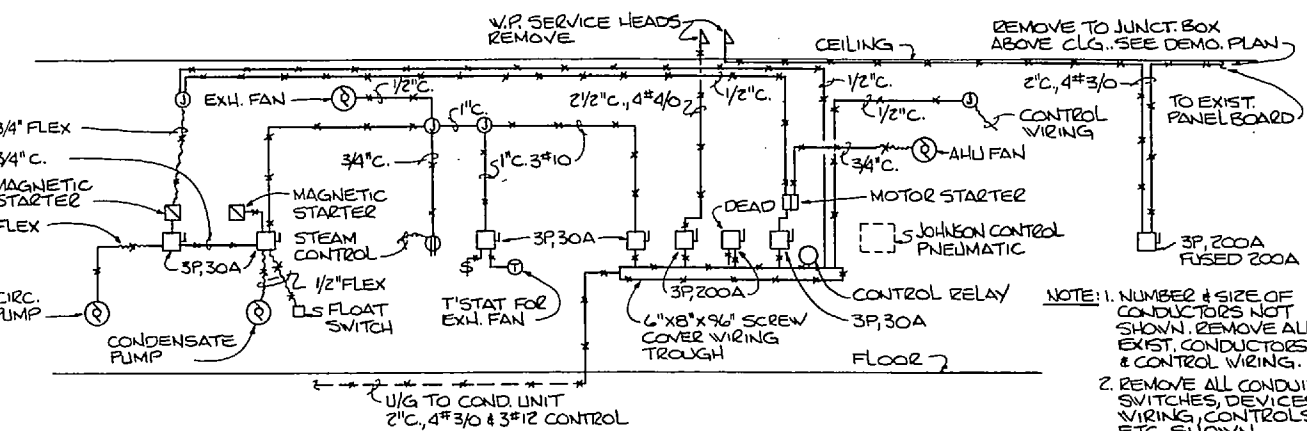
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REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

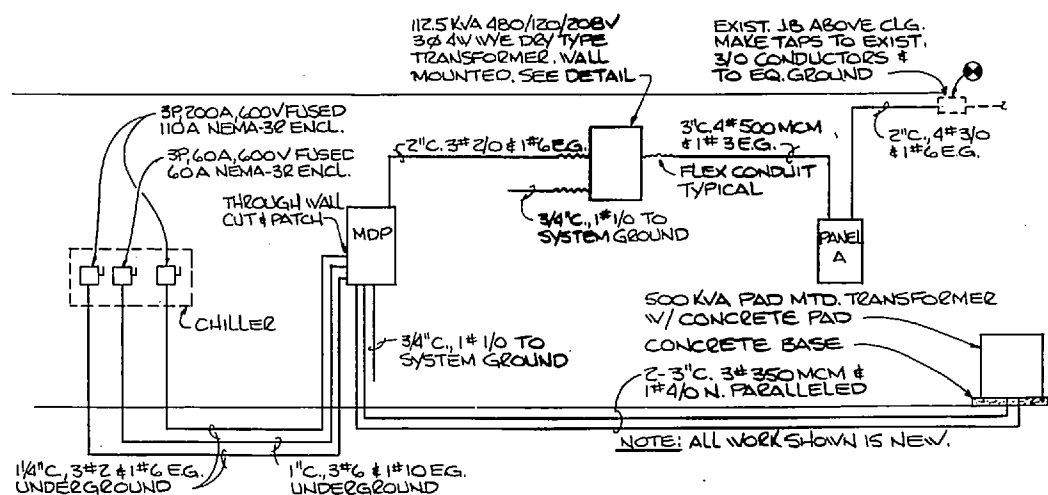


DEMOLITION PLAN - MECH. ROOM #1
SCALE 1/2"=1'-0"

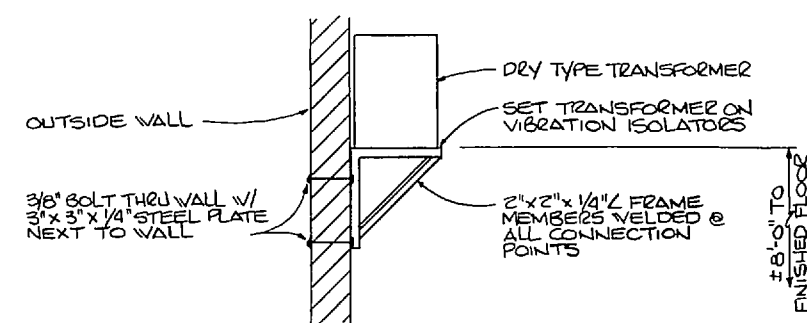
NEW WORK PLAN - MECH. ROOM #1
SCALE 1/2"=1'-0"



DEMOLITION - ELECTRICAL RISER DIAGRAM MECH. ROOM #1
NO SCALE



NEW ELECTRICAL RISER DIAGRAM - MECH. ROOM #1
NO SCALE



MOUNTING DETAIL - DRY TYPE TRANSFORMER
NO SCALE

PANEL MDP 3 PHASE, 4 WIRE, 277/480 VOLTS, 600 AMPERE BUS, 600 AMPERE MAIN BREAKER, 100% NEUTRAL, SURFACE MOUNTING, NEMA-1 ENCLOSURE, EQUIPMENT GROUND BUS, INTEGRATED EQUIPMENT RATING OF 30,000 RMS SYMMETRICAL AMPERES MINIMUM

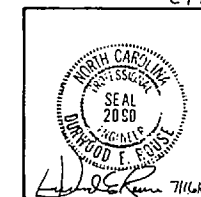
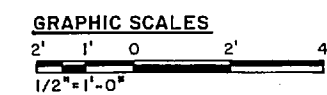
DESIGNATION TO BE TYPED IN PANEL CIRCUIT DIRECTORY	PHASE LOADING			CKT. NO.	CKT. BKR. CLASS	CKT. BKR. TRIP	ABC	CKT. NO.	CKT. BKR. CLASS	CKT. BKR. TRIP	PHASE LOADING			DESIGNATION TO BE TYPED IN PANEL CIRCUIT DIRECTORY
	A	B	C								A	B	C	
SPACE ONLY	—	—	—	20a	1	—	—	2	20a	3/20	—	—	SPACE ONLY	
5HP AHU FAN	1600	1600	1600	3/15	13D	3	—	4	13b	3/15	1600	1600	5HP CHILLED WATER PUMP	
COMPRESSOR #2	11000	11000	11000	3/60	13b	5	—	6	13b	3/60	11000	11000	SPACE	
SPACE ONLY	—	—	—	20a	7	—	—	8	20a	3/175	37500	37500	DRY TYPE TRANSF.	
COMPRESSOR #1	28000	28000	28000	3/150	20a	9	—	10	20a	3/150	28000	28000	COMPRESSOR #1	
NAMEPLATE ENGRAVING:	10000/10000/10000			SUB-TOTAL 'A'			—	SUB-TOTAL 'B'			78100	78100	78100	—
PANEL MDP 3Ø, 4 WIRE 277/480 VOLTS	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			10000	10000	10000	—
	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			115100	115100	115100	—
	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			447	447	447	—

PANEL A/C 3 PHASE, 4 WIRE, 208/208 VOLTS, 200 AMPERE BUS, 200 AMPERE MAIN BREAKER ONLY, 100% NEUTRAL, SURFACE MOUNTING, NEMA-1 ENCLOSURE, EQUIPMENT GROUND BUS, INTEGRATED EQUIPMENT RATING OF 10,000 RMS SYMMETRICAL AMPERES MINIMUM

DESIGNATION TO BE TYPED IN PANEL CIRCUIT DIRECTORY	PHASE LOADING			CKT. NO.	CKT. BKR. CLASS	CKT. BKR. TRIP	ABC	CKT. NO.	CKT. BKR. CLASS	CKT. BKR. TRIP	PHASE LOADING			DESIGNATION TO BE TYPED IN PANEL CIRCUIT DIRECTORY	
	A	B	C								A	B	C		
1/20 HP U/L	100	—	—	1/20	12a	1	—	2	12a	1/20	300	—	—	2-1/2 HP U.V.'S	
1/20 HP U/L	—	100	—	3	—	—	—	4	12a	1/20	—	300	—	2-1/2 HP U.V.'S	
1/20 HP U/L	—	—	100	5	—	—	—	6	—	—	—	—	500	500	3-1/2 HP U.V.'S
1/2 HP FC	300	—	—	7	—	—	—	8	—	—	—	—	500	—	3-1/2 HP U.V.'S
1/2 HP FC	—	500	—	9	—	—	—	10	—	—	—	—	600	—	2-1/2 HP FC'S
1/2 HP FC	—	—	200	11	—	—	—	12	—	—	—	—	—	—	SPACE
VAULT EXH. FAN	—	—	—	13	—	—	—	14	—	—	—	—	—	—	SPACE
SPACE	—	—	—	15	—	—	—	16	—	—	—	—	—	—	SPACE
SPACE	—	—	—	17	—	—	—	18	—	—	—	—	—	—	SPACE
VAULT HP & STRIP	5000	—	—	19	—	—	—	20	12b	2/20	400	—	—	—	3/4 HP FC
SPACE	—	—	—	21	—	—	—	22	12a	1/20	—	—	—	—	SPACE
5HP AHU & U/L	2400	2400	2400	3/50	12c	23	—	24	12c	3/50	2400	2400	—	—	5HP AHU & U/L
SPACE ONLY	—	—	—	25	—	—	—	26	12c	3/50	1900	1900	—	—	3HP AHU & U/L
NAMEPLATE ENGRAVING:	1800/8000/2700			SUB-TOTAL 'A'			—	SUB-TOTAL 'B'			5500	5600	4800	—	
PANEL A/C 3Ø, 4 WIRE 208/208 VOLTS	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			7800	8000	2700	—	
	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			13300	13000	7500	—	
	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			111	113	63	—	

PANEL A 3 PHASE, 4 WIRE, 120/208 VOLTS, 400 AMPERE BUS, 400 AMPERE MAIN BREAKER, 100% NEUTRAL, SURFACE MOUNTING, NEMA-1 ENCLOSURE, EQUIPMENT GROUND BUS, INTEGRATED EQUIPMENT RATING OF 10,000 RMS SYMMETRICAL AMPERES MINIMUM

DESIGNATION TO BE TYPED IN PANEL CIRCUIT DIRECTORY	PHASE LOADING			CKT. NO.	CKT. BKR. CLASS	CKT. BKR. TRIP	ABC	CKT. NO.	CKT. BKR. CLASS	CKT. BKR. TRIP	PHASE LOADING			DESIGNATION TO BE TYPED IN PANEL CIRCUIT DIRECTORY		
	A	B	C								A	B	C			
SPACE	—	—	—	1/20	12a	1	—	2	12a	1/20	1000	—	—	HEAT TAPE CHILLED		
1/2 HP EXH. FAN	500	—	—	3	—	—	—	4	12a	1/20	—	—	—	HEAT TAPE EXH. CHV/P		
SPACE	—	—	—	5	—	—	—	6	12a	1/20	—	—	—	1000	1000	TIME CLOCK
3KV U/L	1000	1000	1000	3/20	12c	7	—	8	12c	3/15	500	500	—	—	COND. PUMP, 1/2HP	
HOT WATER PUMP, 2HP	650	—	—	9	—	—	—	10	12c	3/20	—	—	—	—	HOT WATER PUMP, 2HP	
SPACE	—	—	—	11	—	—	—	12	12b	3/20	2000	2000	—	—	EXIST. PANEL (ASSUMED LOADS)	
SPACE	—	—	—	13	—	—	—	14	12c	3/50	—	—	—	—	SPACE	
NAMEPLATE ENGRAVING:	2150/2150/1850			SUB-TOTAL 'A'			—	SUB-TOTAL 'B'			23500	23500	23500	—		
PANEL A 3Ø, 4 WIRE 120/208 VOLTS	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			2150	2150	1850	—		
	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			25150	25150	23500	—		
	—			SUB-TOTAL 'A'			—	SUB-TOTAL 'A'			214	214	211	—		



E-2

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

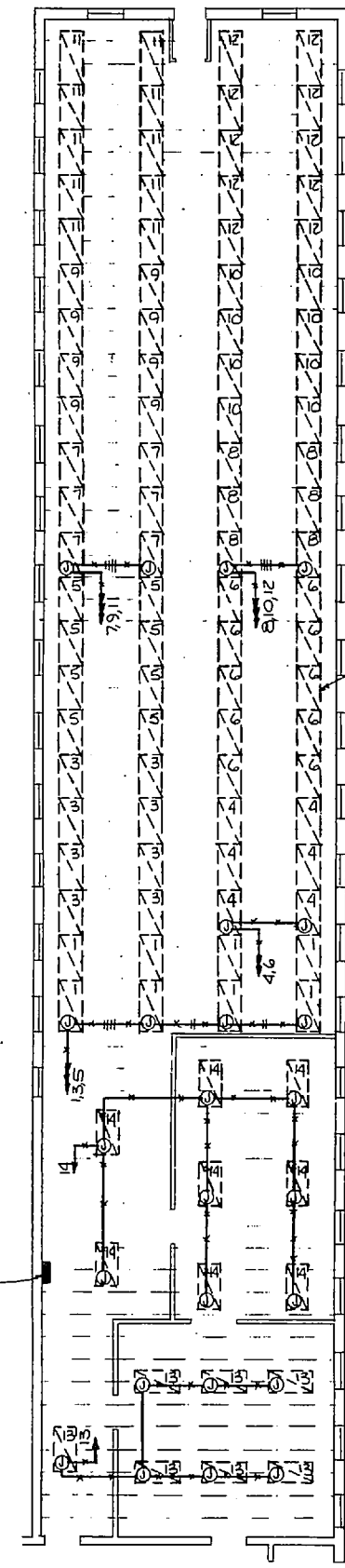
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
MARINE CORPS BASE CAMP LEJEUNE, N.C.
REPLACE HVAC SYSTEMS
BLDG. NO. 1005

DES. DER. DR. SMC
CHK. DER. CMC
SUBMITTED BY: [Signature]
DESIGN NO. 2771
APPROVED, ENCL. OR DIC. DATE 2/14/85
SATISFACTORY TO: [Signature]

SCALE: GRAPHIC SPEC. 05-84-7937 SHEET 15 OF 16



REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

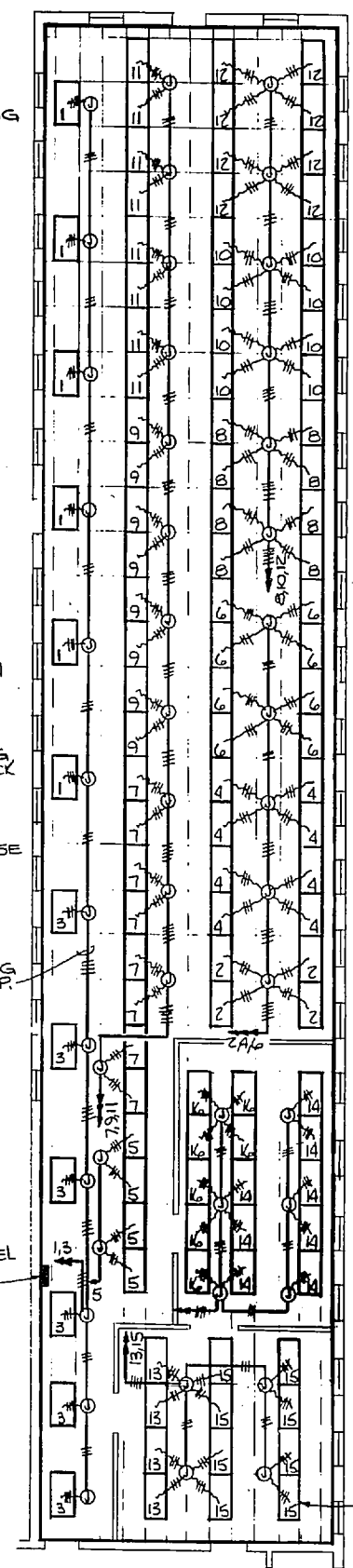


EXISTING & DEMOLITION PLAN
SCALE 1/8" = 1'-0"

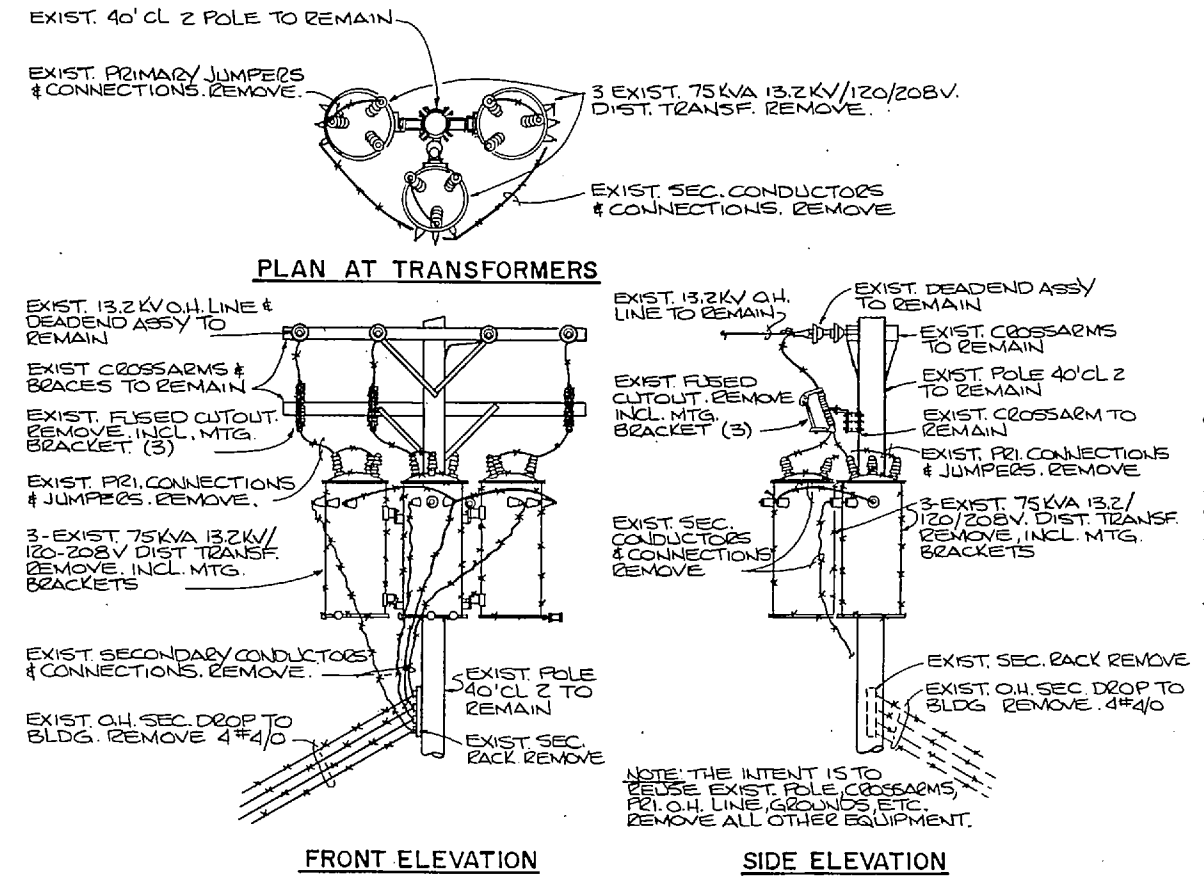
- NOTES:**
1. REMOVE ALL EXISTING LIGHTING FIXTURES AS SHOWN.
 2. REMOVE EXISTING 2'x4' LAY-IN CEILING GRID, CEILING TILE & EXISTING CEILING SUPPORTS.
 3. PROVIDE NEW 2'x4' CEILING GRID & TILE FOR ENTIRE AREAS.

EXISTING SURFACE MOUNTED 2'x4' FLUORESCENT FIXTURES EACH 4-LAMP. REMOVE ALL SHOWN INCLUDING HANGER RODS WHERE NECESSARY. REMOVE EXISTING BRANCH CIRCUIT CONDUIT & WIRING (FOR ALL REMOVED FIXTURES) BACK TO EXISTING PANEL SHOWN. CIRCUITING SHOWN IS ASSUMED. CIRCUIT NZS ARE AS EXISTING. DELIVER REMOVED FIXTURES & LAMPS TO BASE MAINT. WAREHOUSE AS DIRECTED. USE EXTREME CARE IN REMOVAL TO NOT DAMAGE, SCRATCH, DENT, BREAK, ETC. FIXTURES OR LAMPS.

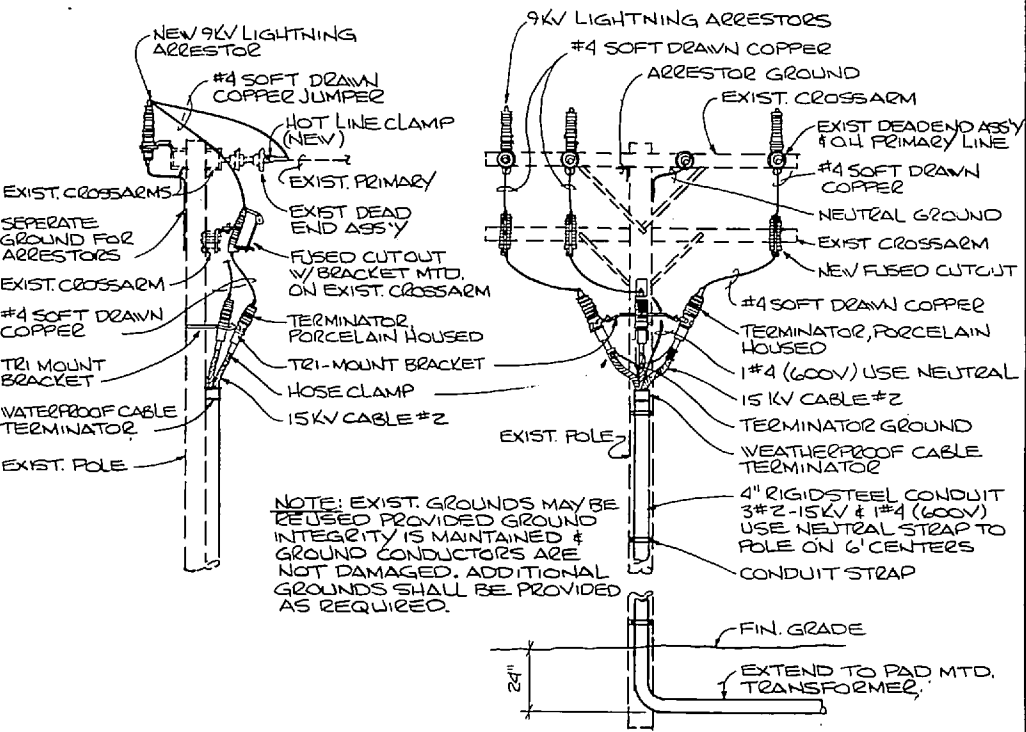
NEW BRANCH CIR. WIRES RUN ABOVE CEILING, TYP.



NEW LIGHTING & CEILING PLAN
SCALE 1/8" = 1'-0"

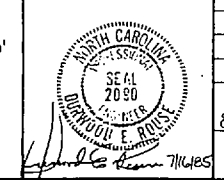
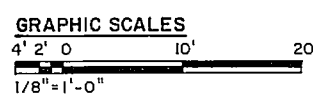


DETAIL - EXISTING POLE
NO SCALE



DETAIL - EXISTING POLE WITH NEW EQUIPMENT
NO SCALE

LIGHTING FIXTURE SCHEDULE					
FIXTURE SYMBOL	STYLE & TYPE - SEE SPECS	NUMBER & TYPE OF LAMPS	VOLTS	MOUNTING	REMARKS
△	NL-3, TYPE E	4-34W T-12 R.S.	120	RECESSED	ENERGY SAVING BALLAST
△	NL-6, TYPE A	2-40W T-12 R.S.	120	SURFACE	ENERGY SAVING BALLAST



HENRY VON OESEB & ASSOCIATES CONSULTING ENGINEERS & PLANNERS WILMINGTON, NORTH CAROLINA 28402		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJUNE, NORTH CAROLINA	
DES. DER DR. SMC		MARINE CORPS BASE REPLACE HVAC SYSTEMS BLDG. NO. 1005	
CHK. DER SUBMITTED BY: [Signature]		ELECTRICAL PLANS & DETAILS	
DESIGN DIR: [Signature]		NAVFAC DRAWING NO. 4126465	
APPROVED: PWO OF JICC DATE: 7/14/85		SIZE: F CODE IDENT. NO.: 80091	
SATISFACTORY TO: [Signature]		CONSTR. CONTR. NO. N62470-84-B-7937 SCALE: GRAPHIC SPEC. 05-84-7937	
		SHEET 16 OF 16	

E-3

BLDG 1 D05

1#
191