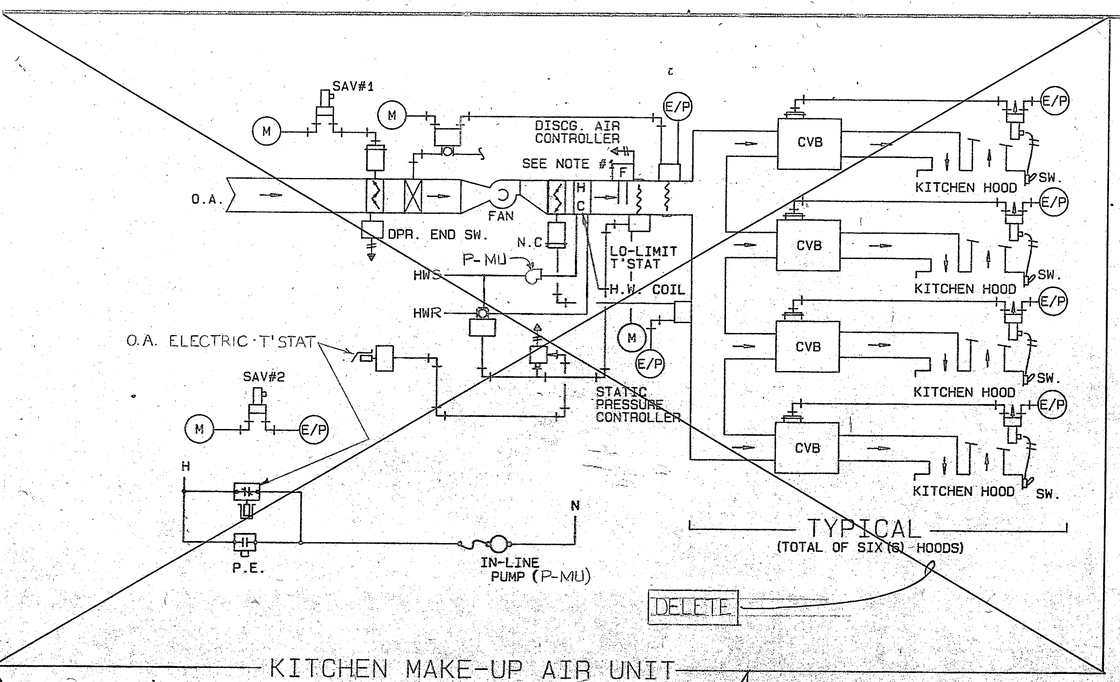
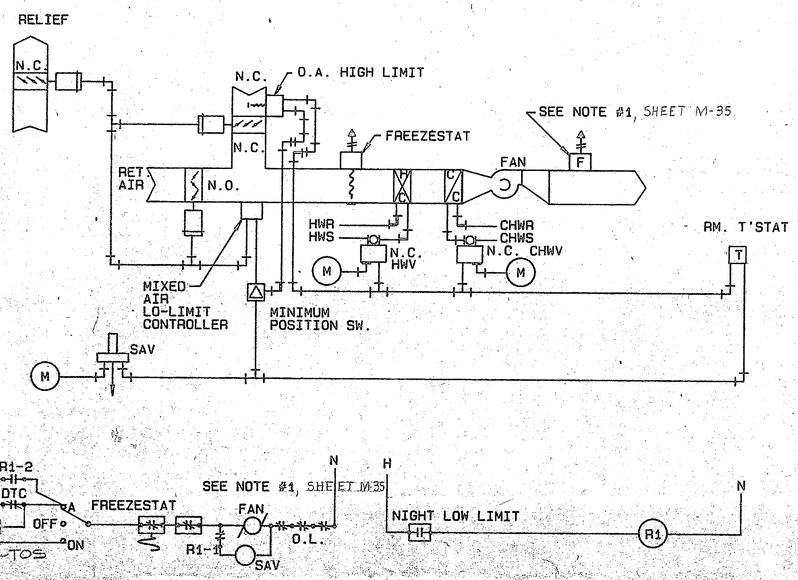
REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
J	GENERAL REVISION	GHS	2/18/86	



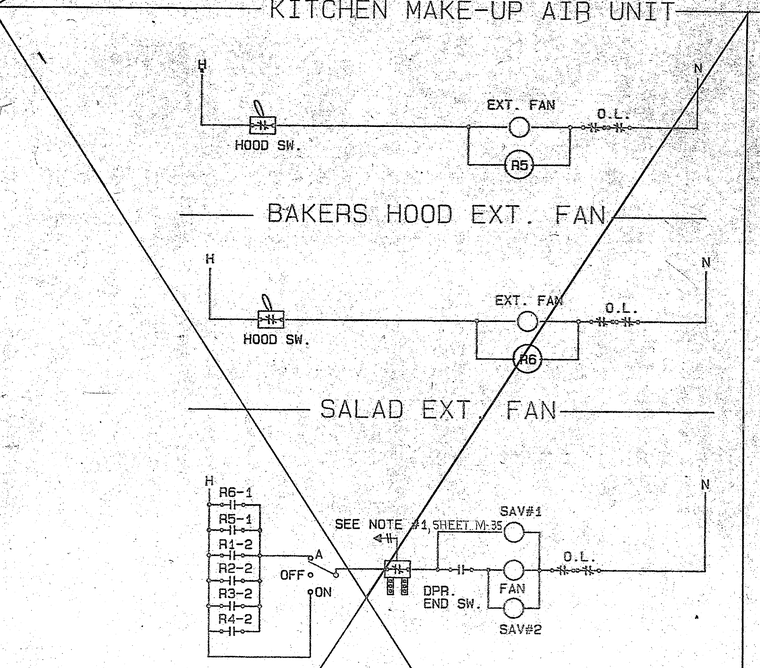
KITCHEN MAKE-UP AIR UNIT

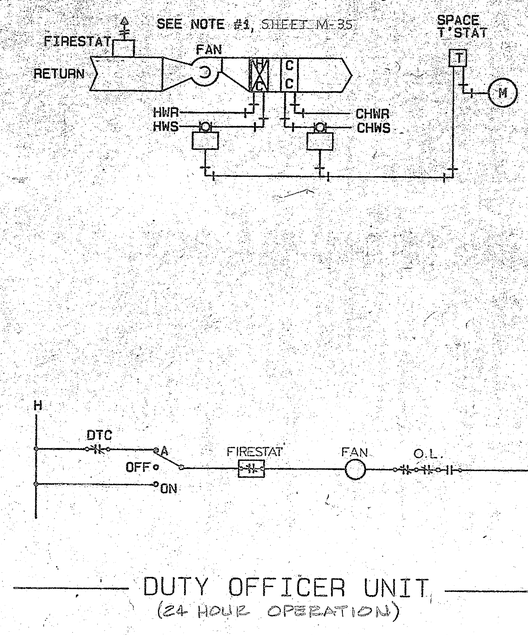


SNACK BAR[2EN(SB)] AIR HANDLING UNITS

SYMBOL LEGEND

MARK	DEFINITION
TC	TIMECLOCK
O.A.	OUTDOOR AIR
S.A.V	SOLENOID AIR VALVE
H.W.	HOT WATER
CHW	CHILLED WATER
S/W	SUMMER/WINTER
P.E.	PRESSURE-ELECTRIC SWITCH
PRV	PRESSURE REDUCING VALVE
R1	RELAY ONE (1)
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
DTC	DATA TERMINAL CABINET
O.L.	OVERLOAD
CWP	CONDENSER WATER PUMP
BM	BRANCH AIR/MAIN AIR
S-W-AUTO	SUMMER-WINTER-AUTOMATIC SWITCH
H-O-A	HAND-OFF-AUTO SWITCH (NORMALLY LOCATED IN STARTER COVER)
(M)	MAIN AIR - 25 PSIG
	TOGGLE SWITCH
TOS	TIMED OVERRIDE SWITCH





ENERGY MANAGEMENT CONTROL SYSTEM

1. PROVIDE 3 DATA TERMINAL CABINETS TO SERVE THE FOLLOWING AREAS:
   a. DATA TERMINAL CABINET NO. 1 SHALL SERVE ALL HVAC EQUIPMENT SERVING 1AN, 1AS, 1BN, 1BS, 2BN, 2BS, 1CN, 1CS, 2CN, 2CS, 1DN (EXCEPT EQUIPMENT SHOWN IN A/M-17, B/M-17 AND C/M-17), 1DS AND 2DS.
   b. DATA TERMINAL CABINET NO. 2 SHALL SERVE ALL HVAC EQUIPMENT LOCATED IN A/M-17, B/M-17 AND C-M-17 ALONG WITH EQUIPMENT SERVING 1ES, 2ES, 3ES, 1EN (MESS HALL) 1EN (GATTEY), 2EN, 3EN, THE STEAM VALVES SERVING THE HOT WATER HEAT EXCHANGER HE-3 LOCATED IN THE TUNNEL IN SERVICE BAY 19 AND THE HOT WATER PRIMARY LOOP P-H.
   c. DATA TERMINAL CABINET NO. 3 SHALL SERVE ALL HVAC EQUIPMENT SERVING 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HN, 1HS, 2HN, 2HS, 1JN, AND 1JS.
2. THE FOLLOWING POINTS SHALL BE MONITORED:
   a. FOR EACH OF (32) AIR HANDLING UNITS (8) ROOFTOP AIR CONDITIONING UNITS AND (2) COMPUTER ROOM UNITS:
      (1) SUPPLY AIR TEMPERATURE
      (2) RETURN AIR TEMPERATURE
      (3) SUPPLY AIR RELATIVE HUMIDITY
      (4) RETURN AIR RELATIVE HUMIDITY
      (5) SUPPLY FAN START/STOP
      (6) SUPPLY FAN STATUS
      (7) SPACE TEMPERATURE
      (8) FILTER DIFFERENTIAL PRESSURE SWITCH
   b. HYDRONIC SYSTEMS:
      (1) CHILLED WATER SUPPLY TEMPERATURE
      (2) CHILLED WATER RETURN TEMPERATURE
      (3) HOT WATER SUPPLY TEMPERATURE
      (4) HOT WATER RETURN TEMPERATURE
      (5) NINE SECONDARY HOT WATER PUMP STATUS'
      (6) ONE SECONDARY DUAL TEMPERATURE PUMP STATUS'
      (7) ONE PRIMARY HOT WATER PUMP STATUS
      (8) NINE SECONDARY CHILLED WATER PUMP STATUS'
      (9) TWO PRIMARY CHILLED WATER PUMP STATUS'
      (10) THREE TERTIARY CHILLED WATER PUMP STATUS'
      (11) TWO CONDENSER WATER PUMP STATUS'
      (12) THREE CHILLER START/STOP & STATUS
      (13) TWO COOLING TOWER START/STOP & STATUS
      (14) CONTROL POINT ADJUSTMENT FOR HEAT EXCHANGERS HE-1, HE-2, AND HE-3.
3. PROVIDE A NIGHT LOW LIMIT THERMOSTAT FOR EACH AREA SERVED BY A TIMECLOCK.
4. DATA TERMINAL CABINET NO. 1 (LOCATED IN ROOM 1C28)
   AHU'S - 1AS, 1BN, 1BS, 1CN, 1CS, 1DN, 1DS, 2DS, 2CN, 2CS
   PUMPS - P-C-AB, P-C-C, P-H-AB, P-H-C, P-H-D, P-C-D
   CONTAINS TIME CLOCK #1
5. DATA TERMINAL CABINET NO. 2 (LOCATED IN ROOM 1E54)
   AHU'S - 1ES, 1EST, 2EN, 2EN(SB) 2ES, 3EN, 3ES
   PUMPS - P-CH-1, P-CH-2, P-CH-3, P-CD-1, P-CD-2, P-PC-1, P-PC-2, P-C-EN, P-C-ES, P-H-EN, P-H-ES
   CHILLERS - 1, 2, 3
   COOLING TOWERS - 1, 2
   CONTAINS TIME CLOCKS # 2 & 3
6. DATA TERMINAL CABINET NO. 3 (LOCATED IN ROOM 1G47)
   AHU'S - 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HS, 2HN, 2HS, 1JN, 1JS
   PUMPS - P-C-F, P-C-G, P-C-H, P-C-J, P-H-F, P-H-G, P-H-H, P-H-J
   CONTAINS TIME CLOCK # 4
7. PROVIDE 7-DAY TIMECLOCKS W/12-HOUR RESERVE AS FOLLOWS
   TIME CLOCK #1
   AHU - 1AS, 1BN, 1BS, 1CN, 1CS, 2CN, 2CS, 1DN, 1DS, 2DS
   WVF - 1AS, 1BN, 1BS, 1CN, 1CS, 2CN, 2CS, 1DN, 1DS, 2DS
   PUMPS: P-C-AB, P-C-C, P-C-D, P-H-AB, P-H-C, P-H-D
   TIME CLOCK #2
   AHU - 2EN, 3EN, 1ES, 2ES, 3ES & WVF - 3ES
   PUMPS: P-C-EN, P-C-ES, P-H-EN, P-H-ES
   TIME CLOCK #3
   AHU - 2EN(SB) PUMPS: P-C-EN, P-H-EN
   TIME CLOCK #4
   AHU - 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HS, 2HN, 2HS, 1JN, 1JS
   WVF - 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HS, 2HN, 2HS, 1JN, 1JS
   PUMPS: P-C-F, P-C-G, P-C-H, P-C-J, P-H-F, P-H-G, P-H-H, P-H-J
8. PROVIDE A 6-HOUR TIMED OVERRIDE SWITCH FOR EACH AHU OR WVF SERVED BY A TIME CLOCK.
9. CONTROL CIRCUITS FOR THE FOLLOWING UNITS SHALL ORIGINATE FROM EMERGENCY PANELS: AC-1, FCU-33, AHU-1EST, AC-2, P-C-EN, P-C-ES, CHILLER NO. 3, P-PC-2 AND P-CH-3.

M-37

FEREBEE, WALTERS & ASSOCIATES
ARCHITECTURE PLANNING INTERIOR DESIGN LANDSCAPE DESIGN
CHARLOTTE NORTH CAROLINA

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

DES. G.H.S. DR. MDE CH.
PROJ. MGR. CH. ENGR. DATE: 4/16/85
SUBMITTED BY: Charles A. Ferebee Jr. PRINCIPAL
FIRM MEMBER
EFD: FP RVD
HD DIR
APPROVED DATE 4/16/85 OFFICER IN CHARGE
APPROVED DATE 17 July 85 FOR EFD FOR COMMANDER, NAVFAC

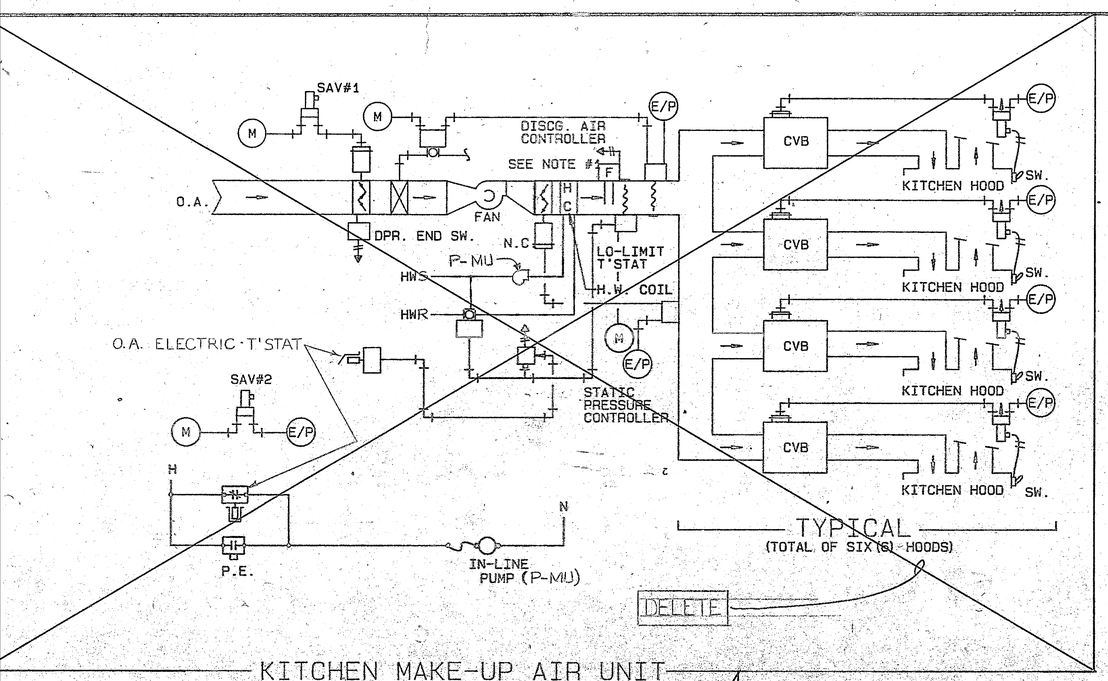
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA
CONVERT HOSPITAL TO DIVISION HEADQUARTERS
MECHANICAL - TEMPERATURE CONTROLS

SIZE	CODE IDENT. NO.	NAVFAC DRAWING NO.
F	80091	4124305
		CONSTR. CONTR. NO. N62470-82-B-2243

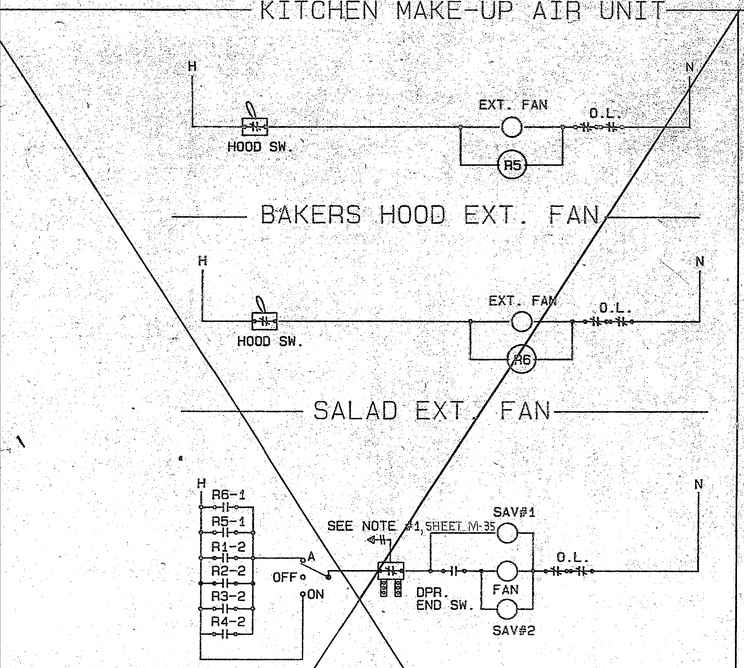
SCALE AS NOTED SPEC. 05-82-2243(REV.) SHEET 150 OF 243

NORTH CAROLINA PROFESSIONAL SEAL 3997 ENGINEER GLENN H. SHYLER

REVISIONS				
SYM	DESCRIPTION	PREPD BY	DATE	APPROVED
1	GENERAL REVISION	GHS	2/15/88	



KITCHEN MAKE-UP AIR UNIT

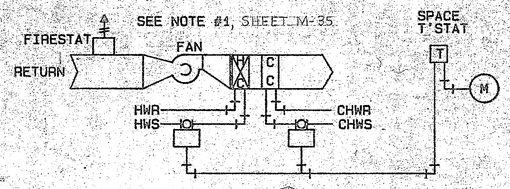


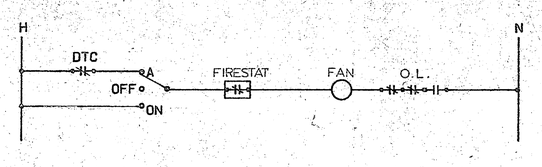
BAKERS HOOD EXT. FAN

SALAD EXT. FAN

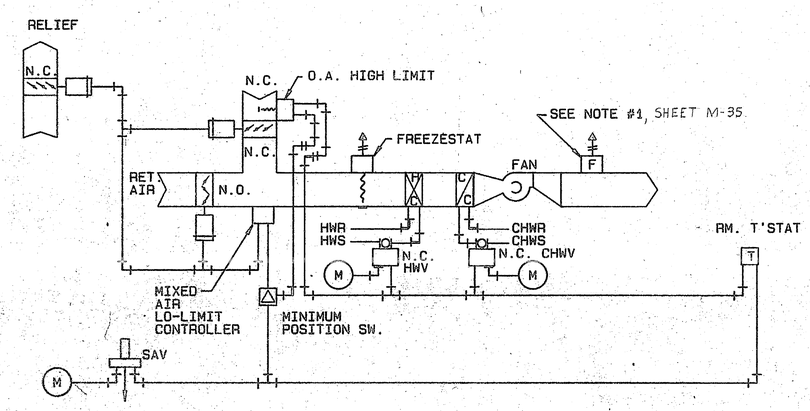
KITCHEN MAKE-UP A.H.U.

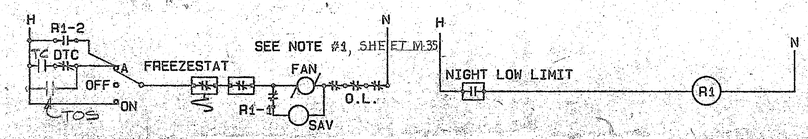
KITCHEN HOOD EXT. FAN CONTROL





DUTY OFFICER UNIT
(24 HOUR OPERATION)





SNACK BAR[2EN(SB)] AIR HANDLING UNITS

SYMBOL LEGEND

MARK	DEFINITION
TC	TIMECLOCK
O.A.	OUTDOOR AIR
S.A.V	SOLENOID AIR VALVE
H.W.	HOT WATER
CHW	CHILLED WATER
S/W	SUMMER/WINTER
P.E.	PRESSURE-ELECTRIC SWITCH
PRV	PRESSURE REDUCING VALVE
R1	RELAY ONE (1)
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
DTC	DATA TERMINAL CABINET
O.L.	OVERLOAD
CWP	CONDENSER WATER PUMP
BM	BRANCH AIR/MAIN AIR
S-W-AUTO	SUMMER-WINTER-AUTOMATIC SWITCH
H-O-A	HAND-OFF-AUTO SWITCH (NORMALLY LOCATED IN STARTER COVER)
(M)	MAIN AIR - 25 PSIG
	TOGGLE SWITCH
TOS	TIMED OVERRIDE SWITCH

ENERGY MANAGEMENT CONTROL SYSTEM

1. PROVIDE 3 DATA TERMINAL CABINETS TO SERVE THE FOLLOWING AREAS:
   a. DATA TERMINAL CABINET NO 1 SHALL SERVE ALL HVAC EQUIPMENT SERVING 1AN, 1AS, 1BN, 1BS, 2BN, 2BS, 1CN, 1CS, 2CN, 2CS, 1DN (EXCEPT EQUIPMENT SHOWN IN A/M-17, B/M-17 AND C/M-17), 1DS AND 2DS.
   b. DATA TERMINAL CABINET NO 2 SHALL SERVE ALL HVAC EQUIPMENT LOCATED IN A/M-17, B/M-17 AND C-M-17 ALONG WITH EQUIPMENT SERVING 1ES, 2ES, 3ES, 1EN (MESS HALL) 1EN (GALLEY), 2EN, 3EN, THE STEAM VALVES SERVING THE HOT WATER HEAT EXCHANGER HE-3 LOCATED IN THE TUNNEL IN SERVICE BAY 19, AND THE HOT WATER PRIMARY LOOP 12-PH.
   c. DATA TERMINAL CABINET NO. 3 SHALL SERVE ALL HVAC EQUIPMENT SERVING 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HN, 1HS, 2HN, 2HS, 1JN, AND 1JS.
2. THE FOLLOWING POINTS SHALL BE MONITORED:
   a. FOR EACH OF (32) AIR HANDLING UNITS, (8) ROOFTOP AIR CONDITIONING UNITS, AND (2) COMPUTER ROOM UNITS:
      (1) SUPPLY AIR TEMPERATURE
      (2) RETURN AIR TEMPERATURE
      (3) SUPPLY AIR RELATIVE HUMIDITY
      (4) RETURN AIR RELATIVE HUMIDITY
      (5) SUPPLY FAN START/STOP
      (6) SUPPLY FAN STATUS
      (7) SPACE TEMPERATURE
      (8) FILTER DIFFERENTIAL PRESSURE SWITCH
   b. HYDRONIC SYSTEMS:
      (1) CHILLED WATER SUPPLY TEMPERATURE
      (2) CHILLED WATER RETURN TEMPERATURE
      (3) HOT WATER SUPPLY TEMPERATURE
      (4) HOT WATER RETURN TEMPERATURE
      (5) NINE SECONDARY HOT WATER PUMP STATUS'
      (6) ONE SECONDARY DUAL TEMPERATURE PUMP STATUS'
      (7) ONE PRIMARY HOT WATER PUMP STATUS
      (8) NINE SECONDARY CHILLED WATER PUMP STATUS'
      (9) TWO PRIMARY CHILLED WATER PUMP STATUS'
      (10) THREE TERTIARY CHILLED WATER PUMP STATUS'
      (11) TWO CONDENSER WATER PUMP STATUS'
      (12) THREE CHILLER START/STOP & STATUS
      (13) TWO COOLING TOWER START/STOP & STATUS'
      (14) CONTROL POINT ADJUSTMENT FOR HEAT EXCHANGERS HE-1, HE-2 AND HE-3.
3. PROVIDE A NIGHT LOW LIMIT THERMOSTAT FOR EACH AREA SERVED BY A TIMECLOCK.
4. DATA TERMINAL CABINET NO 1 (LOCATED IN ROOM 1C28)
   AHU'S - 1AS, 1BN, 1BS, 1CN, 1CS, 1DN, 1DS, 2DS, 2CN, 2CS
   PUMPS - P-C-AB, P-C-C, P-H-AB, P-H-C, P-H-D, P-C-D
   CONTAINS TIME CLOCK #1
5. DATA TERMINAL CABINET NO. 2 (LOCATED IN ROOM 1E54)
   AHU'S - 1ES, 1EST, 2EN, 2EN(SB) 2ES, 3EN, 3ES
   PUMPS - P-CH-1, P-CH-2, P-CH-3, P-CD-1, P-CD-2, P-PC-1, P-PC-2, P-C-EN, P-C-ES, P-H-EN, P-H-ES
   CHILLERS - 1, 2, 3
   COOLING TOWERS - 1, 2
   CONTAINS TIME CLOCKS # 2 & 3
6. DATA TERMINAL CABINET NO. 3 (LOCATED IN ROOM 1G47)
   AHU'S - 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HS, 2HN, 2HS, 1JN, 1JS
   PUMPS - P-C-F, P-C-G, P-C-H, P-C-J, P-H-F, P-H-G, P-H-H, P-H-J
   CONTAINS TIME CLOCK # 4
7. PROVIDE 7-DAY TIMECLOCKS W/12-HOUR RESERVE AS FOLLOWS:
   TIME CLOCK #1
   AHU - 1AS, 1BN, 1BS, 1CN, 1CS, 2CN, 2CS, 1DN, 1DS, 2DS
   WVF - 1AS, 1BN, 1BS, 1CN, 1CS, 2CN, 2CS, 1DN, 1DS, 2DS
   PUMPS: P-C-AB, P-C-C, P-C-D, P-H-AB, P-H-C, P-H-D
   TIME CLOCK #2
   AHU - 2EN, 3EN, 1ES, 2ES, 3ES & WVF - 3ES
   PUMPS: P-C-EN, P-C-ES, P-H-EN, P-H-ES
   TIME CLOCK #3
   AHU - 2EN(SB) PUMPS: P-C-EN, P-H-EN
   TIME CLOCK #4
   AHU - 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HS, 2HN, 2HS, 1JN, 1JS
   WVF - 1FN, 1FS, 2FN, 2FS, 1GN, 1GS, 2GN, 2GS, 1HS, 2HN, 2HS, 1JN, 1JS
   PUMPS: P-C-F, P-C-G, P-C-H, P-C-J, P-H-F, P-H-G, P-H-H, P-H-J
8. PROVIDE A 6-HOUR TIMED OVERRIDE SWITCH FOR EACH AHU OR WVF SERVED BY A TIME CLOCK.
9. CONTROL CIRCUITS FOR THE FOLLOWING UNITS SHALL ORIGINATE FROM EMERGENCY PANELS: AC-1, FCU-3S, AHU-1EST, AC-2, P-C-EN, P-C-ES, CHILLER NO. 3, P-PC-2 AND P-CH-3.

M-37

FEREBEE, WALTERS & ASSOCIATES
ARCHITECTURE PLANNING INTERIOR DESIGN LANDSCAPE DESIGN
CHARLOTTE NORTH CAROLINA

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

DES G.H.S. DR MDE CHK
PROJ MGR. CH. ENGR. DATE: 4/10/86
SUBMITTED BY: Charles A. Ducing Jr.
FIRM MEMBER — PRINCIPAL
EFD: FP TIPC RVD
HD DIR
APPROVED — DATE — OFFICER IN CHARGE
APPROVED — DATE 17 July 85 — FOR EFD FOR COMMANDER, NAVFAC

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA
CONVERT HOSPITAL TO DIVISION HEADQUARTERS
MECHANICAL - TEMPERATURE CONTROLS

SIZE	CODE IDENT. NO.	NAVFAC DRAWING NO.
F	80091	4124305
		CONSTR. CONTR. NO. N62470-82-B-2243
SCALE AS NOTED	SPEC. 05-82-2243(REV.)	SHEET 150 OF 243

EFD DWG. NO. 224305

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER CLENN H. SNYDER