

Fort Fisher Aquarium

Replacement of AHU1-96, AHU-10 & CU1-96

FOR
N.C. Aquariums
900 Loggerhead Rd.
Kure Beach, NC 28449
STATE ID#: 20-22501-01

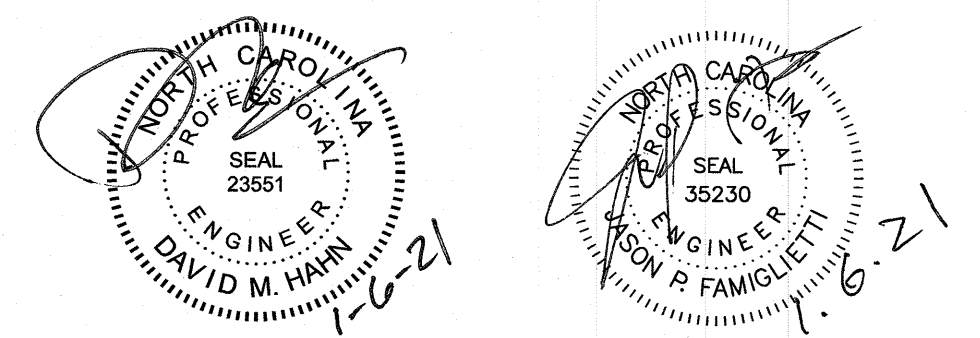


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Engineers, PLLC

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NC# P-0506



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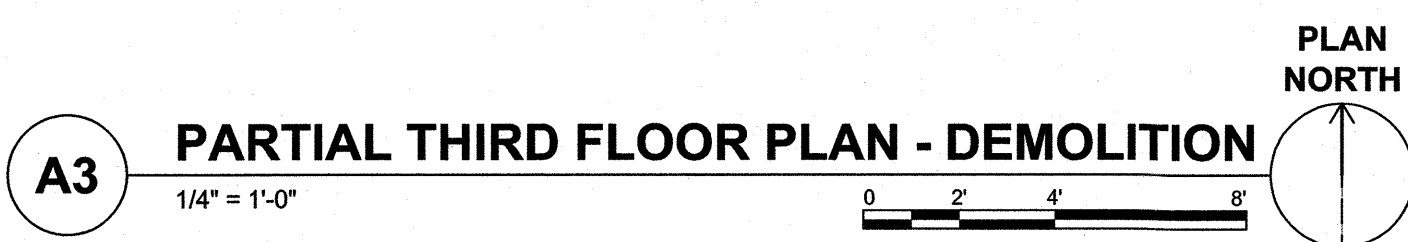
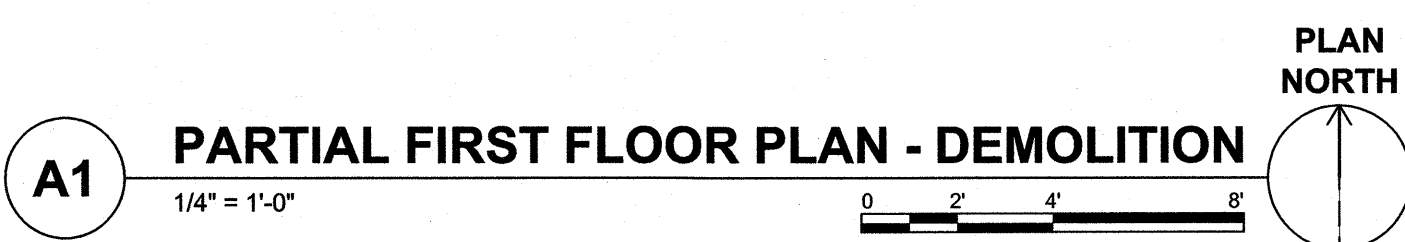
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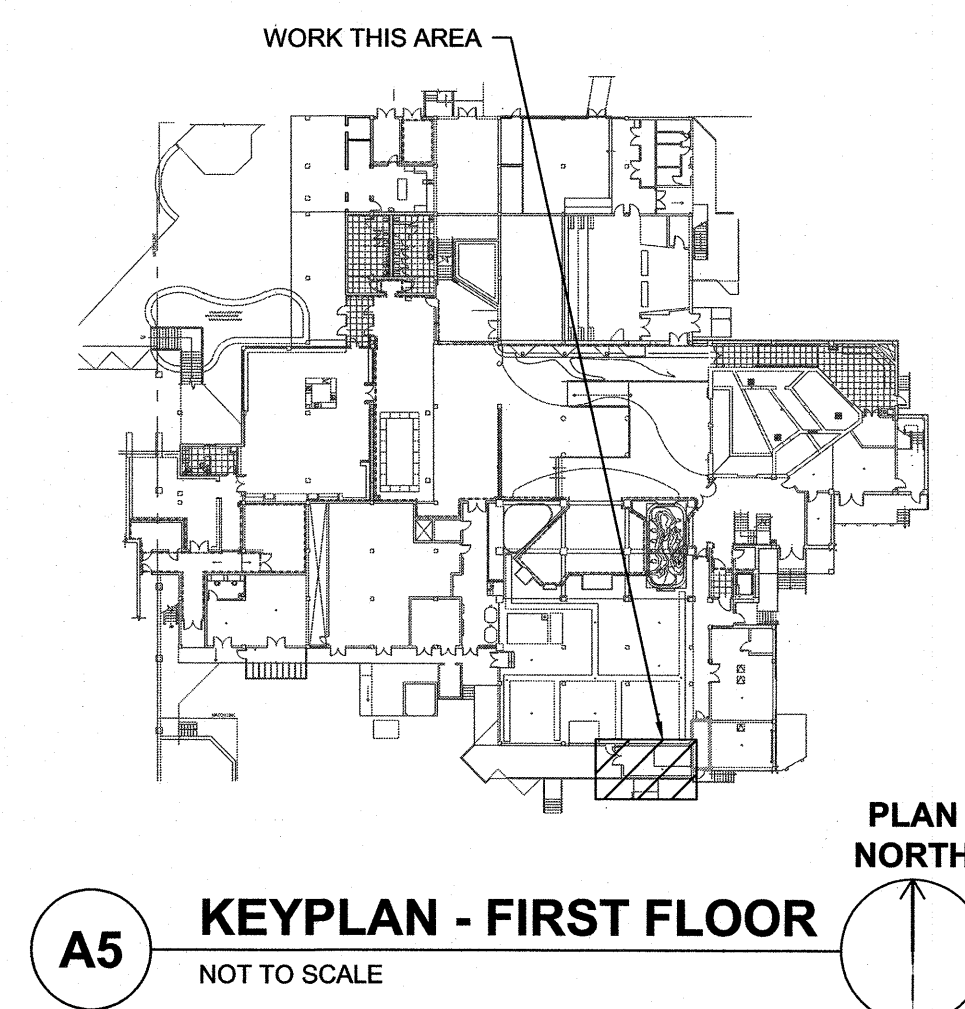
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- ① REMOVE/DISPOSE EXISTING AIR HANDLER INCLUDING BUT NOT LIMITED TO AIR HANDLER, CONTROLS, SUPPORTS, ETC. TO EXTENT SHOWN ON PLANS.
- ② REMOVE/DISPOSE EXISTING CONDENSING UNIT INCLUDING BUT NOT LIMITED TO CONDENSING UNIT, SUPPORTS, ETC. TO EXTENT SHOWN ON PLANS.
- ③ REMOVE/DISPOSE EXISTING RETURN DUCT INCLUDING BUT NOT LIMITED TO RETURN DUCT, DUCT LINER, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN ON PLANS.
- ④ REMOVE/DISPOSE EXISTING OUTSIDE AIR DUCT INCLUDING BUT NOT LIMITED TO OUTSIDE AIR DUCT, DUCT LINER, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN ON PLANS.
- ⑤ REMOVE/DISPOSE EXISTING SUPPLY DUCT INCLUDING BUT NOT LIMITED TO SUPPLY DUCT, DUCT LINER, CONTROL SENSORS, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN ON PLAN.
- ⑥ REMOVE/DISPOSE OF EXISTING CONDENSATE PIPING INCLUDING BUT NOT LIMITED TO CONDENSATE PIPING, HANGERS, SUPPORTS, ETC..
- ⑦ REMOVE/DISPOSE OF EXISTING REFRIGERANT LINE-SET PIPING INCLUDING BUT NOT LIMITED TO REFRIGERANT LINE-SET PIPING, HANGERS, SUPPORTS, INSULATION, ETC..
- ⑧ REMOVE / DISPOSE EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING INCLUDING BUT NOT LIMITED TO HEATING HOT WATER SUPPLY AND RETURN PIPING, HW PUMP, CONTROL VALVES, ACTUATORS, HANGERS, SUPPORTS, INSULATION, ETC..
- ⑨ REMOVE / DISPOSE EXISTING CHILLED WATER SUPPLY AND RETURN PIPING INCLUDING BUT NOT LIMITED TO CHILLED WATER SUPPLY AND RETURN PIPING, CONTROL VALVES, ACTUATORS, HANGERS, SUPPORTS, INSULATION, ETC..
- ⑩ EXISTING OUTSIDE AIR DAMPER TO REMAIN. REMOVE / DISPOSE OF ACTUATOR.



(X) 1-HOUR RATED FIRE WALL ☒ (X)

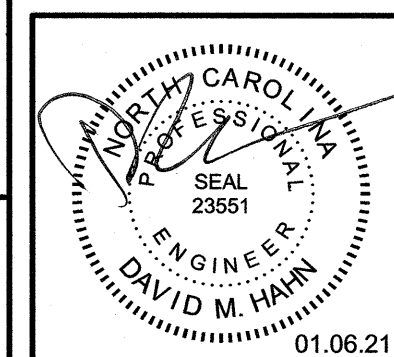
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FORT FISHER AQUARIUM
REPLACEMENT OF AHU 1-96, AHU-10 & CU 1-96
STATE ID#: 20-22501-01
900 Loggerhead Road Kure Beach, North Carolina

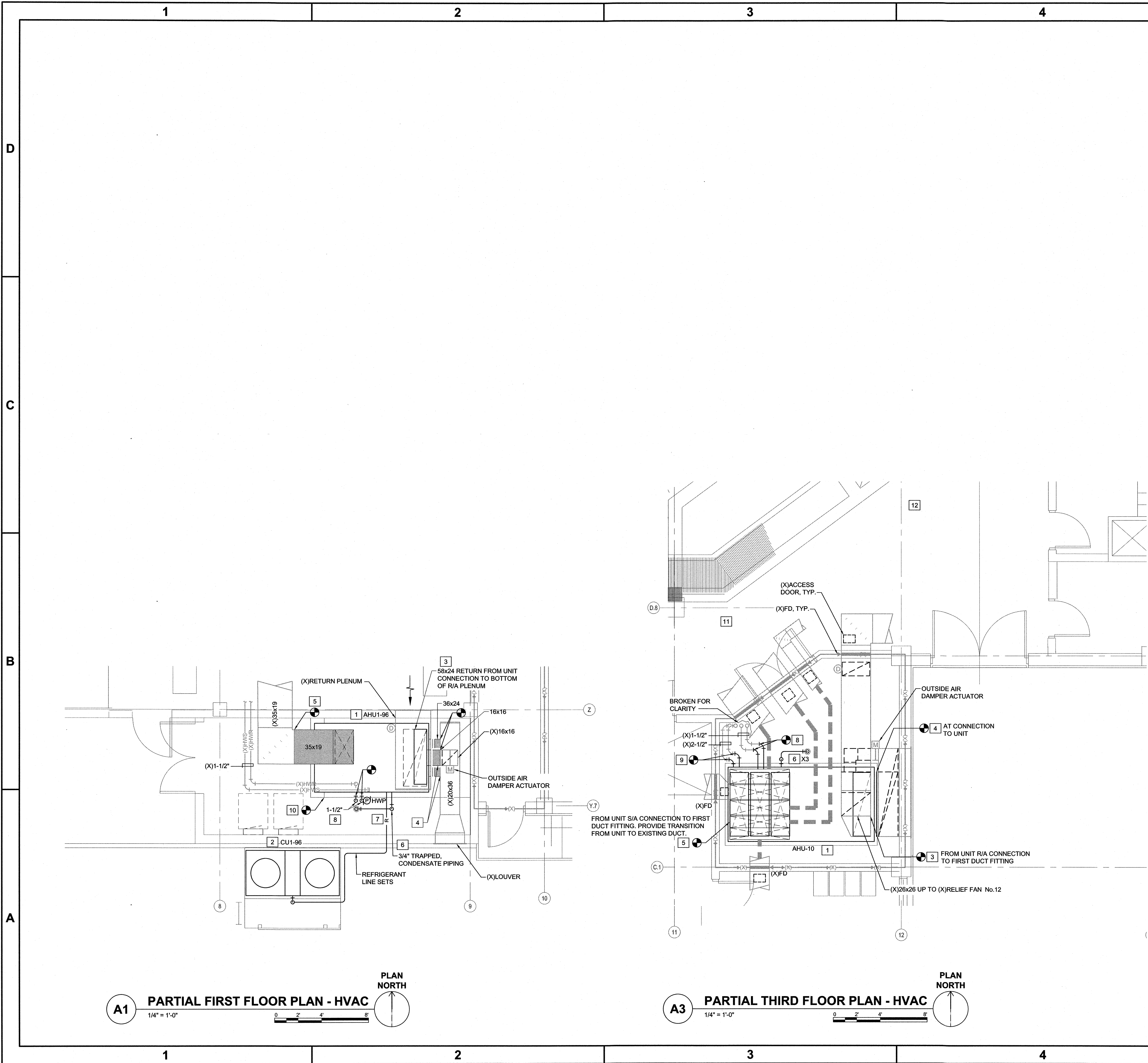
PARTIAL FIRST AND THIRD FLOOR PLANS
HVAC - DEMOLITION

JOB NO.:	20158
DRAWN:	GRM
DESIGNED:	GRM
CHECKED:	DMH

DRAWING NO:

MD101

REVISION:
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GENERAL NOTES

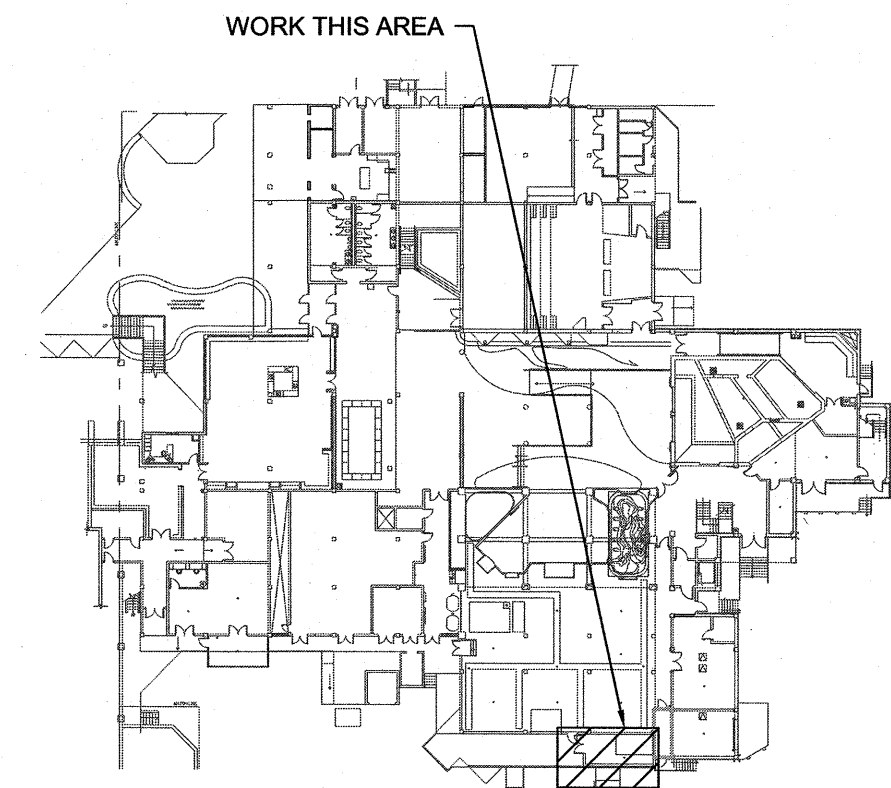
1. MECHANICAL CONTRACTOR TO COORDINATE CLOSELY WITH CLIENT/OWNER WITH THE INSTALLATION OF NEW MECHANICAL EQUIPMENT.

KEYED NOTES

- 1 PROVIDE NEW AIR HANDLER INCLUDING BUT NOT LIMITED TO AIR HANDLER, HANGERS, SUPPORTS, ETC. AS SHOWN ON PLANS.
- 2 PROVIDE NEW CONDENSING UNIT INCLUDING BUT NOT LIMITED TO CONDENSING UNIT, SUPPORTS, ETC. AS SHOWN ON PLANS.
- 3 PROVIDE NEW RETURN DUCT INCLUDING BUT NOT LIMITED TO RETURN DUCT, HANGERS, SUPPORTS, INSULATION, ETC. AS SHOWN ON PLANS.
- 4 PROVIDE NEW OUTSIDE AIR DUCT INCLUDING BUT NOT LIMITED TO OUTSIDE AIR DUCT, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN ON PLANS. PATCH (X)36x24 OUTSIDE AIR DUCT AT EXISTING CONNECTION AS REQUIRED TO PROVIDE AN AIR-TIGHT CONNECTION.
- 5 PROVIDE NEW SUPPLY DUCT INCLUDING BUT NOT LIMITED TO SUPPLY DUCT, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN ON PLAN.
- 6 PROVIDE NEW CONDENSATE PIPING INCLUDING BUT NOT LIMITED TO CONDENSATE PIPING, HANGERS, SUPPORTS, ETC. DISCHARGE INTO EXISTING FLOOR DRAIN.
- 7 PROVIDE NEW REFRIGERANT LINE-SET PIPING INCLUDING BUT NOT LIMITED TO REFRIGERANT LINE-SET PIPING, HANGERS, SUPPORTS, INSULATION, ETC. SEAL EXTERIOR WALL PENETRATIONS WEATHER-TIGHT.
- 8 PROVIDE NEW HEATING HOT WATER SUPPLY AND RETURN PIPING INCLUDING BUT NOT LIMITED TO HEATING HOT WATER SUPPLY AND RETURN PIPING, INLINE PUMP, HANGERS, SUPPORTS, INSULATION, ETC..
- 9 PROVIDE NEW CHILLED WATER SUPPLY AND RETURN PIPING INCLUDING BUT NOT LIMITED TO CHILLED WATER SUPPLY AND RETURN PIPING, HANGERS, SUPPORTS, INSULATION, ETC..
- 10 PROVIDE EQUIPMENT PAD EXTENSION. EXTEND MINIMUM 6" BEYOND END OF NEW AHU.
- 11 CONTRACTOR MUST COORDINATE RELOCATION OF PROCESS PIPING AND EQUIPMENT (NOT SHOWN) THIS AREA FOR CLEARANCE ACCESS TO REMOVE EXISTING EQUIPMENT AND INSTALL REPLACEMENT EQUIPMENT. OWNER IS RESPONSIBLE FOR RELOCATING PROCESS PIPING AND EQUIPMENT.
- 12 CONTRACTOR MUST COORDINATE TEMPORARY RELOCATION OF WOODEN OBSERVATION PLATFORM (NOT SHOWN) THIS AREA FOR CLEARANCE ACCESS TO REMOVE EXISTING EQUIPMENT AND INSTALL REPLACEMENT EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY RELOCATION OF THE WOODEN OBSERVATION PLATFORM. CONTRACTOR IS RESPONSIBLE TO REINSTALLING OBSERVATION PLATFORM BACK TO ORIGINAL LOCATION AND ANCHORING BACK IN PLACE.

B5 KEYPLAN - THIRD FLOOR

NOT TO SCALE

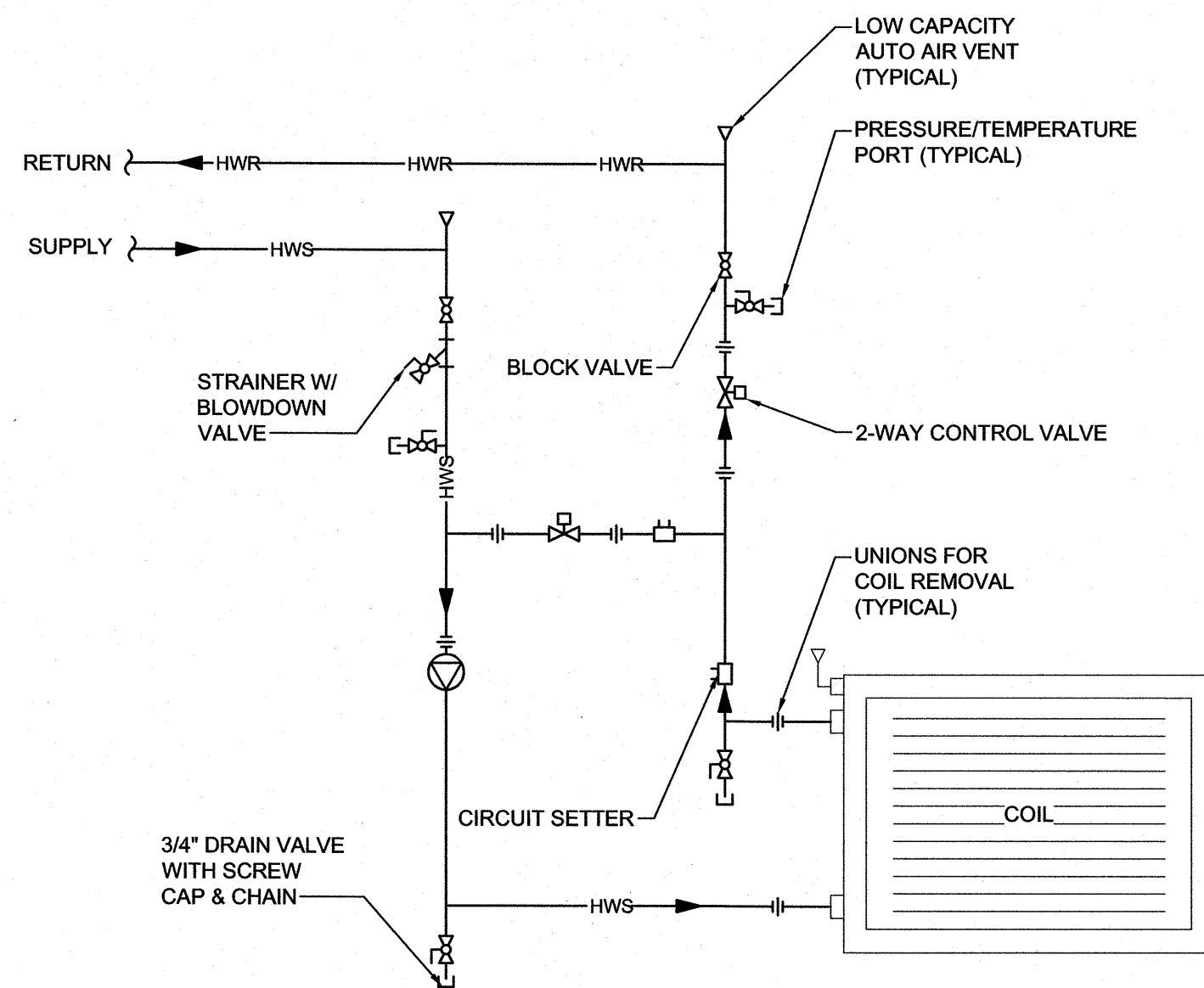


A5 KEYPLAN - FIRST FLOOR

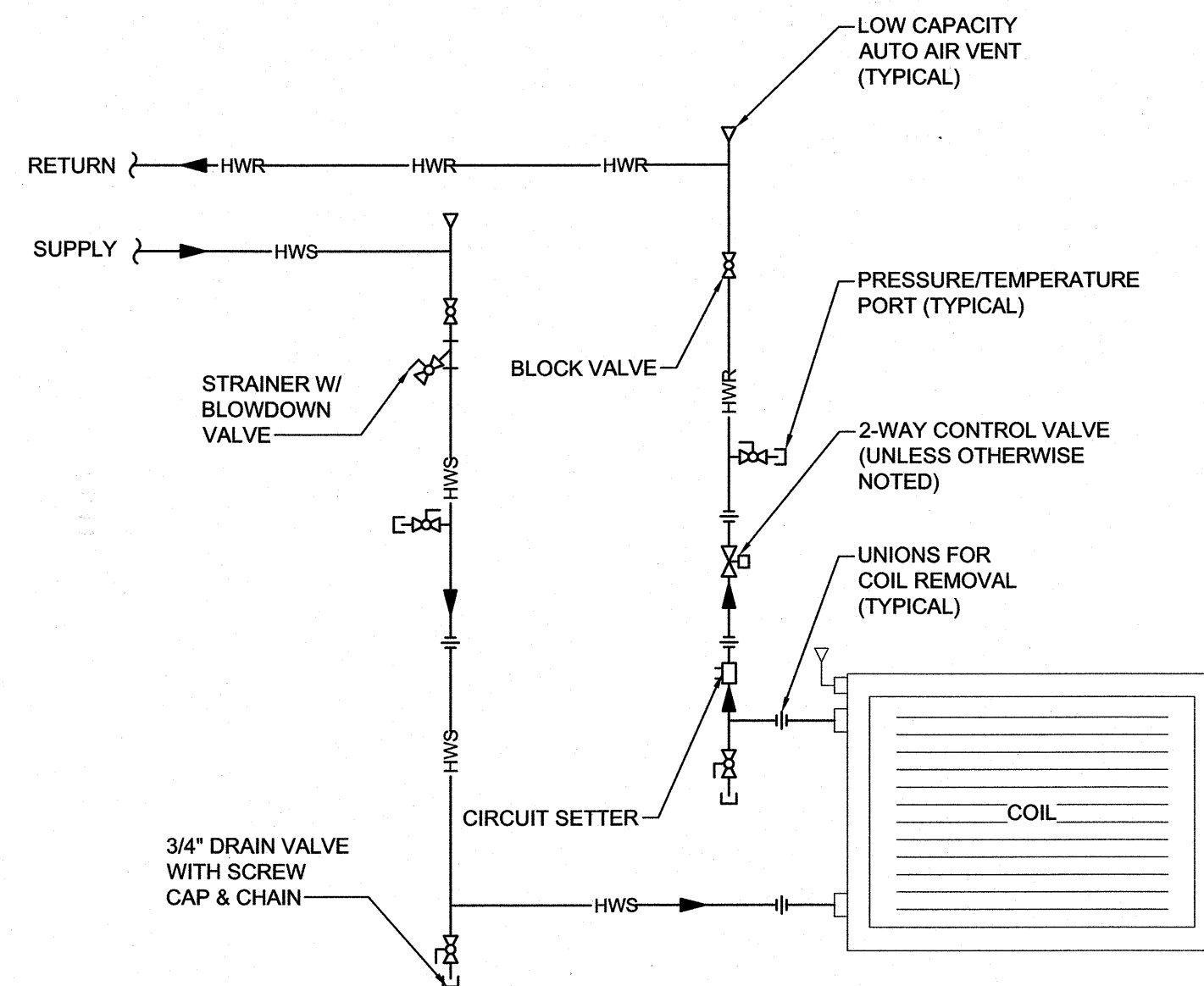
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FIRE WALL LEGEND	
(X)1-HOUR RATED FIRE WALL	(X)

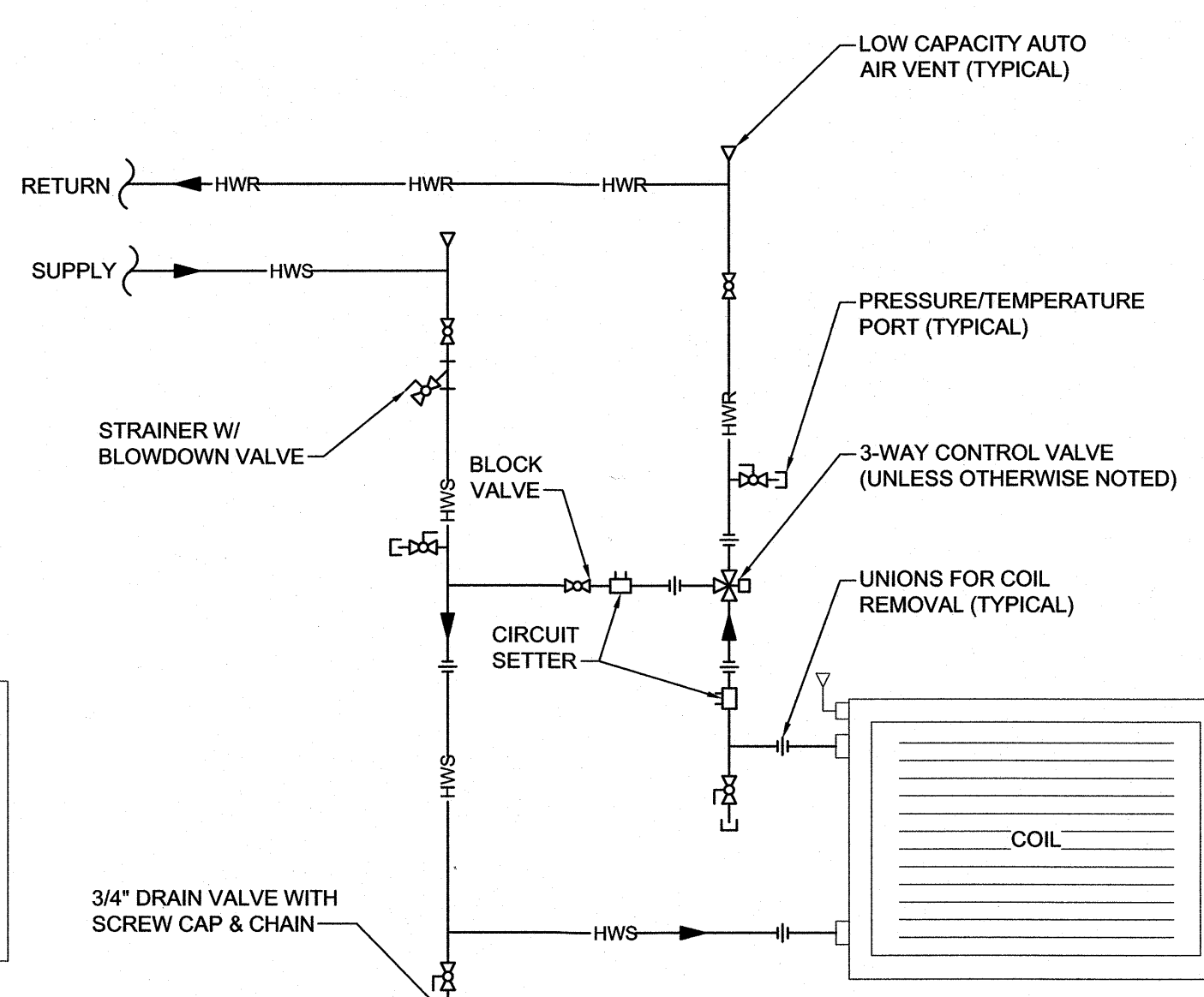
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2246 Yaupon Drive Wilmington, NC 28401 Phone: 910.791.4000 Fax: 910.791.5266 www.cbhfeengineers.com NC# P-0506
CBHF Engineers, PLLC
01.06.21 SEAL 23551 ENGINEER DAVID M. HAIN
FORT FISHER AQUARIUM REPLACEMENT OF AHU 1-96, AHU-10 & CU 1-96 STATE Df: 20-22501-01 900 Loggerhead Road Kure Beach, North Carolina
PARTIAL FIRST AND THIRD FLOOR PLANS HVAC
JOB NO.: 20158 DRAWN: GRM DESIGNED: GRM CHECKED: DMH
DRAWING NO: M-101
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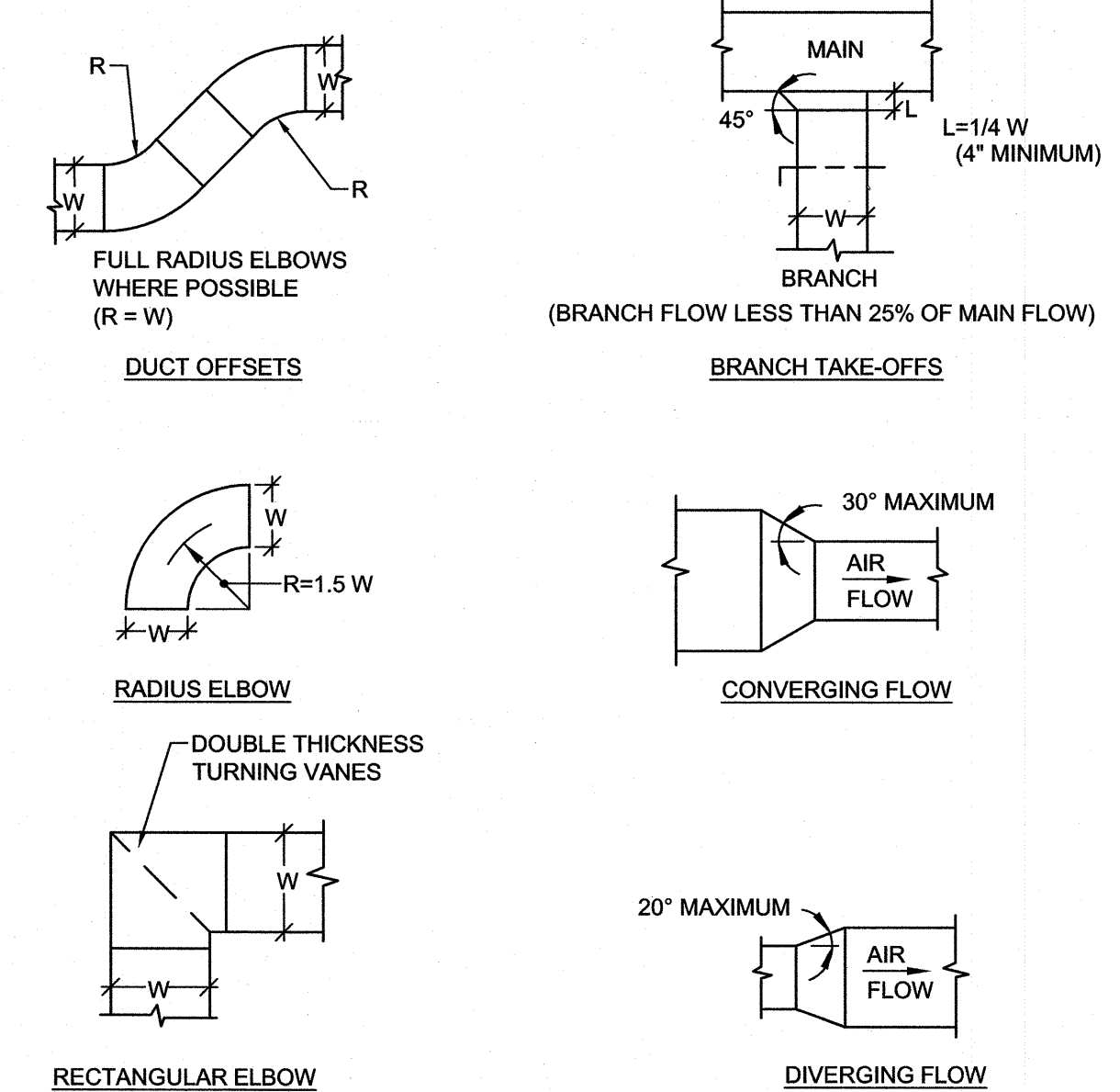
C1 HOT WATER COIL PIPING 2-WAY WITH PUMP DETAIL
NOT TO SCALE



C2 HOT WATER COIL PIPING 2-WAY DETAIL
NOT TO SCALE

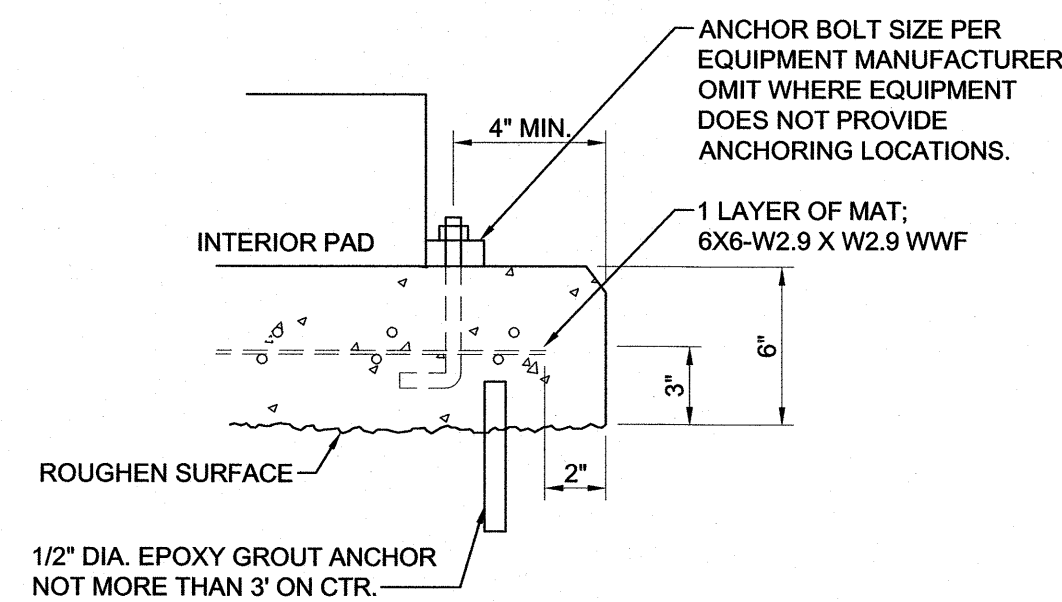


C3 HYDRONIC COIL PIPING 3-WAY DETAIL
NOT TO SCALE

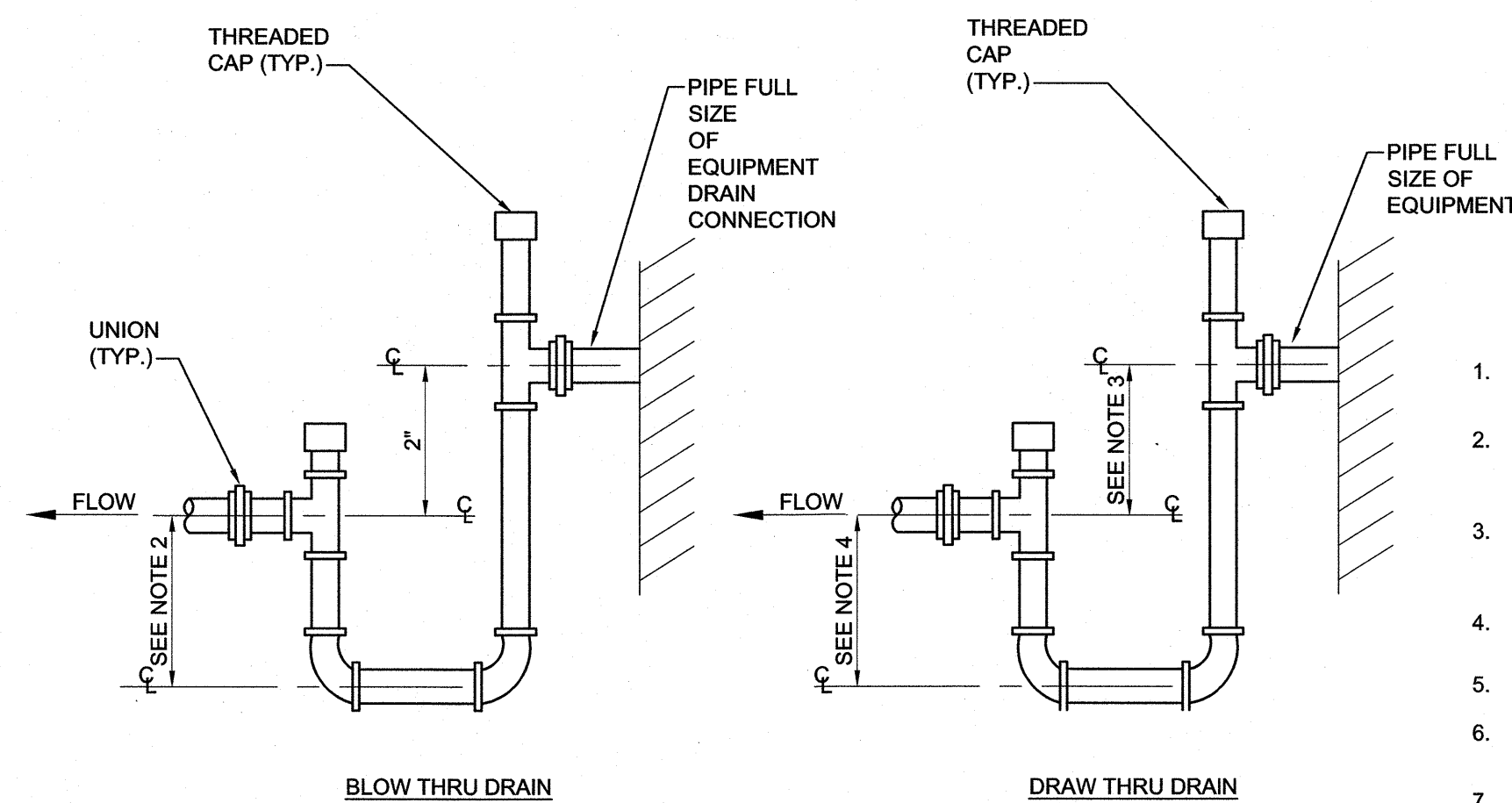


C4 RECTANGULAR DUCT FITTINGS DETAIL
NOT TO SCALE

- NOTE:
1. MESH SHALL BE FURNISHED IN SHEETS.
 2. ALL PAD EDGES SHALL BE CHAMFERED.
 3. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000 PSI AT 28 DAYS
 4. ONLY ANCHOR EQUIPMENT WITH MANUFACTURER SUPPLIED ANCHOR MOUNTS

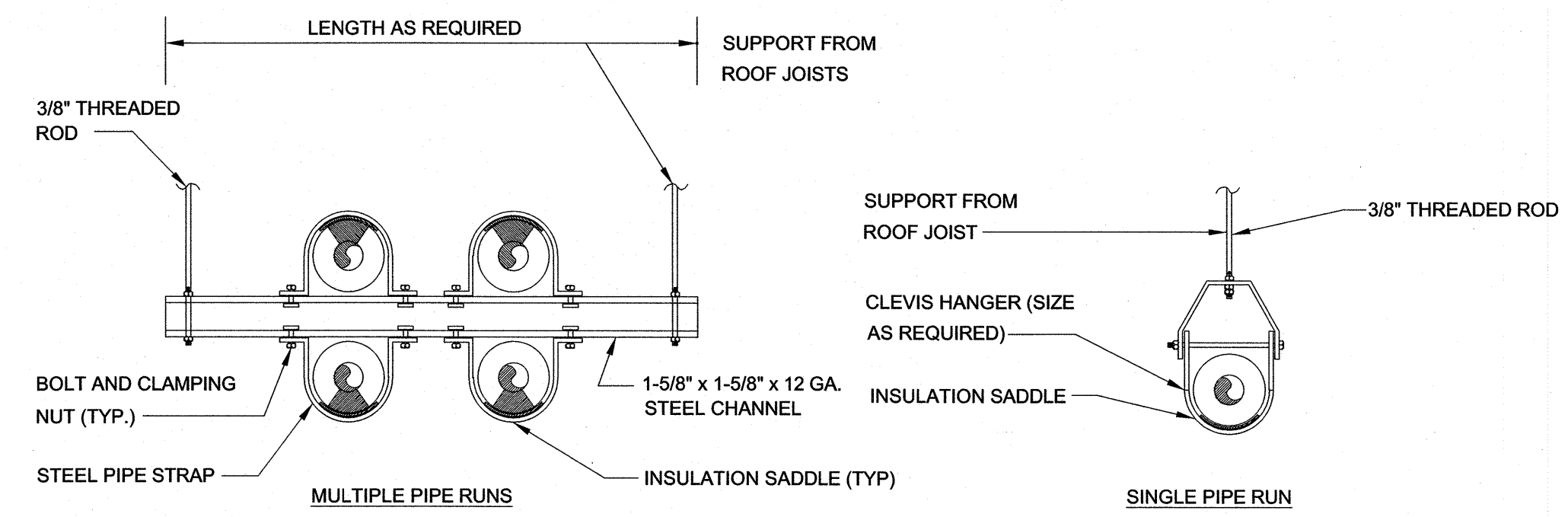


B1 CONCRETE PAD DETAIL
NOT TO SCALE

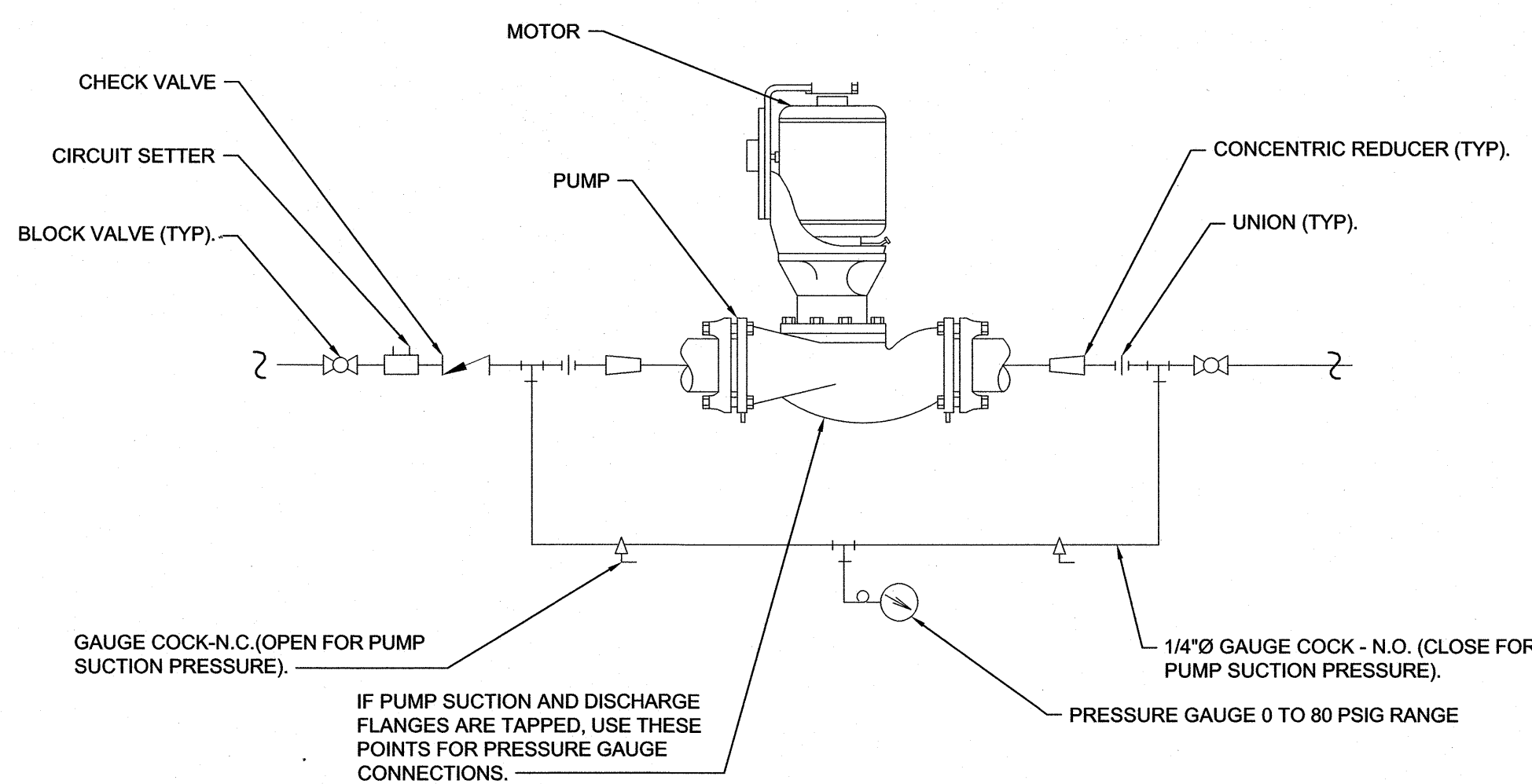


B2 CONDENSATE DRAIN DETAIL
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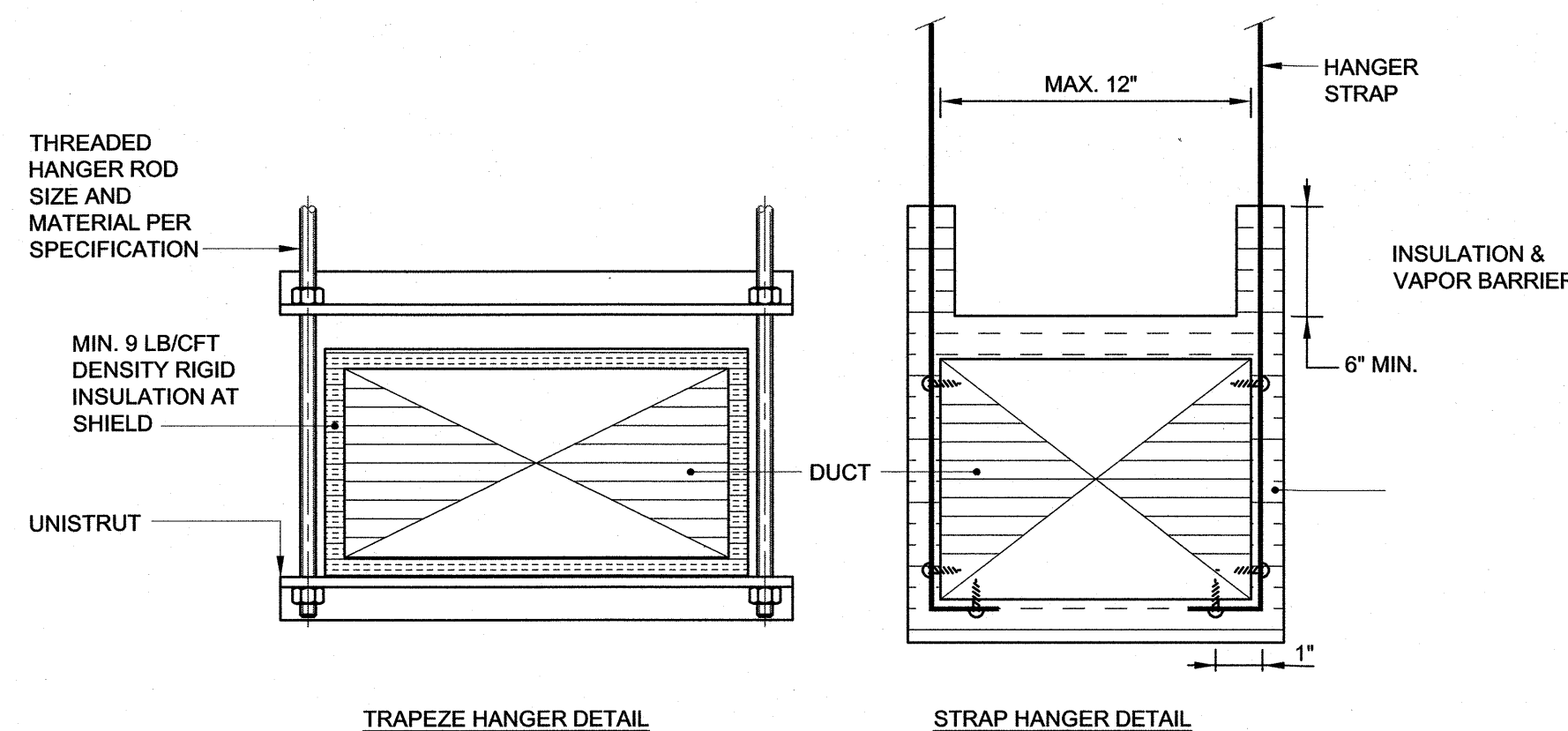
- NOTES:
1. LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.
 2. HEIGHT MUST BE EQUAL TO UNIT MAXIMUM TOTAL STATIC PRESSURE PLUS 1/2"
 3. HEIGHT MUST BE EQUAL TO UNIT MAXIMUM NEGATIVE STATIC PRESSURE PLUS 1"
 4. HEIGHT MUST BE 1/2 OF HEIGHT INSTALLED IN NOTE 3
 5. PIPE TO NEAREST DRAIN.
 6. TRAP MUST NOT BLOCK ACCESS TO EQUIPMENT.
 7. PROVIDE UNIONS AT INLET AND OUTLET OF TRAP.



B4 PIPE SUPPORT DETAIL
NOT TO SCALE



A1 INLINE SYSTEM PUMP DETAIL
NOT TO SCALE

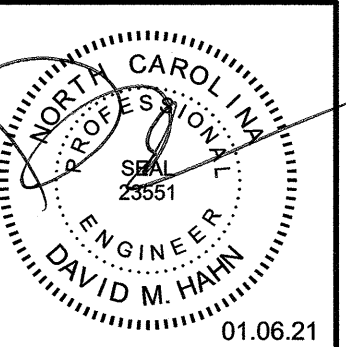


- NOTES:
1. TRAPEZE HANGERS SHALL BE PROVIDED FOR ALL DUCT WORK. TRAPEZE HANGERS CANNOT BE USED FOR BRANCH DUCT WORK 12" IN WIDTH AND SHORTER REFER TO STRAP HANGER DETAIL.
 2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SPECIFICATIONS.
 3. RIGID INSULATION SHALL EXTEND MINIMUM OF 3" BEYOND STRUT ON BOTH SIDES. MAINTAIN VAPOR BARRIER ACROSS STRUT.

A3 DUCT HANGER SUPPORT DETAIL
NOT TO SCALE

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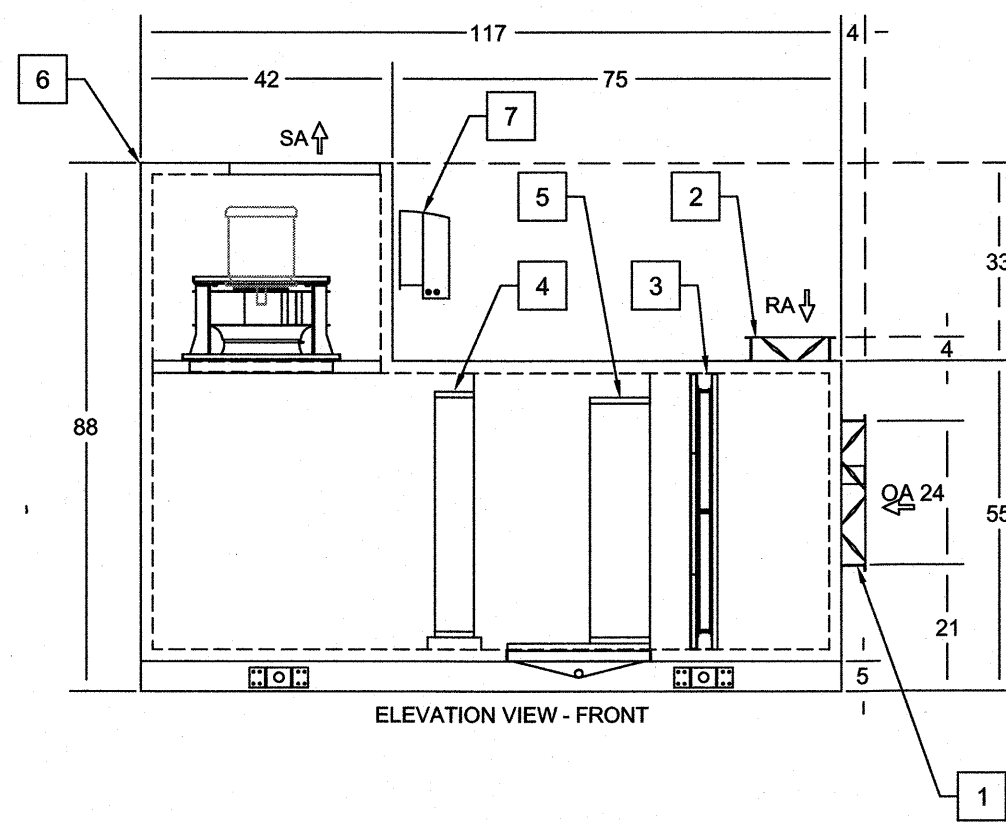
FORT FISHER AQUARIUM
REPLACEMENT OF AHU 1-96, AHU-10 & CU 1-96
STATE ID#: 20-22501-01
900 Loggerhead Road Kure Beach, North Carolina

HVAC
DETAILS

JOB NO.: 20158
DRAWN: GRM
DESIGNED: GRM
CHECKED: DMH

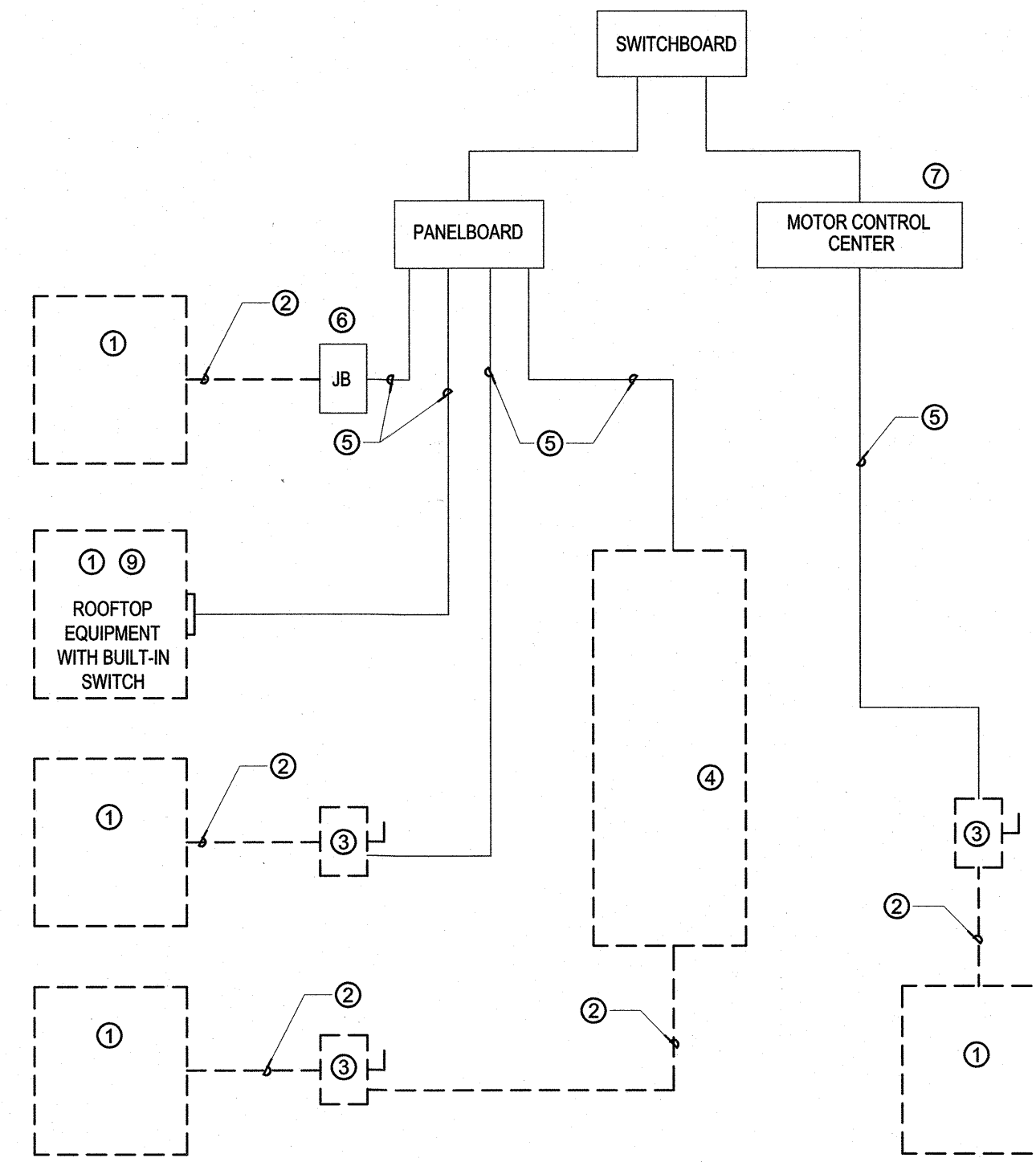
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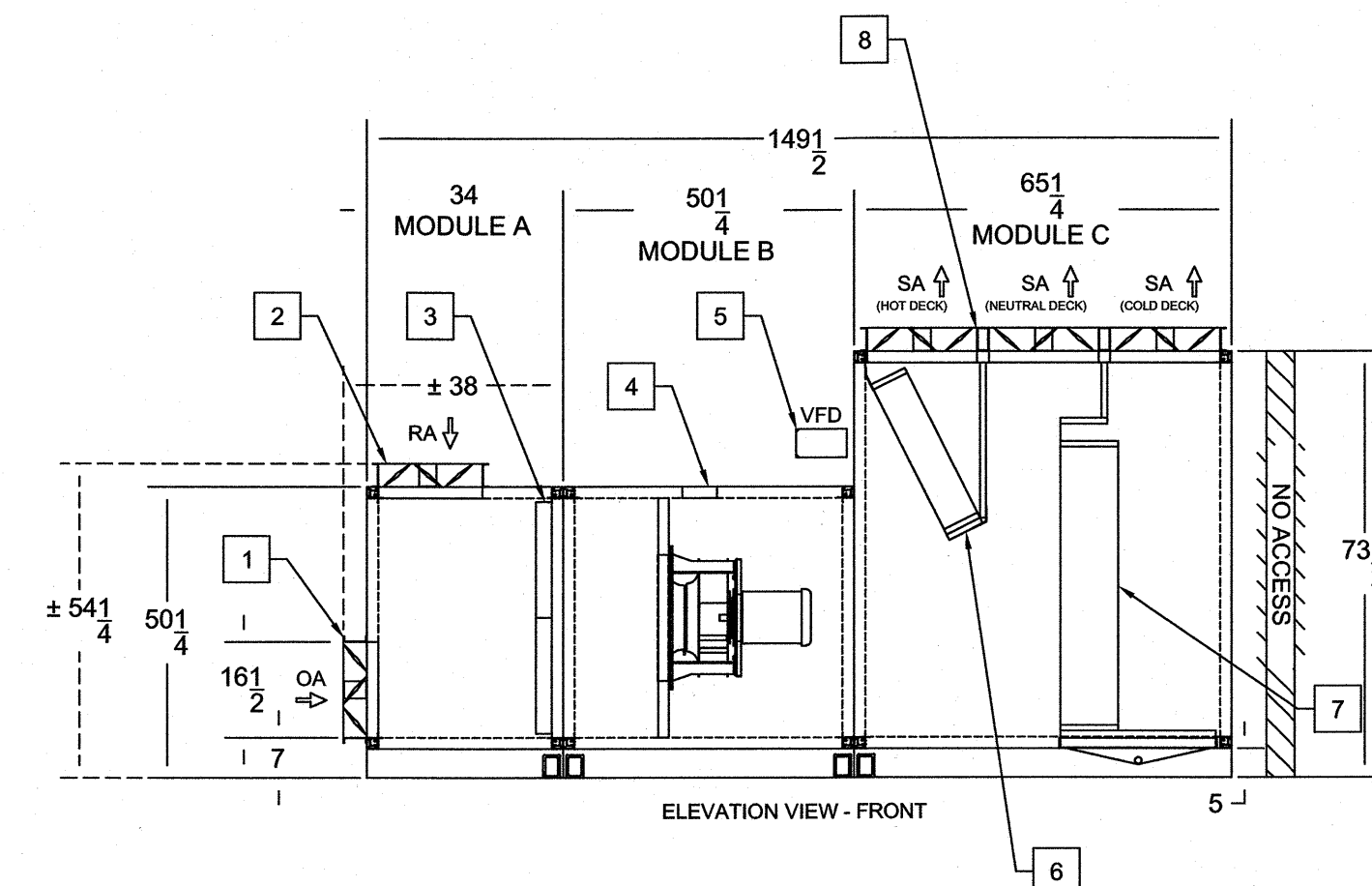
- 1) OUTSIDE AIR DAMPER
- 2) RETURN AIR DAMPER
- 3) FILTER SECTION
- 4) HEATING HOT WATER COIL
- 5) DX COIL
- 6) SUPPLY FAN SECTION
- 7) VFD

C2 AIR HANDLER UNIT ELEVATION (AHU1-96)
NOT TO SCALE



- MECHANICAL NOTES**
- ① EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
 - ② CONDUIT AND WIRING BY HVAC, PLUMBING CONTRACTOR OR OTHER TRADES.
 - ③ IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR.
 - ④ A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER. LOCATE ADJACENT TO EQUIPMENT.
 - ⑤ FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK. SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
 - ⑥ JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING WILL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
 - ⑦ PROJECTS UTILIZING AN MCC, THE STARTER CB, OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.
 - ⑧ IN ALL CASES THE EQUIPMENT CONTRACTOR SHALL MAKE FINAL CONNECTIONS, START UP AND TEST EQUIPMENT.
 - ⑨ IF THE ROOF TOP FAN IS NOT PROVIDED WITH BUILT IN SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.
 - ⑩ IN A SINGLE PRIME CONTRACT, IT IS THE RESPONSIBILITY OF THE PRIME CONTRACTOR TO COORDINATE BETWEEN THE ELECTRICAL AND OTHER TRADES.

C3 MECHANICAL EQUIPMENT CONNECTION DETAIL
NOT TO SCALE



- 1) OUTSIDE AIR DAMPER
- 2) RETURN AIR DAMPER
- 3) FILTER SECTION
- 4) SUPPLY FAN SECTION
- 5) VFD
- 6) HEATING HOT WATER COIL
- 7) CHILLED WATER COIL
- 8) MULTIZONE DAMPER (3 ZONES)

B2 AIR HANDLER UNIT ELEVATION (AHU-10)
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		Phone: 910.791.4000 Fax: 910.791.5266 www.cbhfindesign.com NC# P-0506
FORT FISHER AQUARIUM REPLACEMENT OF AHU 1-96, AHU-10 & CU 1-96 STATE ID#: 20-22501-01 900 Loggerhead Road Kure Beach, North Carolina		
HVAC DETAILS		
JOB NO.: 20198 DRAWN: GRM DESIGNED: GRM CHECKED: DMH		DRAWING NO: <div style="font-size: 24pt; font-weight: bold;">M-502</div>
REVISION: 0		ISSUED FOR BID: 01.06.21 DATE: 01.06.21 REVISIONS:

AIR HANDLING UNIT SCHEDULE

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PUMP SCHEDULE

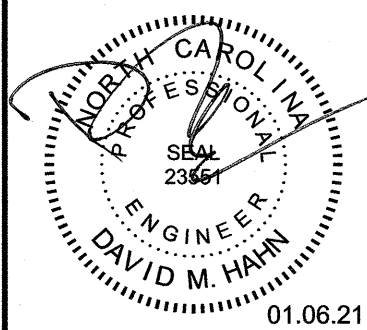
DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	APPROVED MANUFACTURERS	PUMP TYPE	SERVICE	FLUID	CAPACITY (GPM)	TOTAL DYNAMIC HEAD (FT)	END OF CURVE EFFICIENCY (%)	INLET AND OUTLET SIZE (IN.)	MOTOR ENCLOSURE TYPE	MATERIALS	SPEED (RPM)	HP	ELECTRICAL V/PH/Hz	NOTES	ACCESSORIES
HWP	B&G	HV BNFI	TACO, ARMSTRONG, PATTERSON	INLINE	HEATING HOT WATER	WATER	25	3.06	81.9	1.5	ODP	STAINLESS	1,725	1/6	115/1/60	1	A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z,AA,AB,AC,AD,AE,AF,AG,AH,AI,AJ,AK,AL,AM,AN,AO,AP,AQ,AR,AS,AT,AV,AW,AX,AY,AZ,BA,BB,BC,BD,BE,BF,BG,BH,BI,BJ,BK,BL,BM,BN,BO,BP,BQ,BR,BS,BT,BV,BW,BX,BY,BZ,CA,CB,CC,CD,CE,CF,CG,CH,CI,CJ,CK,CL,CM,CN,CO,CP,CQ,CR,CS,CT,CV,CW,CX,CY,CZ,DA,DB,DC,DD,DE,DF,DG,DH,DI,DJ,DK,DL,DM,DN,DO,DP,DQ,DR,DS,DT,DV,DW,DX,DY,DZ,EA,EB,EC,ED,EE,EF,EG,EH,EI,EJ,EK,EL,EM,EN,EO,EP,EQ,ER,ES,ET,EV,EW,EX,EY,EZ,FA,FB,FC,FD,FE,FF,FG,FH,FI,FJ,FK,FL,FM,FN,FO,FP,FQ,FR,FS,FT,FV,FW,FX,FY,FZ,GA,GB,GC,GD,GE,GF,GG,GH,GI,GJ,GK,GL,GM,GN,GO,GP,GQ,GR,GS,GT,GV,GW,GX,GY,GZ,HA,HB,HC,HD,HE,HF,HG,HI,HJ,HK,HL,HM,HN,HO,HP,HQ,HR,HS,HT,HV,HW,HX,HY,HZ,IA,IB,IC,ID,IE,IF,IG,IH,II,IJ,IK,IL,IM,IN,IO,IP,IQ,IR,IS,IT,IV,IW,IX,IY,IZ,JA,JB,JC,JD,JE,JF,JG,JH,JI,IJ,JK,JL,JM,JN,JO,JP,JQ,JR,JS,JT,JV,JW,JX,JY,JZ,KA,KB,KC,KD,KE,KF,KG,KH,KI,KJ,KK,KL,KM,KN,KO,KP,KQ,KR,KS,KT,KV,KW,KX,KY,KZ,LA,LB,LC,LD,LE,LF,LG,LH,LI,LJ,LK,LL,LM,LN,LO,LP,LQ,LR,LS,LT,LV,LW,LX,LY,LZ,MA,MB,MC,MD,ME,MF,MG,MH,MI,MJ,MK,ML,MM,MN,MO,MP,MQ,MR,MS,MT,MV,MW,MX,MY,MZ,NA,NB,NC,ND,NE,NF,NG,NH,NI,NJ,NK,NL,NM,NO,NP,NQ,NR,NS,NT,NV,NW,NX,NY,NZ,OA,OB,OC,OD,OE,OF,OG,OH,OI,OJ,OK,OL,OM,ON,OO,OP,OQ,OR,OS,OT,OV,OW,OX,OY,OZ,PA,PB,PC,PD,PE,PF,PG,PH,PI,PJ,PK,PL,PM,PN,PO,PP,PQ,PR,PS,PT,PV,PW,PX,PY,PZ,QA,QB,QC,QD,QE,QF,QG,QH,QI,QJ,QK,QL,QM,QN,QO,QP,QQ,QR,QS,QT,QV,QW,QX,QY,QZ,RA,RB,RC,RD,RE,RF,RG,RH,RI,RJ,RK,RL,RM,RN,RO,RP,RQ,RR,RS,RT,RV,RW,RX,RY,RZ,SA,SB,SC,SD,SE,SF,SG,SH,SI,SJ,SK,SL,SM,SN,SO,SP,SQ,SR,SS,ST,SV,SW,SX,SY,SZ,TA,TB,TC,TD,TE,TF,TG,TH,TI,TJ,TK,TL,TM,TN,TO,TP,TQ,TR,TS,TV,TW,TX,TY,TZ,UA,UB,UC,UD,UE,UF,UG,UH,UI,UJ,UK,UL,UM,UN,UO,UP,UQ,UR,US,UT,UV,UW,UX,UY,UZ,VA,VB,VC,VD,VE,VF,VG,VH,VI,VJ,VK,VL,VM,VN,VO,VP,VQ,VR,VS,VT,TV,VW,VX,VY,VZ,WA,WB,WC,WD,WE,WF,WG,WH,WI,WJ,WK,WL,WM,WN,WO,WP,WQ,WR,WS,WT,WV,WW,WX,WY,WZ,XA,XB,XC,XD,XE,XF,XG,XH,XI,XJ,XK,XL,XM,XN,XO,XP,XQ,XR,XS,XT,XV,XW,XX,XY,XZ,YA,YB,YC,YD,YE,YF,YG,YH,YI,YJ,YK,YL,YM,YN,YO,YP,YQ,YR,YS,YT,YV,YW,YX,YY,YZ,ZA,ZB,ZC,ZD,ZE,ZF,ZG,ZH,ZI,ZJ,ZK,ZL,ZM,ZN,ZO,ZP,ZQ,ZR,ZS,ZT,ZV,ZW,ZX,ZY,ZZ,AA,AB,AC,AD,AE,AF,AG,AH,AI,AJ,AK,AL,AM,AN,AO,AP,AQ,AR,AS,AT,AV,AW,AX,AY,AZ,BA,BB,BC,BD,BE,BF,BG,BH,BI,BJ,BK,BL,BM,BN,BO,BP,BQ,BR,BS,BT,BV,BW,BX,BY,BZ,CA,CB,CC,CD,CE,CF,CG,CH,CI,CJ,CK,CL,CM,CN,CO,CP,CQ,CR,CS,CT,CV,CW,CX,CY,CZ,DA,DB,DC,DD,DE,DF,DG,DH,DI,DJ,DK,DL,DM,DN,DO,DP,DQ,DR,DS,DT,DV,DW,DX,DY,DZ,EA,EB,EC,ED,EE,EF,EG,EH,EI,EJ,EK,EL,EM,EN,EO,EP,EQ,ER,ES,ET,EV,EW,EX,EY,EZ,FA,FB,FC,FD,FE,FF,FG,FH,FI,FJ,FK,FL,FM,FN,FO,FP,FQ,FR,FS,FT,FV,FW,FX,FY,FZ,GA,GB,GC,GD,GE,GF,GG,GH,GI,GJ,GK,GL,GM,GN,GO,GP,GQ,GR,GS,GT,GV,GW,GX,GY,GZ,HA,HB,HC,HD,HE,HF,HG,HI,HJ,HK,HL,HM,HN,HO,HP,HQ,HR,HS,HT,HV,HW,HX,HY,HZ,IA,IB,IC,ID,IE,IF,IG,IH,II,IJ,IK,IL,IM,IN,IO,IP,IQ,IR,IS,IT,IV,IW,IX,IY,IZ,JA,JB,JC,JD,JE,JF,JG,JH,JI,IJ,JK,JL,JM,JN,JO,JP,JQ,JR,JS,JT,JV,JW,JX,JY,JZ,KA,KB,KC,KD,KE,KF,KG,KH,KI,KJ,KK,KL,KM,KN,KO,KP,KQ,KR,KS,KT,KV,KW,KX,KY,KZ,LA,LB,LC,LD,LE,LF,LG,LH,LI,LJ,LK,LL,LM,LN,LO,LP,LQ,LR,LS,LT,LV,LW,LX,LY,LZ,MA,MB,MC,MD,ME,MF,MG,MH,MI,MJ,MK,ML,MM,MN,MO,MP,MQ,MR,MS,MT,MV,MW,MX,MY,MZ,NA,NB,NC,ND,NE,NF,NG,NH,NI,NJ,NK,NL,NM,NO,NP,NQ,NR,NS,NT,NV,NW,NX,NY,NZ,OA,OB,OC,OD,OE,OF,OG,OH,OI,OJ,OK,OL,OM,ON,OO,OP,OQ,OR,OS,OT,OV,OW,OX,OY,OZ,PA,PB,PC,PD,PE,PF,PG,PH,PI,PJ,PK,PL,PM,PN,PO,PP,PQ,PR,PS,PT,PV,PW,PX,PY,PZ,QA,QB,QC,QD,QE,QF,QG,QH,QI,QJ,QK,QL,QM,QN,QO,QP,QQ,QR,QS,QT,QV,QW,QX,QY,QZ,RA,RB,RC,RD,RE,RF,RG,RH,RI,RJ,RK,RL,RM,RN,RO,RP,RQ,RR,RS,RT,RV,RW,RX,RY,RZ,SA,SB,SC,SD,SE,SF,SG,SH,SI,SJ,SK,SL,SM,SN,SO,SP,SQ,SR,SS,ST,SV,SW,SX,SY,SZ,TA,TB,TC,TD,TE,TF,TG,TH,TI,TJ,TK,TL,TM,TN,TO,TP,TQ,TR,TS,TV,TW,TX,TY,TZ,UA,UB,UC,UD,UE,UF,UG,UH,UI,UJ,UK,UL,UM,UN,UO,UP,UQ,UR,US,UT,UV,UW,UX,UY,UZ,VA,VB,VC,VD,VE,VF,VG,VH,VI,VJ,VK,VL,VM,VN,VO,VP,VQ,VR,VS,VT,TV,VW,VX,VY,VZ,WA,WB,WC,WD,WE,WF,WG,WH,WI,WJ,WK,WL,WM,WN,WO,WP,WQ,WR,WS,WT,WV,WW,WX,WY,WZ,XA,XB,XC,XD,XE,XF,XG,XH,XI,XJ,XK,XL,XM,XN,XO,XP,XQ,XR,XS,XT,XV,XW,XX,XY,XZ,YA,YB,YC,YD,YE,YF,YG,YH,YI,YJ,YK,YL,YM,YN,YO,YP,YQ,YR,YS,YT,YV,YW,YX,YY,YZ,ZA,ZB,ZC,ZD,ZE,ZF,ZG,ZH,ZI,ZJ,ZK,ZL,ZM,ZN,ZO,ZP,ZQ,ZR,ZS,ZT,ZV,ZW,ZX,ZY,ZZ
NOTES:																	
1. REFER TO SPECIFICATION SECTION 232123 - HYDRONIC PUMPS FOR ADDITIONAL REQUIREMENTS.																	
ACCESSORIES:																	
A. INTEGRAL PUMP MOTOR VARIABLE-SPEED CONTROL.																	
B. ECM MOTOR.																	

CONDENSING UNIT SCHEDULE

DRAWING CODE	ASSOCIATED COIL	BASIS OF DESIGN MANUFACTURER	ALTERNATE APPROVED MANUFACTURER	MODEL	COOLING CAPACITY (MBH)	ELECTRICAL CHARACTERISTICS					SYSTEM EER	NOTES	ACCESSORIES	
						CONDENSER EAT (°F)	VOLTAGE	COMPRESSOR RLA	FAN FLA	MCA				MOCP
CU1-96	AHU1-96	TRANE	YORK, DAIKIN	TTA24043D	244	95.0	208 / 3 / 60	35.4	4.8	86.0	110	11.6	1.2	A
NOTES:														
1. REFER TO SPECIFICATION SECTION 236200 - PACKAGED COMPRESSOR AND CONDENSER UNITS FOR ADDITIONAL REQUIREMENTS.														
2. MOUNT ON EXISTING MECHANICAL PLATFORM. ANCHOR PER MANUFACTURER REQUIREMENTS. PLATFORM CLEARANCE MODIFICATIONS AND COSTS NECESSARY FOR NON-BOD UNIT IS RESPONSIBILITY OF CONTRACTOR.														
ACCESSORIES: A. REFER TO SPECIFICATION SECTION 236200 - PACKAGED COMPRESSOR AND CONDENSER UNITS.														

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FORT FISHER AQUARIUM
REPLACEMENT OF AHU 1-96, AHU-10 & CU 1-96
STATE ID#: 20-22501-01
900 Loggerhead Road Kure Beach, North Carolina

HVAC SCHEDULES

JOB NO.:	20158
DRAWN:	GRM
DESIGNED:	GRM
CHECKED:	DMH

DRAWING NO.

M-601

REVISION
0

REVISIONS

0	ISSUED FOR BID
Revision No:	DESCRIPTION:

A3 AIR HANDLER UNIT CONTROL DIAGRAM (AHU1-96)
NOT TO SCALE

A3 AIR HANDLER UNIT CONTROL DIAGRAM (AHU1-96)
NOT TO SCALE

DRAWING NO:

M-602

REVISION:

0

TYPE: NEMA 1 BOLT-ON	208 MOUNT: FEED:	120 SURFACE TOP	V.	3	PH.	4	WIRE	MANUFACTURER: SQUARE D SERIES: NGQD 10 KAIC		
LOAD SERVED	LOAD VA	CKT BKR	CKT #	LOAD VA			CKT #	CKT BKR	LOAD VA	LOAD SERVED
(X)REC: SW WALL/OUTDOOR		20/1	1	A	B	C	2	20/1		(X)SPARE
(X)SPARE		20/1	3				4	20/1		(X)SPARE
(X)REC: CENTER COLUMN		20/1	5				6	20/1		(X)SPARE
(X)REC: EAST WALL		20/1	7	913			8	30/3	913	(X)AHU-1-96
(X)DT CIRCUIT		20/1	9		913		10		913	"
(X)LTGS: BAY #1		20/1	11			913	12		913	"
(X)LTGS: BAY #2		20/1	13	9,415			14	100/3	9,415	(X)CU-1-96
(X)LTGS: BAY #3		20/1	15		9,415		16		9,415	"
(X)LTGS: BAY MECH RM/DOCK		20/1	17			9,415	18		9,415	"
(X)SPARE		20/1	19				20	20/1		(X)REC: QUAD COL 7&8, COL LINE B
(X)REC: MECH RM		20/1	21				22	20/1		(X)SPARE
(X)SPARE		20/1	23				24	20/1		(X)SPARE
(X)AHU CONTROL POWER		20/1	25				26	20/1		(X)SPARE
(X)SPARE		20/1	27				28	20/1		(X)SPARE
(X)SPACE			29				30			SPACE
(X)SPACE			31				32			SPACE
(X)SPACE			33				34			SPACE
(X)SPACE			35				36			SPACE
(X)SPACE			37				38			SPACE
(X)SPACE			39				40			SPACE
			41				42			SPACE
NOTES:				10,328	10,328	10,328	TOTAL V. AMPS		225	A. BUS (COPPER)
				86	86	86	CONN. AMPS		225	A. MAIN LUGS

TYPE: NEMA 1 BOLT-ON	208 MOUNT: FEED:	120 SURFACE TOP	V.	3	PH.	4	WIRE	MANUFACTURER: SQUARE D SERIES: NOOD 10 KAIC		
LOAD SERVED	LOAD VA	CKT BKR	CKT #	LOAD VA			CKT BKR	CKT #	LOAD VA	LOAD SERVED
(X)REC: SW WALL/OUTDOOR		20/1	2	A	B	C	2	20/1		(X)SPARE
(X)SPARE		20/1	3				4	20/1		(X)SPARE
(X)REC: CENTER COLUMN		20/1	5				6	20/1		(X)SPARE
(X)REC: EAST WALL		20/1	7	2,498			8	45/3	2,498	AHU-1-96 (NOTE 3)
(X)OT CIRCUIT		20/1	9		2,498		10	1	2,498	"
(X)LTGS: BAY #1		20/1	11			2,498	12	1	2,498	"
(X)LTGS: BAY #2		20/1	13	8,262			14	110/3	8,262	CU1-96 (NOTE 3)
(X)LTGS: BAY #3		20/1	15		8,262		16	1	8,262	"
(X)LTGS: BAY MECH DOCK		20/1	17			8,262	18	1	8,262	"
(X)SPARE		20/1	19				20	20/1		(X)REC: QUAD COL 7&8; COL LINE B
(X)REC: MECH RM		20/1	21		360		22	20/1	360	REC: MECH RM & EXT (NOTE 2)
(X)SPARE		20/1	23				24	20/1		(X)SPARE
(X)AHU CONTROLS & HWP (NOTE 2)	528	20/1	25	528			26	20/1		(X)SPARE
(X)SPARE		20/1	27				28	20/1		(X)SPARE
			29				30			SPACE
			31				32			SPACE
			33				34			SPACE
			35				36			SPACE
			37				38			SPACE
			39				40			SPACE
			41				42			SPACE
NOTES:				11,288	11,120	10,760	TOTAL V. AMPS		225	A. BUS (COPPER)
				94	93	90	CONN. AMPS		225	A. MAIN LUGS

1. HVAC & REFRIG. EQUIP. SHALL USE TYPE HACR BREAKERS.
2. USE EXISTING BREAKER INDICATED.
3. PROVIDE NEW BREAKER IN PLACE OF EXISTING - MATCH AIC RATING

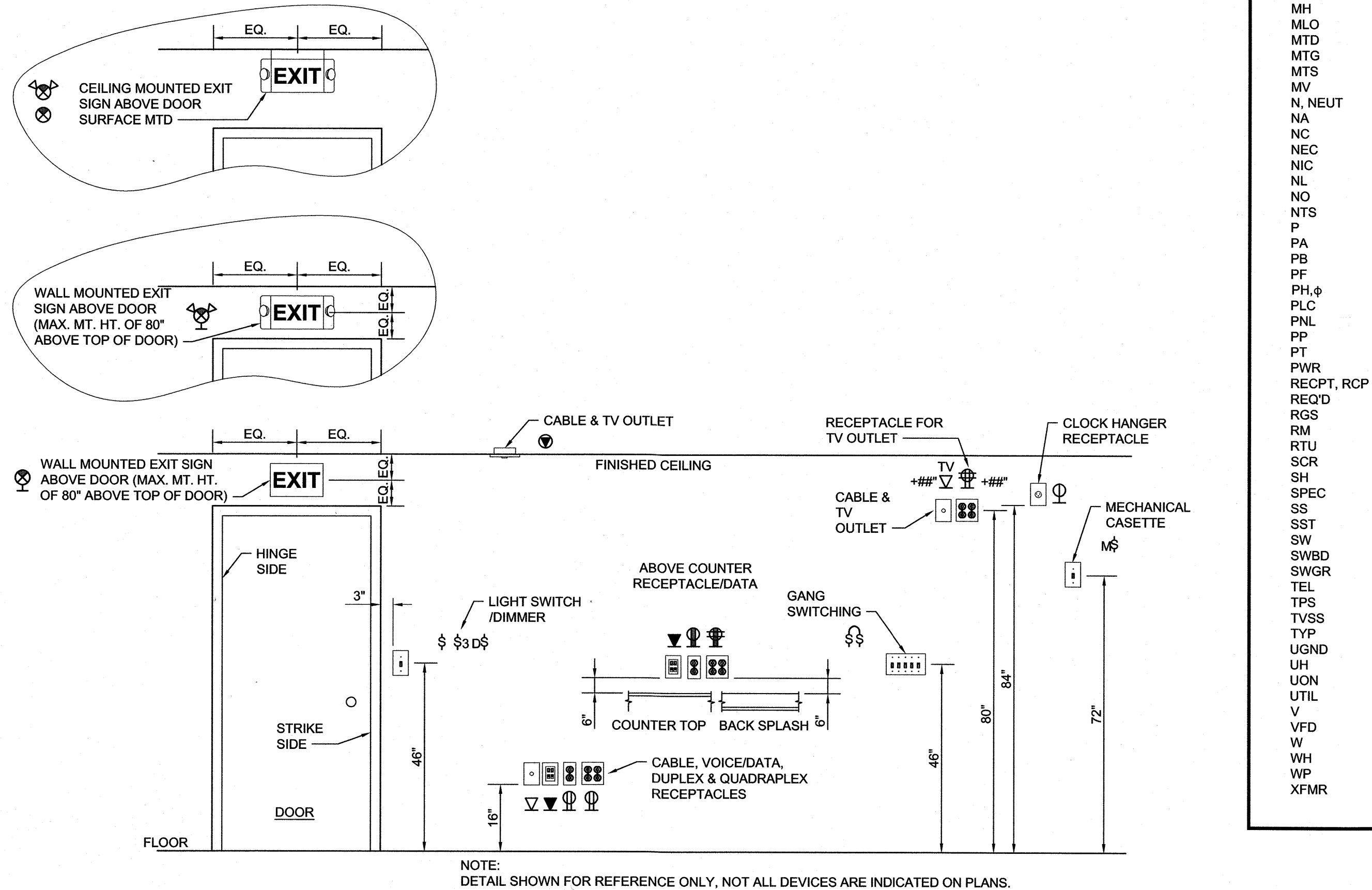
TYPE: NEMA 1 BOLT-ON	480 MOUNT: FEED:	277 V. SURFACE TOP	3 PH.	4 WIRE	MANUFACTURER: SQUARE D MODEL: NF 18 KAIC					
LOAD SERVED	LOAD VA	CKT #	CKT #	LOAD VA			CKT #	CKT BKR	LOAD VA	LOAD SERVED
[X]COND H2O PUMP		803	1	A	B	C	2	153		[X]SPARE
"			3				4			"
"			5				6			"
[X]CLG TWR SUMP HEATER CIR #1		203	7				8	153		[X]AHU-9
"			9				10			"
"			11				12			"
[X]KAESER AIR COMPRESSOR		203	13	3,880			14	303	3,880	[X]AHU-10
"			15		3,880		16		3,880	"
"			17			3,880	18		3,880	"
[X]FIRE JOCKEY PUMP		203	19				20	153		[X]AHU-12
"			21				22			"
"			23				24			"
[X]CLG TWR SUMP HEATER CIR #2		203	25				26	153		[X]AHU-13
"			27				28			"
"			29				30			"
[X]H2O HEATER D		453	31				32	153		[X]AHU-14
"			33				34			"
"			35				36			"
[X]CRITEC		303	37				38			[X]SPACE
"			39				40			[X]SPACE
"			41				42	201		[X]SPARE
NOTES:				3,880	3,880	3,880	TOTAL V. AMPS		250	A. BUS (COPPER)
				14	14	14	CONN. AMPS		250	A. MAIN LUGS

TYPE: NEMA 1 BOLT-ON	480 MOUNT: FEED:	277 V, SURFACE TOP	3 PH,	4 WIRE	MANUFACTURER: SQUARE D MODEL: NF 18 KAIC				
LOAD SERVED	LOAD VA	CKT BKR	CKT #	LOAD VA		CKT #	CKT BKR	LOAD VA	LOAD SERVED
(X)COND H2O PUMP		603	1	A	B	C	2	153	(X)SPACE
"			3				4		"
"			5				6		"
(X)CLG TWR SUMP HEATER CIR #1		203	7				8	153	(X)AHU-9
"			9				10		"
"			11				12		"
(X)KAESER AIR COMPRESSOR		203	13	2,882			14	153	2,882 AHU-10 (NOTE 2)
"			15		2,882		16		2,882 "
"			17			2,882	18	2,882	"
(X)FIRE JOCKEY PUMP		203	19				20	153	(X)AHU-12
"			21				22		"
"			23				24		"
(X)CLG TWR SUMP HEATER CIR #2		203	25				26	153	(X)AHU-13
"			27				28		"
"			29				30		"
(X)H2O HEATER D		453	31				32	153	(X)AHU-14
"			33				34		"
"			35				36		"
(X)CRITEC		303	37				38		(X)SPACE
"			39				40		(X)SPACE
"			41				42	201	(X)SPACE
NOTES:				2,882	2,882	2,882	TOTAL V. AMPS	250 A. BUS (COPPER)	
1. HVAC & REFRIG. EQUIP. SHALL USE TYPE HACR BREAKERS.				10	10	10	CONN. AMPS	250 A. MAIN LUGS	
2. PROVIDE NEW BREAKER IN PLACE OF EXISTING - MATCH AIC RATING									

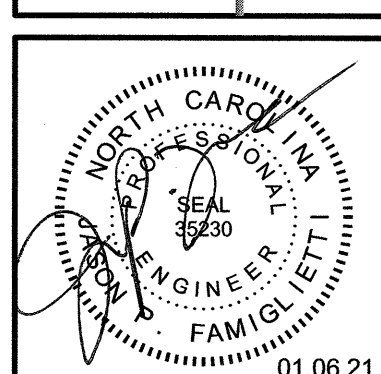
VOLTAGE	PHASE
480	3
LOADS REMOVED THIS PROJECT	
EQUIPMENT	
AHU1-96	2,738 VA
CU1-96	28,246 VA
AHU-10	11,640 VA
TOTAL HVAC EQUIPMENT REMOVED THIS PROJECT	49,500 VA
TOTAL HVAC EQUIPMENT REMOVED THIS PROJECT	60 AMPS
TOTAL LOAD REMOVED THIS PROJECT	
60 AMPS	
TOTAL LOAD REMOVED THIS PROJECT	49,500 VA
LOAD ADDED THIS PROJECT	
EQUIPMENT	
AHU1-96	7,494 VA
CU1-96	24,787 VA
AHU-10	8,647 VA
SUB-TOTAL EQUIPMENT DEMAND	40,927 VA
TOTAL EQUIPMENT DEMAND	49 AMPS
RECEPTACLES	
TOTAL DEMAND FOR RECEPTACLE	360 VA
TOTAL DEMAND FOR RECEPTACLE	360 VA
TOTAL DEMAND FOR RECEPTACLE	1 AMPS
TOTAL LOAD ADDED THIS PROJECT	50 AMPS
TOTAL LOAD ADDED THIS PROJECT	41,759 VA
NET LOAD CHANGED THIS PROJECT	-9 AMPS
	-7,741 VA

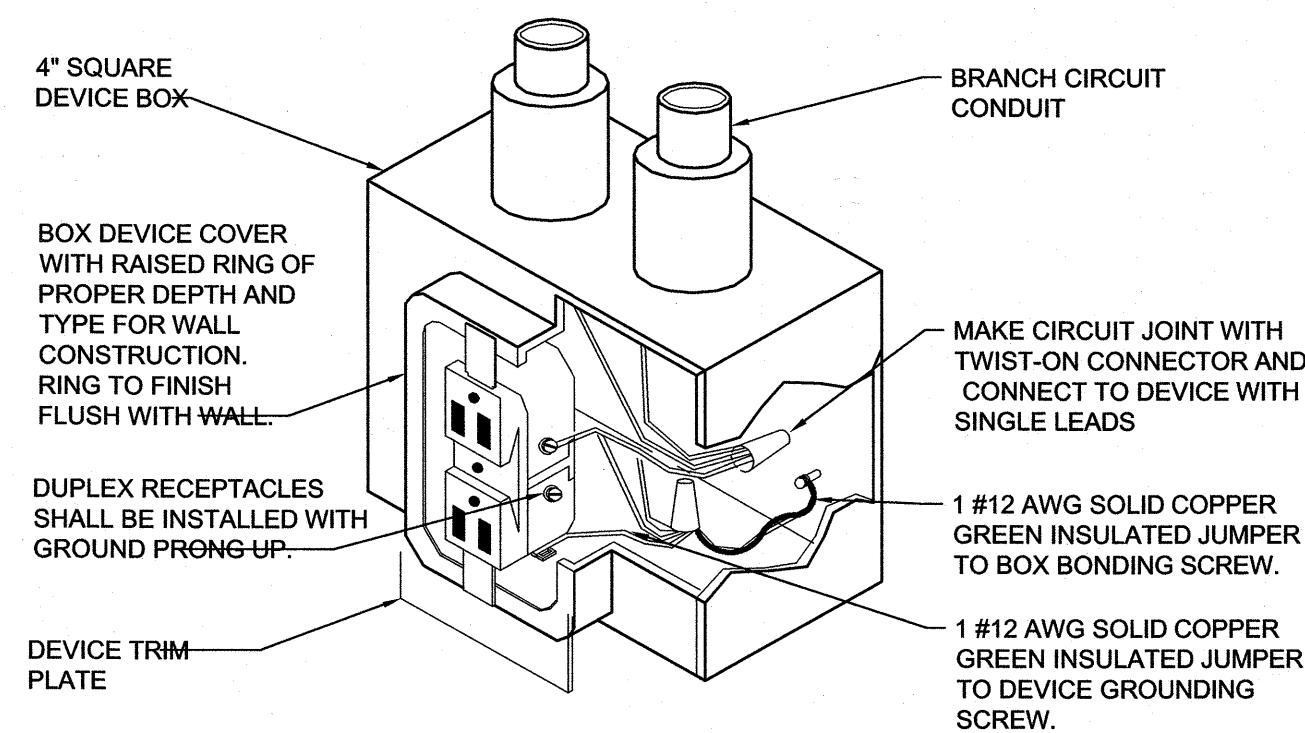
SYMBOL	DESCRIPTION
	CONDUIT, HOME RUN TO PANEL BOARD
	RECEPTACLE, DUPLEX, 120VAC, 20A, MOUNTED 16" AFF, UNLESS OTHERWISE NOTED. (SEE ELECTRICAL MOUNTING HEIGHT DETAIL) WP - LISTED WEATHER-RESISTANT TYPE DEVICE WITH WEATHERPROOF IN USE COVER GFI - GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 6" ABOVE COUNTER OR BACK SPLASH LOCATE GFI TEST SWITCH IN A READILY ACCESSIBLE LOCATION TR - TAMPER RESISTANT
30A/3/3R, W/ 30AF 	DISCONNECT SWITCH, FUSED, HEAVY (GENERAL) DUTY, SIZE AS INDICATED ON DRAWINGS (SIZE AS INDICATED IN THE EQUIPMENT CONNECTION SCHEDULE) ###A = DISCONNECT SIZE / # = NUMBER OF POLES / # = NEMA RATING, ###AF = FUSE SIZE
	MANUAL MOTOR STARTER, ELECTRICAL CONTRACTOR SHALL COORDINATE POLES AND SIZE WITH EQUIPMENT ## = AMPERAGE RATING WHEN INDICATED ON DRAWING
	PANELBOARD, SURFACE OR RECESSED MOUNTED AS SHOWN. SIZE, RATINGS, AND MOUNTING AS INDICATED ON PANEL SCHEDULE. CONTRACTOR IS RESPONSIBLE FOR REQUIRED CLEARANCE IN FRONT OF ELECTRICAL PANEL. SEE NEC TABLE 110.26 WORKING SPACES FOR ADDITIONAL CLEARANCE CONDITIONS.
	ELECTRICAL MOTOR
	HATCHING INDICATES ITEMS TO BE DEMOLISHED. REMOVE DEVICE, EQUIPMENT, FIXTURE INDICATED, CIRCUIT, AND CONDUIT BACK TO SOURCE UNLESS OTHERWISE NOTED.

A, AMP	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BOF	BOTTOM OF FIXTURE
BRKR	BREAKER
C, CND	CONDUIT
CAB	CABINET
CAT	CATALOG
CL	CHLORINE
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
CP	CONTROL PANEL
CR	CONTROL RELAY, CORROSION RESISTANT
CS	CONTROL SWITCH
CV	CONTROL VALVE
CT	CURRENT TRANSFORMER
CU	COPPER
EF	EXHAUST FAN
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
EW	ELECTRIC WATER COOLER
EWX	EXTRIC WATER HEATER
EPRF	EXPLOSION PROOF
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FLR	FLOOR
FWE	FURNISHED WITH EQUIPMENT
GEN	GENERATOR
G, GND	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSE POWER
HPE	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
Hz	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
INCAND	INCANDESCENT
JB	JUNCTION BOX
K	THOUSAND
KCMIL	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERE
KW	KILOWATTS
KWH	KILOWATT-HOURS
LP	LIGHTING PANEL, LIGHT POLE
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N, NEUT	NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NATIONAL ELECTRIC CODE
NI	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
P	POLE
PA	PUBLIC ADDRESS
PB	PULL BOX, PUSH-BUTTON
PF	POWER FACTOR
PH,φ	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PP	POWER PANEL, POWER POLE
PT	POTENTIAL TRANSFORMER
PWR	POWER
RECPT, RCP	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RTU	REMOTE TELEMETRY UNIT
SCR	DC MOTOR DRIVE
SH	SHEET
SPEC	SPECIFICATION
SS	SELECTOR SWITCH
SST	STAINLESS STEEL
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCH GEAR
TEL	TELEPHONE
TPL	TWISTED PAIR SHIELDED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UGND	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UTIL	UTILITY
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WATT
WH	WATT-HOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER

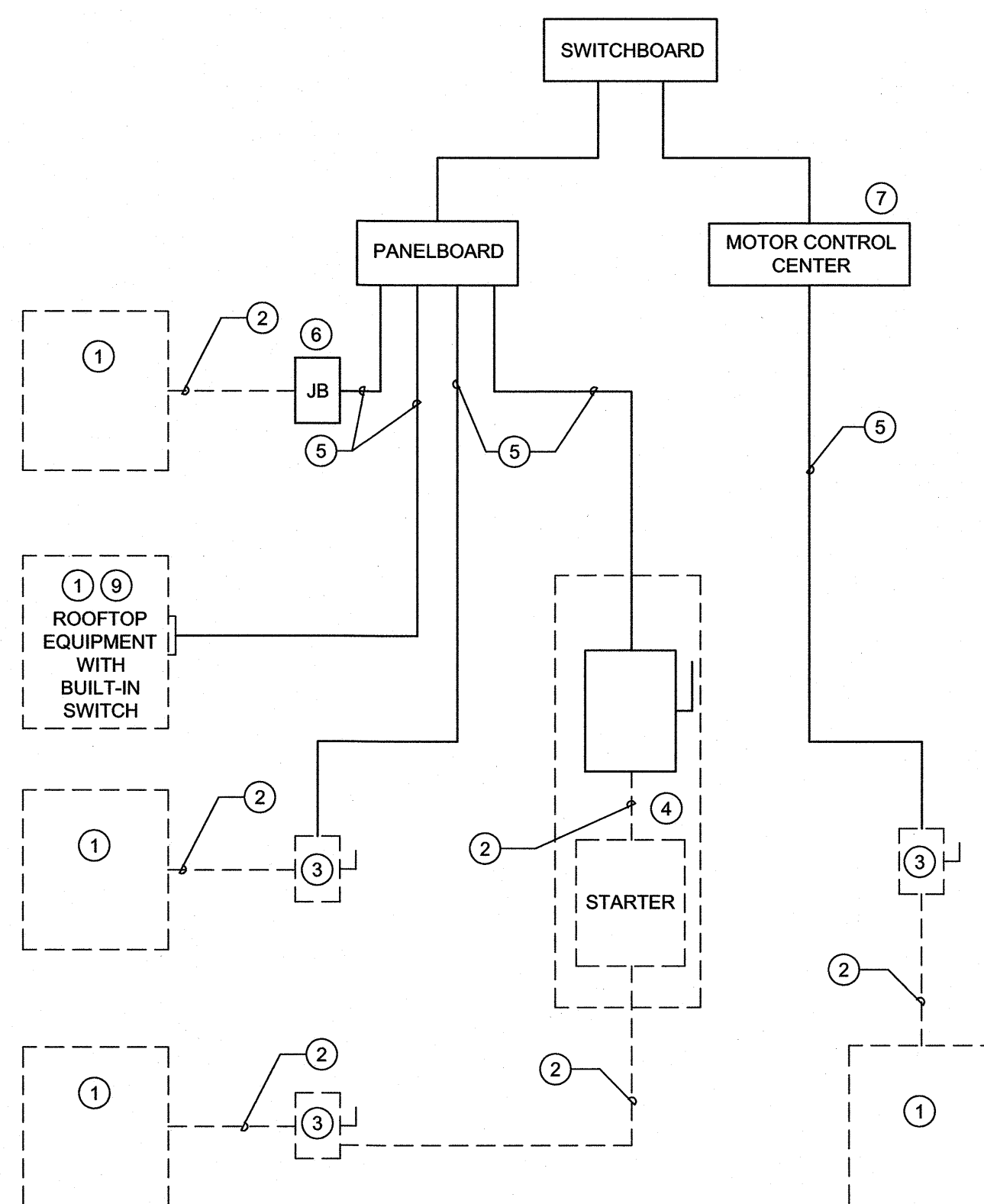


NOT TO SCALE



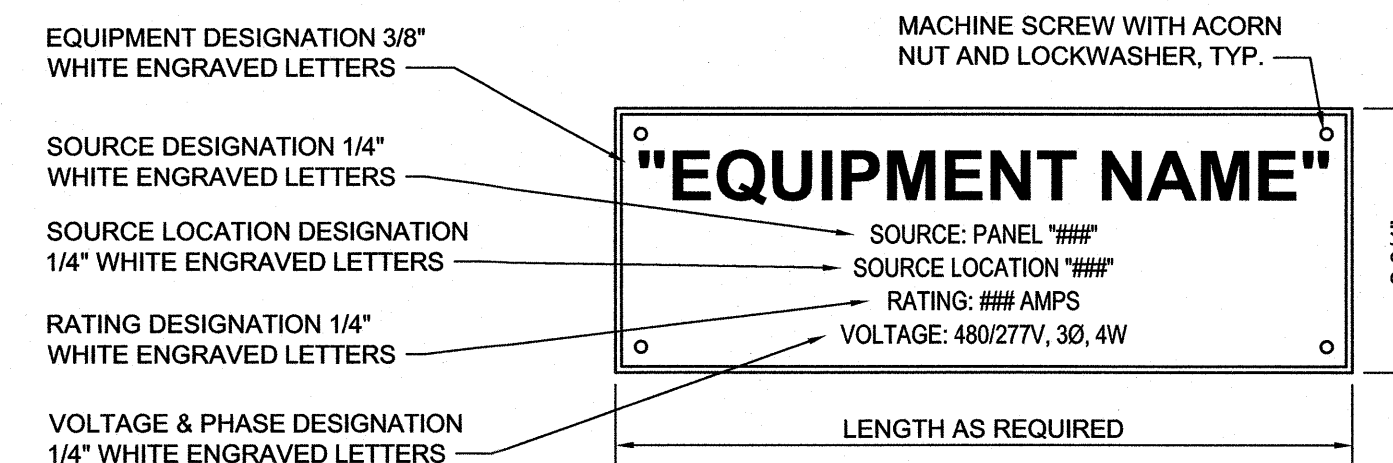


C1 RECEPTACLE GROUNDING DETAIL
NOT TO SCALE



A1 EQUIPMENT CONNECTION DETAIL
NOT TO SCALE

- ELECTRICAL NOTES**
- EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
 - CONDUIT AND WIRING BY HVAC, PLUMBING CONTRACTOR OR OTHER TRADES.
 - IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR.
 - A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER. LOCATE ADJACENT TO EQUIPMENT.
 - FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK. SEE PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
 - JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING WILL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
 - PROJECTS UTILIZING AN MCC, THE STARTER CB, OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.
 - IN ALL CASES THE EQUIPMENT CONTRACTOR SHALL MAKE FINAL CONNECTIONS, START UP AND TEST EQUIPMENT.
 - IF THE ROOF TOP FAN IS NOT PROVIDED WITH BUILT IN SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.
 - IN A SINGLE PRIME CONTRACT, IT IS THE RESPONSIBILITY OF THE PRIMARY CONTRACTOR TO COORDINATE BETWEEN THE ELECTRICAL AND OTHER TRADES.



C4 TYPICAL EQUIPMENT NAMEPLATE DETAIL
NOT TO SCALE

TABLE 110.26(A)(1) - WORKING SPACES

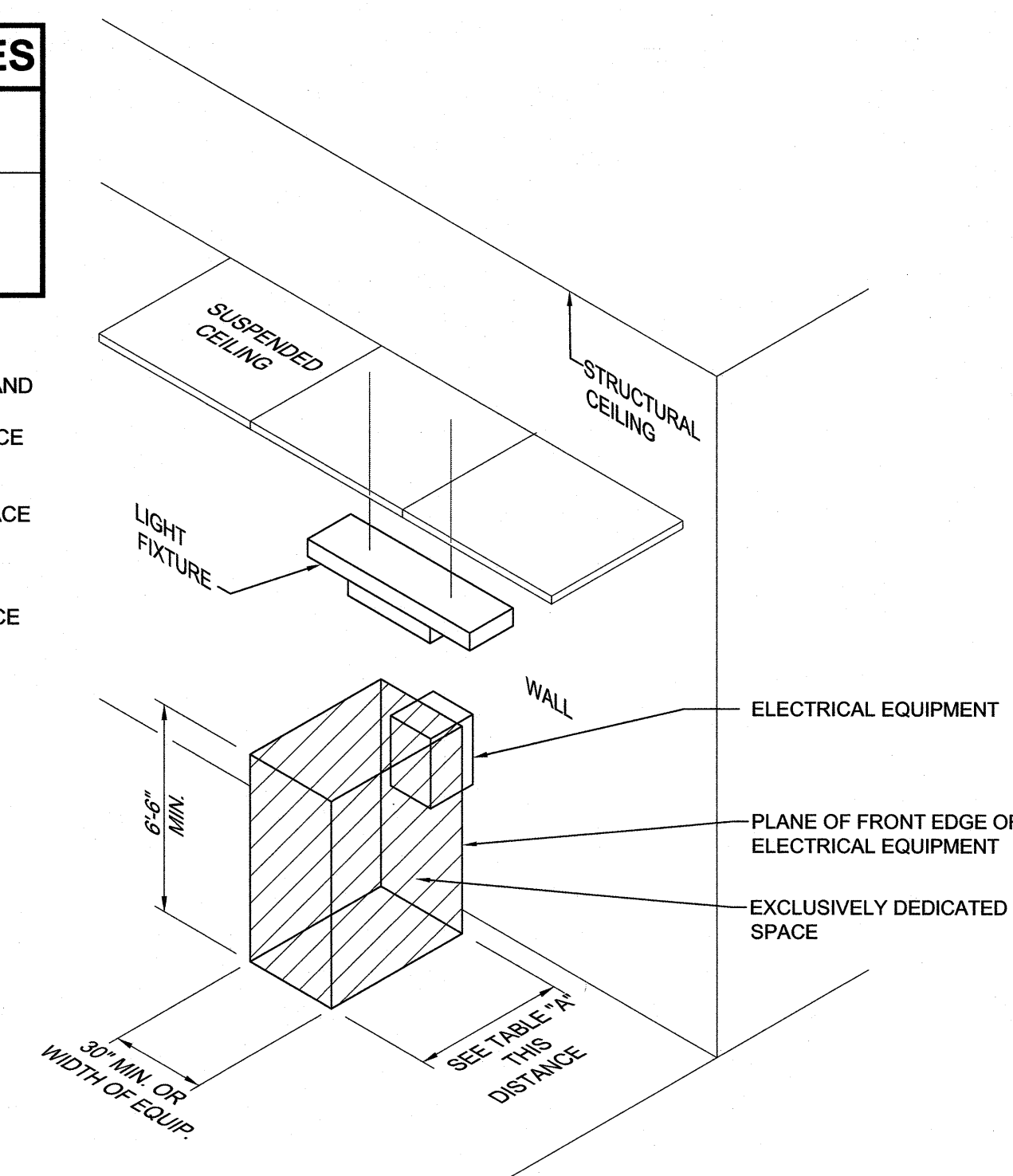
NOMINAL VOLTAGE TO GROUND	MINIMUM CLEAR DISTANCE (FEET)		
	CONDITION 1	CONDITION 2	CONDITION 3
0 - 150	900mm (3 ft)	900mm (3 ft)	900mm (3 ft)
151 - 600	900mm (3 ft)	1.0m (3 ft 6 in.)	1.2 m (4 ft.)
151 - 600	900mm (3 ft)	1.2 m (4 ft.)	1.5 m (5 ft.)

NOTE: WHERE THE "CONDITIONS" ARE AS FOLLOWS:

CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.

CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF WORKING SPACE. CONCRETE BRICK, OR TILE WALLS SHALL BE CONSIDERED GROUNDED.

CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE



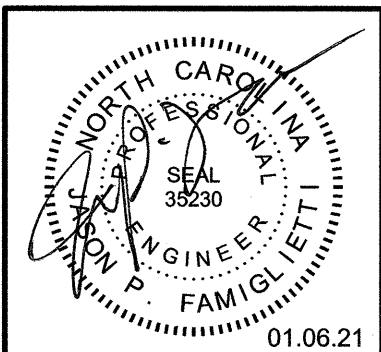
A4 WORKING CLEARANCE FOR ELECTRICAL
NOT TO SCALE

01.06.21	DATE
0	REVISION NO.
ISSUED FOR BID	DESCRIPTION
0	REVISION NO.
0	REVISIONS

CBHF
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NC# P-0506



FORT FISHER AQUARIUM
REPLACEMENT OF AHU 1-96, AHU-10 & CU 1-96
STATE ID# 20-22501-01
900 Loggerhead Road Kure Beach, North Carolina

ELECTRICAL DETAILS

JOB NO.:	20158
DRAWN:	GAS
DESIGNED:	GAS
CHECKED:	JPF
DRAWING NO.:	E-002
REVISION:	0

ELECTRICAL GENERAL NOTES:			DEMOLITION NOTES:
1.	THE CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS FOR WORK REQUIREMENTS, THE AMOUNT OF SPACE AVAILABLE FOR ELECTRICAL EQUIPMENT, AND LAYOUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER.	25. DO NOT PULL CONDUCTORS UNTIL THE CONDUIT SYSTEM IS COMPLETE IN EVERY DETAIL. IN THE CASE OF CONCEALED WORK, "COMPLETE" MEANS UNTIL ALL ROUGH PLASTERING OR MASONRY HAS BEEN COMPLETED.	1. SELECTIVE ELECTRICAL DEMOLITION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AS DESCRIBED HEREIN AND AS SHOWN ON THE CONTRACT DRAWINGS. GROSS DEMOLITION WILL BE PROVIDED BY THE GENERAL CONTRACTOR. IDENTIFY ACTIVE UTILITIES, AND AT THE APPROPRIATE TIME, DISCONNECT AND CAP OFF SUCH UTILITIES AND PROVIDING GENERAL CONTRACTOR DEMOLITION OPERATIONS TO PERFORM SUCH OPERATIONS AND RESOLVE ISSUES. REMOVE MATERIALS NOTED FOR SALVAGE AND REUSE. IDENTIFY AND MARK WIRING AND DEVICES TO REMAIN FOR THE GENERAL CONTRACTOR.
2.	THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THOROUGHLY FAMILIARIZING HIMSELF WITH ANY CONTRACTUAL REQUIREMENTS AS MAY BE SET FORTH IN THE OTHER DIVISIONS OF THE PROJECT SPECIFICATIONS.	26. WHERE SIZE IS NOT SHOWN ON THE DRAWINGS, BRANCH CIRCUITS SHALL CONSIST OF #12 OR #10 AWG MINIMUM PHASE, NEUTRAL AND EARTHING GROUND CONDUCTORS IN 3/4" MINIMUM RACEWAY.	2. THE ELECTRICAL CONTRACTOR SHALL REVIEW THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DEMOLITION REQUIREMENTS AND CARRY OUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER. REMOVE ALL WIRING DEVICES, BOXES, FIXTURES, EXPOSED ABANDONED RACEWAYS, HANDS, ETC., AND THOSE MADE OBSOLETE BY THESE ALTERATIONS AND AS SHOWN ON THE ELECTRICAL DRAWINGS, ALL ITEMS TO BE REMOVED OR MODIFIED MAY NOT BE SHOWN. HOWEVER, THIS CONTRACTOR SHALL REMOVE ANY ELECTRICAL WORK AS REQUIRED BY THE CONSTRUCTION OR AS DIRECTED BY THE OWNER OR ENGINEER. SURVEY ALL AREAS BEFORE SUBMITTING A BID AS ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DEPICED ON THE DRAWINGS AND SOME UNUSUAL CONDITIONS MAY EXIST.
3.	UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. INCIDENTAL COMPONENTS MAY NOT BE SHOWN, AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THIS WORK, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN THE BID. ADDITIONAL CIRCUITS SHALL BE INSTALLED WHEREVER NEEDED TO CONFORM TO THE SPECIFIC REQUIREMENTS OF EQUIPMENT.	27. USE #10 AWG CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS WITH A TOTAL INSTALLED LENGTH GREATER THAN 75 FEET AND/OR BRANCH CIRCUIT HOMERUNS LONGER THAN 50 FEET, I.E.; #12 AWG INCREASED TO #10 AWG FOR RECEPTACLE BRANCH CIRCUITS OVER 75 FEET TOTAL LENGTH (INCLUDING THE HOMERUN SEGMENT) AND HOMERUNS OVER 50 FEET, IF 277 VOLT CIRCUITS ARE SHOWN, USE #10 AWG CONDUCTORS FOR 20 AMPERE, 277 VOLT BRANCH CIRCUITS WITH TOTAL INSTALLED LENGTH GREATER THAN 200 FEET AND/OR BRANCH CIRCUIT HOMERUNS LONGER THAN 125 FEET, I.E.; #12 AWG INCREASED TO #10 AWG FOR RECEPTACLE BRANCH CIRCUITS OVER 75 FEET TOTAL LENGTH (INCLUDING THE HOMERUN SEGMENT) AND HOMERUNS OVER 50 FEET.	3. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
4.	TEMPORARY POWER CONNECTIONS AS REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN THE BID. ALL TEMPORARY EQUIPMENT WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE CONTRACTOR SHALL PROVIDE DETAILS, METHODS, MATERIALS, ETC. FOR REVIEW PRIOR TO MAKING TEMPORARY CONNECTIONS. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS INCLUDING CONTROL EQUIPMENT, MOTOR STARTERS, BRANCH AND FEEDER CIRCUIT BREAKERS, PANELBOARDS, TRANSFORMERS, ETC. FOR TEMPORARY POWER. COORDINATE WITH THE ELECTRICAL UTILITY COMPANY AS REQUIRED.	28. KEEP CONDUIT SPLICES TO A MINIMUM. INSTALL SPLICES AND TAPES THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH CONDUCTOR MATERIAL. INSTALL CONDUCTORS AT EACH OUTLET WITH AT LEAST 6 INCHES OF SLACK. CONNECT OUTLETS AND COMPONENTS TO WIRING AND TO GROUND AS INDICATED AND INSTRUCTED BY THE MANUFACTURER.	4. ALL EXISTING ELECTRICAL EQUIPMENT AND DEVICES SHALL REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED.
5.	THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND WIRING AT THE COMPLETION OF WORK AND ANY MINOR CORRECTIONS, CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT.	29. DO NOT SPLICE BRANCH CIRCUIT HOMERUNS WITHOUT THE PERMISSION OF THE ENGINEER. HOMERUNS SHALL BE CONTINUOUS FROM THE LAST OUTLET BOX TO THE SERVING PANELBOARD.	5. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON DRAWINGS.
6.	ALL EQUIPMENT SHOWN DOTTED OR DASHED IS BY OTHERS OR IS EXISTING, AS NOTED.	30. DO NOT COMBINE BRANCH CIRCUIT HOMERUNS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS.	6. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.
7.	ALL ELECTRICAL EQUIPMENT SHALL, AT ALL TIMES DURING CONSTRUCTION, BE ADEQUATELY PROTECTED AGAINST MECHANICAL INJURY, OR DAMAGE BY WATER AND/OR THE ELEMENTS. ELECTRICAL EQUIPMENT SHALL NOT BE STORED OUT OF DOORS, BUT SHALL BE STORED IN DRY PERMANENT SHELTERS. IF AN APPARATUS HAS BEEN DAMAGED, OR HAS BEEN SUBJECT TO POSSIBLE INJURY BY WATER OR THE ELEMENTS, SUCH DAMAGE SHALL BE REPLACED AT NO ADDITIONAL COST.	31. DO NOT CHANGE CIRCUITING SHOWN WITHOUT PERMISSION OF THE ENGINEER.	7. DISCONNECT AND/OR DE-ENERGIZE ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.
8.	DO NOT SCALE ELECTRICAL DRAWINGS. FIELD VERIFY ALL DIMENSIONS.	32. INSTALL WIRING DEVICES AT HEIGHTS AS SHOWN ON THE DRAWINGS. ALSO COORDINATE MOUNTING HEIGHTS WITH THE DRAWINGS AND CASEWORK DETAILS.	8. PROVIDE TEMPORARY AND/OR PERMANENT WIRING AND CONNECTIONS AS SHOWN AND/OR AS REQUIRED BY CONDITIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, AND WHEN SUCH WORK IS SPECIFICALLY APPROVED BY THE OWNER AND PERMITTED BY REGULATORY AUTHORITIES, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.
9.	CIRCUIT LAYOUTS ARE NOT INTENDED TO SHOW THE NUMBER OF FITTINGS, OR OTHER INSTALLATION DETAILS. UNLESS NOTED OTHERWISE, THE EXACT ROUTING OF FEEDER AND BRANCH CIRCUIT RACEWAYS AND CABLES IS THE RESPONSIBILITY OF THE CONTRACTOR. RISER AND GENERAL CIRCUIT ARRANGEMENTS ARE SHOWN SCHEMATICALLY AND APPROXIMATELY ONLY. THE CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION.	33. PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL IN ACCORDANCE WITH THE NEC INCLUDING ALL EXTERIOR RECEPTACLES AND RECEPTABLE AREAS SUBJECT TO POSSIBLE WET CONDITIONS.	9. CONTINUOUS SERVICE IS REQUIRED ON ALL CIRCUITS AND OUTLETS AFFECTED BY THESE CHANGES, EXCEPT WHERE THE OWNER WILL PERMIT AN OUTAGE FOR A SPECIFIC TIME. OBTAIN OWNER'S CONSENT BEFORE REMOVING ANY CIRCUIT FROM CONTINUOUS SERVICE.
10.	UNLESS DIMENSIONED, DEVICE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. ADJUST EXACT LOCATIONS AS REQUIRED TO SERVE THE INTENDED PURPOSE AND TO AVOID CONFLICTS AND INTERFERENCES WITH OTHER TRADES.	34. COORDINATE LOCATIONS OF MECHANICAL AND OF OWNER-PROVIDED EQUIPMENT WITH THE RESPECTIVE CONTRACTORS AND VENDOR AND THE OWNER BEFORE ROUGH-IN. ADJUST LIGHTING FIXTURES, RECEPTABLES AND ELECTRICAL EQUIPMENT TO ACCOMMODATE THIS EQUIPMENT. ADVISE THE ENGINEER OF CONFLICTS BEFORE ROUGH-IN. SEE SPECIFICATIONS SECTION 260580 FOR ADDITIONAL DETAIL INVOLVING WORK WITH OTHER TRADES.	10. PROTECT ALL EXISTING TELEPHONE, DATA, LIFE SAFETY SYSTEMS, FIRE ALARM, SECURITY, ACCESS CONTROL AND PUBLIC ADDRESS SYSTEMS AND MAINTAIN THEM IN OPERATION THROUGHOUT THE PROGRESS OF THE WORK. NOTIFY THE OWNER IN WRITING OF ANY SHUTDOWNS OR ANY OUTAGE OF SERVICE. WHERE THE DURATION OF A PROPOSED OUTAGE CANNOT BE TOLERATED BY THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.
11.	CONDUIT TERMINATING IN PRESSED STEEL BOXES SHALL HAVE DOUBLE LOCKNUTS AND INSULATED BUSHINGS. CONDUITS TERMINATING IN GASKETED ENCLOSURES SHALL BE TERMINATED WITH GROUNDING TYPE CONDUIT HUBS.	35. BEFORE COMMENCING WORK OR ORDERING MATERIALS, THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND VERIFY THE NAMEPLATE RATINGS OF ALL EQUIPMENT (MOTORS, HEATERS, COMPRESSORS, ETC.) AND ADJUST THE RATINGS OF THE ELECTRICAL EQUIPMENT (SWITCHES, FUSES, CIRCUIT BREAKERS, FEEDERS, ETC.) AS APPROPRIATE TO SERVE THIS EQUIPMENT.	11. WHERE ELECTRICAL SYSTEMS PASS THROUGH THE DEMOLITION AREAS TO SERVE OTHER PORTIONS OF THE PREMISES, THEY SHALL BE PROTECTED FROM DAMAGE AND REMAIN OR BE SUITABLY RELOCATED UTILIZING MATCHING SIZE AND TYPE MATERIALS AND THE SYSTEM RESTORED TO NORMAL OPERATION. ADVISE THE ENGINEER IMMEDIATELY IF SUCH CONDITIONS ARE UNCOVERED BEFORE PROCEEDING WITH ADDITIONAL WORK.
12.	BRANCH CIRCUIT HOMERUNS SHOWN ON DRAWINGS INDICATE PHASE CONDUCTORS, NEUTRAL, EQUIPMENT GROUND CONDUCTORS AS REQUIRED. ADDITIONAL CONDUCTORS REQUIRED FOR CONTROL SHALL BE INCLUDED EVEN IF NOT EXPLICITLY SHOWN.	36. UNLESS SPECIFICALLY NOTED OTHERWISE, THE CONTRACTOR PROVIDING THE EQUIPMENT SHALL MAKE FINAL CONNECTIONS TO HIS EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL, PLUMBING AND GENERAL CONTRACTORS PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT. TO VERIFY MECHANICAL, PLUMBING AND GENERAL CONTRACTOR PROVIDED EQUIPMENT REQUIREMENTS ARE PROVIDED IN THE ELECTRICAL DESIGN. IF ELECTRICAL REQUIREMENTS DIFFER FROM THOSE SHOWN ON THE DRAWINGS, THE CONTRACTOR PROVIDING THE EQUIPMENT SHALL BE RESPONSIBLE FOR DESIGN AND CONSTRUCTION COSTS ASSOCIATED WITH CHANGING THE ELECTRICAL SYSTEM TO MATCH UTILIZATION EQUIPMENT.	12. EXISTING FIRE ALARM SYSTEM: COORDINATE WORK WITH THE OWNER'S FIRE ALARM SYSTEM VENDOR AND MAINTAIN THE EXISTING SYSTEM UNTIL THE NEW SYSTEM IS INSTALLED. NOTIFY THE OWNER IN WRITING OF ANY SHUTDOWNS OR SWITCHOVERS AND CONNECTIONS. NOTIFY THE OWNER AND LOCAL FIRE SERVICE AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. LIMIT OUTAGES TO NORMAL BUSINESS HOURS ONLY AND MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA.
13.	SEAL ALL CONDUIT OPENINGS THROUGH EXTERIOR BUILDING WALLS WATERTIGHT.	37. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL STARTERS AND CONTROLS FOR THEIR EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE SAFETY SWITCHES AND CIRCUIT BREAKERS AND PROVIDE WIRING AND CONNECTIONS TO THE LINE SIDE OF SAFETY SWITCHES AND/OR CIRCUIT BREAKERS. THE CONTRACTOR PROVIDING THE EQUIPMENT SHALL PROVIDE LOAD SIDE WIRING AND CONNECTIONS TO EQUIPMENT. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS AND DEVICES FOR THEIR EQUIPMENT.	13. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. ADVISE INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.
14.	IN WET LOCATIONS AND EXTERIOR, ALL WIRING DEVICES SHALL BE WEATHER-RESISTANT LISTED WITH WEATHERPROOF WHILE IN USE COVER.	38. ENERGIZE EQUIPMENT ONLY AFTER OBTAINING PERMISSION FROM THE CONTRACTOR PROVIDING THE EQUIPMENT.	14. ENDS OF ALL CONDUITS TO REMAIN SHALL BE TIGHTLY PLUGGED TO EXCLUDE DUST AND MOISTURE WHILE THE BUILDING IS UNDER RENOVATION.
15.	RACEWAYS PENETRATING FLOORS, CEILINGS OR WALLS SHALL BE PROPERLY SEALED SMOKE/TIGHT.	39. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT TERMINATIONS, PLUGS AND CORSETS WITH VENDOR EQUIPMENT AND VERIFY ALL DEVICE LOCATIONS FOR SPECIALTY EQUIPMENT WITH CASEWORK PRIOR TO ROUGH-IN.	15. PROTECT EXISTING CIRCUITS TO REMAIN AND EXTEND AS REQUIRED UTILIZING MATCHING CONDUCTORS AND CONDUIT SIZE AND TYPE.
16.	RACEWAYS PENETRATING RATED FLOOR, CEILING OR WALL ASSEMBLIES SHALL BE PROPERLY SEALED IN ACCORDANCE WITH THE CORRESPONDING UNDERWRITERS LABORATORIES (OR OTHER APPROVED THIRD PARTY TESTING AGENCY) APPROVED AND LISTED FIRESTOPPING MATERIALS AND MANUFACTURER APPROVED INSTALLATION TECHNIQUES COMPLYING WITH ALL APPLICABLE CODES. SEE DRAWINGS FOR IDENTIFICATION OF RATED WALLS AND CEILINGS.	40. THE LAYOUT AND PLACEMENT OF ELECTRICAL DISTRIBUTION EQUIPMENT IN ELECTRICAL AND MECHANICAL EQUIPMENT ROOMS IS BASED ON PUBLISHED EQUIPMENT SIZES AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. DEVIATIONS FROM CONFIGURATIONS SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE NATIONAL ELECTRIC CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT, PANELBOARDS, TRANSFORMERS, SAFETY SWITCHES, SWITCHBOARDS, ETC. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES. ADVISE THE ENGINEER OF CONFLICTS BEFORE ROUGH-IN.	16. SECURE ALL CIRCUITS, RACEWAYS, CABLE AND CONDUCTORS THAT, AS A RESULT FROM THIS CONSTRUCTION, ARE ABANDONED OR UNUSED, REMOVE UNUSED EXPOSED CONDUIT AND WIRING BACK TO POINT OF CONCEALMENT INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILINGS. REMOVE UNUSED WIRING IN CONCEALED CONDUITS BACK TO SOURCE OR NEAREST POINT OF USAGE. BLANK ABANDONED KNOCKOUTS IN REMAINING BOXES. INSTALL BLANK PLATES FOR ALL UNUSED OUTLETS THAT WILL REMAIN AS A RESULT OF THIS CONSTRUCTION. ALL SUCH WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
17.	ALL RACEWAYS SHALL BE COMPLETED WHERE POSSIBLE IF APPLICABLE, MATCH EXISTING RACEWAY INSTALLATION METHODS AND ROUTINGS AT OR NEAR EXISTING FACILITIES.	41. SEE "SELECTIVE DEMOLITION NOTES" FOR ADDITIONAL REQUIREMENTS.	17. TRACE

