BREAKER SIZE	MINIMUM CONDUCTOR SIZE (AWG)	MINIMUM CONDUIT SIZE	MAX. CONDUCTOR LENGTH (IN FEET) TO INSURE VOLTAGE DROP DOES NOT EXCEED CH. 13 OF F.B.C. REQUIREMENTS (LOAD ASSUMED - 80% BREAKER RATING) VOLTAGE/PHASE 120/1*	208/1*	208/3**
15	#12	1/2"	75	130	
20	#12	1/2"	56	98	
30	#10	3/4"	63	108	
40	#8	1"	72	125	
50	#6	1"	92	159	
60	#6	1"	77	133	
70	#4	1 1/4"		180	138
80	#4	1 1/4"		157	121
90	#3	1 1/4"		173	133
100	#3	1 1/4"		156	120
110	#1	1 1/2"		222	171
125	#1	1 1/2"		195	150
150	1/0	1 1/2"			167
175	2/0	2"			172
200	3/0	2"			190
225	4/0	2 1/2"			212
250	250 MCM	2 1/2"			222
275	300 MCM	2 1/2"			243
300	350 MCM	3"			257
350	2/0	EA. OF (2) 2"			172
400	3/0	EA. OF (2) 2"			190
500	250 MCM	EA. OF (2) 2½"			222
600	350 MCM	EA. OF (2) 3"			257
700	500 MCM	EA. OF (2) 3½"			318
800	300 MCM	EA. OF (3) 2½"			250
1000	400 MCM	EA. OF (3) 3"			273
1200	350 MCM	EA. OF (4) 3"			263
3000	500 MCM	EA. OF (8) 3½"			297
4000	600 MCM	EA. OF (10) 4"			326

NOTE:
15 A. BRKR. REQUIRED BY EQUIPMENT MANUFACTURER

CONTRACTOR TO VERIFY VOLTAGE DROP IF CONDUCTOR/BREAKER COMBINATION INSTALLED IS NOT AS LISTED ABOVE

CONTRACTOR TO UP-SIZE CONDUIT & CONDUCTORS TO ALLOW MAX. VOLTAGE DROP OF 2% FOR FEEDER CIRCUITS AND MAX. OF 3% FOR BRANCH CIRCUITS IF INSTALLED LENGTHS EXCEEDS THOSE LISTED ABOVE.

* DISTANCES INDICATED ALLOW FOR A MAX. OF 3% VOLTAGE DROP FOR BRANCH CIRCUITS IN COMPLIANCE WITH CH. 13 OF F.B.C..

** DISTANCES INDICATED ALLOW FOR A MAX. OF 2% VOLTAGE DROP FOR FEEDER CIRCUITS IN COMPLIANCE WITH CH. 13 OF F.B.C..

SHORT CIRCUIT OUTPUT DATA

LABEL	VOLTS	PH	MOT/GEN STATUS	CALC TYPE	PER UNIT -REACTN-	PER UNIT -RESIST-	X / R RATIO	-SYMMT- CURRENT
XFMR	208	3	NEITHER	P-P	0.76508	0.05101	15.000	36,200 A
MDP	208	3	NEITHER	P-P	0.80319	0.07535	10.659	34,408 A
SFL	208	3	NEITHER	P-P	0.98718	0.36797	2.683	26,347 A
A	208	3	NEITHER	P-P	2.82686	7.17594	0.394	3,599 A
B	208	3	NEITHER	P-P	2.82686	7.17594	0.394	3,599 A
C	208	3	NEITHER	P-P	2.82686	7.17594	0.394	3,599 A
D	208	3	NEITHER	P-P	0.98718	0.36797	2.683	26,347 A
ATS-E	208	3	NEITHER	P-P	0.97775	0.54503	1.794	24,797 A
E	208	3	NEITHER	P-P	1.02767	0.66337	1.549	22,693 A
EA	208	3	NEITHER	P-P	3.80587	5.08196	0.749	4,372 A
EB	208	3	NEITHER	P-P	3.85857	5.22989	0.738	4,271 A
ATS-EM	208	3	NEITHER	P-P	0.97183	0.66707	1.457	23,548 A
EM	208	3	NEITHER	P-P	0.99818	0.74103	1.347	22,328 A
F	208	3	NEITHER	P-P	1.35515	0.95322	1.422	16,753 A
H	208	3	NEITHER	P-P	1.43559	2.29429	0.626	10,256 A
J	208	3	NEITHER	P-P	1.43559	2.29429	0.626	10,256 A
K	208	3	NEITHER	P-P	2.53174	6.14044	0.412	4,179 A
L	208	3	NEITHER	P-P	1.45842	0.56019	2.603	17,767 A
M	208	3	NEITHER	P-P	1.52074	1.21658	1.250	14,253 A
N	208	3	NEITHER	P-P	2.33028	2.50411	0.931	8,115 A
P	208	3	NEITHER	P-P	2.37623	2.56329	0.927	7,941 A
Q	208	3	NEITHER	P-P	3.56299	4.46468	0.798	4,859 A
R	208	3	NEITHER	P-P	2.82686	7.17594	0.394	3,599 A
S	208	3	NEITHER	P-P	3.58597	4.49427	0.798	4,828 A
MC1	208	3	NEITHER	P-P	1.20986	0.30108	4.018	22,264 A
MC2	208	3	NEITHER	P-P	1.20272	0.29712	4.048	22,405 A

VOLTAGE DROP

FED BY	PANEL NAME	LENGTH	WIRE SIZE	CONNECTED LOAD (Amps)	% DROP
MDP	SFL	25	4/0	113	0.15%
MDP	A	192	1	62 **	1.48%
MDP	B	192	1	47 **	1.13%
MDP	C	192	1	55	1.32%
MDP	D	25	4/0	152	0.20%
MDP	F	70	4/0	84	0.30%
MDP	H	66	1	52	0.43%
MDP	R	192	1	26	0.62%
MDP	J	62	1	21	0.16%
MDP	K	174	1	48	1.05%
MDP	L	76	500	372	0.06%
MDP	M	78	4/0	102	0.41%
MDP	N	175	4/0	134 **	1.21%
MDP	Q	303	4/0	104 **	1.63%
MDP	MC1	116	600 ***	969	0.78%
MDP	MC2	111	600 ***	622	0.48%
MDP	EM	25	1	39	0.12%
MDP	E	31	1/0	108	0.34%
N	* P	2	4/0	82	1.22%
Q	* S	2	4/0	44	1.64%
E	* EA	290	2/0	68	1.98%
EA	* EB	2	4	45	2.00%
MC2	* AC-1	167	400	302	1.96%
MC2	* AC-2	244	1	70	2.76%
MC2	* AC-3	194	2	73	2.85%
MC2	* AC-4	31	2	70	0.84%
MC2	* AC-5	249	1	70	2.81%
MC2	* AC-6	205	4	37	2.47%

* INDICATES BRANCH BREAKER OR SUB-FED PANEL WITH TOTAL VOLTAGE DROP BACK TO THE MDP.

** INDICATED IS TOTAL LOAD AT FEED THRU LUGS.

*** INDICATED PARALLEL FEEDERS.

SUMMARY OF LOADS

Description	Connected (kVA)	Demand Factor	Demand (kVA)
1 Lighting	58.4	1.25	73.0
2 Air Conditioning	216.2	1.00	216.2
Total Strip Heat	56.9		
3 Refrigeration (units)	336.0	1.00	336.0
(non-coincidental)	101.4		
4 Kitchen Equipment	278.9	0.65	181.3
5 Misc. Equipment	146.6	1.00	146.6
6 Receptacles (1st 10.0 kW)	10.0	1.00	10.0
(Remaining)	47.8	0.50	23.9
(Total)	57.8		33.9
Total kVA	1195.4	0.83	987.0
Total Amps	3320		2742

ELECTRICAL CHARACTERISTICS

VOLTAGE : 120/208 VOLTS 3PH. 4 WIRE LOADS
MAIN SWITCHGEAR RATING: 100,000 A.I.C.
MIN. FEEDER BREAKER RATING TO BE 100,000 A.I.C.

MAXIMUM AVAILABLE FAULT CURRENT VALUE PROVIDED BY LOCAL UTILITY IS 36,200 AMPS SYMM.
THE CURRENT SYSTEM IS DESIGNED AND BRACED FOR A FAULT CURRENT OF 100,000 AMPS SYMM.

MAIN SWITCHBOARD SCHEDULE

SQUARE 'D' 3000 AMP FRAME SWITCHBOARD RATED 100,000 AIC SYM

CKT. NO.	OVERCURRENT DEVICE FRAME	TRIP	POLES	DEVICE SERVED	CONNECTED VA PHASE A	PHASE B	PHASE C	TOTAL CONNECTED	PANEL DEMAND
	3000	3000	3	MAIN BREAKER	406648	398513	390215	1195376	
1	100	100	3	PANEL 'A'	14180	15819	14357	44356	27603
2	100	100	3	PANEL 'B'	18781	20451	20822	60054	11736
3	100	100	3	PANEL 'C'	17726	21174	18032	56932	20281
4	225	225	3	PANEL 'D'	16944	16304	15507	48755	46081
5	1200	1200	3	PANEL 'MC-1'	96120	99120	96120	291360	291360
6	1200	1200	3	PANEL 'MC-2'	67569	67569	67569	202706	202706
7	225	150	3	PANELS 'E', 'EA' & 'EB'	17601	15451	15663	49015	49203
8	225	125	3	PANEL 'EM'	3782	2758	2310	8851	10863
9	225		3	SPACE ONLY				0	
10	225	225	3	PANEL 'F'	13119	9227	12859	35206	28307
11	225	225	3	SPARE				0	
12	100	100	3	PANEL 'H'	7050	5027	5022	17099	18826
13	100	100	3	PANEL 'J'	3931	2963	4025	10919	
14				BUSSED SPACE(UNUSABLE)				0	
15	100	100	3	PANEL 'K'	6772	7346	4120	18238	18132
16	400	400	3	PANEL 'L'	57322	56426	53426	167174	108977
17	100	100	3	SPARE				0	
18	100		3	SPACE ONLY				0	
19	225	225	3	PANEL 'M'	17432	15812	16992	50236	37546
20	225	225	3	PANEL 'N & P'	21367	21139	18227	60733	44127
21	225	225	3	PANELS 'Q' & 'S'	12212	9625	13100	34937	35271
22	100	100	3	PANEL 'R'	3883	2100	3240	9223	9823
23	225		3	SPACE ONLY				0	
24	100		3	SPACE ONLY				0	
25				BUSSED SPACE(UNUSABLE)				0	
26	100		3	SPACE ONLY				0	
27	225		3	SPACE ONLY				0	
28	225	225	3	PANEL 'SFL'	12559	8202	8825	29586	38721
29	225		3	SPACE ONLY				0	
30	225		3	SPACE ONLY				0	
31	225		3	SPACE ONLY				0	
32									

NOTES:

1. ALL CONDUCTORS SHALL BE COPPER UNLESS NOTED OTHERWISE.
   - ALL CONDUCTORS IN DRY/DAMP LOCATIONS SHALL BE THHN OR EQUAL.
   - ALL CONDUCTORS UNDERGROUND OR IN WET LOCATIONS SHALL BE THWN-2 OR EQUAL.
2. CONTRACTOR TO VERIFY MAXIMUM BREAKER SIZES WITH ACTUAL EQUIPMENT NAME PLATES, PRIOR TO ORDERING BREAKERS
3. CONTRACTOR TO PROVIDE PLAQUES AT ALL LOCATIONS TO IDENTIFY POINTS OF SERVICE IN ACCORDANCE WITH NEC 230-2
4. ***AUTOMATIC TRANSFER SWITCHES (ATS) ARE ONAN OTPC. MDP CIRCUIT BREAKER FEEDING RESPECTIVE ATS TO BE SELECTED TO PROVIDE ATS 100KAIC RATING (MIN.) ACCEPTABLE BREAKER TYPES BY MANUFACTURER:***

   FOR XFER SW.s RATED 40-125 AMPS:
   SQ'D': HD, HG, HJ, HL, JD, JG, JJ, & JL
   SIEMENS: CED6, CFD6, CJD6, & SCJD6
   GE: SEL, SFL, TEC, TECL, TEL, TEML, & TFL

   FOR XFER SW.s RATED 150-260 AMPS:
   SQ'D': HD, HG, HJ, HL, JD, JG, JJ, & JL
   SIEMENS: CED6, CFD6, CJD6, CDL6, SCJD6, & SCLD6
   GE: SEL, SFL, SGL, TEC, TECL, TEL, TEML, & TFL
5. SEE PANELBOARD SCHEDULE SHEET E-16 & E-17 FOR PANELBOARD AIC MINIMUM RATING
6. NO INTEGRAL CONTACTORS PERMITTED
7. UTILITY TRANSFORMER SHOWN HERE IS PROTOTYPE DESIGN. ELECTRICAL CONTRACTOR TO SEE CIVIL UTILITY PLANS FOR EXACT LOCATION FOR BIDDING AND INSTALLATION. ELECTRICAL CONTRACTOR TO COORDINATE ALL UTILITY REQUIREMENTS.
8. EDCO SURGE SUPPRESSION UNIT BY ELECTRICAL CONTRACTOR. MODEL #HP208Y-RMU100. CONTACT KENICK, INC. 1 800-362-9997 REFERENCE PUBLIX STORE NUMBER WITH ORDER.
9. ELECTRICAL CONTRACTOR FIELD MARK ALL SWITCHGEAR AND PANELBOARDS WITH A WARNING CONCERNING THE POTENTIAL ARC FLASH HAZARD. PER NFPA 70 SECTION 110-16. COORDINATE REQUIREMENTS WITH THE AHJ.
10. ELECTRICAL CONTRACTOR TO COORDINATE WITH GENERATOR FIELD REP THAT THE GENERATOR PHASE ROTATION MATCHES THE UTILITY SERVICE.
11. GENERATOR OUTPUT BREAKERS ARE SQ 'D' TYPE HGL. CONTRACTOR TO SELECT PANEL EM BREAKERS TO PROVIDE SELECTIVE COORDINATION PER NFPA-70-700.27
12. ALL CIRCUIT BREAKERS TO BE ARRANGED AS INDICATED ON PANEL SCHEDULE. ANY DEVIATION MUST BE APPROVED BY THE ENGINEER.
13. ***WHERE SERIES RATING IS APPLIED, THE SERIES RATING COMBINATION INTERRUPTING RATING SHALL BE FIELD MARKED ON THE RESPECTIVE PANELBOARD PER NFPA 70, 240.86 AND 110.22. SUBMITTALS SHALL INCLUDE MANUFACTURERS' SERIES RATING CHART. CHARTS SHALL INCLUDE VOLTAGE RATING FOR EACH TYPE OF BREAKER INVOLVED (i.e. 120/208 OR SIMILAR FOR 1 PH.)***
14. ALL PANELBOARD BUSSING, NEUTRAL/GROUND BUSSES TO BE COPPER. USE OF BRANCH MOUNTED MAIN CIRCUIT BREAKER IS NOT ALLOWED.
15. ***ALL BREAKERS IN AN 800 AMP FRAME OR LARGER SHALL BE ELECTRONIC TRIP. TRIP UNIT SHALL PROVIDE LTD, LTPU, STD, STPU, AND INST. ADJUSTMENTS. SUBMITTALS SHALL INCLUDE TIME/CURRENT CURVES (TCC) AND TCC No. FOR ALL ADJUSTABLE BREAKERS.***
16. SELECTIVE COORDINATION IS A REQUIREMENT FOR ALL ELECTRONIC/ADJUSTABLE CIRCUIT BREAKERS AS WELL AS ANY FEEDER AND BRANCH BREAKERS ASSOCIATED WITH THE ELECTRONIC/ADJUSTABLE CIRCUIT BREAKERS. ADDITIONALLY THE EMERGENCY SYSTEM SHALL BE SELECTIVELY COORDINATED PER NFPA 70-700.27 AND NFPA 70-701.27. THE ELECTRICAL CONTRACTOR SHALL CONTACT PUBLIX REP AND PROVIDE TO PUBLIX ENGINEER OF RECORD THE INSTALLED UTILITY TRANSFORMER SIZE AND SERVICE LATERAL CONDUCTOR TYPE AND QTY. AT WHICH TIME A SELECTIVE COORDINATION STUDY WILL BE PERFORMED BY PUBLIX. THE BREAKER SETTINGS WILL BE PROVIDED TO THE ELECTRICAL CONTRACTOR FOR FINAL ADJUSTMENT WITHIN TWO WEEKS AFTER RECEIPT OF THE FIELD INFORMATION. THE REQUEST FOR THE CIRCUIT BREAKER SETTINGS SHALL BE AFTER PERMANENT POWER AND INSTALLATION OF THE REFRIGERATION MACHINE ROOM. UPON COMPLETION OF THE COORDINATION STUDY ANY CIRCUIT BREAKERS PROVIDED BY THE ELECTRICIAN THAT DO NOT COORDINATE, SHALL BE CHANGED (AT NO COST TO PUBLIX) TO CIRCUIT BREAKERS THAT PROVIDE PROPER SELECTIVE COORDINATION. THE ELECTRICAL CONTRACTOR SHALL MAKE ALL CIRCUIT BREAKER ADJUSTMENTS AND HAVE THE PUBLIX ELECTRICAL REPRESENTATIVE WITNESS AND CONFIRM PROPER ADJUSTMENT PRIOR TO C.O./CO.
17. ELECTRICAL CONTRACTOR TO PROVIDE INDEPENDENT, 3RD PARTY INSULATION MEGGER TESTING ON THE SERVICE LATERAL AND GENERATOR FEEDERS. THE TEST SHOULD BE PERFORMED AFTER THE CONDUCTOR INSTALLATION IN THE CONDUIT AND BEFORE ANY CONDUCTOR TERMINATION. MEGGER INSULATION TESTING SHALL BE IN ACCORDANCE TO RECOGNIZED INDUSTRY STANDARDS. MEGGER INSULATION TEST RESULTS SHALL BE RECORDED IN A SPREADSHEET FORMAT ALONG WITH RECORDING DATE, TIME, AMBIENT TEMPERATURE, AND HUMIDITY AT THE TIME OF TEST. THE SPREADSHEET SHALL BE SENT TO THE ENGINEER OF RECORD. AT THE SAME TIME THE FIELD INFORMATION IS SUPPLIED TO ENGINEER OF RECORD FOR THE COORDINATION STUDY. ANY RESISTANCE VALUES OF TEST CABLES FOUND OUTSIDE APPLICABLE MANUFACTURER/ANSI/NETA STANDARDS SHALL BE REPLACED AT NO COST TO THE OWNER. IF ANY CABLES ARE REPLACED, ALL CABLES IN THE RESPECTIVE SERVICE LATERAL AND FEEDER SHALL BE RETESTED. SEE ADDITIONAL REQUIREMENTS IN ELECTRICAL SPECIFICATION, DIVISION 26 00 00, SECTION 1.4.5 AND SECTION 2.21.

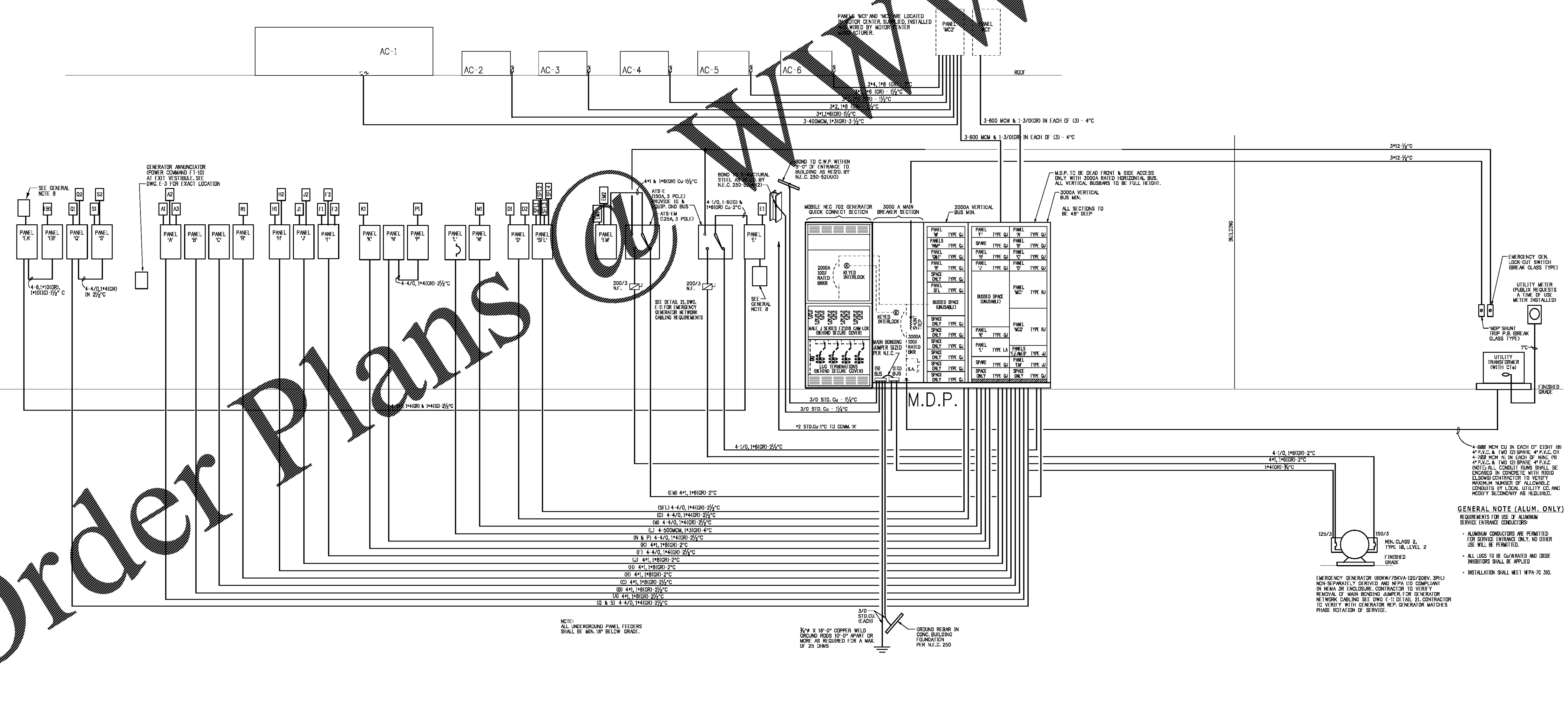
ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL THE FOLLOWING HARDWARE FOR PROPER INSTALLATION OF CONDUCTORS FOR THE 500KW GENERATOR. (WHEN 500KW GENERATOR IS USED)

BURNDY YA36A3 COMPRESSION CONNECTORS FOR 600 MCM CONDUCTORS

BURNDY YA32A3 COMPRESSION CONNECTORS FOR 400 MCM CONDUCTORS

½"x2" STAINLESS STEEL BOLTS

½" STAINLESS STEEL NUTS, WASHERS, AND LOCK WASHERS



GENERAL NOTE (ALUM. ONLY)

REQUIREMENTS FOR USE OF ALUMINUM SERVICE ENTRANCE CONDUCTORS:

- ALUMINUM CONDUCTORS ARE PERMITTED FOR SERVICE ENTRANCE ONLY. NO OTHER USE WILL BE PERMITTED.
- ALL LUGS TO BE Cu/Al RATED AND OXIDE INHIBITORS SHALL BE APPLIED
- INSTALLATION SHALL MEET NFPA-70 310.

Publix. SUPER MARKETS

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CIVIL/STRUCTURAL - FL. REG. 45277
GA. REG. 020251
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VA. REG. 0402055478

ANTHONY CLEMENTI, PE
MECHANICAL - FL. REG. 54781
GA. REG. 31882
SC. REG. 25591
AL. REG. 28469
TN. REG. 111382
NC. REG. 039664
VA. REG. 0402056137

RAYMOND J. SIRIANNI, PE
ELECTRICAL - FL. REG. 54085
GA. REG. 025636
SC. REG. 19743
AL. REG. 23065
TN. REG. 108038
NC. REG. 039963
VA. REG. 0402055379

NORMAN MEIER, PE
ELECTRICAL - FL. REG. 59422
GA. REG. 31492
SC. REG. 25290
AL. REG. 28079

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PLOT DATE: 25 AUG 2017

REVISION DATA:

1637
PUBLIX @ LAKE CROSSING

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LEXINGTON, LEXINGTON, SC

45.9.2
V0807-2017
SIENNA - LITE

ELECTRICAL RISER DIAGRAM

SCALE: NONE

E-9

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