

FAULT CURRENT CALCULATION

TRANSFORMER SIZE (KVA)	300
TRANSFORMER Z (%)	3.50
"C" FACTOR (#400 KCMIL COND.)	24,297
NUMBER OF CONDUCTORS PER PHASE	3
LINE TO LINE VOLTAGE	208
LINE TO NEUTRAL VOLTAGE	120
LENGTH OF SERVICE	20

$$I = \frac{300 \times 1000}{1.73 \times 208} = 833$$

$$I(sc) = \frac{833 \times 100}{3.50} = 23,792$$

$$F = \frac{23,792 \times 24,297 \times 3}{3 \times 24,297 \times 3} = 0$$

$$M = \frac{1}{1+0.05} = 0.95$$

$$Isc AT SERVICE DISCONNECT = 23,792 \times 0.95 = 22,565$$

SERVICE EQUIPMENT RATING = 42,000
SERVICE EQUIPMENT RATING PER 7-ELEVEN REQUIREMENTS = 65,000

AVAILABLE SHORT CIRCUIT RATINGS FOR THE SERVICE DISTRIBUTION EQUIPMENT AND PANELS HAVE BEEN ESTIMATED BASED ON AN ASSUMED SERVICE TRANSFORMER SIZE AND IMPEDANCE. FAULT CURRENTS HAVE BEEN CALCULATED ASSUMING AN "INFINITE BUS" AT THE SERVICE TRANSFORMER PRIMARY. ACTUAL AVAILABLE SHORT CIRCUIT CURRENT AT THE SERVICE DISTRIBUTION EQUIPMENT WILL DEPEND UPON FINAL UTILITY COMPANY TRANSFORMER SELECTION AND PRIMARY FAULT CALCULATIONS. THE AVAILABLE SHORT CIRCUIT CURRENT MAY VARY FROM THE ENGINEER'S CALCULATED VALUES. THE CONTRACTOR SHALL OBTAIN THE ACTUAL TRANSFORMER AVAILABLE SHORT CIRCUIT INFORMATION FROM THE ELECTRICAL UTILITY PROVIDER AT THE TIME OF CONSTRUCTION AND PRIOR TO ORDERING DISTRIBUTION EQUIPMENT AND PANELS. THIS INFORMATION SHALL BE USED TO DETERMINE EXACT A.I.C. RATINGS NEEDED FOR THIS EQUIPMENT. THIS INFORMATION SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT.

SQUARE D - SERIES RATING - 65,000 AIC rev. 7/2013

MAIN BREAKERS	SUB PANEL BREAKERS				
	2-POLE	3-POLE	1-POLE	2-POLE	3-POLE
2-POLE					
3-POLE					
1-POLE					
2-POLE					
3-POLE					

IN ACCORDANCE WITH NEC 240.86(C), SUM OF MOTOR FULL-LOAD CURRENTS WITHIN EACH PANELBOARD DOES NOT EXCEED 125% OF THE LOWEST INTERRUPTING RATING OF THE BRANCH CIRCUIT'S BREAKERS WITHIN EACH PANELBOARD. BREAKERS RATED 10K AIC - 10,000 x .01 = 100A BREAKERS RATED 22K AIC - 22,000 x .01 = 220A

ELECTRICAL CONTRACTOR TO AFFIX A PERMANENT LABEL AT SERVICE ENTRANCE IN ACCORDANCE WITH NEC SECTION 110-22 (C), MARKING SHALL READ "CAUTION - SERIES COMBINATION SYSTEM RATED 65,000 AMPS, IDENTIFIED REPLACEMENT COMPONENTS REQUIRED."

ALL CIRCUIT BREAKERS IN PANELBOARDS "A", "B", "L", "S" SHALL BE SERIES RATED FOR THE AVAILABLE SHORT CIRCUIT CURRENT - 65,000 AMPS MINIMUM. DISTRIBUTION BREAKERS SHALL PROTECT ALL DOWNSTREAM PANELBOARD BREAKERS.

SYMBOL LEGEND

- (N) INDICATES NEW
- (E) INDICATES EXISTING
- (*) INDICATES EXISTING TO EXTEND
- (L) INDICATES LOCKING DEVICE
- (B) INDICATES BLOCKING DEVICE
- (G) INDICATES GFCI BREAKER
- (+) INDICATES 30mA TRIP GFCI BREAKER
- BREAKER
- FUSE
- ⎓ SWITCH
- ⊖ CURRENT TRANSFORMER (CT)

NOTE: NOT ALL SYMBOLS ARE USED

GENERAL ONE-LINE NOTES

1. CLEARLY LABEL MAIN ELECTRICAL SERVICE DISCONNECT(S) PER NEC.
2. PROVIDE ARC FLASH LABELING AS REQUIRED PER NEC 110.16
3. AMPACITY OF ALL CONDUCTOR SIZES SHOWN IS BASED ON 75°C RATED TERMINATIONS AND CONDUCTORS WITH 75°C TYPE INSULATION. CONTRACTOR SHALL FIELD VERIFY TERMINATION RATINGS OF ELECTRICAL EQUIPMENT AND ADJUST CONDUCTOR SIZES AS REQUIRED PER NEC 110.14(C)
4. ALL NEW OVERCURRENT DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE SERIES RATING TABLE OF IDENTIFIED COMPONENTS.
5. ALL NEW PANELS ARE PROVIDED BY 7-ELEVEN, INSTALLED BY GC. ALL PANELBOARD FEEDERS TO BE PROVIDED AND INSTALLED BY GC.
6. G.C. TO PROVIDE AND INSTALL UTILITY METER AND NEW ELECTRICAL SERVICE ENTRANCE. COORDINATE EXACT REQUIREMENTS WITH POWER UTILITY PRIOR TO COMMENCEMENT OF WORK.
7. ELECTRICAL CONTRACTOR TO COORDINATE ALL FUEL REQUIREMENTS WITH FUELING GC. THE ELECTRICAL CONTRACTOR WILL PROVIDE ALL NECESSARY CONDUITS, SEAL-OFFS, TROUGHS AND RACEWAYS FROM THE ELECTRICAL ROOM OR PANEL AREA TO THE EXTERIOR OF THE BUILDING, BUT NOT TO EXCEED 10 FEET FROM THE EXTERIOR BUILDING EDGE. ALL OTHER EQUIPMENT, WIRE, LABOR FOR THE COMPLETION OF THE FUEL SYSTEM TO BE PROVIDED BY THE FUELING GC.

1. 06.21.17 PEER REVIEW COMMENTS
NO. DATE: REMARKS

REVISIONS



BID SET
JANUARY 8, 2018

7-ELEVEN
STORE #32810

5544 RONALD REAGAN PARKWAY
DAVENPORT, FL
33896

PROJECT NO: 2016.0305
DATE: MAY 31, 2017

E1.1
PANEL SCHEDULES AND
ONE-LINE DIAGRAM

CHECKED: SN DRAWN: VLD

PANEL L

LOCATION: ELEC RM VOLTAGE: 208Y/120V TRIM: SURFACE
MAIN: 225A MLO SYSTEM: 3# 4W BUS RATING 225A
CONN. LOAD: 31 KVA FEED: TOP GROUND BUS: YES

OKT	LOAD SERVED	COND	PHASE/NEUT	WIRE	BKR	DMD	MIN	MAX	LOAD SERVED	OKT
1	INS SWMP	3/4"	#12	#12	20/1	R	180	180	LIGHTING	2
2	(B) BOLL LIGHTS	3/4"	#12	#12	20/1	R	300	300	AMM SIGN	4
3	SPACE	-	-	-	-	-	-	-	AMM SIGN	4
4	SPACE	-	-	-	-	-	-	-	WALL CLOCK	6
5	SPACE	-	-	-	-	-	-	-	SPACE	8
6	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	BST PUMP ALARM	10
7	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
8	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
9	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
10	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
11	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
12	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
13	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
14	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
15	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
16	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
17	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
18	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
19	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
20	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
21	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
22	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
23	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
24	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
25	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
26	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
27	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
28	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
29	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
30	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
31	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
32	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
33	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
34	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
35	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
36	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
37	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
38	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
39	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
40	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8
41	COOL MOTOR	3/4"	#12	#12	20/1	R	800	800	SPACE	8

LOADS (IN VA) CONNECTED DEMAND MINIMUM LOADS REMAINING CONTINUOUS LOADS 1580 1.25 1850
RECEPTS TO 10 KVA 1040 1.0 1040
RECEPTS REMAINING 0 0.5 0
SPACE HEATING 0 0.0 0
AIR CONDITIONING 0 1.0 0

REMAINING NON-CONTINUOUS LOADS 14039
LARGEST MOTOR 0 0.25 0
DEMAND LOADS 0 1.0 0
TOTAL CONNECTED LOAD 31 KVA 88 AMPS
MIN. FEEDER/PANEL CAP. 31 KVA 88 AMPS
OVERALL DEMAND FACTOR 1.00

Note 1. Feeder size: SEE RISER DIAGRAM
Note 2. Provide Lockable breaker(s) for circuit(s) 13, 15, 20, 22, 27, 28, 29, 31, 32, 33, 35, 37, 38, 39

PANEL S

LOCATION: ELEC RM VOLTAGE: 208Y/120V TRIM: SURFACE
MAIN: 100A MLO SYSTEM: 3# 4W BUS RATING 100A
CONN. LOAD: 6.8 KVA FEED: TOP GROUND BUS: YES

OKT	LOAD SERVED	COND	PHASE/NEUT	WIRE	BKR	DMD	MIN	MAX	LOAD SERVED	OKT
1	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
2	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
3	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
4	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
5	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
6	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
7	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
8	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
9	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
10	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
11	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
12	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
13	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
14	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
15	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
16	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
17	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
18	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
19	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
20	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
21	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
22	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
23	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
24	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
25	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
26	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
27	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
28	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2
29	VERPHONE	3/4"	#12	#12	20/1	R	180	180	SECURITY ALARM	2

LOADS (IN VA) CONNECTED DEMAND MINIMUM LOADS REMAINING CONTINUOUS LOADS 0 1.25 0
RECEPTS TO 10 KVA 8820 1.0 8820
RECEPTS REMAINING 0 0.5 0
SPACE HEATING 0 0.0 0
AIR CONDITIONING 0 1.0 0

REMAINING NON-SEASONAL MOTORS 0 1.0 0
LARGEST MOTOR 0 0.25 0
DEMAND LOADS 0 1.0 0
TOTAL CONNECTED LOAD 6.8 KVA 18.8 AMPS
MIN. FEEDER/PANEL CAP. 6.8 KVA 18.8 AMPS
OVERALL DEMAND FACTOR 1.00

Note 1. Feeder size: SEE RISER DIAGRAM
Note 2. Provide Lockable breaker(s) for circuit(s) 5

PANEL MDP

LOCATION: EXTERIOR VOLTAGE: 208Y/120V TRIM: SURFACE
MAIN: 800A MLO SYSTEM: 3# 4W BUS RATING 800A
CONN. LOAD: 180.1 KVA FEED: TOP GROUND BUS: YES

OKT	LOAD SERVED	COND	PHASE/NEUT	WIRE	BKR	DMD	MIN	MAX	LOAD SERVED	OKT
1	KEY-MAIN	3/4"	#12	#12	20/1	R	21210	21210	PANEL A	2
2	KEY-MAIN	3/4"	#12	#12	20/1	R	21482	21482	PANEL A	2
3	KEY-GENERATOR	3/4"	#12	#12	20/1	R	22230	22230	PANEL B	4
4	KEY-GENERATOR	3/4"	#12	#12	20/1	R	20250	20250	PANEL B	4
5	SPACE	-	-	-	-	-	23620	23620	PANEL L	6
6	SPACE	-	-	-	-	-	7800	7800	PANEL L	6
7	LIFT SWICH	1/2"	#10	#10	30/3	M	22710	22710	PANEL S	8
8	LIFT SWICH	1/2"	#10	#10	30/3	M	2440	2440	PANEL S	8

LOADS (IN VA) CONNECTED DEMAND MINIMUM LOADS REMAINING CONTINUOUS LOADS 3100 1.25 3875
RECEPTS TO 10 KVA 14328 1.25 17811
RECEPTS REMAINING 0 0.5 0
SPACE HEATING 0 0.0 0
AIR CONDITIONING 40880 1.0 40880

REMAINING NON-CONTINUOUS LOADS 38528
LARGEST MOTOR 0 0.25 0
DEMAND LOADS 0 1.0 0
TOTAL CONNECTED LOAD 180.1 KVA 497 AMPS
MIN. FEEDER/PANEL CAP. 180.1 KVA 497 AMPS
OVERALL DEMAND FACTOR 1.00

Note 1. Feeder size: SEE RISER DIAGRAM

PANEL A

LOCATION: ELEC RM VOLTAGE: 208Y/120V TRIM: SURFACE
MAIN: 225A MLO SYSTEM: 3# 4W BUS RATING 225A
CONN. LOAD: 68.2 KVA FEED: TOP GROUND BUS: YES

OKT	LOAD SERVED	COND	PHASE/NEUT	WIRE	BKR	DMD	MIN	MAX	LOAD SERVED	OKT
1	(A) HEAT TRACE	1/2"	#12	#12	20/1	R	300	300	SANDEN HOT DISPLAY	2
2	PASTRY CASE	1/2"	#12	#12	20/1	R	300	300	SERVICE RECEIPT	4
3	NOVELTY CASE	1/2"	#12	#12	20/1	R	300	300	BULK CREAMER	6
4	RESTROOM RECEIPT	1/2"	#12	#12	20/1	R	300	300	CAPUSCINO	8
5	SALES AREA RECEIPT	1/2"	#12	#12	20/1	R	300	300	HOT DOG ROLLER	10
6	CHILD/CHEESE DISPENSER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	12
7	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
8	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
9	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
10	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
11	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
12	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
13	BUN WARMER	1/2"	#12	#12	20/1	R	300	300	BUN WARMER	14
14	BUN WARMER	1/2"	#12	#12</						