

NOTES		MOUNT: SURFACE		120/208		3-PHASE, 4W		PANEL A		CAPACITY: 200A		INT CAP: 200KA		NOTES								
LOCATION:	BACK OF BLDG.	CTK	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CTK		
1								RTU 1	100	3	A	20	1	AUTOMATIC DOOR					0.1		2	C
3											B	20	1	PHONE BOARD/BUZZER					0.4		4	C
5											C	20	1	EMERGENCY MANAGEMENT					0.2		6	C
7								RTU 2	100	3	A	20	1	SPARE							8	C
9											B	20	1	OUTDOOR HVAC REC					0.2		10	C
11											C	20	1	OUTDOOR DRINK VEND					0.2		12	C
13								SPARE	20	1	A	20	1	SPARE							14	C
15								SPARE	20	1	B	20	1	SPARE							16	C
17								SPARE	20	1	C	20	1	INTERFACE EQUIP					0.5		18	C
C 19								WATER HEATER	20	1	A	20	1	VSAT SATELITE HUB EQUIP					0.5		20	C
C 21								WATER HEATER	20	1	B	20	1	CCTV EQUIP					1.0		22	C
C 23								DRINKING FOUNTAIN	20	1	C	20	1	SECURITY REC					0.2		24	C
C 25								OUTDOOR ICE REC	20	1	A	20	1	OFFICE REC					0.7		26	C
C 27								COOLER #1	15	2	B	20	1	BREAK ROOM REC					0.5		28	C
C 29								COOLER #2	15	2	A	20	1	SPARE					0.5		30	C
C 31								COOLER #2	15	2	A	20	1	SPARE					0.5		32	C
C 33								SPARE	20	1	C	20	1	ICE CREAM FREEZER					0.2		34	C
35								SPARE	20	1	C	20	1	GATORADE					0.8		36	C
37								SPARE	20	1	A	20	1	SPARE					0.4		38	C
39								SPARE	20	1	B	20	1	SPARE							40	C
41								SPARE	20	1	C	20	1	SPARE							42	C

PHASE BALANCE		LOAD TYPE		CONNECTED		DEMAND		DEMAND FORMULA		TOTAL LOAD	
Φ	LOAD	%	RECEPTACLE	0.0 KVA	0.0 KVA	10KVA + 50% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND			
A	25.5 KVA	33%	HVAC	60.0 KVA	48.0 KVA	LOAD X 80% (USED MCA IN CALCULATION)	211.8A	178.5A			
B	27.0 KVA	35%	MISC	11.3 KVA	11.3 KVA	LOAD X 100% NEC 210.19 NON-CONT.			FILENAME:		
C	23.8 KVA	31%	NP	0.0 KVA	0.0 KVA	NONCOINCIDENTAL LOADS NEC 220.60	DG-9100-EF-208.xlsx				

NOTES:
A. AIC RATING: SERIES RATED AT 200,000 AMPS WITH BUSSMANN J/JN FUSES.
B. BREAKERS FOR HVAC UNITS SHALL BE SIZED PER MANUFACTURER REQUIREMENTS.
C. BREAKER LOCK.
D. ISOLATED GROUND BUS.

NOTES		MOUNT: SURFACE		120/208		3-PHASE, 4W		PANEL B		CAPACITY: 200A		INT CAP: 200KA		NOTES								
LOCATION:	BACK OF BLDG.	CTK	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CTK		
B,C								NIGHT LTS	20	1	A	20	1	PWR TERM BROWN					1.2		2	C
B,C								RECEIVING LTS	20	1	B	20	1	PWR TERM GREEN					1.2		4	C
B								70% SALES LTS	20	1	C	20	1	PWR TERM GREEN					1.2		6	C
B								70% SALES LTS	20	1	A	20	1	PWR TERM GREEN					1.2		8	C
B								70% SALES LTS	20	1	B	20	1	PWR TERM GREEN					1.6		10	C
B								70% SALES LTS	20	1	C	20	1	PWR TERM GREEN					1.6		12	C
B								30% SALES LTS	20	1	A	20	1	COOLER					1.6		14	C
B								30% SALES LTS	20	1	B	20	1	FREEZER					1.6		16	C
B								SPARE	20	1	C	20	1	FREEZER					1.6		18	C
C 19								EMERGENCY/EXIT LTS	20	1	A	20	1	SPARE							20	C
C 21								BREAK/OFFICE LTS/EF'S	20	1	B	25	2	FREEZER #1					1.6		22	C
B 23								BUILDING SIGN	20	1	C	20	1	FREEZER #2					1.6		24	C
B 25								PYLON SIGN	20	1	A	40	2	FREEZER #2					1.6		26	C
B 27								SITE LIGHTING	20	1	B	40	2	FREEZER #3					1.6		28	C
B 29								SITE LIGHTING	20	1	C	40	2	FREEZER #3					1.6		30	C
B 31								SPARE	20	1	A	20	1	SODA COOLERS					1.6		32	C
B 33								EXTERIOR LTS	20	1	B	20	1	DRINK COOLERS					1.6		34	C
B 35								FRONT WALL/CANOPY LYG	20	1	C	20	1	SPARE					0.8		36	C
B 37								SPARE	20	1	A	20	1	SPARE					0.4		38	C
B 39								SPARE	20	1	B	20	1	SPARE							40	C
B 41								EXTERIOR DUSK/DAWN	20	1	C	20	1	SPARE							42	C

PHASE BALANCE		LOAD TYPE		CONNECTED		DEMAND		DEMAND FORMULA		TOTAL LOAD	
Φ	LOAD	%	RECEPTACLE	10.1 KVA	12.7 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND			
A	10.4 KVA	29%	HVAC	0.0 KVA	0.0 KVA	LOAD X 50% REMAINDER NEC 220.44	35.8 KVA	38.4KVA			
B	13.3 KVA	37%	MISC	25.6 KVA	25.6 KVA	LOAD X 100% NEC 210.19 NON-CONT.			FILENAME:		
C	12.2 KVA	34%	NP	0.0 KVA	0.0 KVA	NONCOINCIDENTAL LOADS NEC 220.60	DG-9100-EF-208.xlsx				

NOTES:
A. AIC RATING: SERIES RATED AT 200,000 AMPS WITH BUSSMANN J/JN FUSES.
B. ROUTING TO THE EMS PANEL.
C. BREAKER LOCK.
D. ISOLATED GROUND BUS.

120/208		3-PHASE, 4W		PANEL LOAD		CAPACITY: 400A		TOTAL LOAD	
LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	CONNECTED	DEMAND				
LIGHTING	10.1 KVA	12.7 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	112.2 KVA	102.7 KVA				
RECEPTACLE	5.1 KVA	5.1 KVA	10KVA + 50% REMAINDER NEC 220.44	311.3A	285.0A				
HVAC	60.1 KVA	48.1 KVA	LOAD X 80% (USED MCA IN CALCULATION)						
MISC	36.9 KVA	36.9 KVA	LOAD X 100% NEC 210.19 NON-CONT.						
NP	0.0 KVA	0.0 KVA	NONCOINCIDENTAL LOADS NEC 220.60						

EQUIPMENT SCHEDULE									
PLAN MARK	EQUIPMENT SERVED	LOAD	VOLTY PHASE	FED BY	DISC BY	MCA	MCCPD	FEEDER	REMARKS
RTU 1	ROOF TOP UNIT	30.00KVA	208/3	A	EC	83.0A	100A	(3) #3, #8G 1-1/2"	PROVIDE 800V/3P NF DISCONNECT
RTU 2	ROOF TOP UNIT	30.00KVA	208/3	A	EC	83.0A	100A	(3) #3, #8G 1-1/2"	PROVIDE 150V/3P NF DISCONNECT

UTILITY TRANSFORMER FAULT CALCULATION			
SERVICE ENTRANCE CALCULATION			
VOLTAGE (L-L):	208V	I-FLA=	[RATED KVA * 1000]
PHASE (PH):	3	[V-LL*SQRT(3)]	
AMPS:	400A	I-FLA=	1416A
FULL LOAD KVA:	400KVA	M=	100%/2=50.5
TRANSFORMER:	1500KVA	I-SC=	I-FLA*M=339 KA
IMPEDANCE (%Z):	1.15%		

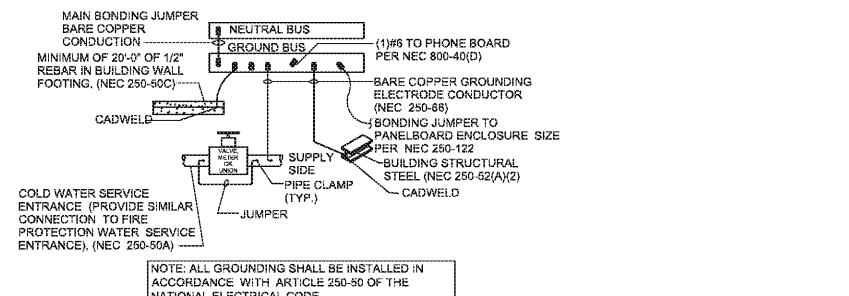
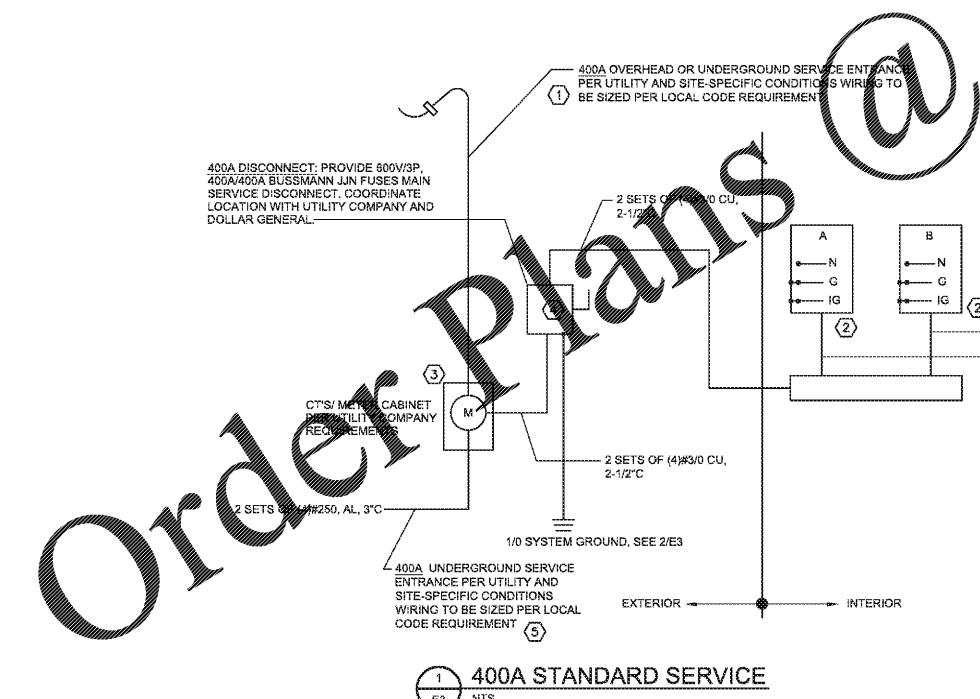
MOTOR LOAD FAULT CALCULATION			
STARTING I-SC:	39 KA		
MOTOR LOAD (KVA):	36KVA	I-SC(ML)=	I-ML*6= 606A
MOTOR LOAD (A):	101A	I-SC=	I-SC+I-SC(ML)=140 KA

FEEDER FAULT CALCULATION			
STARTING I-SC:	40 KA	IMPEDANCE BASED ON 3 SINGLE	
VOLTAGE (L-L):	208V	CONDUCTORS IN NON-MAGNETIC	
PHASE (PH):	3	CONDUIT	
FEEDER SIZE:	250		
FEEDER MATERIAL:	AL	*F=(SQRT((PHASE*V-LL-C)/	
PARALLEL SETS (Q):	3	[C*V-LL])	
FEEDER LENGTH (L):	208FT	F=	10.256
FEET PER OHMS (C):	12,862 FT/OHMS	M=	1/(1+9)=0.796
		I-SC=	I-SC*M=31 KA

*F FOR SINGLE PHASE SYSTEMS, FEEDER LENGTH IS DOUBLED AND VOLTAGE IS LINE-NEUTRAL (OR V-LL/2)

NEC CODE ART. 230.95
A WRITTEN RECORD OF THE GROUND FAULT PERFORMANCE TEST SHALL BE MADE AVAILABLE TO LOCAL AUTHORITY HAVING JURISDICTION (ELECTRICAL INSPECTOR) PRIOR TO FINAL INSPECTION.

- POWER DISTRIBUTION SYSTEM NOTES:**
- SERVICE TRANSFORMER WITH 240Y/120V, 1PH, 3W SECONDARY AND SOLIDLY GROUND NEUTRAL. COORDINATE EXACT LOCATION AND PROVIDE ALL EQUIPMENT, MATERIAL AND LABOR AS REQUIRED BY THE POWER COMPANY.
 - BRANCH PANELBOARD. SEE PANEL SCHEDULES FOR REQUIREMENTS.
 - PROVIDE METERING AND CLOSET CABINET PER POWER COMPANY REQUIREMENTS.
 - PROVIDE 3" HIGH WHITE LETTER PLACARD READING "SERVICE DISCONNECT". DISPLAY PLACARD IN CONSPICUOUS PLACE NEXT TO THE MAIN DISCONNECT SWITCH.
 - BID ALTERNATE FOR PANE MOUNTED SERVICE TRANSFORMER WITH 208Y/120V, 3PH, 4W SECONDARY AND SOLIDLY GROUND NEUTRAL. FOR UNDERGROUND SERVICE COORDINATE EXACT LOCATION AND PROVIDE ALL EQUIPMENT, MATERIAL AND LABOR AS REQUIRED BY THE POWER COMPANY.



DISCLAIMER NOTICE:
THE DESIGN BASIS FOR THESE DOCUMENTS WERE BASED ON THE STANDARD PROTOTYPE DRAWINGS PROVIDED TO US BY DOLLAR GENERAL THROUGH THEIR OWNERS REPRESENTATIVE. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS PRIOR TO COMMENCING WITH ANY WORK. MATERIALS, FINISHES, BUILDING FABRICATION, ETC. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ANY WORK BEING DONE. ANY REQUIRED ENGINEERING CHANGES TO MATCH THE EXISTING SITE CONDITIONS SHALL BE TREATED AS ADDITIONAL SERVICES.

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