SHORT CIRCUIT ANALYSIS

MAXIMUM SHORT CIRCUIT CURRENT AVAILABLE = 40,000 AMPS

SHORT CIRCUIT CURRENT AVAILABLE AT PANEL "P" IS 37,600 AMPS. USE TRI BREAK BREAKER (GENERAL ELECTRIC TYPE TBB OR EQUIV) FOR MAIN CIRCUIT BREAKER LET THRU = 22,000 AIC RMS; THEREFORE USE MINIMUM 22,000 AIC RATED BREAKERS AT PANEL "P"

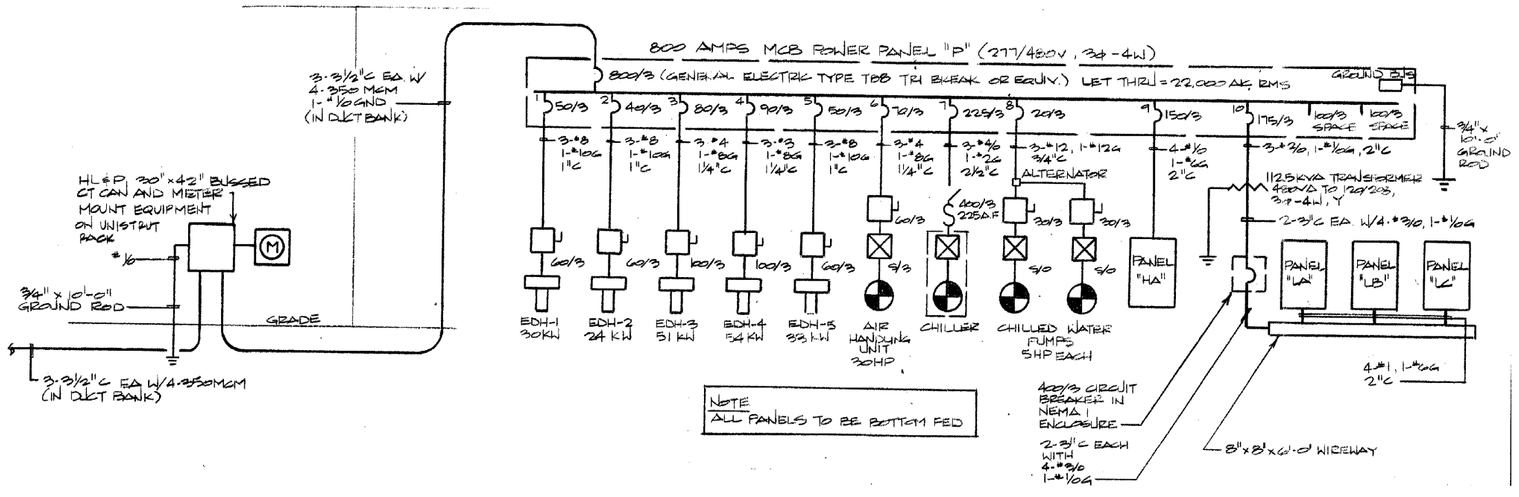
SHORT CIRCUIT CURRENT AVAILABLE AT PANEL "HA" IS 20,653 AMPS
THEREFORE USE MINIMUM 22,000 AIC RATED BREAKERS AT PANEL "HA"

SHORT CIRCUIT CURRENT AVAILABLE AT PANEL "LA", "LB", & "LC" IS 19,292
THEREFORE USE MINIMUM 22,000 AIC RATED BREAKERS AT PANELS "LA", "LB" & "LC"

LOAD ANALYSIS

LIGHTING:	
(NEC): 15,700 FT² × 3.5 W/FT² × 1.25 = 69.7 KVA	
(CONNECTED): 79.3 KVA × 1.25 = 99.1 KVA	= 99.1 KVA
RECEPTACLES	
109 @ 180W EA = 19.6 KVA	= 19.6 KVA
KITCHEN EQUIPMENT	= 17.0 KVA
MISC.	= 14.3 KVA
A/C	
CHILLER (+25% LARGEST MOTOR)	= 155.7 KVA
PUMP	= 6.3 KVA
AHU	= 33.0 KVA
EDH	= 192.0 KVA
TOTAL LOAD (277/480V, 3Ø-4W)	537 KVA
	= 646 AMPS
	(800 AMP SERVICE)

3 EXISTING ELECTRICAL LOAD ANALYSIS



2 EXISTING ELECTRICAL ONE-LINE DIAGRAM

PANEL "LB" SCHEDULE

120/208 VOLT, 3 PHASE, 4 WIRE
125 AMP. ☒ MAIN BREAKER. ~~☐ MAIN LUGS ONLY~~; ☒ SURFACE ~~☐ FLUSH~~ MOUNTED.
NOTE: ALL BREAKERS TO BE 20 AMP. UNLESS OTHERWISE NOTED. LUGS TO BE SAME SIZE AS CABLE FEEDERS. ALL BREAKERS NOT LOADED TO BE SPARES.

DESCRIPTION	BKR.			BKR.	DESCRIPTION	LOAD A	LOAD B	LOAD C
HAND DRYER		1	2		HAND DRYER	.30		
5 RECEPT		3	4		2 RECEPT		1.8	
1 RECEPT		5	6		4 RECEPT			.09
2 RECEPT		7	8		3 RECEPT	.09		
3 RECEPT		9	10		4 RECEPT		1.8	
2 RECEPT		11	12		2 RECEPT			.07
3 RECEPT		13	14		4 RECEPT	1.8		
6 RECEPT		15	16		5 RECEPT		2.0	
CENTRAL LISTENING ST		17	18		WATER COOLER (3-#10)			9.0
REFRIGERATOR		19	20		JOHNSON CONTROL	2.0		
1 RECEPT		21	22		HOOD		.25	
HOT PLATE	30	23	24		SIGN			6.0
3-#10, 1-#10G, 3/4"C	30	25	26		INTERCOM	2.0		
	30	27	28		COMPACT SHELVING		3.4	
CONTACTOR COILS		29	30		6 RECEPT			1.1
4 RECEPT		31	32		BOOK THEFT SYSTEM	1.0		
		33	34					
		35	36					
		37	38					
		39	40					
		41	42					
TOTAL LOAD IN KW/Ø						6.0	6.5	9.7
TOTAL FEEDER FLA/Ø.						90	71	81

PANEL "LA" SCHEDULE

120/208 VOLT, 3 PHASE, 4 WIRE W/ FEED THRU LUGS
125 AMP. ☒ MAIN BREAKER. ~~☐ MAIN LUGS ONLY~~; ☒ SURFACE ~~☐ FLUSH~~ MOUNTED.
NOTE: ALL BREAKERS TO BE 20 AMP. UNLESS OTHERWISE NOTED. LUGS TO BE SAME SIZE AS CABLE FEEDERS. ALL BREAKERS NOT LOADED TO BE SPARES.

DESCRIPTION	BKR.			BKR.	DESCRIPTION	LOAD A	LOAD B	LOAD C
2 RECEPT		1	2		EF-1	.09		
2 RECEPT		3	4		EF-2		.09	
1 RECEPT		5	6		EF-3			.07
1 RECEPT (TTB)		7	8		EF-4	.07		
COOKING CENTER	40	9	10		SPRINKLER CONTROLS		.83	
3-#8, 1-#10G, 1"C	40	11	12		AUTOMATIC DOOR			4.0
REFRIGERATOR		13	14	30	DEFROSTER (2-#10, 3/4"C)	2.5		
DISHWASHER		15	16		6 RECEPT		2.5	
WATER HEATER (2-#10)	30	17	18		6 RECEPT			2.5
6 RECEPT		19	20		5 RECEPT	2.0		
4 RECEPT		21	22		LECTURN		.39	
5 RECEPT		23	24		2 RECEPT			1.2
2 RECEPT		25	26		2 RECEPT	.07		
2 RECEPT		27	28		2 RECEPT		.07	
2 RECEPT		29	30		COPIER			1.4
COPIER	30	31	32		3 RECEPT	1.8		
3-#10, 1-#10G, 3/4"C	30	33	34				1.2	
		35	36					
		37	38					
		39	40					
		41	42					
TOTAL LOAD IN KW/Ø						9.6	8.5	13.9
TOTAL FEEDER FLA/Ø.						80	67	91

PANEL "HA" SCHEDULE

277/480 VOLT, 3 PHASE, 4 WIRE
225 AMP. ~~☐ MAIN BREAKER~~. ☒ MAIN LUGS ONLY.; ☒ SURFACE ~~☐ FLUSH~~ MOUNTED.
NOTE: ALL BREAKERS TO BE 20 AMP. UNLESS OTHERWISE NOTED. LUGS TO BE SAME SIZE AS CABLE FEEDERS. ALL BREAKERS NOT LOADED TO BE SPARES.

DESCRIPTION	BKR.			BKR.	DESCRIPTION	LOAD A	LOAD B	LOAD C
2600W LIGHTING		1	2		3750W LIGHTING	6.4		
2850W LIGHTING		3	4		3600W LIGHTING		6.5	
2750W LIGHTING		5	6		1500W LIGHTING			4.3
2500W LIGHTING		7	8		2500W LIGHTING	5.0		
1500W LIGHTING		9	10		3750W LIGHTING		4.9	
375W LIGHTING		11	12		1680W LIGHTING			2.1
3200W LIGHTING		13	14		2000W LIGHTING	5.2		
2000W LIGHTING		15	16		2200W LIGHTING		4.2	
2550W LIGHTING		17	18		3200W LIGHTING			5.8
3200W LIGHTING		19	20		3200W LIGHTING	6.4		
3200W LIGHTING		21	22		3200W LIGHTING		6.4	
1600W LIGHTING		23	24		3200W LIGHTING			4.2
(1) OUTSIDE LIGHTING		25	26		3200W LIGHTING	2.0		
(1) OUTSIDE LIGHTING		27	28				2.0	
(1) OUTSIDE LIGHTING		29	30					3.0
		31	32					
		33	34					
		35	36					
		37	38					
		39	40					
		41	42		EXIT LIGHTING (60W)			0.1 (2)
TOTAL LOAD IN KW/Ø						23.1	24.1	23.5
TOTAL FEEDER FLA/Ø.						90	87	78

(1) VIA CONTACTOR/JOHNSON CONTROLS
(2) BATTERY BACK UP; DO NOT TURN OFF

PANEL "LC" SCHEDULE

120/208 VOLT, 3 PHASE, 4 WIRE
125 AMP. ☒ MAIN BREAKER. ~~☐ MAIN LUGS ONLY~~; ☒ SURFACE ~~☐ FLUSH~~ MOUNTED.
NOTE: ALL BREAKERS TO BE 20 AMP. UNLESS OTHERWISE NOTED. LUGS TO BE SAME SIZE AS CABLE FEEDERS. ALL BREAKERS NOT LOADED TO BE SPARES.

DESCRIPTION	BKR.			BKR.	DESCRIPTION	LOAD A	LOAD B	LOAD C
1600W LIGHTING		1	2		400W LIGHTING	3.0		
1300W LIGHTING		3	4		1600W LIGHTING		2.9	
300W LIGHTING		5	6		1600W LIGHTING			1.9
TRACK LIGHTING (1760W)		7	8		TRACK LIGHTING (1760W)	2.5		
(1760W)		9	10		(900W)		2.2	
(900W)		11	12		(1760W)			2.2
100W LTG (CABINET)		13	14			0.1		
		15	16					
		17	18					
		19	20					
		21	22					
		23	24					
		25	26					
		27	28					
		29	30					
		31	32					
		33	34					
		35	36					
		37	38					
		39	40					
		41	42					
TOTAL LOAD IN KW/Ø						5.6	5.1	4.1
TOTAL FEEDER FLA/Ø.						47	43	34

1 EXISTING ELECTRICAL PANEL LAYOUT

EXISTING ELECTRICAL PANEL LAYOUTS & REST OF ELECTRICAL INFORMATION MAY NOT REFLECT THE ACTUAL EXISTING CONDITIONS, FIELD VERIFY BY GENERAL CONTRACTOR PRIOR TO SUBMIT PRICING

FOR REFERENCE ONLY

X X

X X

CITY OF HOUSTON TEXAS
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DESIGN & CONSTRUCTION DIVISION
900 Bagby HOUSTON TEXAS 77002
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REVISIONS

date	revision	comments

PROJECT LOCATION
ROBINSON-WESTCHASE LIBRARY
3223 Wilcrest Drive
Houston, Texas
77042-3349
HOUSTON TEXAS

ELECTRICAL VEHICLE CHARGING STATION SITE PLAN

PROJECT NUMBER

ISSUE 12/07/10
SCALE REFER TO DRAWING
DRAWN BY A.R.
DRAWING NUMBER 2 OF 6
SHEET NUMBER

E1.0