EXISTING LIGHTING CLASS PANELBOARD "LA"

65,000 A/C RATING

120/208 VOLTS, 3-PHASE, 4-WIRE 2 SECTION NEMA 1 RATING | MLO 225 AMP BUS (COPPER) ISO GRND BUS | FEED-THRU | SURFACE MOUNTED

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	540	RCPTS FIRST FLOOR	R	12	20/1	1	A	2	20/1			SPARE		
	360	RCPTS FIRST FLOOR	R	12	20/1	3	B	4	20/1	12	M	DAMPER	180	
		SPARE			20/1	5	C	6	20/1	12	M	BAY DOOR MOTOR	1176	
	540	RCPTS FIRST FLOOR	R	12	20/1	7	A	8	20/1	12	M	BAY DOOR MOTOR	1176	
	720	RCPTS FIRST FLOOR	R	12	20/1	9	B	10	20/1	12	R	CONTROL UH-2	180	
	720	RCPTS FIRST FLOOR	R	12	20/1	11	C	12	20/1	12	R	CONTROL UH-3	180	
	180	RCPTS FIRST FLOOR	R	12	20/1	13	A	14	20/1	12	L	LIGHTING FIRST FLOOR	364	
		SPARE			20/1	15	B	16	20/1	12	L	APPARATUS ROOM LTG	448	1
	540	RCPTS MEZZANINE	R	12	20/1	17	C	18	20/1	12	L	APPARATUS ROOM LTG	616	1
	360	WATCH OFFICE RCPTS	R	12	20/1	19	A	20	20/1	12	L	APPARATUS ROOM LTG	616	1
	360	WATCH OFFICE RCPTS	R	12	20/1	21	B	22	20/1	12	L	GEAR LOCKERS LTG	679	1
	360	CP-1, TS-1	R	12	20/1	23	C	24	20/1	12	L	EXIT SIGNS	50	3
		SPARE			20/1	25	A	26	20/1	12	L	WALLPACK LTG	180	3
	1200	SHORE POWER	R	10	20/1	27	B	28	20/1	12	L	MEZZANINE LTG	504	
	1200	SHORE POWER	R	10	20/1	29	C	30	20/1	12	F	EF-4	129	
	1200	SHORE POWER	R	10	20/1	31	A	32	20/1	12	R	CONTROL UH-1	180	
	1200	SHORE POWER	R	10	20/1	33	B	34	20/1	12	M	IDF ROOM	600	
	2880	SHORE POWER	R	10	30/1	35	C	36	20/1	12	M	IDF ROOM	600	
		SPARE			20/1	37	A	38	20/1	12	M	IDF ROOM	600	
	1500	CLOTHES WASHER	M	12	20/1	39	B	40	20/1	12	R	MECH ROOM	540	
	1500	CLOTHES DRYER	M	12	20/1	41	C	42	20/1	12	R	AD-1	500	
	1176	BAY DOOR MOTOR	M	12	20/1	43	A	44	20/1	12	R	CONTROL GWH	180	
	1176	BAY DOOR MOTOR	M	12	20/1	45	B	46	20/1	12	L	APP LTG NEW BAYS	448	
	1176	BAY DOOR MOTOR	M	12	20/1	47	C	48	20/1	12	L	APP LTG NEW BAYS	448	
	200	OUTSIDE LTG NEW BAYS	L	12	20/1	49	A	50	20/1	12	L	APP LTG NEW BAYS	548	
	3000	GENERATOR SUBPANEL	SP	8	50/2	51	B	52	20/1	10	R	APPARATUS AREA RCPTS	900	
	"	"	SP	8	"	53	C	54	20/1	12	R	APPARATUS AREA RCPTS	900	
	1176	BAY DOOR MOTOR (NB)	M	12	20/1	55	A	56	20/1	10	R	SHORE PWR NEW BAYS	1200	
	1200	SHORE PWR NEW BAYS	R	10	20/1	57	B	58	20/1	12	M	BAY DOOR MOTOR (NB)	1176	
	1176	BAY DOOR MOTOR (NB)	M	12	20/1	59	C	60	20/1	10	R	SHORE PWR NEW BAYS	1200	
	1200	SHORE PWR NEW BAYS	R	10	20/1	61	A	62	20/1	12	M	BAY DOOR MOTOR (NB)	1176	
		SPARE			20/1	63	B	64	20/3	12	M	EF-1	1657	
		SPARE			20/1	65	C	66	"	12	M	"		
		SPARE			20/1	67	A	68	"	12	M	"		
		SPARE			20/1	69	B	70	20/1			SPARE		
		SPARE			20/1	71	C	72	20/1			SPARE		
		SPARE			20/1	73	A	74	20/1			SPARE		
		SPARE			20/1	75	B	76	20/1			SPARE		
		SPARE			20/1	77	C	78	20/1			SPARE		
		SPARE			20/1	79	A	80	20/1			SPARE		
		SPARE			20/1	81	B	82	20/1			SPARE		
		SPARE			20/1	83	C	84	20/1			SPARE		
	26840	SUBTOTAL										SUBTOTAL	18461	

LOAD TYPE: (R) RECEPT (K) KITCHEN (C) COOLING (H) HEATING (F) FANS (M) MISC

NOTE: EXISTING CIRCUIT BREAKERS TO REMAIN SHOWN SCREENED. NEW CIRCUIT BREAKERS SHOWN DARK.

TOTAL CONNECTED LOAD 45301 VA = 125.7 AMPS | LOCATION OF PANEL: 1ST FLOOR ELECTRICAL ROOM OF EXISTING STATION

EXISTING LIGHTING CLASS PANELBOARD "LB"

65,000 A/C RATING

120/208 VOLTS, 3-PHASE, 4-WIRE 2 SECTION NEMA 1 RATING | MLO 225 AMP BUS (COPPER) ISO GRND BUS | FEED-THRU | SURFACE MOUNTED

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
		SPARE	R	12	20/1	1	A	2	20/1	12	R	RCPTS RM 213	360	
	860	RCPTS LOUNGE	R	12	20/1	3	B	4	20/1	12	R	ICE MACHINE	450	
2	720	RCPTS CAPTAINS	R	12	20/1	5	C	6	20/1	12	R	RCPTS DORM RM	540	2
2	540	RCPTS RM 211	R	12	20/1	7	A	8	20/1	12	R	RCPTS DORM RM	720	2
2	540	RCPTS RM 211	R	12	20/1	9	B	10	20/1	12	R	RCPTS DORM RM	720	2
2	720	RCPTS RM 207	R	12	20/1	11	C	12	20/1	12	R	RCPTS CHARGER	200	
	720	RCPTS RM 208	R	12	20/1	13	A	14	20/1	12	R	STUDY RM RCPTS	360	
	360	KITCHEN RCPTS	K	12	20/1	15	B	16	20/1	12	K	KIT/LOUNGE LTG	1260	
	360	KITCHEN RCPTS	K	12	20/1	17	C	18	20/1	12	L	DORM RM LTG	765	2
	800	KITCHEN APPL	K	12	20/1	19	A	20	20/1	12	L	CHIEF'S RM LTG	657	2
	400	KITCHEN APPL	K	12	20/1	21	B	22	20/1			SPARE		
	400	KITCHEN APPL	K	12	20/1	23	C	24	20/1	12	L	LOCKER RM LTG	693	
	400	KITCHEN APPL	K	12	20/1	25	A	26	20/1	12	L	CAPT RM LTG	504	2
	400	KITCHEN APPL	K	12	20/1	27	B	28	20/1	12	L	EXIT SIGNS	50	3
	120	LAFP	M	12	20/1	29	C	30	20/1	12	M	EF-1 (1/4 HP)	696	
	540	RCPTS LOUNGE	R	12	20/1	31	A	32	20/1	12	R	EF-5	516	
	180	RESTROOM RCPT	R	12	20/1	33	B	34	20/1	12	R	EDF-1	700	
	180	RESTROOM RCPT	R	12	20/1	35	C	36	20/1	12	R	LOUNGE RCPTS	540	
	180	RESTROOM RCPT	R	12	20/1	37	A	38	20/1	12	R	LNGE & MECH RM RCPTS	360	
	1180	CH OFF, RR, EXH FAN DORM RCPTS	R	12	20/1	39	B	40	20/1	12	R	RR, EXH FAN, EXER RM RCPTS	720	
	1260	CH OFF, SLPG, DORM RCPTS	R	12	20/1	41	C	42	20/1	12	R	EXER RM RCPTS	360	
	448	CH GRTS & RR LTG	L	12	20/1	43	A	44	20/1	12	R	EXER RM RCPTS	360	
	448	LNGE, MECH RM LTG	L	12	20/1	45	B	45	20/1			SPARE		
	714	EXER & DORM RM LTG	L	12	20/1	47	C	48	20/1			SPARE		
		SPARE			20/1	49	A	50	20/1			SPARE		
		SPARE			20/1	51	B	52	20/1			SPARE		
		SPARE			20/1	53	C	54	20/1			SPARE		
		SPARE			20/1	55	A	56	20/1			SPARE		
		SPARE			20/1	57	B	58	20/1			SPARE		
		SPARE			20/1	59	C	60	20/1			SPARE		
		SPARE			20/1	61	A	62	20/1			SPARE		
		SPARE			20/1	63	B	64	20/1			SPARE		
		SPARE			20/1	65	C	66	20/1			SPARE		
		SPARE			20/1	67	A	68	20/1			SPARE		
		SPARE			20/1	69	B	70	20/1			SPARE		
		SPARE			20/1	71	C	72	20/1			SPARE		
		SPARE			20/1	73	A	74	20/1			SPARE		
		SPARE			20/1	75	B	76	20/1			SPARE		
		SPARE			20/1	77	C	78	20/1			SPARE		
		SPARE			20/1	79	A	80	20/1			SPARE		
		SPARE			20/1	81	B	82	20/1			SPARE		
		SPARE			20/1	83	C	84	20/1			SPARE		
	12470	SUBTOTAL										SUBTOTAL	11531	

LOAD TYPE: (R) RECEPT (K) KITCHEN (C) COOLING (H) HEATING (F) FANS (M) MISC

NOTE: EXISTING CIRCUIT BREAKERS TO REMAIN SHOWN SCREENED. NEW CIRCUIT BREAKERS SHOWN DARK.

TOTAL CONNECTED LOAD 24001 VA = 56.6 AMPS | LOCATION OF PANEL: 2ND FLOOR STUDY OF EXISTING STATION

EXISTING LIGHTING CLASS PANELBOARD "DP"

65,000 A/C RATING

120/208 VOLTS, 3-PHASE, 4-WIRE 1 SECTION NEMA 1 RATING | MCB 600 AMP BUS (COPPER) ISO GRND BUS | SINGLE | SURFACE MOUNTED

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	45301	PANEL LA	SP	1/0	150/3	1	A	2	150/3	1/0	SP	PANEL LB	24001	
	"	"	SP	"	"	3	B	4	"	"	SP	"		
		"	SP	"	"	5	C	6	"	"	SP	"		
	24000	FCU-1 & FCU-2	H	3	100/3	7	A	8	100/3	3	M	ACCU-1 & ACCU-2	25218	
	4756	(1-1/2 HP EACH)	M	"	"	9	B	10	"	"	M	"		
		"		"	"	11	C	12	"	"	M	"		
	5404	ACCU-4 (NB)	M	8	50/3	13	A	14	50/3	8	M	ACCU-5 (NB)	5404	
		"	M	"	"	15	B	16	"	"	M	"		
		"	M	"	"	17	C	18	"	"	M	"		
	10000	FCU-4 (NB)	H	12	20/3	19	A	20	20/3	12	H	FCU-5	10000	
	2378	(1-1/2 HP)	M	"	"	21	B	22	"	"	M	(1-1/2 HP)	2378	
		"	K	"	"	23	C	24	"	"		"		
	100	FCU-3	F	12	20/2	25	A	26	20/1	12	R	RADIO/COMM RM RCPTS	720	
		"	F	12	"	27	B	28	20/1	12	R	ACCU SERVICE RCPT	180	
	2776	ACCU-3	M	12	20/2	29	C	30	20/1	12	L	RADIO/COMM RM LTG	256	
		"	M	12	"	31	A	32				SPACE		
		SPACE				33	B	34				SPACE		
		SPACE				35	C	36				SPACE		
		SPACE				37	A	38				SPACE		
		SPACE				39	B	40				SPACE		
		SPACE				41	C	42				SPACE		
	12470	SUBTOTAL										SUBTOTAL	68157	

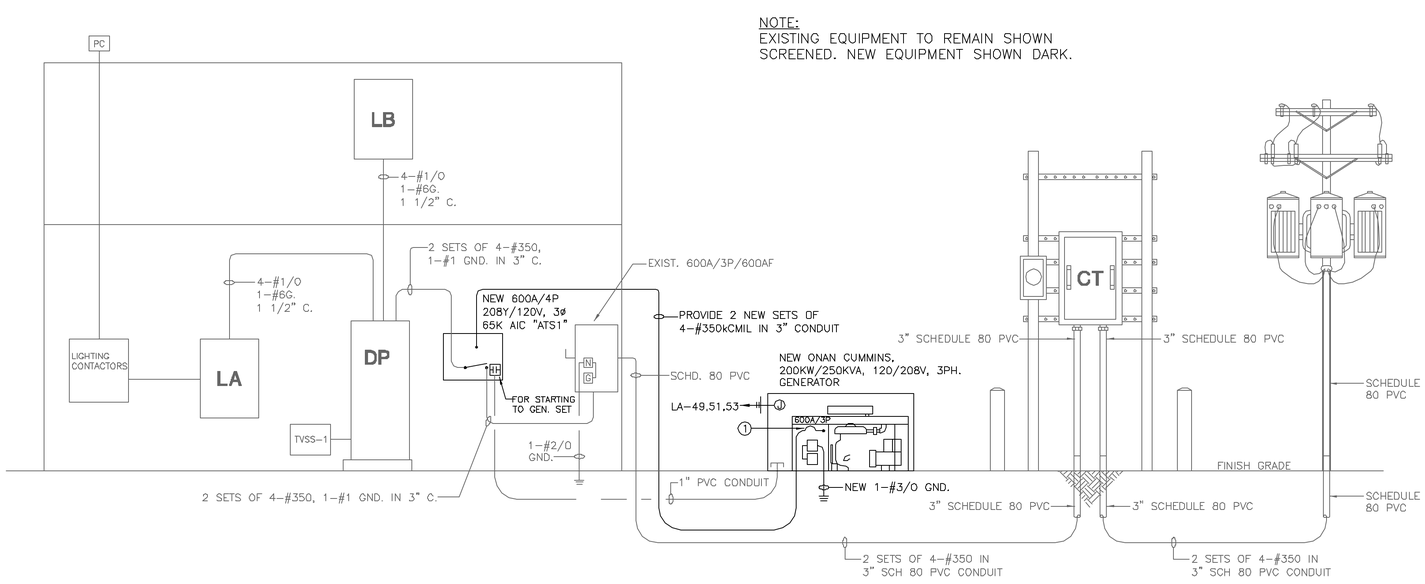
LOAD TYPE: (R) RECEPT (K) KITCHEN (C) COOLING (H) HEATING (F) FANS (M) MISC

NOTE: EXISTING CIRCUIT BREAKERS TO REMAIN SHOWN SCREENED. NEW CIRCUIT BREAKERS SHOWN DARK.

TOTAL CONNECTED LOAD 162872 VA = 452.1 AMPS | LOCATION OF PANEL: 1ST FLOOR MECHANICAL ROOM OF EXISTING STATION

PANEL SCHEDULE NOTE:
1. ROUTE CIRCUIT VIA LIGHTING CONTACTOR.
2. PROVIDE ARC FAULT RATED CIRCUIT BREAKER.
3. PROVIDE LOCKING TYPE CIRCUIT BREAKER.

1 EXISTING ELECTRICAL PANELS



RISER KEYED NOTES:
1. REPLACE EXISTING 400A/3P CIRCUIT BREAKER WITH NEW BREAKER SIZED AS SHOWN

2 EXISTING RISER DIAGRAM WITH NEW EQUIPMENT

SCALE: N.T.S.

(A) TOTAL BUILDING WITH EXPANSION – LOAD ANALYSIS

ANALYSIS @ MAIN SERVICE 208Y/120V, 3PH, 4W, 60Hz
- PEAK LOAD = 22.7 KVA
- AS PER NEC 220-87, ADDITIONAL LOAD IS 25% OF PEAK LOAD = 5.7 KVA
- PROPOSED LOAD = 64.1 KVA

BUILDING TOTAL LOAD = 92.5KVA/360 = 257 AMP (MAXIMUM) @ 208Y/120V, 3PH, 4W
EXISTING SERVICE CAPACITY IS 620 AMP @ 208Y/120V, 3PH, 4W
SO IT IS ACCEPTABLE

(B) PROPOSED NEW LOAD @ 208Y/120V, 3PH

- FUTURE LOAD = 47.9 KVA
- FUTURE HEATING = 15 KVA
- 25% OF LARGEST MOTOR = 2 KVA

PROPOSED LOAD = 64.1 KVA @ 208Y/120V, 3PH

3 TOTAL BUILDING WITH EXPANSION - LOAD ANALYSIS

*

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CITY OF HOUSTON FIRE DEPARTMENT
FIRE STATION #20 - ADDITION
6902 NAVIGATION BLVD., HOUSTON, TEXAS

SEAL:

LAY-SU Architects & Engineers
HOUSTON, TEXAS 77031
TEXAS ENGINEERING FIRM #F-5215

WARNING: 0 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

REV.	DATE	REMARKS
–	04/15/10	Issued for Bids

Issued for Bid Date: | Lay-Su Project No.: 1095

DESIGNED BY: R.L.S.
DRAWN BY: ROY
SCALE: AS SHOWN
DATE: SEPTEMBER 2009

DRAWING NAME: PANELS & RISER DIAGRAM & LOAD ANALYSIS
SHEET: E3.0