

ISSUE
02/28/12
AND PRICING

HARRELL
ARCHITECTS, LP
9572 Katy Fwy., #200
Houston, Texas 77024
Tel: 713.722.7071
Fax: 713.722.7072

CONSULTANTS
Hilbink & Associates, Inc.
10000 Katy Fwy., Suite 510
Houston, Texas 77024
Tel: 281.466.1311
Fax: 281.466.1311
Contact: Ken Odom 832.645.0688

PROJECT NAME
Cafe Express Restaurant

PROJECT ADDRESS
1111 Eldridge Parkway #100
Houston, Texas 77077

PROJECT NUMBER
11052

SHEET NAME
ELECTRICAL RISER DIAGRAM

SHEET NUMBER
E3.1

(EXISTING)

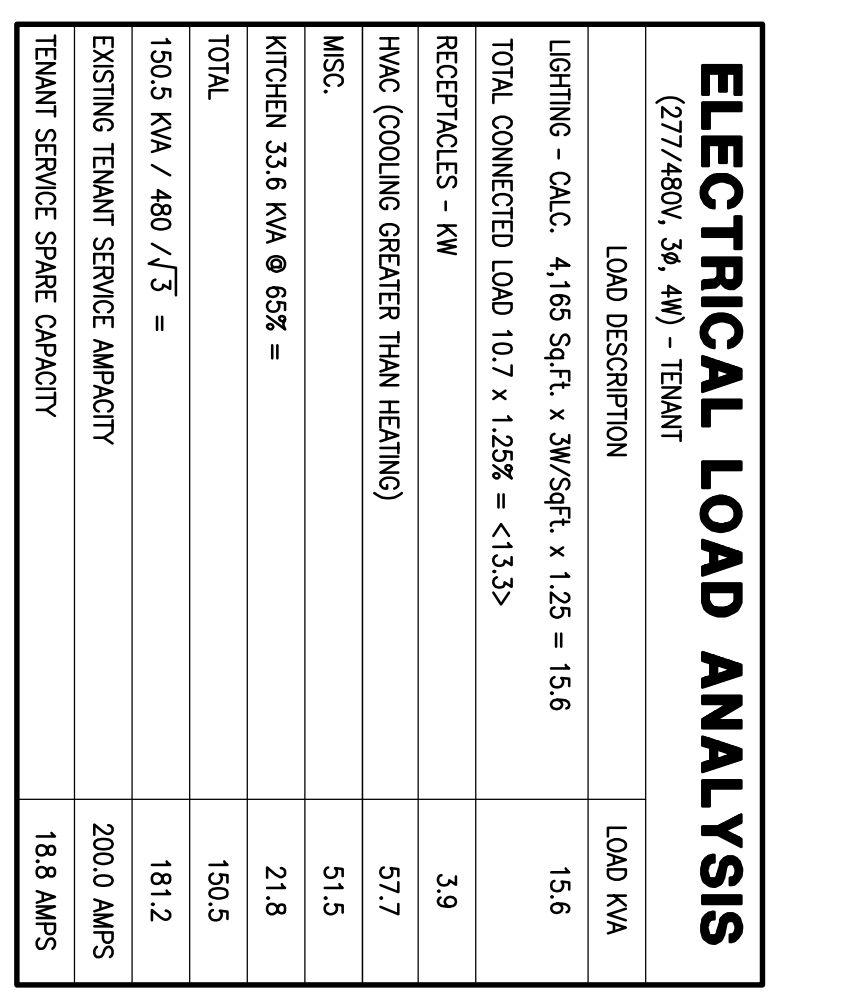
PANEL 'HV1' 2777/480V, 3ø, 4W 100 AMP MCB MOUNTING SURFACE 10K GSA

CR1 LOAD	* KVA	WIRE	BKR	WIRE	KVA	* LOAD	CR1
1 CONNECTION OVEN	1.0	#12	20V1	20V1	11.0	1	LETR1-3
3 SHUNT TRIP	-	-	-	-	-	-	-
5 CONNECTION OVEN	1.0	#12	20V1	20V1	11.0	1	LETR1-4
7 SHUNT TRIP	-	-	-	-	-	-	-
9 SPACE	-	-	-	-	-	-	-
11 ORDER AREA LIGHTING	1.52	EX	30V3	20V3	EX	11.0	1
13 NEW 2MR TL (30W)	2.32	#8	45V3	125V3	EX	64.9	1
15 ---	-	-	-	-	-	-	-
17 ---	-	-	-	-	-	-	-
19 SPACE	-	-	-	-	-	-	-
21 SPACE	-	-	-	-	-	-	-
23 SPACE	-	-	-	-	-	-	-
25 SPACE	-	-	-	-	-	-	-
27 SPACE	-	-	-	-	-	-	-
29 EMERGENCY/EXIT SIGNS	2.02	#12	20V1	20V1	#12	2.7	2
KITCHEN LIGHTING							
TOTAL KVA = 149.2 @ 200V, 3ø = 179.8 AMPS							

- * NOTES
- EXISTING LOAD TO REMAIN.
 - PROVIDE NEW LOAD IN EXISTING SPACE. CIRCUIT BREAKER SIZE AS INDICATED.

2 Z-MAX STAND-ALONE RELAY SYSTEM

SCALE: NONE



ELECTRICAL LOAD ANALYSIS

LOAD DESCRIPTION

LOAD DESCRIPTION	LOAD KVA
LIGHTING - CALC. 4,165 Sq-ft. x 3W/Sq-ft. x 1.25 = 15.6	15.6
TOTAL CONNECTED LOAD 101.7 x 1.25% = <13.3>	3.9
RECEPTACLES - KW	57.7
HVAC (COOLING GREATER THAN HEATING)	51.5
MISC.	21.8
KITCHEN 33.6 KVA @ 65% =	150.5
TOTAL	181.2
150.5 KVA / 480 V/√3 =	181.2
EXISTING TENANT SERVICE CAPACITY	200.0 AMPS
TENANT SERVICE SPARE CAPACITY	18.8 AMPS

(EXISTING)

PANEL 'LV2' 120/208V, 3ø, 4W 100 AMP MCB MOUNTING SURFACE 10K GSA

CR1 LOAD	* KVA	WIRE	BKR	WIRE	KVA	* LOAD	CR1
1 DINNER LIGHTING	1.2	#12	20V1	20V1	#12	0.5	1
3 DINNER LIGHTING	1.3	#12	20V1	20V1	#12	0.5	1
5 DINING CODE LIGHTING	1.4	0.6	#12	20V1	20V1	#12	0.5
7 DINNER LIGHTING	1.5	0.8	#12	20V1	20V1	#12	0.5
9 TRACK LIGHTING	1.6	0.6	#12	20V1	20V1	#12	0.5
11 ORDER AREA LIGHTING	1.7	0.9	#12	20V1	20V1	#12	0.5
13 PENDANT LIGHTING	1.8	0.1	#12	20V1	20V1	#12	0.5
15 OUTDOOR LIGHTING	1.9	0.9	#12	20V1	20V1	#12	0.5
17 TRACK LIGHTING	1.9	0.9	#12	20V1	20V1	#12	0.5
19 OUTDOOR LIGHTING	1.9	0.8	#12	20V1	20V1	#12	0.5
21 R.R. LIGHTING	1.3	#12	20V1	20V1	20V1	#12	0.5
23 SPACE	-	-	-	-	-	-	-
25 COOLER COMPRESSOR	1.2	3.5	#12	20V3	-	-	-
27 ---	-	-	-	-	-	-	-
29 ---	-	-	-	-	-	-	-
LIGHTING <480> X 1.25% = 10.0 KVA							
CONTINUOUS <41.7> X 100% = 41.7 KVA							
TOTAL KVA = 23.2 @ 208V, 3ø = 61.1 AMPS							

- * NOTES
- NEW LOAD CONNECTED TO EXISTING CIRCUIT BREAKER.
 - VIA RELAY 'B1' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B2' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B3' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B4' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B5' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B6' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B7' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - VIA RELAY 'B8' IN LENTON 'Z-MAX' RELAY PANEL. (PHOTOCELL ON/OFF)
 - VIA RELAY 'B9' IN LENTON 'Z-MAX' RELAY PANEL. (PHOTOCELL ON/OFF)
 - VIA RELAY 'B10' IN LENTON 'Z-MAX' RELAY PANEL. (TIMECLOCK ON/OFF)
 - REMOVE EXISTING CIRCUIT BREAKER AND PROVIDE NEW SIZE AS INDICATED.

(EXISTING)

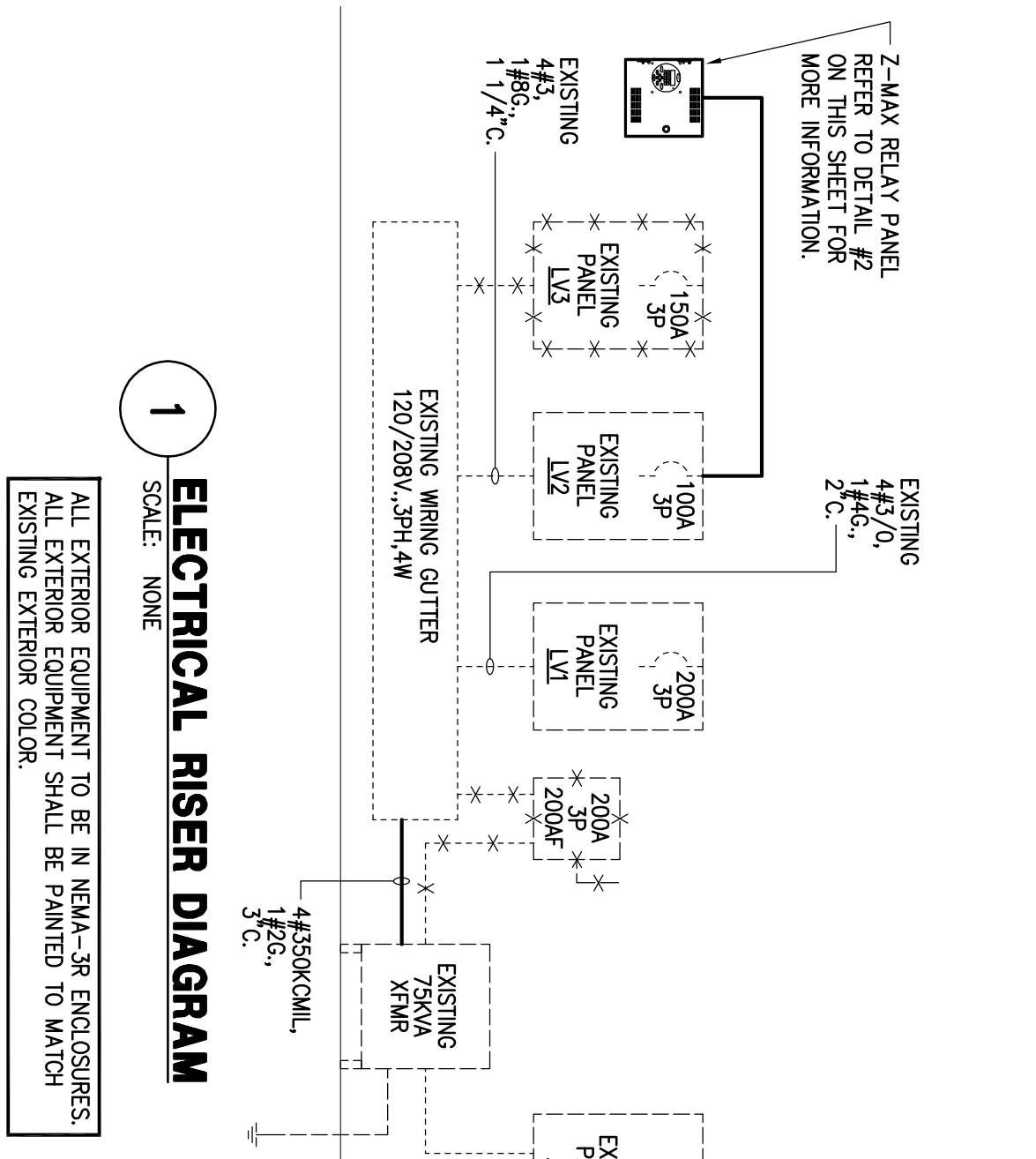
RELAY PANEL 'R' LIGHTING CONTROL RELAY CABINET #R24B-124

ITEM	RELAY	LOAD CONTROLLED	FEATURE TYPE	VOLTAGE	LOAD	TYPE
1	DINING ROOM LIGHTING	LOW-VOLTAGE	LOW-VOLTAGE	120V	1,200 W/V/A	1
2	DINING ROOM LIGHTING	LOW-VOLTAGE	LOW-VOLTAGE	120V	1,200 W/V/A	1
3	DINING CODE LIGHTING	FLOURESCENT	FLOURESCENT	120V	500 W/V/A	1
4	DINING ROOM LIGHTING	LOW-VOLTAGE	LOW-VOLTAGE	120V	900 W/V/A	1
5	TRACK LIGHTING	LOW-VOLTAGE	LOW-VOLTAGE	120V	400 W/V/A	1
6	ORDER AREA LIGHTING	LOW-VOLTAGE	LOW-VOLTAGE	120V	700 W/V/A	1
7	PENDANT LIGHTING	LED	LED	120V	100 W/V/A	1
8	OUTDOOR LIGHTING	LED	LED	120V	900 W/V/A	1
9	EXTERIOR SIGNAGE	LED	LED	120V	1,500 W/V/A	1
10	OUTDOOR LIGHTING	-	-	120V	400 W/V/A	1
11-24	SPARE	-	-	120V	400 W/V/A	1

- RELAY TYPE
- RELAY-001-STD (Z-MAX RELAY CARD 20A UP TO 277V)
 - RELAY-002-2PH (Z-MAX RELAY CARD 20A/2P UP TO 480V)

RISER LEGEND

- NEW WORK/CONSTRUCTION.
- EXISTING EQUIPMENT THAT IS TO BE REMOVED UNLESS NOTED OTHERWISE.
- EXISTING EQUIPMENT THAT IS TO REMAIN OR BE RE-LOCATED UNLESS NOTED OTHERWISE.



1 ELECTRICAL RISER DIAGRAM

SCALE: NONE

- ALL EXTERIOR EQUIPMENT TO BE IN NEKA-38 ENCLOSURES. ALL EXTERIOR EQUIPMENT SHALL BE PAINTED TO MATCH EXISTING EXTERIOR COLOR.

(NEW)

PANEL 'LK' 120/208V, 3ø, 4W 100 AMP MCB MOUNTING SURFACE 10K GSA

CR1 LOAD	* KVA	WIRE	BKR	WIRE	KVA	* LOAD	CR1
1 CONNECTION OVEN	1.0	#12	20V1	20V1	#12	0.9	1
3 SHUNT TRIP	-	-	-	-	-	-	-
5 CONNECTION OVEN	1.0	#12	20V1	20V1	#12	3.4	1
7 SHUNT TRIP	-	-	-	-	-	-	-
9 SPACE	-	-	-	-	-	-	-
11 TOASTER	4.7	#10	30V2	20V1	#12	0.9	1
13 SPACE	-	-	-	-	-	-	-
15 ---	-	-	-	-	-	-	-
17 SHUNT TRIP	-	-	-	-	-	-	-
19 WASHING DRAINER	1.0	#12	20V1	20V1	#12	0.5	1
21 SHUNT TRIP	-	-	-	-	-	-	-
23 SANDWICH GRILL	1.6	#12	20V1	20V1	#12	0.2	1
25 SHUNT TRIP	-	-	-	-	-	-	-
27 FRIGER	1.4	#12	20V1	20V1	-	-	-
29 SHUNT TRIP	-	-	-	-	-	-	-
31 SPACE	-	-	-	-	-	-	-
33 SPACE	-	-	-	-	-	-	-
35 SPACE	-	-	-	-	-	-	-
37 SPACE	-	-	-	-	-	-	-
39 SPACE	-	-	-	-	-	-	-
41 SPACE	-	-	-	-	-	-	-
42 ---	-	-	-	-	-	-	-
KITCHEN <32.8> X 65% = 21.8 KVA							
TOTAL KVA = 21.8 @ 208V, 3ø = 60.6 AMPS							

- * NOTES
- PROVIDE SHUNT TRIP TYPE CIRCUIT BREAKER.

(EXISTING)

PANEL 'LV1' 120/208V, 3ø, 4W 200 AMP MCB MOUNTING SURFACE 10K GSA

CR1 LOAD	* KVA	WIRE	BKR	WIRE	KVA	* LOAD	CR1
1 REFRIG. SANDWICH TOP	1.0	#12	20V1	20V1	#12	1.0	1
3 MICROWAVE	2.34	#12	20V2	20V1	#12	0.5	1
5 ---	-	-	-	-	-	-	-
7 REFRIG. SANDWICH TOP	1.0	#12	20V1	20V1	#12	1.0	1
9 BAC-N-BOX	0.5	#12	20V1	20V3	#12	5.0	2
11 FOOD WTR	1.2	#12	20V1	20V1	-	-	-
13 MISC. RECEPTACLES	1.05	#12	20V1	20V1	-	-	-
15 REFRIG. SANDWICH TOP	1.08	#12	20V1	20V1	#12	0.6	1
17 REFRIGERATOR	1.11	#12	20V1	20V1	#12	1.2	1
19 REFRIGERATOR	1.14	#12	20V1	20V1	#12	2.7	2
21 DRP-IN HOT WELL	1.4	#12	20V1	20V2	#12	2.0	2
23 DRP-IN HOT WELL	1.4	#12	20V1	20V2	#12	2.0	2
25 DRP-IN HOT WELL	1.4	#12	20V1	20V2	#12	2.0	2
27 ICE TBA BREWER	1.05	#12	20V1	20V2	#12	2.0	2
29 REFRIG. BACK BAR	1.05	#12	20V1	20V2	#12	3.4	2
31 LVC REFRIG.	1.04	#12	20V1	20V2	#12	3.4	2
33 MISC. RECEPTACLES	1.05	#12	20V1	20V2	#12	2.0	2
35 ICE TBA BREWER (3)	1.15	#12	20V1	20V1	#12	0.8	1
37 COFFEE BRNDR/DSP.	1.12	#12	20V1	20V1	-	-	-
39 COFFEE BRNDR/DSP.	1.12	#12	20V1	20V1	-	-	-
41 COFFEE GRINDER	1.12	#12	20V1	20V1	-	-	-
CONTINUOUS <41.7> X 100% = 41.7 KVA							
TOTAL KVA = 41.7 @ 208V, 3ø = 115.8 AMPS							

- * NOTES
- NEW LOAD CONNECTED TO EXISTING CIRCUIT BREAKER.
 - REMOVE EXISTING CIRCUIT BREAKER AND PROVIDE NEW SIZE AS INDICATED.
 - FIELD VERIFY IF EXISTING LOAD IS REQUIRED TO REMAIN, IF NOT CIRCUIT TO BECOME SPARE.

3 TRANSFORMER GROUNDING DETAIL

SCALE: NONE

