ELECTRICAL DEPTH

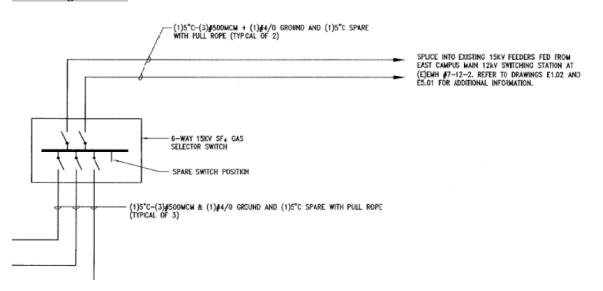
Introduction

The University of California, San Diego Cal IT² Building was electrically designed for a lot of future growth. With my changes in the lighting system and control zones, a study was done to check my new design incorporated into the existing conditions. I first showed the circuiting and zoning. I then chose the most affected panelboard and conducted a study on the circuit breaker size and feeder sizes. Finally, I checked the emergency power supply while providing emergency lighting plans to follow my redesigns.

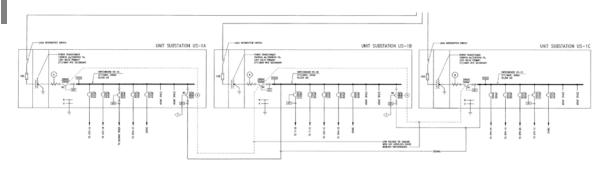
Basic Electrical Layout Background

Cal IT² is fed from a 15kV service from East Campus. This power is tapped to a six-way switch where it is distributed into three major substations. These substations all feed to the distribution panels and panelboards to power the building. As you can see in the next two diagrams, the substations are all connected in case of a gray-out where one substation circuit breaker fails. Being a telecommunication building, back-up power is essential for equipment and research being conducted. One substation is primarily connected to only the clean room equipment and HVAC. A 750 kW emergency diesel generator is connected the some distribution panels through three automatic transfer switches. In case of a black-out, only HVAC, elevator, some software back-ups, and emergency lighting loads will be powered for a short while. There is also one main bus duct running up the center of the tower for tapping the 7 floors of offices and research clusters. The rest of the panelboards are located in the electrical room located in the basement of building section A. This is the basic structure of the electrical system for Cal IT².

Incoming Service



Substations



Control Plans and Lighting Loads

I separated my lighting into various zones for different switching and circuiting. Below is a table showing the different zones of light, location, and types of switching used. Lutron Grafik Eye 4000 was used to switch most of the lighting in these spaces. I decided to use the Grafik Eye because of the type of building and various uses it will have. Using the Grafik Eye, I can provide multiple scenes in one room using only one control. I can also provide power and preset timed dimming abilities for my oscillating lighting display. Various Wattstopper sensors were also integrated into the system for ease of control.

	Lightir	ng Zones		
Zone	Location	Fixtures	Panelboard	Control
А	Open Office	B2, B6	ELPH-2A	SA
В	Open Office Cut-outs	B3, B5	ELPH-2A	S1
С	Private Offices	B1	LPH-3A	SB
D	Black Box Theater Ceiling	B12	ELPH-BA	S3
E	Black Box Theater Ceiling	B9	ELPH-BA	S3
F	Black Box Theater Floor Level	B7, B11	ELPH-BA	S3
G	Black Box Theater Floor	B8	ELPH-BA	S3
Н	Black Box Theater Floor Level	B10, B13	ELPH-BA	S3
	Black Box Theater Floor Level	B10, B13	ELPH-BA	S3
J	Lobby Cove	B15	LPH-1B	S2
K	Gallery	B17, B18	LPH-1A	S2
L	Lobby	B14, B16	LPH-1B	S2
М	Lobby Entrance	B19	LPH-1B	SC
N	Façade and Theater Lobby	E6, E10	LPH-1B	SD
0	Tunnel Entrance	E3, E7, E8, E9	LPH-1B	SD
Р	Courtyard Tree Uplights	E5	LP-1A	S4
Q	Courtyard Poles and Bollards	E1, E2	LPH-1B	SD
R	Tunnel Custom Fixture	E11	ELPH-1A	S5
S	Tunnel Uplight Fixtures	E12	ELPH-1A	S1

Below is a table showing the switches and sensors referred to above. Cut-sheets are available in the Appendix.

	Switche	s & Sensoi	'S
Labels	Location	Manufacturer	Туре
SA	Open Office	WattStopper	Occupancy Sensor
SB	Private Offices	WattStopper	Occupancy/Daylight Sensor
SC	Lobby Entrance	WattStopper	Daylight Photosensor
SD	Building Section C Roof	WattStopper	Daylight Photosensor
S1	Open Office Cut-outs, Tunnel	Lutron	Single Switch
S2	Lobby (three locations)	Lutron	Control Zone Panel
S3	Black Box Theater	Lutron	Control Zone Panel
S4	Mechanical Room	WattStopper	Timer Switch
S5	Underground Tunnel	Lutron	Control Zone Panel

Grafik Eye 4000 Details

I chose the Grafik Eye 4000 to use in Cal IT². This system can easily control all the open office research clusters, the black-box theater, underground tunnel display, main lobby, and possibly the labs and clean rooms. The Grafik Eye 4000 can control 24 zones and can have scene selections for up to 16 scenes. This gives good flexibility for control of the lobby, theater and lab rooms. I placed each lighting zone on a separate circuit for each of the spaces as will be shown below. Using these zones, scenes and dimming can be chosen to accommodate each space to the people using them. The various other sensors and photosensors used are all compatible with the Grafik Eye based on manufacturer approval. Based on my circuiting and loads below, one Grafik Eye unit can control all of the research clusters on the upper floors since each floor carries only 4 circuits. The Black Box Theater will be controlled on a different unit along with the theater lobby and multi-purpose rooms next door. The underground tunnel will be put on its own unit because of the programmed dimming that will be occurring constantly throughout the non-day lit hours. Programmable timed dimming is essential for the lighting design in the tunnel which is why I chose the Grafik Eye 4000 for this space.

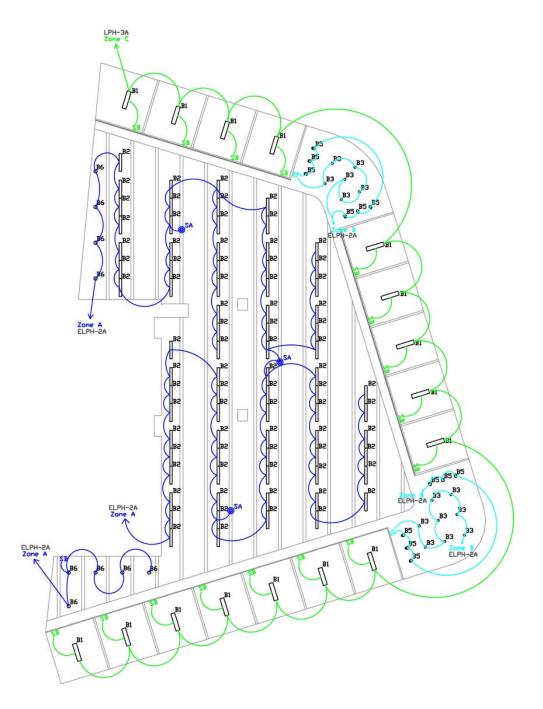
3100 Research Cluster

For this space, the private office fixtures were put on dimmable daylight photosensors with occupancy sensor automatic turn-off. These switches must be visible to the office and not behind a shelf or door for them to properly work. The open-office fixtures were put on infrared occupancy sensors for automatic turn-off. These were placed in 24 foot intervals which was the recommendation by Wattstopper. The only hand switching is for the open-office cut-outs which are put on single tap switches. These spaces are used intermittently and set next to full-length windows. Electric lights will only be needed during evening hours and possibly for highlighting works on the walls. Below is the circuiting calculations and power plan for this space.

Zone A:	(37) B2 and (4) B6 fixtures	= 2516 VA + 144 VA = 2660 VA = 2660 VA / sqrt(3)*480V = 3.199 A
Zone A:	(39) B2 and (5) B6 fixtures	= 2652 VA + 180 VA = 2832 VA = 2832 VA / sqrt(3)*480V = 3.406 A
Zone B:	(14) B3 and (12) B5 fixtures	= 504 VA + 432 VA = 936 VA = 936 VA / sqrt(3)*480V = 1.126 A
Zone C:	(16) B1 fixtures	= 1088 VA = 1088 VA / sqrt(3)*480V = 1.309 A

The VA values are all below the (480V)*(sqrt3)*(16A) = 13302 VA maximum per circuit allowed.

Circuiting and Switching Diagram



Black Box Theater

For this space, many different scenes are put into action using the Lutron Grafik Eye 4000. The theater is used for many different tasks, so variety in the lighting is important. Since every light in the space is put on electric dimming ballasts, all fixtures can be modified to provide just the right atmosphere you are looking for. I have preset 5 scenes for which the light levels and atmosphere work well with each use. Below is a schedule of the five scenes I have provided.

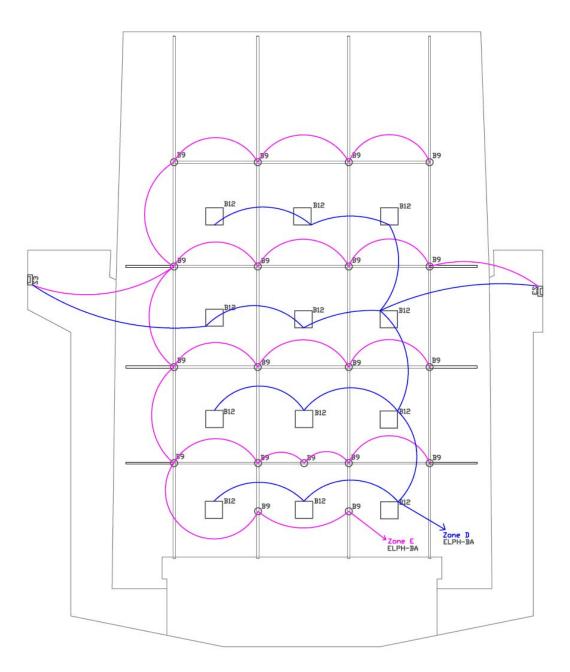
		Theater S	cenes	
Scene	Name	Zones	Fixtures	Dimming
Scene 1	Performance Entrance	D, F, G, I	B7, B8, B10, B11, B12, B13	D(10%)
Scene 2	Educational	D, E, F, H	B7, B9, B10, B11, B12, B13	
Scene 3	Performance	G, F	B7, B8, B11	G(1%), F(1%)
Scene 4	Educational 2	D, E, H	B9, B10, B12, B13	
Scene 5	Performance Entrance 2	D, H, F	B7, B10, B11, B12, B13	D(10%), H(10%)

For the power plan, each lighting zone was put on a different circuit. The ceiling plan and floor contain different aspects of the lighting since the space is two stories tall with very different elements.

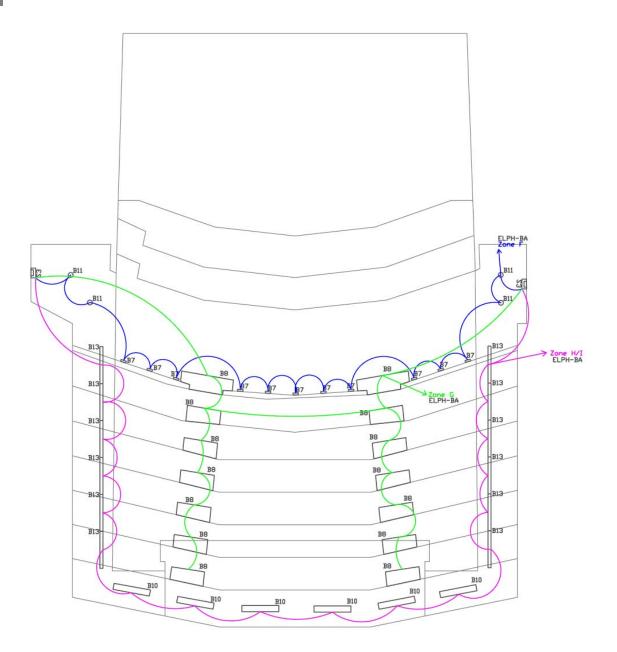
Zone D:	(12) B12 fixtures	= 780 VA = 780 VA / sqrt(3)*480V = 0.938 A
Zone E:	(19) B9 fixtures	= 1520 VA = 1520 VA / sqrt(3)*480V = 1.828 A
Zone F:	(11) B7 and (4) B11 fixtures	= 220 VA + 72 VA = 292 VA = 292 VA / sqrt(3)*480V = 0.351 A
Zone G:	(14) B8 fixtures	= 238 VA = 238 VA / sqrt(3)*480V = 0.286 A
Zone H/I:	(6) B10 and (12) B13 fixture	s= 210 VA + 816 VA = 1026 VA = 1026 VA / sqrt(3)*480V = 1.234 A

The VA values are all below the $(480V)^*(sqrt3)^*(16A) = 13302$ VA maximum per circuit allowed.

Black-Box Theater 2nd Floor Ceiling Circuiting Plan



Black-Box Theater 1st Floor Circuiting Plan



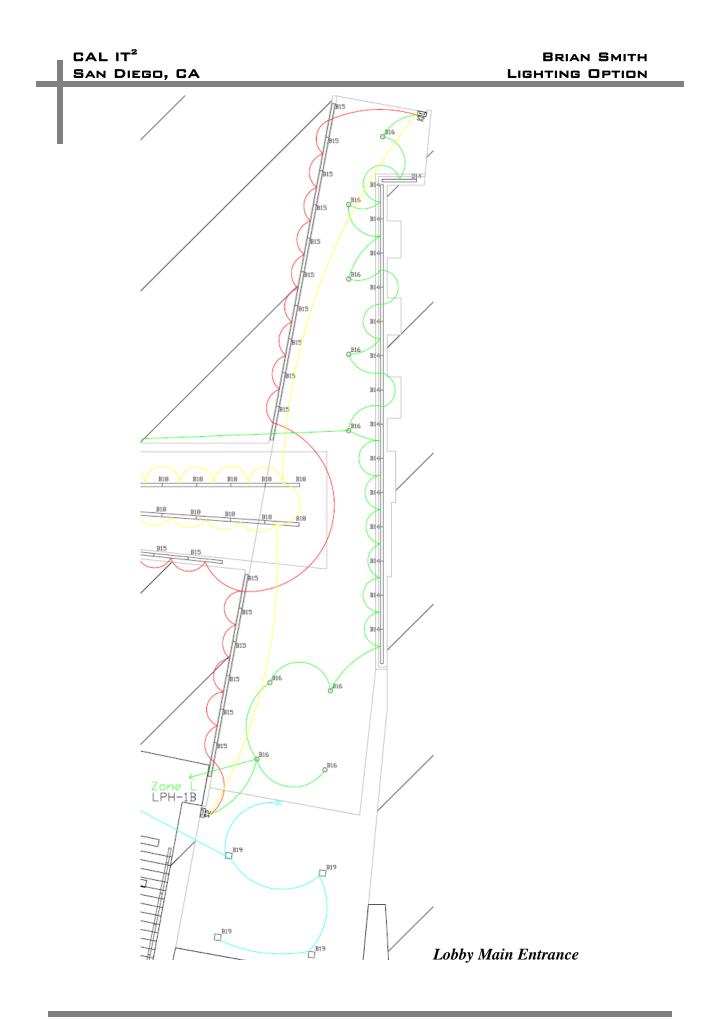
Main Lobby

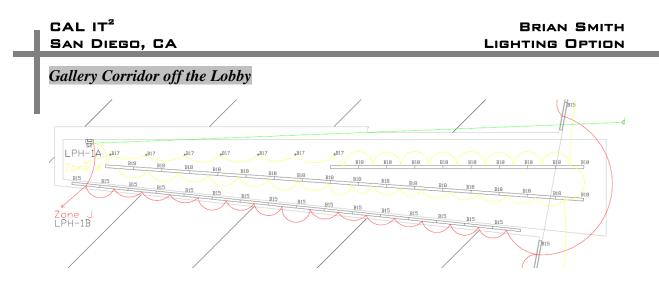
For this space, the main concern was being able to switch all the different sets of light on one control pad. Using Lutron Grafik Eye 4000, all the lights in the main lobby and gallery can be adjusted pertaining to the times of day and comfort levels. A daylight photosensor is used for the four pendants in the main entrance from the courtyard to be turned on only when dusk is approaching. The other fixtures will be switched using three different control pads mounted at all three exits. During some daytime hours, the blue cove lights might not be needed due to the bright daylight conditions on San Diego, CA as well as to showcase the gallery photos and works using only the recessed accent lights.

Zone J:	(36) B15 fixtures	= 1062 VA = 1062 VA / 480V*sqrt(3) = 1.277 A
Zone K:	(26) B18 and (7) B17 fixture	s= 780 VA + 350 VA = 1130 VA = 1130 VA / 480V*sqrt(3) = 1.359 A
Zone L:	(16) B14 and (9) B16 fixture	es = 472 VA + 324 VA = 796 VA = 796 VA / 480V*sqrt(3) = 0.957 A
Zone M:	(4) B19 fixtures	= 288 VA = 288 VA / 480V*sqrt(3) = 0.346 A

The VA values are all below the (480V)*(sqrt3)*(16A) = 13302 VA maximum per circuit allowed.

Below are the two circuiting diagrams of the lobby. The first diagram is the main entrance leading to the elevators. The second diagram illustrates the gallery corridor that juts out to the left of the lobby.





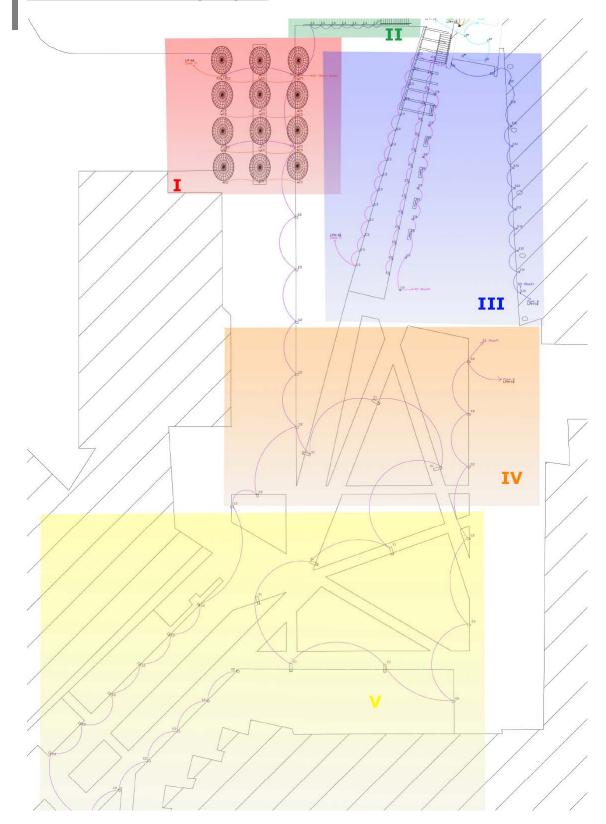


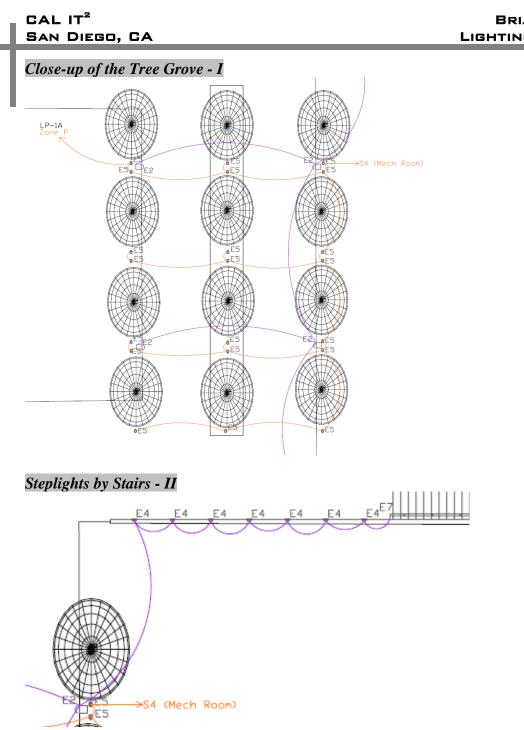
For this area, all the fixtures will be controlled by a daylight photosensor placed on the roof of building section C (the theater portion). This limits the fixtures from turning on too early or late and wasting energy. The up-lit tree fixtures are controlled separately since they will be turned off after midnight by a timer switch. These are turned off for reasons deemed by the University of California, San Diego's Facilities Office.

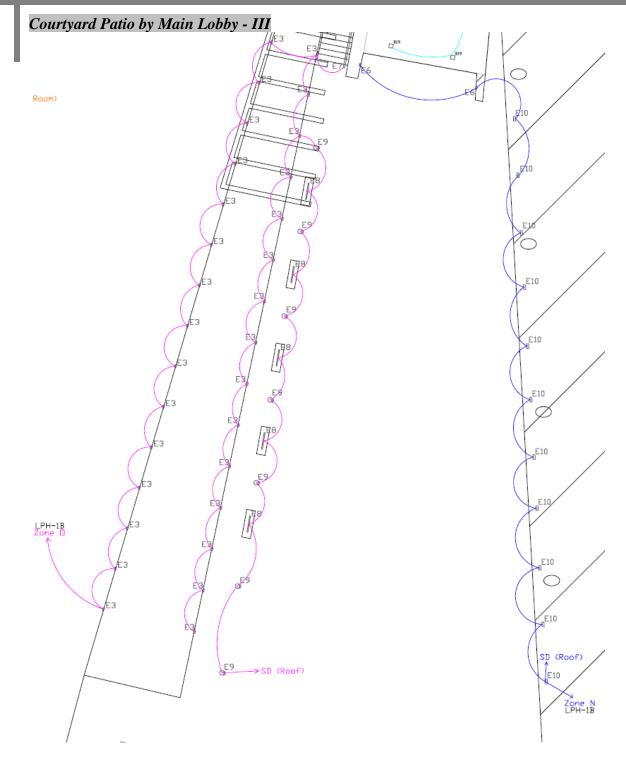
Zone N:	(4) E6 and (11) E10 fixtures	= 120 VA + 869 VA = 989 VA = 989 VA / 480V*sqrt(3) = 1.189 A
Zone O:	(29) E3, (4) E7, (5) E8, (7) E	E9 = 406 + 118 + 40 + 308 = 872 VA = 872 VA / 480V*sqrt(3) = 1.049 A
Zone P:	(21) E5 fixtures	=1050 VA = 1050 VA / 208V*sqrt(3) = 2.914 A
Zone Q:	(8) E1 and (29) E2 fixtures	= 1080 VA + 1276 VA = 2356 VA = 2356 VA / 480V*sqrt(3) = 2.834 A

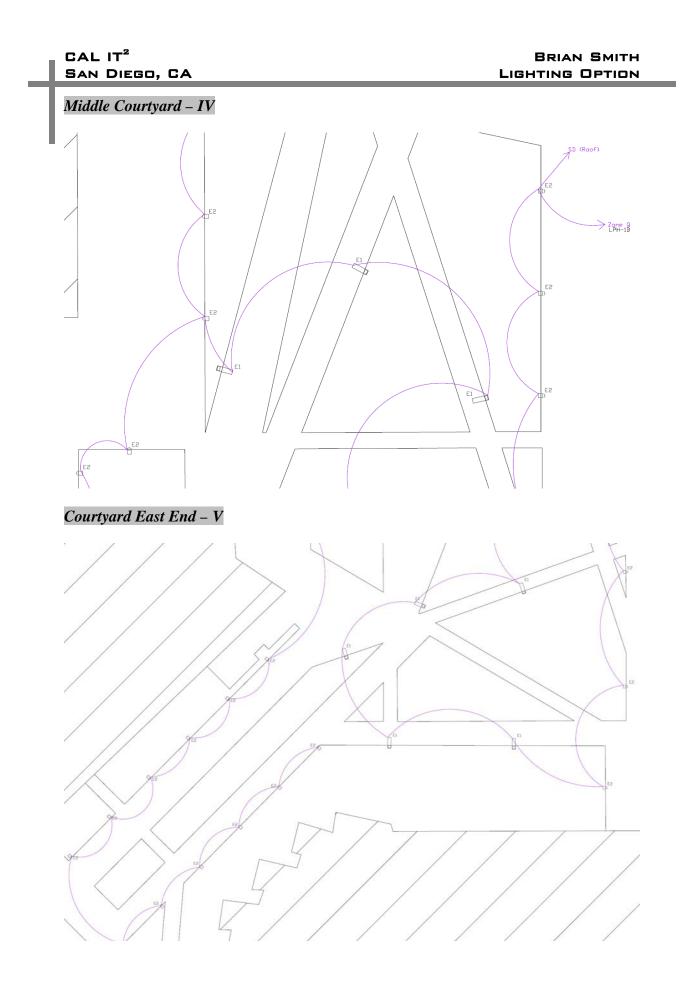
The VA values are all below the $(480V)^*(sqrt(3))^*(16A) = 13302$ VA and $(208V)^*(sqrt(3))^*(16A) = 5764$ VA maximum per circuit allowed.

Academic Court Circuiting Diagram









Underground Tunnel

For this area, there are two levels of lighting to be switched. The blue uplights in the glass windows will be single switched separately. The oscillating fluorescent panels will be controlled by the Lutron Grafik Eye 4000 control panel. These controls will be located in a locked case beside the stairwell to prevent people from adjusting the lights themselves. Shown below are the zone calculations and the circuiting diagram for the tunnel. The large custom panel is shown as a giant box for simplicity purposes. It will be broken into about 9 sections in the end for wiring and size constraint purposes. (See cut-sheets in Appendix for details)

Zone R:	(80) E11 fixtures	= 2880 VA = 2880 VA / 480V*sqrt(3) = 3.464 A
Zone S:	(24) E12 fixtures	= 864 VA = 864 VA / 480V*sqrt(3) = 1.039 A

The VA values are all below the (480V)*(sqrt(3))*(16A) = 13302 VA maximum per circuit allowed.



Panelboard Analysis

After assessing all the panelboards, LPH-1B was the most affected by the lighting design changes made. A calculation of the loads was made to verify the circuit breaker size and wire sizing.

F	anel Board LPH-1	В
Circuit	Label	Load
1	Lobby Zone J Lighting	1080
2	Conference Room 1601 Ltg	500
3	Audio Spat. 1604A Ltg	1140
4	Private Offices Ltg	1240
5	Performance 1606 Ltg	1140
6	Restrooms/Video Editing Ltg	1320
7	Lobby Zone L Lighitng	804
8	Storage/Classrooms	600
9	Open Office Suite Ltg	1000
10	Prefunction 1B, 1C Ltg	800
11	Corridor 1C Ltg	640
12	Prefunction 1B, 1C Ltg	900
13	Lobby Zone M	200
14	Reconfig Research Ltg	1920
15	Corridor Ltg	700
16	Equipment Gallery Ltg	500
17	Site Ltg (not in scope)	750
18	Auditorium Ltg (theatrical)	960
19	Future Academic Court Ltg	1500
20	Multi purpose Ltg	180
21	Exterior Ltg Zone O	872
22	Multi purpose Ltg	1650
23	Exterior Ltg Zone N	989
24	Multi purpose Ltg	1650
25	Exterior Ltg Zone Q	2356
26	Spare	
27	Site Ltg	200
28	Spare	
29	Site Ltg	500
30	Spare	
31	Site Ltg	200
32	Spare	750
33	Site Ltg	750
34	Spare	000
35	Site Ltg	800
36	Spare	
37	Spare	
38	Spare	
39	Spare	
40	Spare	
41	Spare Spare	
42		
	TOTAL	27841

Connected Load = 27.841 kW Demand Load = 27.841 * 1.25 = **34.8 kW** Circuit Breaker Protection and Conductors

Maximum load on any circuit = 2356 VA Maximum allowed Current/circuit = 2356 VA / 480 V*sqrt(3) = **2.834** A So, a standard **20** A circuit breaker for each circuit is sufficient. Since this is a three phase, four wire system, (3) #12 AWG & (1) #12 Neutral in $\frac{1}{2}$ " C will be used throughout the panelboards and all the branch circuiting.

Total load on Panel = 34.8 kW Maximum allowed current = (34800 VA) / (480 V * sqrt(3)) = 41.858 AThe 100 A circuit breaker for the panelboard is sized correctly. The oversize is used for future growth.

Panelboard Schedules

The redesigned lighting loads are in red.

MEL:	ELPH-2A W.O					3 PHASE-4 PACITY: 225				_	SURFACE MOU 22,000 AIC RWS SYMMETR	
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	STER: RESEARCH 3300/3400	20/1	5		1,2			1,200	6		CLUSTER RESEARCH 2300/2400	0
	STER RESEARCH 3100 ZONE A	20/1	7	2660		800			8		CLUSTER PESEARCH 2100	
	If 3000	20/1	9		20	- Long - sta	1,120		10		LOEBY 2000	_
	STER RESEARCH 3100 ZONE B	20/1	11		9	36		840		20/1		_
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SPAR	É	20/1	25						24	20/1	SPARE	
SPAR		20/1	25						26		SPARE	
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ELLA ELLA	RGEST MOTOR CEPTACLE ELPH-BA 1004/JP DESCRIPTION MENT MECH. RN. TER ZONE D TER ZONE F TER ZONE F TER ZONE F TER ZONE H/I E LIGHTING L	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41	0 VA		1.00 3 PHASE-4 ACITY: 100 PHASE (VA) A 1,440 20 20 20 46 1,440 1,440 1,440 1,440 10 20 46 1,440 10 10 10 10 10 10 10 10 10 1	0 VA		7 2 4 6 3 10 12 14 16 18 20 22 24 25 28 30 32 24 25 28 30 32 34 35 40 40 40 40 40 40 40 40 40 40	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	20985 VA 25 AMPS SURFACE MOUL 14,000 AIC RMS SYMMETR DESCRIPTION MULTI PURPOSE RM STARE	
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CAL IT² San Diego, CA

NEL: LP-1A IAIN: 225A/3P				, 3 PHASE-4 WI PACTY: 225A				SURFACE MO 10,000 AIC RMS SYMME	
DESCRIPTION	DEVICE	K		LOAD/PHASE (VA)	C K	DEVICE	DESCRIPTION	
		T	A B	C A	8 C	- T		1.400.000.	
CONFERENCE RM 1601A	20/1	1	720	1,08		2		LOBBY	
CONFERENCE RM 1601A	20/1	3	900		720	4		LOBBY	-
CONFERENCE RM 1601A -		5	000	1,000		20 6		LOBBY	
PRIVATE OFFICES	20/1	7	900	72		8		RESTROOMS	
PRIVATE OFFICES	20/1	9	900	000	1050			EXTERIOR TREE UPLIGHTING	-
PRIVATE OFFICES	20/1	11	900	900		12		SPARE	-
COFF	20/1		1,740	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		16		SPARE	-
GD	20/1		1,740	996		18		SPARE	-
WW	20/1		1,500	390		20		SPARE	-
U/C REF	20/1		800	5. / C		20		SPARE	-
REF	20/1		000	1,800		24		SPARE	-
PRINTER	20/1		1,680	1,000		26		SPARE	-
FAX	20/1		470			28		SPARE	-
COP	20/1		4/0	1,900		30	20/1		-
PRIVATE OFFICES	20/1		720	1,300		32			
CONVENIENCE REC.	20/1		540			34			
CONVENIENCE REC.	20/1		540	900	7	25 36		EF-1-1	-
SPARE	20/1			5,52				LP-1A(2)	-
SPARE	20/1			5,52	5,520	40	1.00/0		-
SPARE	20/1					20 42			-
SUBTOTAL (VA)	1 20/ 1 1		6,420 5,350	7,496 7,32				SUBTOTAL (VA)	-
TOTAL ALL PHASES ()	(A)	+	PHASE A	PHASE B	PHASE C	-	T	DTAL ALL PHASES (AMPS)	-
40441			13,740	12640	14,061			113	_
LOAD SUMMARY BY TYPE		00	NNECTED LOAD	DEMAND FACTOR	NEC LOAD			CONNECTED LOAD SUNMARY	
ECUIPMENT			16,560 VA	1.00	16,560 VA	1		40441 VA	-
ELECTRIC HEAT			0 VA	1.00	0 VA	-		113 AMPS	-
KITCHEN EQUIPMENT			10,886 VA	1.00	10,836 VA			ARE D	-
LICHTING		_	1050 VA	1.25	1312 VA	-			
NOTOR		-	325 VA	1.00	325 VA				
LARGEST WOTOR	-		VA	1.25	0 VA	-		NEC LOAD SUMMARY	
RECEPTACLE			11,620 VA	1.00	10,810 VA	-		39893 VA	
RECEPTACLE								39893 VA 111 ANPS	_
NEL: LPH-1A			11,620 VA 277	1.00 /480V, 3 PHASE-	10,810 VA 4 WIRE			39893 VA 111 AMPS SURFACE WO	
NEL: LPH-1A Kain: MLC		C	11,620 VA 277	1.00 /4809, 3 PHASE- BUS AMPACITY: 2	10,810 VA 4 WIRE 25A			39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME	
NEL: LPH-1A	IEVICE	CK	11,620 VA 277	1.00 /480V, 3 PHASE-	10,810 VA 4 WIRE 25A	D.C.	DEVICE	39893 VA 111 AMPS SURFACE WO	
NEL: LPH-1A Ain: WLC	DEVICE	CKT	11,620 VA 277	1.00 /4809, 3 PHASE- BUS AMPACITY: 2	10,810 VA 4 WIRE 25A	C K T	DEVICE	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME	
NEL: LPH-1A IAIN: MLC Description	DEVICE 20/1	C K T	11,620 VA 277	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A	10,810 VA 4 WIRE 25A			39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME	
NEL: LPH-1A AIN: HLC Description 30 Fabrication		Î	11,620 VA 277 A B	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7	10,810 VA 4 WIRE 25A k) B C		20/1	39893 VA 111 ANPS Surface No 30,000 ANC RMS SYMME Description	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor	20/1	Î 1	11,620 VA 277 A B 1,000	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2	20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A	
NEL: LPH-1A AIN: HLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101	20/1	Ť 1 3	11,620 VA 277 A B 1,000	1.00 /480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 7	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2	20/1 20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101	20/1 20/1 20/1	Ť 1 3 5	11,620 VA 2777 A B 1,000 1130	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 00 5	20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RWS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101	20/1 20/1 20/1 20/1	Ť 1 3 5 7	11,620 VA 277 A B 1,000 1130 1,300	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 00 5 8	20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RISTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202	20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9	11,620 VA 277 A B 1,000 1130 1,300	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 00 5 3 10	20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE SPARE SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9	11,620 VA 277 A B 1,000 1130	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 00 5 8 10 12	20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE SPARE SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SLIVER RESEARCH 1202 SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13	11,620 VA 277 A B 1,000 1130	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 100 5 8 10 12 14	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SFARE SFARE SFARE SFARE SFARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15	11,620 VA 277 A B 1,000 1130	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 100 5 10 12 14 16	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE SPARE SPARE SPARE SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FASRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 00 5 8 10 12 14 16 18	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RISTROOMS SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gailery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17 19	11,620 VA 277 A B 1,000 1130	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WIRE 25A x) 50 B C 1,000 C	2 4 00 3 10 12 14 16 18 20	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SLEVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17 19 21	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 5 10 12 14 16 18 20 22	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE SFARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17 19 21 23	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 5 100 112 114 116 118 200 222 24	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17 19 21 23 25	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 600 5 8 10 12 14 16 18 20 22 24 24 25	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17 19 21 23 25 27	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 3 100 5 10 12 14 16 18 20 22 24 24 25 28	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SLEVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 3 8 100 12 14 16 18 20 22 24 26 28 30	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTRACOMS SFARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 111 13 15 17 19 21 23 25 27 29 31 33	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 5 8 10 12 14 16 18 20 224 224 226 224 28 30 32	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39891 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RISTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 111 13 15 17 19 21 23 25 27 29 31 33	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 5 8 10 12 14 16 18 20 22 24 26 26 30 32 32 34	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS STARE STARE STARE STARE STARE SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 9 11 13 15 17 19 21 23 25 27 29 31 33 35	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 5 8 10 12 14 16 16 18 20 22 24 24 26 28 30 32 32 32 34 36	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 ANPS SURFACE NO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SFARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FASRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37	11,620 VA 277 1 1,000 1,300 930	1.00 /480Y, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WRE 25A () B C 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 000 5 8 10 12 14 16 16 18 20 20 22 24 26 28 30 22 24 26 30 32 32 34 36 38	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39891 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FASRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 111 13 15 17 19 21 23 25 27 29 21 23 25 27 29 31 33 35 37 39	11,620 VA 277 1 1,000 1,300 930	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 7 2,050	10,810 VA 4 WIRE 25A A) B C 1,000 E C C C C C C C C C C C C C	2 4 000 3 10 12 14 16 16 18 20 22 24 24 28 30 32 32 33 34 340	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39891 VA 111 ANPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PENVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FASRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 111 13 15 17 19 21 23 25 27 29 21 23 25 27 29 31 33 35 37 39	11,620 VA 277 A B 1,000 1130 1,300 930 930 930 930 930 930 930	1.00 /480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,050 2,050 2,050 2,050 7 PHASE B	10,810 VA 4 WRE 25A 4) 8 C 50 7,000 8 8 8 8 8 8 8 8 8 8 8 8 8	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39891 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RISTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 3D FABRICATION Gallery Corridor SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SPAR	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	T 1 3 5 7 9 111 13 15 17 19 21 23 25 27 29 21 23 25 27 29 31 33 35 37 39	11,620 VA 2777 A B 1,000 1130 930 930 2,300 2,300 2060	1.00 /480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,00	10,810 VA 4 WRE 25A 3 C 50 M 1,000 8 4 C 50 M 50 M	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AUC RMS SYMME DESCRIPTION ROOMS 120E & 1206A PRIVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FASRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 2777 A B 1,000 1130 1,300 930 930 2,500 PHASE A 3,050 (NNECTED LOAD	1.00 /480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,00	10,810 VA 4 WRE 25A 4) 8 C 50 1,000 8 2 2 2 2 2 2 2 2 2 2 2 2 2	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RISTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 277 A B 1,000 1130 1,300 930 2,300 2,300 2,300 2,300 2,300 2,300 0 2,300 0 0 0 0 VA	1.00 /480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,00	10,810 VA 4 W/RE 25A 4) 3 C 50 1,000 8 4 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,0	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PENVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 277 A B 1,000 1130 1,300 930 2,500	1.00 /480V, 3 PHASE EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 WRE 25A 3 C 50 States 50 St	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PRIVATE OFFICES - NORTH RISTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 2777 A B 1,000 1130 1,300 930 930 930 930 930 930 930	1.00 /480V, 3 PHASE- BUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,00	10,810 VA 4 WRE 25A 4 WRE 25A 50 1,000 8 2 50 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,000 8 1,000	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PENVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 2777 A B 1,000 1130 1,300 930 930 930 930 930 930 930	1.00 7480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,00	10,810 VA 4 WRE 25A 4 WRE 25A 50 1,000 8 10,000 8 10,000 8 10,000 8 10,000 8 10,000 1,000	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PENVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER FESEARCH 1202 SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 277 A B 1,000 1130 1,300 930 2,300 2,300 930 930 930 930 930 930 930	1.00 /480V, 3 PHASE EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050	10,810 VA 4 W/RE 25A 4) 8 C 50 1,000 8 25A 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 8 1,000 1,000 8 1,000	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AK RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PENVATE OFFICES - NORTH RESTROOMS SPARE	
NEL: LPH-1A AIN: MLC DESCRIPTION 30 FABRICATION Gallery Corridor SERVER ROOM 1101 SERVER ROOM 1101 CLUSTER RESEARCH 1202 SPARE SUBTOTAL (VA) SPARE SPARE SPARE SPARE SPARE SUBTOTAL (VA) SPARE S	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	Î I 3 5 7 9 11 13 15 17 19 23 25 27 29 31 335 35 37 38 41 1	11,620 VA 2777 A B 1,000 1130 1,300 930 930 930 930 930 930 930	1.00 7480V, 3 PHASE- EUS AMPACITY: 2 LOAD/PHASE (V. C A 2,050 2,05	10,810 VA 4 WRE 25A 4 WRE 25A 50 1,000 8 10,000 8 10,000 8 10,000 8 10,000 8 10,000 1,000	2 4 600 3 8 10 10 114 16 18 20 22 24 26 25 24 26 30 30 30 32 34 36 36 34 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	39893 VA 111 AMPS SURFACE MO 30,000 AIC RMS SYMME DESCRIPTION ROOMS 1206 & 1206A PENVATE OFFICES - NORTH RESTROOMS SPARE	

CAL IT² San Diego, CA

BRIAN SMITH LIGHTING OPTION

NEL: LPH-1B AIN: MLO				7, 3 PHASE-4 WIFE PACITY: 100A		_		SURFACE MO 30,000 AIC RMS SYMMET	
DESCRIPTION	DEVICE	C K		LOAD/PHASE (VA)		C K	DEVICE	DESCRIPTION	
		T	AB	CA	BC	1			
LOBBY 1000 ZONE J	20/1	1	1080	500		2		CONFERENCE ROOM - 1501	1A
AUDIO SPAT1604A	20/1	3	1,140		1,240	4	20/1	PRIVATE OFFICES - EAST	_
PERFORM. COMP 16				1,140	1,320		20/1	RESTROOMS/VIDEO EDITING	-
LOBBY 1000 ZONE L	20/1	7	804	600		8		STORAGE / CLASSROOMS	
OPEN OFFICE SUITE	20/1	9	1,000	C 10 Date - Las	800	10	20/1	PREFUNCTION - 1B, 1C	
CORRIDOR - LEVEL 1C	20/1	11	1000 (mar.	640		0 12	20/1	PREFUNCTION - 1B, 1C	-
LOBBY 1000 ZONE M	20/1	13	200	1,920		14	20/1	RECONFIG. RESEARCH	
CORRIDOR	20/1	15	700	220	500	16	20/1	EQUIPMENT GALLERY	_
SITE LIGHTING	20/1	17		750		0 18		AUDITORIUM	_
FUTURE ACADEMIC CT.	20/1	19	1,500	180		20	20/1	MULTIPURPOSE RM.	_
EXTERIOR LIGHTING ZON EXTERIOR LIGHTING ZON		21	872	080	1,650	22	20/1	MULTIPURPOSE LIGHTING	
Control of the second sec		23		989	1,650		20/1	MULTIPURPOSE LIGHTING	_
EXTERIOR LIGHTING ZON		25	2356	Concept and Concep		26		SFARE	-
	20/1		200	700		28	20/1		-
	20/1	29	000	300	iter another	30	20/1		_
SITE LIGHTING	20/1		200			32	20/1		-
SITE LIGHTING	20/1	33	750	800		34		SFARE	
SITE LIGHTING	20/1	35		800	And international states	36	20/1	SFARE	
SPACE		37				38		SFACE	_
SPACE		39		The state of the state		40		SFACE	-
SPACE	-	41	6140 4142	4410 7.000	4 100 4 07	42		SFACE	-
SUBTOTAL (V			6140 4662	4619 3,200		-		SUETOTAL (VA)	_
TOTAL ALL PHASE	ES (VA)	_	PHASE A	PHASE B	PHASE C	+	10	OTAL ALL PHASES (AMPS)	
27641			9340	8852	9449	-	-	34	_
LOAD SUMMARY BY TYP	-	CO	NNECTED LOAD	DEMAND FACTOR	NEC LOAD	1		CONNECTED LOAD SUMMARY	-
EQUIPMENT	-		0 VA	1.00	0 VJ	1		27641 VA	
ELECTRIC HEAT			O VA	1.00	0 VL	1 1		34 AMPS	-
KITCHEN EQUIPMENT		-	O VA	1.00	O VA	1 '			-
LIGHTING			27641 VA	1.25	34551 VA	1			
MOTOR			O VA	1.00	0 VA	1			
LARGEST WOTOR			VA	1.25	0 14	1		NEC LOAD SUMMARY	-
RECEPTACLE			O VA	1.00	0 VA	1 1		34551 VA	_
- NEGET INGLE			•		• •			42 AMPS	_
								42 AMPS	
KD: LPH-JA			277/4809	, 3 PHASE-4 WIRE				42 AMPS SURFACE NO	
IEL: LPH-3A NN: MLO		C		, 3 PHASE-4 WIRE PACITY: 225A			DEPRES	42 AMPS SURFACE NO 30,000 AIC RNS SYMMET	
ID: LPH-3A	DEVICE	CET	277/4809	, 3 PHASE-4 WIRE		C K	DEVICE	42 AMPS SURFACE NO	
iel: LPH-3A Nn: MLO Description		C K T	277/480V BUS AM	, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A	B C	C K T		42 AMPS Surface Noi 30,000 aic RNS Symmet Description	
EL: LPH-3A NN: MLO DESCRIPTION PRIVATE OFFICES 3100	20/1	1	277/480V BUS AM A B 550	, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA)	B C	2	20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH	
EL: LPH-3A UN: NLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311	20/1 00 20/1	1 3	277/480V BUS AM	r, 3 phase-4 wire Pacity: 225A Load/phase (VA) C A 2,060	B C	2	20/1 20/1	42 AMPS SURFACE NO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH	TRE
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000	20/1 00 20/1 20/1	1 3 5	277/480v BUS AM A B 550 2,040	7, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500	B C	2 4 0 6	20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICE	ES
EL: LPH-3A DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 33	20/1 00 20/1 20/1 00 20/1	1 3 5 7	277/480% BUS AM 550 2,040 2,090	r, 3 phase-4 wire Pacity: 225A Load/phase (VA) C A 2,060	B C 1,750 65/	2 4 0 6 8	20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICE PRIVATE OFFICES - NORTH	ES
EL: LPH-3A UN: HLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200	20/1 00 20/1 20/1 00 20/1 20/1	1 3 5 7	277/480v BUS AM A B 550 2,040	7, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500	B C 1,750 1,860	2 4 0 6 8 10	20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH	ES
EL: LPH-3A UN: HLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200	20/1 00 20/1 20/1 00 20/1	1 3 5 7	277/480% BUS AM 550 2,040 2,090	7, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500	B C 1,750 65/	2 4 0 6 8 10	20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES	ES
EL: LPH-3A DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 CLUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A	20/1 00 20/1 20/1 00 20/1 20/1	1 3 5 7 9	277/480% BUS AM 550 2,040 2,090	(, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500	B C 1,750 650 1,860 1,90	2 4 0 6 8 10	20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES VENDING / COPY AREA	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 332 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE	20/1 00 20/1 20/1 00 20/1 20/1 20/1 20/1	1 3 5 7 9 11	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICE PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A DESCRIPTION DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 CORFIDOR 3200 COFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE	20/1 00 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE	ES
EL: LPH-3A DESCRIPTION DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 CORFIDOR 3200 COFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE	20/1 00 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE SPARE	ES
EL: LPH-3A DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 332 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE	20/1 00 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE	ES
EL: LPH-3A IN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A COFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE SPARE	ES
EL: LPH-3A DESCRIPTION DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	ES
EL: LPH-3A DESCRIPTION DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 CORRIDOR 3200 CORRIDOR 3200 COFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 15 17 19 21 23	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22 22 24	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE SPARE SPARE SPARE SPARE SPARE	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22 24 24 25	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	ES
EL: LPH-3A IN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22 24 25 28 30	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	ES
EL: LPH-3A IN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 COUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE	20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22 24 26 28 30 32	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 332 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22 24 26 28 30 32	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A NN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 6 8 10 0 12 14 16 18 20 22 24 25 28 30 32 34	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICES PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33 35	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRF PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 2,500 1,470	B C 1,750 650 1,860 1,90	2 4 6 8 10 0 12 14 16 18 20 22 24 25 28 30 32 34 36	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPAR	ES
EL: LPH-3A UN: WLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 332 CORRIDOR 3200 CCFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33 35 37	277/480% BUS AM 550 2,040 2,090 1,030 700	7, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510	B C 1,750 65/ 1,860 1,90	2 4 0 6 8 10 0 12 14 16 18 20 22 24 26 30 32 34 36 38	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A UN: WLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 332 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33 33 35 37 39	277/480V BUS AM 550 2,040 2,090 1,030	7, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510	B C 1,750 65/ 1,860 1,90	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SP	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CCUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33 33 35 37 39	277/480v BUS AM 550 2,040 2,090 1,030 700 3340 3340 3,070 PHASE A	7, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 3,970 5,070 PHASE B	B C 1,750 651 1,860 1,90 3,510 2,55 PHASE C	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SIMILE DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A DESCRIPTION DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 51 33 33 33 5 37 39	277/480% 8US AM 550 2,040 2,090 1,030 700 3340 3,070	7. 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 1,510	B C. 1,750 659 1,860 1,90 3,310 2,53	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SP	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480% BUS AM 550 2,040 2,090 1,030 700 700 3340 3,070 PHASE A 9410	, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,060 2,500 1,470 1,510 3,970 6,070 PHASE B 6,689	B C. 1,750 659 1,860 1,90 3,510 2,55 PHASE C 6,520	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RNS SYMMET DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
ILL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480V BUS AM 550 2,040 2,090 1,030 700 3340 3340 3,070 PRASE A 9410 DNNECTED LOAD	(, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,000 2,500 1,470 1,510 3,970 5,070 PHASE B 6,680 DEMAND FACTOR	B C 1,750 651 1,860 1,90 3,510 2,55 PHASE C 6,520 NEC LOAD	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SIMILE DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A UN: WLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 330 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480% BUS AM 8 550 2,040 2,090 1,030 700 3340 3340 3340 9410 DNHECIED LOAD 0 VA	7. 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 3,970 5,070 PHASE 8 6,689 DEMAND FACTOR 1,00	B C 1,750 650 1,860 1,860 1,900	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RMS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICES PRIVATE OFFICES - NCRTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPAR	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480% BUS AM 550 2,040 2,090 1,030 700 700 700 9410 9410 0 VA 0 VA	7. 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 3,970 6,070 PHASE 8 6,689 DEMAND FACTOR 1.00	B C. 1,750 65/ 1,860 1,860 1,90 3,510 2,55 PHASE C 6,520 NEC LOAD 0 VA 0 VA	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MO 30,000 AIC RNS SIMILE DESCRIPTION PRIVATE OFFICES - NGRTH PRIVATE OFFICES - SOUTH RESTROONS/PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES - NGRTH PRIVATE OFFICES PRIVATE OFFICES SPARE	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 31 LOBBY 3000 CLUSTER RESEARCH 33 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/4800 8US AM 550 2,040 2,090 1,030 700 700 700 9410 00NHECTED LOAD 0 VA 0 VA	, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,000 2,500 1,470 1,510 3,970 5,070 PHASE 8 6,689 DEMAND FACTOR 1.00 1.00	B C. 1,750 659 1,860 1,900 1,860 1,900 1,800 1,900 1,900 1,800 1,900 1,900 1,800 1,900 1,800 1,900	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RMS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICES PRIVATE OFFICES - NCRTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPAR	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 310 LOBBY 3000 CLUSTER RESEARCH 320 CORBIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE S	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480% BUS AM 8 550 2,040 2,090 1,030 700 700 3340 3340 3,070 PHASE A 9410 ONNECTED LOAD 0 VA 0 VA 0 VA 22610 VA	7. 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 3,970 5,070 PHASE B 6,689 DEMAND FACTOR 1.00 1.00 1.25	B C 1,750 650 1,860 1,860 1,900	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RMS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICES PRIVATE OFFICES - NCRTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPAR	ES
EL: LPH-3A UN: WLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 333 CORRIDOR 3200 CFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480% BUS AM 8 550 2,040 2,090 1,030 700 700 700 700 9 8 3340 3,070 PRASE A 9410 0 NNECTED LOAD 0 VA 0 VA 0 VA 0 VA	, 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 3,970 5,070 PHASE 8 6,680 DEMAND FACTOR 1.00 1.00 1.00 1.00 1.00	B C 1,750 65/ 1,860 1,860 1,900 1,900 0 1,900 1,900 0 1,900 1,900 1,900 1,900 1,900 1,900 1,900 1,900 1,900 1,900 1	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RMS SYMMET DESCRIPTION PRIVATE OFFICES - NORTH PRIVATE OFFICES - SOUTH PRIVATE OFFICES - NORTH PRIVATE OFFICES - NORTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPA	ES
EL: LPH-3A UN: MLO DESCRIPTION PRIVATE OFFICES 3100 CLUSTER RESEARCH 311 LOBBY 3000 CLUSTER RESEARCH 320 CORBIDOR 3200 CCFFICE 3400A ELEVATOR COVE SPARE	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 54 335 355 37 39 41	277/480% BUS AM 8 550 2,040 2,090 1,030 700 700 3340 3340 3,070 PHASE A 9410 ONNECTED LOAD 0 VA 0 VA 0 VA 22610 VA	7. 3 PHASE-4 WIRE PACITY: 225A LOAD/PHASE (VA) C A 2,500 2,500 1,470 1,510 3,970 5,070 PHASE B 6,689 DEMAND FACTOR 1.00 1.00 1.25	B C 1,750 650 1,860 1,860 1,900	2 4 6 8 10 12 14 16 18 20 22 22 24 26 30 32 34 36 34 36 38 40 42	20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	42 AMPS SURFACE MOI 30,000 AIC RMS SYMMET DESCRIPTION PRIVATE OFFICES - NCRTH PRIVATE OFFICES - SOUTH RESTROOMS/PRIVATE OFFICES PRIVATE OFFICES - NCRTH PRIVATE OFFICES - NCRTH PRIVATE OFFICES PRIVATE OFFICES PRIVATE OFFICES SPARE SPAR	ES

CAL IT² San Diego, CA

BRIAN SMITH LIGHTING OPTION

PANEL: ELPH-1A WAIN: VLO					480V, 3						SURFACE MO 14,000 AIC FMS SYMME	
T DESCRIPTION	DEVICE	CKT				USE (VA)			C DENCE DESCRIP		DESCRIPTION	
L WEST CORRIDOR - 18	20/1	1	1,200	SCHOOL SC	CHARAGE IN COLUMN	520	Magazina:	-	2	20/1	SOUTH STAIRWELL - 18	\neg
L EAST CORRIDOR - 18	20/1	3	IS STORE		Sec. 2.5	Distant a	120	ST COL	4	20/1	SOUTH CORRIDOR - 1B	
L RECON. RESEARCH LAB	S 20/1	5	Solution and	1234915	640	100.00	BURNATER	200	6	20/1	STEPLICHTS - 1A	
L COFRIDOR - 1C	20/1	7	300	A DE LA DE	decision.	400	1.11	54444	8	20/1	STEPLICHTS - 1A	-
L CLASSROOMS - 1A	20/1	9	A DIRECTOR	1,000	101000	12 1 2 2	2880	1983年1月1日日	10	20/1	TUNNEL LTG ZONE R	
L CORRIDOR - 1A	20/1	11	and the second	ALC: NO	1,550	1000	1.50.10	100	12	20/1	STEPLICHTS - 10	1
L TUNNEL - 18	20/1	13	500	1000	200	100	1.00	Sector Sector	14	20/1	STEPLICHTS - 1C	
L METALIZATION 1425	20/1	15	國際意識	200	STATE OF	计测量的	200	200.60	16	20/1	METROLOGY 1423	
L METALIZATION 1429	20/1	17		Contraction of the	200	152.44	101415-0	200	18	20/1	METROLOGY 1419	
L THERMAL PROCESS 143		19	200		STATES.	200		Sec. Sec.	20	20/1	LITHOGRAPHY 1417	1
BACK END PROCESS 14	33 20/1	21	Section of	200	18.235.02	SHEER ST	200	法的建筑	22	20/1	LITHOGRAPHY 1413	
L ETCH 1439	20/1	23	-	Contraction of	200		Contraction of	200	24	20/1	E-BEAM LITHOGRAPHY 1409	
WET PROCESS 1443	20/1	25	200	1000	ENGARE	200		AND SHO	26	20/1	DEVELOPMENT 1405	
L MAIN ELECTRICAL ROOM	20/1	27	344633	230	-	Start 1	864	法 加速度	28	20/1	TUNNEL LTG ZONE S	
PRE-UNCTION	20/1	29	10000	53.78.m	200		COLUMN 2		30	20/1	SPARE	
MULTIPURPOSE	20/1	31	100	的 东于1933	STATES OF		1000	Statute:	32	20/1	SPARE	
SPARE	20/1	33	他的清晰 的		COLOR D	新时代会社		COMPANY OF	34	20/1	SPARE	
SPARE	20/1	35	-	and seattle		Sere speciel	1.000		36	20/1	SPARE	
SPACE		57					100 100	STONAL C	38	50/3	ET-18	
SPACE		39	1000			STATES.		Sector.	40		•	
SPACE	1000 and 1000 and 1000	41	11111	1000		15.00400	23,190		42		•	
SUBIOTAL	(VA)		2,600	2,660	2,790	1,420	3744	700			SUBTITAL (VA)	_
TOTAL ALL PH	ASES (VA)		PHAS	SE A	PHA	52 8	PHA	SE C		I	OTAL ALL PHASES (AMPS)	
13914			4,0	20	64	04	3,4	490			17	
LOAD SUMMARY BY T	YPF		ONNECTED	LOAD	DEMAND	FACTOR	NEC	LOAD	ř i		CONNECTED LOAD SUMMARY	
= FOLIENENT	the second s		the second s	VA	1			VA			13914 VA	

LOAD SUMMARY BY TYPE	CONNECTED	LOAD	DEMAND FACTOR	NEC	LOAD
E = EQUIFMENT	0	VA	1.00	0	VA
h = Electric heat	0	VA	1.00	0	VA
k = Kitchen Equipment	0	VA	1.00	0	VA
L = Lighting	13914	¥A.	1.25	17392	VA
M = MOTOR	0	¥A.	1.00	0	VA
W = LARGEST MOTOR		¥A.	1.25	0	VA
R = RECEPTACLE	0	YA	1.00	0	VA

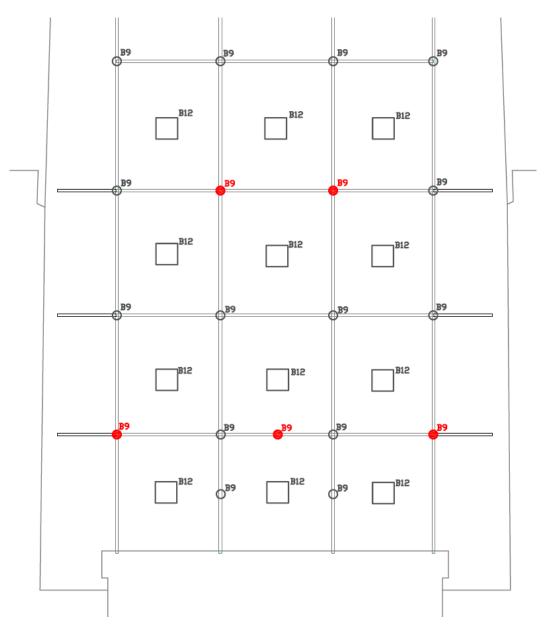
13914 VA	
17 AMPS	
C. 2010 C. March 100 (1997)	1000

C	NEC LOAD SUMMARY	
	17392 VA	
	21 AMPS	

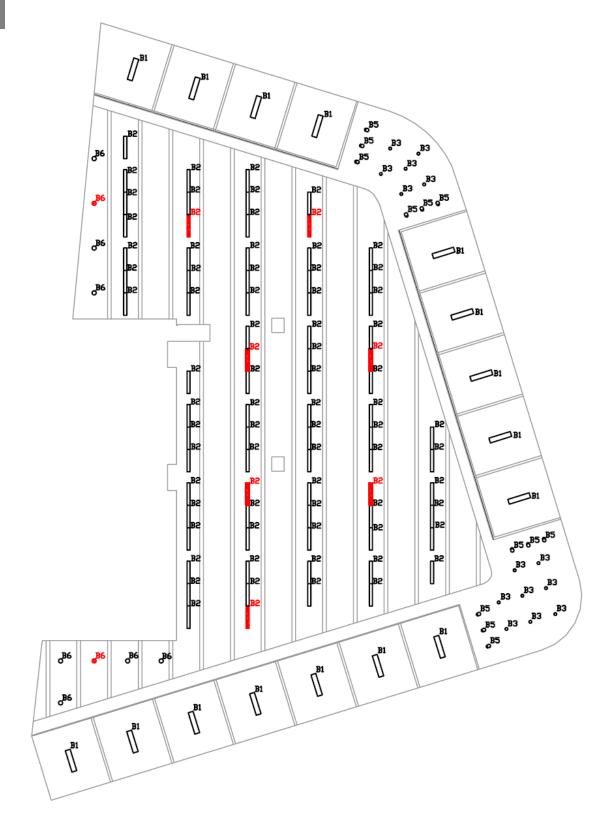
Emergency Lighting

I have provided emergency lighting plans to show the fixtures connected to the emergency panel boards in case of a black-out. They are shown in red. Not many are used because only light for evacuation is needed which entails only 1 fc. The lobby and academic court are not included in the emergency lighting plan.

Emergency Lighting Plans - Theater



Emergency Lighting Plans – 3100 Research Area



Emergency Power

Cal (IT)² currently uses a 750 kW (938 kVA), 1200A 3 phase, 4 wire standby emergency diesel powered generator. In case of a power outage, there are three automatic transfer switches to transfer the power from the emergency generator to the emergency power loads. The emergency power is distributed by the switch board EDSH-1A which contains emergency lighting, mechanical equipment, clean room equipment, and elevator loads. In this study, I will be resizing the emergency generator with my new current emergency lighting loads to verify the emergency power needed in case of a power outage.

E	DSH-1A Lo	ads	
Distribution Panel	Circuit Loads	Loads (kVA)	Total
DPH-1A			
	ELPH-BA	7.758	
	ELPH-1A	10.253	
	ELPH-2A	20.985	
	ELPH-4A	11.913	
	ELPH-PA	2.625	
			53.534
DPH-ELEV-PA			
	ELEV-1	29.830	
	ELEV-2	29.830	
	ELEV-3	29.830	
	ELP-ELEV-PA	2.580	
			92.07
DPH-1B			
	EDPH-2A	182.730	
	EDPH-PA	49.620	
	CH-1	0.750	
	CAC-1-1	3.730	
	CAC-1-2	3.730	
	CAC-1-3	3.730	
	MOCVD Equipment	100.000	
			344.29
		TOTAL kVA	489.894

The load values in this chart can be referred to in Technical Assignment #2.

Total kVA = 489.894 = about **500 kVA**

Current generator = 938 kVA > 500 kVA, so the generator is sized properly.

<u>Circuit breaker sizing for EDSH-1A</u> (489.894 kVA) / (0.48 kV * sqrt(3)) = **590 A** Current circuit breaker = 1200 A > 590 A, so the protection is sized properly.

Conclusions

The current electrical power loads for the building are sized properly. Being a technological research facility, I expected all the panelboards and distribution panels to be oversized by a significant amount due to the future installation of lab equipment and materials.