PROJECT NAME: COUNTY OF ORANGE HEALTH CARE AGENCY
401 S. TUSTIN, ORANGE COUNTY
SUBJECT: SHORT CIRCUIT CALCULATION AT 277/480 V PANEL

TRANSFORMER 'SCE'
SECONDARY VOLTAGE (P-P) 277/480
UTILITY IMPEDANCE = 0.01126
MOTOR CONTRIBUTION: 100% AFC AT MAIN 24603

PANEL NO.	FEEDER NO.	FEEDER DESIG.	WIRE SIZE		R 1000'	X 1000'	FDR L (FT.)	FDR R	FDR X	TOTAL R	TOTAL X	TOTAL Z	AFC AT PANEL
MSB	SCE	F1000	500MCM	3	0.01	0.01	145	0.0013	0.0019	0.0013	0.01314	0.013	26214.3
4H	MSB-1	F250	250MCM	1	0.052	0.041	340	0.0177	0.0139	0.0190	0.02708	0.033	10468.6
1DPH	MSB-2	F400	3/O	2	0.039	0.021	300	0.0116	0.0063	0.0129	0.01944	0.023	14854.7
3DPH	MSB-3	F400	3/O	2	0.039	0.021	170	0.0065	0.0036	0.0079	0.01671	0.018	18751.2
2H	MSB-4	F200	3/O	1	0.077	0.042	23	0.0018	0.0010	0.0031	0.01411	0.014	23976.6
ATS2LS	MSB-6	F60	4	1	0.310	0.048	39	0.0121	0.0019	0.0134	0.01502	0.020	17207.4
2LSH	MSB-6	F60	4	1	0.310	0.060	16	0.0050	0.0010	0.0184	0.01598	0.024	11383.4
AC-3	MSB-7	F70/N	4	1	0.310	0.060	150	0.0465	0.0090	0.0478	0.02214	0.053	5257.7
AC-4	MSB-8	F70/N	4	1	0.310	0.060	150	0.0465	0.0090	0.0478	0.02214	0.053	5257.7

PROJECT NAME: COUNTY OF ORANGE HEALTH CARE AGENCY
401 S. TUSTIN, ORANGE COUNTY
SUBJECT: SHORT CIRCUIT CALCULATION AT 277/480 V PANEL

PANEL: 1DPH
VOLTAGE (P-P): 277/480
UTILITY IMPEDANCE = 0.01865
MOTOR CONTRIBUTION: 100% AFC AT 1DPH 14854.74

PANEL NO.	FEEDER NO.	FEEDER DESIG.	WIRE SIZE		R 1000'	X 1000'	FDR L (FT.)	FDR R	FDR X	TOTAL R	TOTAL X	TOTAL Z	AFC AT PANEL
1H	1DPH-1	F200	3/O	1	0.08	0.05	40	0.0032	0.0021	0.0160	0.02152	0.027	10324.9
ATS1LS	1DPH-3	F60	4	1	0.310	0.060	15	0.0047	0.0009	0.0175	0.02034	0.027	10321.1
1LSH	1DPH-3	F60	4	1	0.310	0.060	39	0.0121	0.0023	0.0296	0.02268	0.037	7428.6

PROJECT NAME: COUNTY OF ORANGE HEALTH CARE AGENCY
401 S. TUSTIN, ORANGE COUNTY
SUBJECT: SHORT CIRCUIT CALCULATION AT 277/480 V PANEL

PANEL: 3DPH
VOLTAGE (P-P): 277/480
UTILITY IMPEDANCE = 0.01477
MOTOR CONTRIBUTION: 100% AFC AT 3DPH 18751.2

PANEL NO.	FEEDER NO.	FEEDER DESIG.	WIRE SIZE		R 1000'	X 1000'	FDR L (FT.)	FDR R	FDR X	TOTAL R	TOTAL X	TOTAL Z	AFC AT PANEL
ATS3LS	3DPH-2	F60	4	1	0.310	0.060	45	0.0140	0.0027	0.0218	0.01941	0.029	11861.4
ATS3EM	EDPH-3	F400	3/O	2	0.040	0.026	37	0.0015	0.0010	0.0093	0.01768	0.020	17331.2
3LSH	3DPH-2	F60	4	1	0.310	0.060	12	0.0037	0.0007	0.0255	0.02013	0.033	8521.5
3DPEMH	3DPH-3	F400	3/O	2	0.040	0.026	19	0.0008	0.0005	0.0101	0.01817	0.021	16670.8
3EH	3DPEMH-1	F150	1/O	1	0.120	0.055	47	0.0056	0.0026	0.0157	0.02075	0.026	10643.5
ELEV.	3DPEMH-3	F100/N	1	1	0.160	0.057	150	0.0240	0.0086	0.0341	0.02672	0.043	6398.5
AC-5	3DPEMH-4	F60/N	4	1	0.310	0.060	130	0.0403	0.0078	0.0504	0.02597	0.057	4888.5
AC-6	3DPEMH-5	F60/N	4	1	0.310	0.060	150	0.0465	0.0090	0.0566	0.02717	0.063	4414.4

PROJECT NAME: COUNTY OF ORANGE HEALTH CARE AGENCY
401 S. TUSTIN, ORANGE COUNTY
SUBJECT: SHORT CIRCUIT CALCULATION AT 277/480 V PANEL

GENERATOR: EG
OUTPUT VOLTAGE (P-P) 277/480
GENERATOR IMPEDANCE: X = 0.08549
MOTOR CONTRIBUTION: 100% AFC AT GENERATOR 3240

PANEL NO.	FEEDER NO.	FEEDER DESIG.	WIRE SIZE		R 1000'	X 1000'	FDR L (FT.)	FDR R	FDR X	TOTAL R	TOTAL X	TOTAL Z	AFC AT PANEL
GMDP	EG	F500	250MCM	2	0.03	0.02	120	0.0031	0.0025	0.0031	0.08795	0.088	3934.3
3MDPEMH	GMDP-1	F400	3/O	2	0.039	0.021	165	0.0064	0.0035	0.0095	0.09142	0.092	3767.3
ATS2LS	GMDP-2	F60	4	1	0.310	0.060	15	0.0047	0.0009	0.0078	0.08885	0.089	3105.6
MS1LS	GMDP-3	F60	4	1	0.310	0.048	300	0.0930	0.0144	0.0961	0.10235	0.140	2466.0
ATS1LS	GMDP-3	F60	4	1	0.310	0.060	4	0.0012	0.0002	0.0974	0.10259	0.141	1958.5
ATS3LS	EMH-1	F60	4	1	0.310	0.060	40	0.0124	0.0024	0.0219	0.09382	0.096	2875.4
ATS3EM	EMH-2	F400	3/O	2	0.039	0.021	23	0.0009	0.0005	0.0104	0.09190	0.092	3743.9

GENERATOR FAULT CURRENT CALCULATIONS

PROJECT: COUNTY OF ORANGE HEALTH CARE AGENCY ? 401 S. Tustin Street

3-phase fault:	FLA / X'd
L - L fault:	FLA x 1.732 / (X'd + X2)
L -N or L-G fault:	FLA x 3 / (X'd + X2 + X0)

Generator Frame:	825	Type:	6-LEAD PMG
Arrangement #:	1604022	Pitch:	0.79

Base Voltage:	480
Generator KW:	250
Full Load Amps:	375.89
FLA X 300%:	1127.67
Stator Resistance:	0 ohms

	Reactances(pu):	Ohms:
X'd	0.1561	0.155
X2	0.1552	
X0	0.0368	

Fault Currents (Amps)

3 - phase Fault:	2408
L - L Fault:	2090
L - N or L - G Fault:	3240

Short Circuit Ratio

X/R:	143.862

Note: If Type is PMG, FLA X 300% will be sustained for ten seconds under fault conditions.

LOAD SUMMARY - "GMDP" 600 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 3MDPEMH	176.9
2	ATS2LS/PANEL 2LSH	5
3	DS MS1LS/ATS1LS/PANEL 1LSH	7
4	PROVISION	0
	TOTAL	188.9

OR 227AMPS @ 277/480V, 3PH, 4W, 600A BUS

SERVICE LOAD SUMMARY - "MSB" 1000 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 4H	41
2	PANEL 1DPH	142.8
3	PANEL 3DPH	182.9
4	PANEL 2H	7
5	T2/PANEL 2DPL	51
6	ATS2LS/PANEL 2LSH	5
7	AC-3	41
8	AC-3	9
9	PROVISION	0.0
10	PROVISION	0.0
	TOTAL	479.7

OR 577AMPS @ 277/480V, 3PH, 4W, 1000A BUS

LOAD SUMMARY - "1DPH" 400 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 1H	15
2	DIST. PANEL 1DPL	67
3	ATS1LS	7
4	AC-1	19.1
5	AC-2	40.7
6	PROVISION	0
	TOTAL	142.8

OR 179AMPS @ 277/480V, 3PH, 4W, 400A BUS

LOAD SUMMARY - "1DPL" 300 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 1LA	20
2	PANEL 1LB	22
3	PANEL 1LC	25
4	PROVISION	0
5	PROVISION	0
	TOTAL	67

OR 186AMPS @ 120/208V, 3PH, 4W, 400A BUS

LOAD SUMMARY - "3DPH" 400 AMP

ITEM	DESCRIPTION	KVA
1	PROVISION	0
2	ATD3LS/PANEL 3LSH	6
3	ATS2EM/EMERGENCY PANEL 3DPEMH	176.9
4	SPARE	0
	TOTAL	182.9

OR 220AMPS @ 277/480V, 3PH, 4W, 400A BUS

LOAD SUMMARY - "2DPL" 400 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 2LA	33
2	PANEL 2LB	18
3	PROVISION	0
4	PROVISION	0
5	PROVISION	0
	TOTAL	51

OR 142AMPS @ 120/208V, 3PH, 4W, 400A BUS

LOAD SUMMARY - "3DPEMH" 400 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 3EH	14
2	T3EM/3DPEML	53
3	ELEVATOR MOTOR, 40HP	43.3
4	AC-5	33.3
5	AC-6	33.3
	TOTAL	176.9

OR 218AMPS @ 277/480V, 3PH, 4W, 400A BUS

LOAD SUMMARY - "3DPEML" 400 AMP

ITEM	DESCRIPTION	KVA
1	PANEL 3ELA	30
2	PANEL 3ELB	2
3	PANEL 3ELC	21
4	PROVISION	0
5	PROVISION	0
	TOTAL	53

OR 147AMPS @ 120/208V, 3PH, 4W, 400A BUS

LOAD SUMMARY - "3MDPEMH" 400 AMP

ITEM	DESCRIPTION	KVA
1	ATS3LS/PANEL 3LSH	6
2	ATS3EM/PANEL 3DPEMH	176.9
3	PROVISION	0
	TOTAL	182.9

OR 220AMPS @ 277/480V, 3PH, 4W, 400A BUS

LIGHTING CONTROL PANEL 3LCP SCHEDULE

ZONE	ZONE/CIRCUIT DESCRIPTION	QUANTITY	PANEL CKT. NO.	DIM TYPE	ACTUAL LOAD
1	LIVING 3-109	11	3EH-7	ND	482
2	DINING 3-123	13	3EH-8	ND	605
3	BED 7/8	4	3EH-9	ND	175
4	SHOWER 2	4	3EH-9	ND	170
5	BED 5/6	4	3EH-9	ND	175
6	BED 3/4	4	3EH-10	ND	175
7	SHOWER 1	4	3EH-10	ND	170
8	BED 1/2	4	3EH-10	ND	175
9	FOYER 3-100	1	3EH-21	ND	44
10	SUN RM 3-118	6	3EH-8	ND	263
11	SUN ROOM 3-219	6	3EH-13	ND	263
12	BED 9	4	3EH-15	ND	175
13	SHOWER 3	4	3EH-15	ND	176
14	BED 10/11	4	3EH-15	ND	175
15	BED 12/13	4	3EH-16	ND	175
16	SHOWER 4	4	3EH-16	ND	176
17	BED 14/15	4	3EH-16	ND	175
18	OPEN SPACE-HIGH DECO PENDANT	3	3EH-12	ND	525
19	BALCONY 3-220	3	3EH-22	ND	169
20	LIVING 3-215	5	3EH-11	ND	219
21	HALL 3 UPLIGHTS	4	3EH-14	ND	250
22	STAIRS ST-1	2	3EH-13	ND	88
23	PARKING LIGHTS	9	3EH-17	ND	2138
24	PARKING LIGHTS	9	3EH-19	ND	2138
25	POST LIGHTS	8	3EH-18	ND	1250
26	EXTERIOR INGROUND WALL WASH	8	3EH-20	ND	900
27	RECEPTION/CLERICAL	4	3EH-21	ND	225
28	RECEPTION/CLERICAL	2	3EH-21	ND	113
29	HALL 4,5,6,7 DOWNLIGHTS	8	3EH-11	ND	350
30	BALCONY EXTR DOWN LIGHTS	12	3EH-22	ND	638
31	SPARE				
32	SPARE				

DIMMERBOARD LEGEND

F-D FLUORESCENT DIMMER
IN-D INCANDESCENT DIMMER
LVE-D LOW VOLTAGE ELECTRONIC TRANSFORMER DIMMER
ND NON-DIMMED, UNSWITCHED EXIT SIGN
F-D4 FLUORESCENT DIMMER FOR ELECTRONIC ANALOG 4 WIRE DIMMING BALLAST.

NOTE:
1. LIGHTING CONTROL PANEL SHALL HAVE 25,000 AMPS SYM. SHORT CIRCUIT RATING MINIMUM.
2. UNLESS NOTED ON PLAN, ALL EXTERIOR LIGHTS SHALL BE ON TIMER.

LIGHTING CONTROL PANEL 3LCPE SCHEDULE

ZONE	ZONE/CIRCUIT DESCRIPTION	QUANTITY	PANEL CKT. NO.	DIM TYPE	ACTUAL LOAD
1	EXTERIOR SCONCES WEST	5	3LSH-1	ND	282
2	PRIVATE PATIO WALL SCONCES	3	3LSH-1	ND	169
3	EXTERIOR SCONCES EAST	5	3LSH-1	ND	307
4	LIVING RM DOWNLIGHTS 3-109	7	3LSH-2	ND	307
5	STAIR ST-2	2	3LSH-3	ND	88
6	FOYER 3-100	2	3LSH-2	ND	113
7	STAIR 3 ST2 PENDANT	2	3LSH-3	ND	350
8	LIVING ROOM DOWNLIGHTS 3-215	4	3LSH-4	ND	175
9	HALLS 4,5,6,7 DOWNLIGHTS	8	3LSH-4	ND	350
10	HALL 3 PENDANTS	2	3LSH-5	ND	113
11	STAIR 3 ST1	3	3LSH-6	ND	132
12	SPARE				
13	SPARE				
14	SPARE				
15	SPARE				
16	SPARE				

DIMMERBOARD LEGEND

F-D FLUORESCENT DIMMER
IN-D INCANDESCENT DIMMER
LVE-D LOW VOLTAGE ELECTRONIC TRANSFORMER DIMMER
ND NON-DIMMED, UNSWITCHED EXIT SIGN
F-D4 FLUORESCENT DIMMER FOR ELECTRONIC ANALOG 4 WIRE DIMMING BALLAST.

NOTE:
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LIGHTING CONTROL PANEL 1LCP SCHEDULE

ZONE	ZONE/CIRCUIT DESCRIPTION	QUANTITY	PANEL CKT. NO.	DIM TYPE	ACTUAL LOAD
1	HALL 1-113	2	1H-5	ND	84
2	GROUP OFFICE 1-105	4	1H-5	ND	450
3	EXTERIOR SCONCES COVERED WALK	8	1H-8	ND	700
4	EXTERIOR INGRADE WALL WASH STAGE	5	1H-7	ND	563
5	EXTERIOR DOWNLIGHTS	3	1H-8	ND	169
6	EXTERIOR STEP LIGHTS	8	1H-7		40
7	SPARE				
8	SPARE				

DIMMERBOARD LEGEND

F-D FLUORESCENT DIMMER
IN-D INCANDESCENT DIMMER
LVE-D LOW VOLTAGE ELECTRONIC TRANSFORMER DIMMER
ND NON-DIMMED, UNSWITCHED EXIT SIGN
F-D4 FLUORESCENT DIMMER FOR ELECTRONIC ANALOG 4 WIRE DIMMING BALLAST.

NOTE:
1. LIGHTING CONTROL PANEL SHALL HAVE 25,000 AMPS SYM. SHORT CIRCUIT RATING MINIMUM.
2. UNLESS NOTED ON PLAN, ALL EXTERIOR LIGHTS SHALL BE ON TIMER.

LIGHTING CONTROL PANEL 1LCPE SCHEDULE

ZONE	ZONE/CIRCUIT DESCRIPTION	QUANTITY	PANEL CKT. NO.	DIM TYPE	ACTUAL LOAD
1	GROUP OFFICE 1-105	3	1LSH-1	ND	225
2	EXTERIOR DOWNLIGHTS CENTER	17	1LSH-1	ND	957
3	EXTERIOR SCONCES NORTH	6	1LSH-2	ND	338
4	EXTERIOR SCONCES SOUTH	8	1LSH-2	ND	450
5	HALL 1	3	1LSH-1	ND	132
6	SPARE				
7	SPARE				
8	SPARE				

DIMMERBOARD LEGEND

F-D FLUORESCENT DIMMER
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F-D4 FLUORESCENT DIMMER FOR ELECTRONIC ANALOG 4 WIRE DIMMING BALLAST.

NOTE:
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2. UNLESS NOTED ON PLAN, ALL EXTERIOR LIGHTS SHALL BE ON TIMER.

LIGHTING CONTROL PANEL 2LCP SCHEDULE

ZONE	ZONE/CIRCUIT DESCRIPTION	QUANTITY	PANEL CKT. NO.	DIM TYPE	ACTUAL LOAD
1	LIVING/ACTIVITY CONSTANT HOT TO BUS	6	2H-7	ND	1050
2	LOBBY/RECEPTION CONSTANT HOT BUS#2	6	2H-8	ND	225
3	RECEPTTION LTS	6	2H-8	ND	375
4	CLERICAL 2-103	2	2H-9	ND	150
5	CLERICAL 2-103	2	2H-9	ND	75
6	HALL 2-110, HALL 6	3	2H-9	ND	113
7	MEDITATION 2-111	6	2H-9	ND	263
8	EXTERIOR DOWNLIGHTS	4	2H-10	ND	225
9	SPARE				
10	SPARE				
11	SPARE				
12	SPARE				

DIMMERBOARD LEGEND

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F-D4 FLUORESCENT DIMMER FOR ELECTRONIC ANALOG 4 WIRE DIMMING BALLAST.

NOTE:
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2. UNLESS NOTED ON PLAN, ALL EXTERIOR LIGHTS SHALL BE ON TIMER.

LIGHTING CONTROL PANEL 2LCPE SCHEDULE

ZONE	ZONE/CIRCUIT DESCRIPTION	QUANTITY	PANEL CKT. NO.	DIM TYPE	ACTUAL LOAD
1	EXTERIOR SCONCES NORTH	1	2LSH-4	ND	57
2	EXTERIOR SCONCES EST	4	2LSH-4	ND	225
3	EXTERIOR SCONCES SOUTH	2	2LSH-4	ND	175
4	SPARE				
5	SPARE				
6	SPARE				
7	SPARE				
8	SPARE				

DIMMERBOARD LEGEND

F-D FLUORESCENT DIMMER
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NOTE:
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2. UNLESS NOTED ON PLAN, ALL EXTERIOR LIGHTS SHALL BE ON TIMER.

County of Orange
OC PUBLIC WORKS
Architecture & Engineering

0742 Revisions
Sym. Descrip. Date By

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STATE OF CALIFORNIA

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Sht Title LCP SCHEDULES & LOAD SUMMARIES
Project COUNTY OF ORANGE HEALTH CARE AGENCY
401 SOUTH TUSTIN STREET
401 SOUTH TUSTIN STREET
ORANGE, CA 92866
PROJ. NO. 100-042-P210-4200

Plan No.
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