

GENERATOR LOAD ANALYSIS
OPTIMUM CARE, HOUSTON TX

SERVICE VOLTAGE: 208Y/120V, 3 PHASE, 4 WIRE

	CONN. LOAD KVA	DIV. %	CALCULATED LOAD KVA	CALCULATED LOAD KW	CALCULATED LOAD AMP	COMMENTS
1 LIGHTS		5.6	1.25	7.1	5.6	19.6
2 RECEPTACLES (QTY 71@180VA EACH)		12.8		11.4	9.1	31.6 NEC Art. 220.44
3 COOLING LOADS		34.7		34.7	27.8	96.3 Cooling loads larger than heating
4 HEATING LOADS (non-coincident w/cooling)						
5 HEATING LOADS (coincident w/cooling)						
6 MOTOR		16.1		16.1	12.9	44.8
7 MISC. NON-CONTINUOUS LOADS		13.8	100%	13.8	11.0	38.3
8 MISC. CONTINUOUS LOADS						
9 KITCHEN LOADS		14.0	65%	9.1	7.3	25.2 NEC2011 Article 220.56
10 OUTSIDE LIGHTING						
11 NON-COINCIDENT LOADS						
TOTAL LOADS	97.0 kva		92.2 kva	73.7 kw	255.6 A	

	CONN. LOAD(KVA)	CONN. LOAD(KW)	CALCULATED LOAD (KVA)	CALCULATED LOAD(KW)	CALCULATED LOAD (AMP)
125% x "TOTAL LOADS" above	121.3 kva	97 kw	115.2 kva	92.2 kw	319.8 A
Standard Generator size closest to line above			125.0 kva	100.0 kw	347.0 A
Proposed Generator Size			125.0 kva	100 KW	347.0 A

Generator Output Breaker: 347 x 1.25 = 433.7 (Select 400Amp, 80% rated breaker) 400Amp
Proposed Automatic Transfer Switch 400Amp
Provide feeder from Generator 2 runs of 4#30, 1#3G, 2 1/2" C
Ampacity of Generator feeder 400 Amp

Spare Generator Capacity Available 32.8 kva 26.3 kw 91.1 A
Percent Spare Generator Capacity Available = 35.6%

Available short circuit current at output breaker 3,851 Amp

ELECTRICAL LOAD ANALYSIS
OPTIMUM CARE, HOUSTON TX

SERVICE VOLTAGE: 208Y/120V, 3 PHASE, 4 WIRE
OCCUPANCY: OFFICE BUILDING

	CONN. LOAD KVA	DIV. %	CALCULATED LOAD KVA	CALCULATED LOAD AMP	COMMENTS
1 LIGHTS (select larger of (a) or (b))					
(a) CONNECTED LOADS		10.0			Connected loads smaller than Code loads
(b) 11.319 SF x 3.5	39.6	125%	49.5	137.5	code loads larger than connected loads
2 RECEPTACLES (QTY 132@180VA EACH)		23.8		16.9	46.9 NEC2011 Art. 220.44, First 10KVA @100%, Remainder @50%
3 COOLING LOADS		60.5		60.5	168.0 Cooling loads larger than heating
4 HEATING LOADS (non-coincident w/cooling)					
5 HEATING LOADS (coincident w/cooling)					
6 MOTOR		28.4		28.4	78.9
7 MISC. NON-CONTINUOUS LOADS		20.4	100%	20.4	56.8
8 MISC. CONTINUOUS LOADS					
9 KITCHEN LOADS		14.0	65%	9.1	25.2 NEC2011 Article 220.56
10 TRANSFORMER SPARE CAPACITY					
11 EXISTING LOADS					
25% largest motor (Largest Motor 1.7KVA)	1.7		25%	0.4	1.1
TOTAL LOADS	157.1 kva		185.3 kva	514.3 A	

PROPOSED SERVICE CAPACITY 216 kva 600 A
**Provide service feeder from Power Co: 3 runs of 4#500 KCM, 1 #30 G, 3.5" conduit
Service Feeder Capacity 411 KVA 1140 AMP
Provide all equipment and labor for electrical service per Power Co's requirements, including but not limited to xfmr pad, bussed weatherhead, cable tap box, bussed CT can, conduits/wires and all accessories and support hardware as required per Power Company specs and standards.

SPARE CAPACITY AVAILABLE 31 kva 86 A
PERCENT SPARE CAPACITY AVAILABLE 14%

** May omit ground wire where not required by local power company.

Equipment Short Circuit Ratings Summary (Point-to-Point Calculation)

OPTIMUM CARE, HOUSTON TX

EQPT	DIST. FROM UPSTREAM EQPT (FT)	CALCULATED SHORT CKT CURRENT (AMPS)	EQPT A.I.C. RATINGS (AMPS)
DP1	120	15,993	22,000
DPE1	15	14,925	22,000
L1M	35	11,061	22,000
L1A	35	9,355	10,000
L2M	95	7,639	10,000
L2A	140	7,665	10,000
L2A	95	5,851	10,000
L5T	10	5,823	10,000
K1	98	3,647	10,000
GAR	280	3,061	10,000

Feeder Schedule

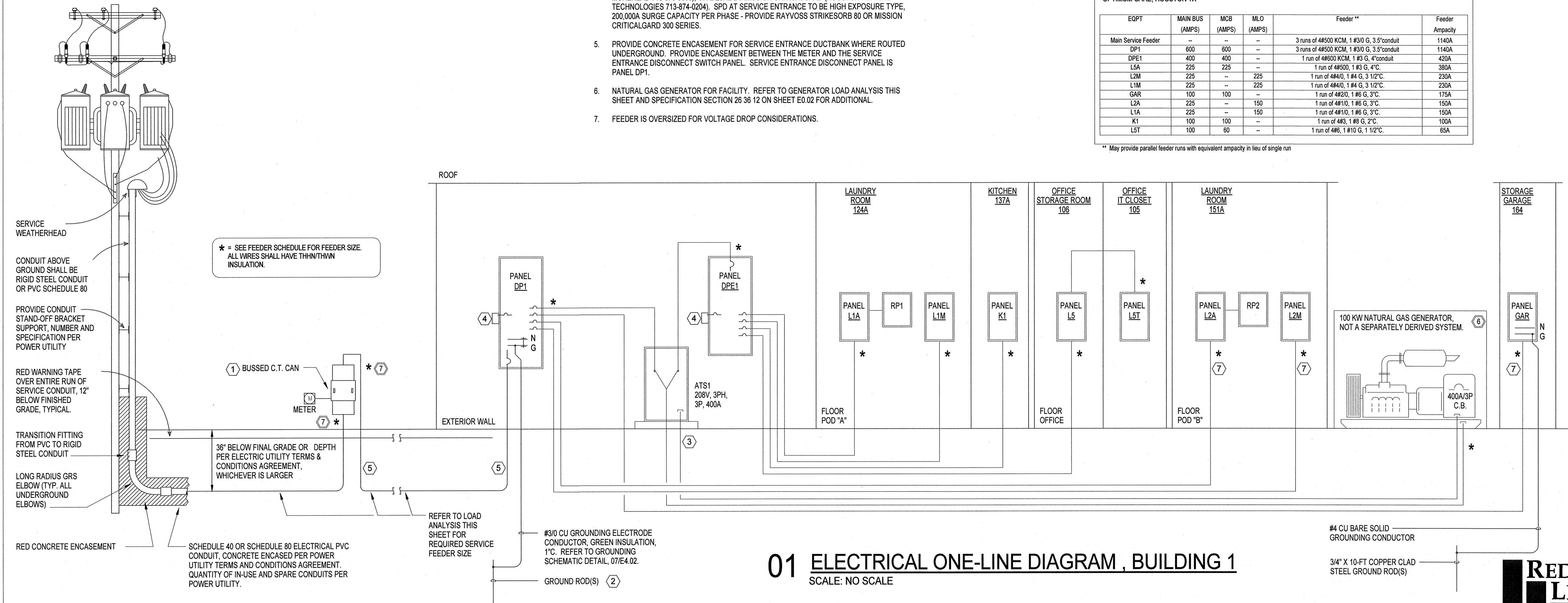
OPTIMUM CARE, HOUSTON TX

EQPT	MAIN BUS (AMPS)	MCB (AMPS)	MLO (AMPS)	Feeder **	Feeder Ampacity
Main Service Feeder	-	-	-	3 runs of 4#500 KCM, 1 #30 G, 3.5" conduit	1140A
DP1	600	600	-	3 runs of 4#500 KCM, 1 #30 G, 3.5" conduit	1140A
DPE1	400	400	-	1 run of 4#600 KCM, 1 #3 G, 4" conduit	420A
L5A	225	225	-	1 run of 4#600, 1 #3 G, 4" C.	380A
L2M	225	-	225	1 run of 4#40, 1 #4 G, 3 1/2" C.	230A
L1M	225	-	225	1 run of 4#40, 1 #4 G, 3 1/2" C.	230A
GAR	100	-	-	1 run of 4#60, 1 #6 G, 3" C.	175A
L2A	225	-	150	1 run of 4#10, 1 #6 G, 3" C.	160A
L1A	225	-	150	1 run of 4#10, 1 #6 G, 3" C.	160A
K1	100	100	-	1 run of 4#8, 1 #6 G, 2" C.	100A
L5T	100	60	-	1 run of 4#6, 1 #10 G, 1 1/2" C.	65A

** May provide parallel feeder runs with equivalent ampacity in lieu of single run

KEYED NOTES

- C. T. CAN: PROVIDE BUSSED C. T. CAN IN ACCORDANCE WITH POWER UTILITY TERMS AND CONDITIONS AGREEMENT.
- GROUND ROD: AT EACH GROUND ROD LOCATION, PROVIDE A 3/4" X 10-FT COPPER CLAD STEEL GROUND ROD. TIE ALL OTHER REQUIRED COMPONENTS OF THE GROUNDING ELECTRODE TOGETHER. REFER TO GROUNDING DETAIL 07/E4.02 FOR REQUIRED GROUNDING ELECTRODE COMPONENTS.
- (1) 1" CONDUIT FOR CONTROLS. IN ADDITION, PROVIDE A 1" CONDUIT FROM GENERATOR CONTROLS LOCATION TO THE REMOTE ANNUNCIATOR PANEL.
- SURGE PROTECTIVE DEVICE (SPD): PROVIDE SPD AT SERVICE ENTRANCE, CONNECT SPD TO LOAD SIDE OF THE SERVICE ENTRANCE DISCONNECT OVERCURRENT DEVICE. SPD'S TO BE AS MADE BY RAYVOSS (HOUSTON REP: WILDCAT ELECTRIC SUPPLY, TIM MOREHEAD 713-876-0900), OR EQUAL BY MISSION CRITICALGARD (HOUSTON REP: LEE TECHNOLOGIES 713-874-0204). SPD AT SERVICE ENTRANCE TO BE HIGH EXPOSURE TYPE, 200,000A SURGE CAPACITY PER PHASE - PROVIDE RAYVOSS STRIKESORB 80 OR MISSION CRITICALGARD 300 SERIES.
- PROVIDE CONCRETE ENCASUREMENT FOR SERVICE ENTRANCE DUCTBANK WHERE ROUTED UNDERGROUND. PROVIDE ENCASUREMENT BETWEEN THE METER AND THE SERVICE ENTRANCE DISCONNECT SWITCH PANEL. SERVICE ENTRANCE DISCONNECT PANEL IS PANEL DP1.
- NATURAL GAS GENERATOR FOR FACILITY. REFER TO GENERATOR LOAD ANALYSIS THIS SHEET AND SPECIFICATION SECTION 26 36 12 ON SHEET E0.02 FOR ADDITIONAL.
- FEEDER IS OVERSIZED FOR VOLTAGE DROP CONSIDERATIONS.



01 ELECTRICAL ONE-LINE DIAGRAM, BUILDING 1
SCALE: NO SCALE

OPTIMUM CARE
SUGAR LAND, TEXAS



Revision Schedule

#	Date	Description

Project No. **ONE LINE DIAGRAM, BUILDING 1**
Sheet No.

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E3.01

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