

NEW PANELBOARD SCHEDULE "H1"									
TYPE:	PANELBOARD	BUSING:	COPPER	FEED THRU:	NO				
VOL. TAG:	480Y/277V, 3Ø, 4W.	CIRCUIT BREAKER:	BOLT-ON	ISOLATED GROUND BUS:	NO				
BUS. AMPS:	225	PANEL:	SERIES RATED	200% NEUTRAL BUS:	NO				
MOUNTING:	SURFACE	MIN. C/B BRACING:	14,000	SHUNT TRIP:	NO				
NEMA ENCLOSURE:	NEMA 1	MAINS:	M.L.O.						
* CONTINUOUS DUTY / LARGEST MOTOR AT 125% (S) SHUNT TRIP CIRCUIT BREAKER									
● PROVIDE BREAKER WITH HANDLE "LOCK-ON" DEVICE ○ PROVIDE BREAKER WITH HANDLE "LOCK-OFF" DEVICE									
◆ CIRCUIT VIA TIMECLOCK / PHOTO CELL / CONTACTOR									
USE/AREA SERVED	C/B	OR #	VOLT - AMPS			OR #	C/B	USE/AREA SERVED	
* LIGHTING SITE POLE	20	1	1375	2	2	20	EC-1		
* LIGHTING SITE POLE	20	3	3326	4	4	20	EC-2		
* LIGHTING EXTERIOR	20	5	1820	6	6	20	EC-3		
* LIGHTING WAREHOUSE a	20	7	2680	8	8	30	HPU-3		
* LIGHTING WAREHOUSE b	20	9	5155	10	10	30	HPU-4		
* LIGHTING INTERIOR EAST	20	11	3240	12	12	30	HPU-1		
* LIGHTING INTERIOR WEST	20	13	1800	14	14	30	HPU-2		
SPARE	20	15	5799	16	16	30	WAREHOUSE DOOR		
SPARE	20	17	5799	18	18	30			
SPARE	20	19	5263	20	20	30			
SPARE	20	21	5263	22	22	30			
BUSSED SPACE	20	23	5263	24	24	30			
BUSSED SPACE	20	25		26	26	30			
BUSSED SPACE	20	27		28	28	30			
BUSSED SPACE	20	29		30	30	30			
BUSSED SPACE	20	31		32	32	30			
BUSSED SPACE	20	33		34	34	30			
BUSSED SPACE	20	35		36	36	30			
BUSSED SPACE	20	37		38	38	30			
BUSSED SPACE	20	39		40	40	30			
BUSSED SPACE	20	41		42	42	30			
TOTAL LOAD PER PHASE			25398	22958	24703		25398 VA / 277 V = 92 AMPS		

NEW PANELBOARD SCHEDULE "L1"									
TYPE:	PANELBOARD	BUSING:	COPPER	FEED THRU:	YES				
VOL. TAG:	208Y/120V, 3Ø, 4W.	CIRCUIT BREAKER:	BOLT-ON	ISOLATED GROUND BUS:	NO				
BUS. AMPS:	225	PANEL:	FULLY RATED	200% NEUTRAL BUS:	NO				
MOUNTING:	SURFACE	MIN. C/B BRACING:	10,000	SHUNT TRIP:	NO				
NEMA ENCLOSURE:	NEMA 1	MAINS:	225/3 M.C.B. REFERENCE ONE-LINE						
* CONTINUOUS DUTY / LARGEST MOTOR AT 125% (S) SHUNT TRIP CIRCUIT BREAKER									
● PROVIDE BREAKER WITH HANDLE "LOCK-ON" DEVICE ○ PROVIDE BREAKER WITH HANDLE "LOCK-OFF" DEVICE									
◆ CIRCUIT VIA TIMECLOCK / PHOTO CELL / CONTACTOR									
USE/AREA SERVED	C/B	OR #	VOLT - AMPS			OR #	C/B	USE/AREA SERVED	
F.A. CONTROL PANEL	20	1	500	2	2	20	OPEN OFFICE FURNITURE 104		
IRRIGATION CONTROL	20	3	700	4	4	20	OPEN OFFICE FURNITURE 104		
RECEPTACLE TMB	20	5	360	6	6	20	OPEN OFFICE FURNITURE 104		
RECEPTACLE WAREHOUSE EAST	20	7	700	8	8	20	OPEN OFFICE FURNITURE 104		
RECEPTACLE WAREHOUSE WEST	20	9	360	10	10	20	OPEN OFFICE FURNITURE 104		
RECEPTACLE DATA RM. 1ST	20	11	360	12	12	20	OPEN OFFICE FURNITURE 104		
RECEPTACLE DATA RM. 2ND	20	13	180	14	14	20	DISPLAY/SALES COUNTER		
RECEPTACLE WAREHOUSE SOUTH	20	15	720	16	16	20	DISPLAY/SALES COUNTER		
RECEPTACLE VENDING	20	17	1200	18	18	20	RECEPTACLE COFFEE		
RECEPTACLE VENDING	20	19	1200	20	20	20	RECEPTACLE EDF		
RECEPTACLE APPLIANCE	20	21	1000	22	22	20	RECEPTACLE VENDING		
RECEPTACLE DISPOSAL	20	23	600	24	24	20	RECEPTACLE DISPLAY/SALES		
RECEPTACLE APPLIANCE	20	25	1000	26	26	20	RECEPTACLE DISPLAY/SALES		
RECEPTACLE REFRIGERATOR	20	27	1200	28	28	20	RECEPTACLE SHOW WINDOW		
RECEPTACLE COPIER	20	29	1200	30	30	20	RECEPTACLE SHOW WINDOW		
RECEPTACLE GENERAL	20	31	720	32	32	20	RECEPTACLE EXTERIOR EAST		
RECEPTACLE OFFICE 103	20	33	720	34	34	20	RECEPTACLE EXTERIOR WEST		
RECEPTACLE OFFICE 102	20	35	540	36	36	20	RECEPTACLE WAREHOUSE NORTH		
RECEPTACLE OFFICE 112	20	37	540	38	38	20	RECEPTACLE EXTERIOR NORTH		
RECEPTACLE OFFICE 113	20	39	540	40	40	20	RECEPTACLE WAREHOUSE EQUIP.		
RECEPTACLE RESTROOMS	20	41	540	42	42	20			
TOTAL LOAD PER PHASE (PANEL "L1")			8640	13040	11000		13040 VA / 120 V = 109 AMPS		
TOTAL LOAD PER PHASE (PANEL "L2")			3415	3661	3494		3661 VA / 120 V = 31 AMPS		
TOTAL LOAD PER PHASE (TOTAL)			12055	16701	14494		16701 VA / 120 V = 139 AMPS		

NEW PANELBOARD SCHEDULE "L2"									
TYPE:	PANELBOARD	BUSING:	COPPER	FEED THRU:	NO				
VOL. TAG:	208Y/120V, 3Ø, 4W.	CIRCUIT BREAKER:	BOLT-ON	ISOLATED GROUND BUS:	NO				
BUS. AMPS:	225	PANEL:	FULLY RATED	200% NEUTRAL BUS:	NO				
MOUNTING:	SURFACE	MIN. C/B BRACING:	10,000	SHUNT TRIP:	NO				
NEMA ENCLOSURE:	NEMA 1	MAINS:	M.L.O.						
* CONTINUOUS DUTY / LARGEST MOTOR AT 125% (S) SHUNT TRIP CIRCUIT BREAKER									
● PROVIDE BREAKER WITH HANDLE "LOCK-ON" DEVICE ○ PROVIDE BREAKER WITH HANDLE "LOCK-OFF" DEVICE									
◆ CIRCUIT VIA TIMECLOCK / PHOTO CELL / CONTACTOR									
USE/AREA SERVED	C/B	OR #	VOLT - AMPS			OR #	C/B	USE/AREA SERVED	
AHU-3	20	1	1061	2	2	20	RECEPTACLE MAINT./E.C. PUMP		
AHU-4	20	3	800	4	4	20	RECEPTACLE MAINT./E.C. PUMP		
* AHU-1	20	5	1061	6	6	20	RECEPTACLE MAINT./E.C. PUMP		
* AHU-2	20	7	1194	8	8	20	RECEPTACLE MAINT.		
WATER HEATER	20	9	360	10	10	20	RESTROOM EF'S		
BUSSED SPACE	20	11	1500	12	12	20	SPARE		
BUSSED SPACE	20	13	300	14	14	20	SPARE		
BUSSED SPACE	20	15		16	16	20	SPARE		
BUSSED SPACE	20	17		18	18	20	SPARE		
BUSSED SPACE	20	19		20	20	20	BUSSED SPACE		
BUSSED SPACE	20	21		22	22	20	BUSSED SPACE		
BUSSED SPACE	20	23		24	24	20	BUSSED SPACE		
BUSSED SPACE	20	25		26	26	20	BUSSED SPACE		
BUSSED SPACE	20	27		28	28	20	BUSSED SPACE		
BUSSED SPACE	20	29		30	30	20	BUSSED SPACE		
BUSSED SPACE	20	31		32	32	20	BUSSED SPACE		
BUSSED SPACE	20	33		34	34	20	BUSSED SPACE		
BUSSED SPACE	20	35		36	36	20	BUSSED SPACE		
BUSSED SPACE	20	37		38	38	20	BUSSED SPACE		
BUSSED SPACE	20	39		40	40	20	BUSSED SPACE		
BUSSED SPACE	20	41		42	42	20	BUSSED SPACE		
TOTAL LOAD PER PHASE			3415	3661	3494		3661 VA / 120 V = 31 AMPS		

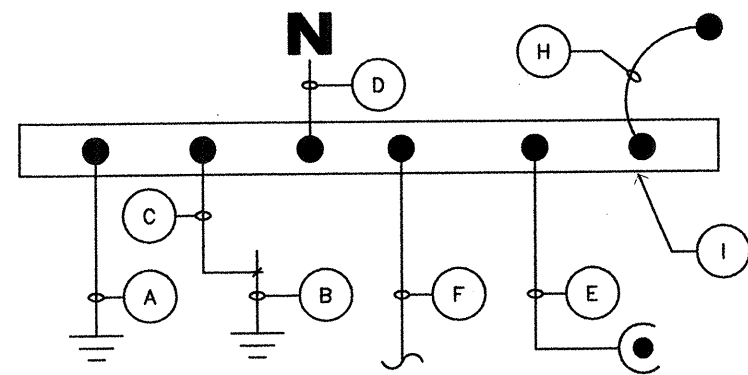
GENERAL NOTES

- #### GROUNDING DIAGRAM
- THIS DETAIL IS PROVIDED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE ARTICLE 250-50 PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
 - ALL SPlicing SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD WELD) ONLY.
 - ANY VARIANCE FROM THIS DRAWING AND/OR SPECIFICATION MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
 - ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF ARTICLE 250 (ALL SUBPARAGRAPHS) OF THE NATIONAL ELECTRICAL CODE AND ALL STATE AND LOCAL CODE REQUIREMENTS.
 - THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS CONTAINED HEREIN.
 - THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS A, B, AND C. ITEMS: E (METALLIC PIPING BOND), F (BUILDING STEEL BOND), AND G (2ND SERVICE BONDING) MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
 - ITEMS: A, C, F, G AND E (WHEN PRESENT), SHALL EACH BE MADE IN SEPARATE CONDUCTORS AND SUITABLY PROTECTED BY CONDUIT WHERE EXPOSED TO DAMAGE OR THEFT.

ONE-LINE DIAGRAM GENERAL NOTES

- THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS TO FULLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS PRIOR TO BID. NO ADDITIONAL CONSIDERATIONS WILL BE ALLOWED AFTER THE BID.
- THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL INDICATED EQUIPMENT TO CODE COMPLIANT CLEARANCES. PROVIDE SUBMITTALS AS INDICATED IN SPECIFICATIONS TO PROPERLY COORDINATE PHYSICAL LOCATIONS OF NEW AND/OR EXISTING EQUIPMENT.
- REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPLETE CONTRACTUAL OBLIGATIONS.

GROUNDING DIAGRAM



KEY NOTES - GROUNDING DIAGRAM

- CONCRETE ENCASED ELECTRODE (UFER) (GROUNDING ELECTRODE #1). REFER TO CHART FOR SIZE. MINIMUM 20".
- MINIMUM 10 MIL ANNEALED COPPER CLAD STEEL GROUND ROD. (GROUNDING ELECTRODE #2). REFER TO CHART FOR SIZE.
- GROUNDING ELECTRODE CONDUCTOR. REFER TO CHART FOR SIZE.
- INTEGRATED (FACTORY BONDED) BUS BAR MAIN BONDING JUMPER. REFER TO CHART FOR MINIMUM CONDUCTOR SIZE. (AMPACITY SHALL BE 150% RATED)
- METALLIC PIPING BOND WIRE - REFER TO CHART FOR MINIMUM SIZE. BOND TO ALL METALLIC PIPING - WATER, SPRINKLER, GAS, PNEUMATIC LINES, ETC.
- BUILDING STEEL BOND WIRE (IF REQUIRED PER BUILDING CONSTRUCTION TYPE). REFER TO CHART FOR MINIMUM SIZE.
- INTEGRATED (FACTORY BONDED) BUS BAR CASE BOND. REFER TO CHART FOR MINIMUM CONDUCTOR SIZE.
- INTEGRATED (FACTORY INSTALLED) GROUND BUS BAR. SHALL BE SIZED TO ACCOMMODATE GROUND WIRE LUGS AS INDICATED ON THE ONE-LINE DIAGRAM.

CONDUCTOR SIZE CHART

SES AMPACITY	A	B	C	D	E	F	H
400 AMP	#4	5/8" x 10'	#4	#1/0	#1/0	#1/0	#1/0

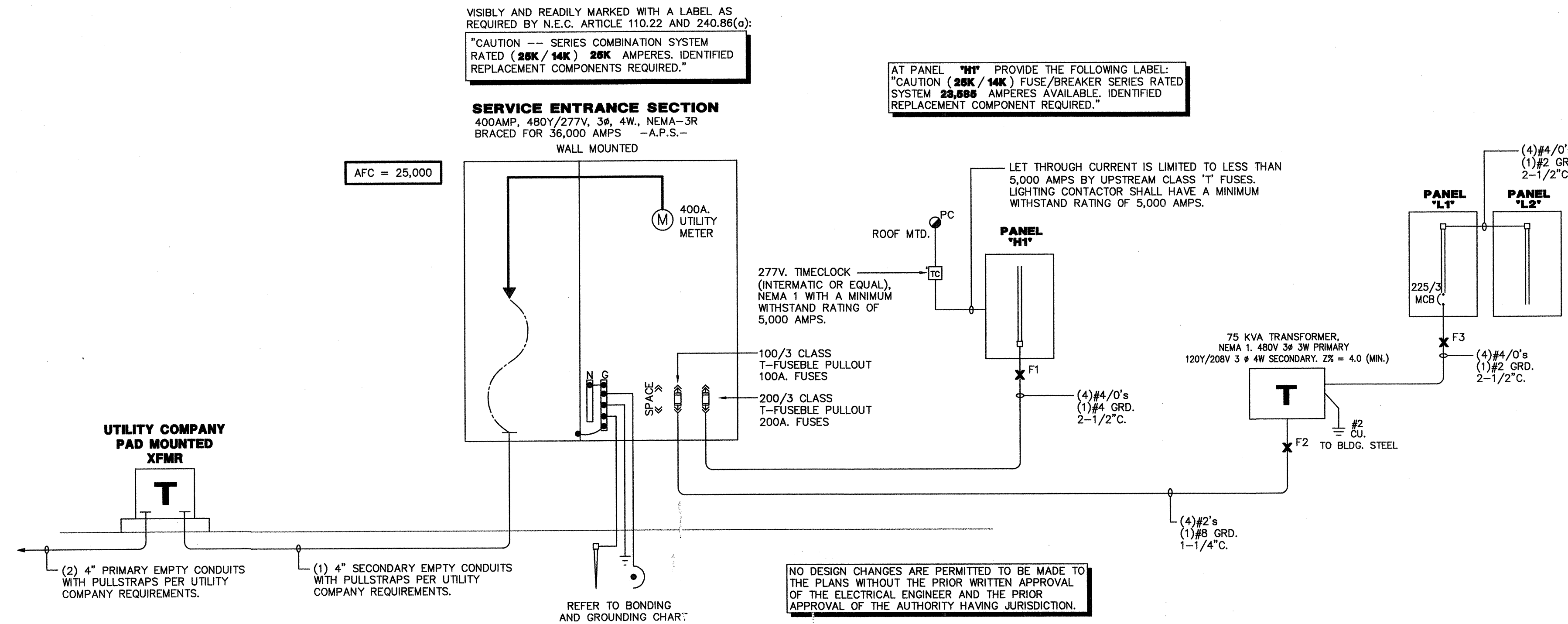
ALL SIZES SHOWN ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.

02.02.2005

Short-Circuit Calculations The following calculations are based on the "Point-to-Point" method where: (All calculations utilize copper conductors)

Three Phase:	or	Single Phase:	Transformer:
$I_{sc} = I_{sc} \times M \quad M = 1/(1+f)$		$f = \frac{\sqrt{3} \times L \times I}{C \times E}$	$f = \frac{IP(SC) \times V_p \times \%Z}{100,000 \times KVA}$
		$I_{sc} = \frac{V_p \times M \times I_{sc}(SC)}{V_s}$	

Fault Point	Panel	Source (Fault Point)	Source I (amps)	Conduit Type	Wire/Bus Size	'C' value	E (volts)	L (length)	X'FMR KVA	X'FMR %Z	f	M	ISC
1	NEW PANEL "H1"	SES	25000	M	1 Set(s) of 4/0	15082	480	10			0.060	0.94	23585
2	NEW 75KVA XFMR	SES	25000	M	1 Set(s) of 2	5906	480	10			0.153	0.87	21683
3	NEW PANEL "L1"	2	21683	M	1 Set(s) of 4/0	0	208	10	75	4	9.614	0.09	4086

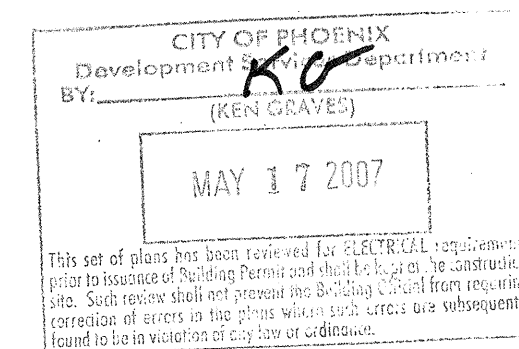


NO DESIGN CHANGES ARE PERMITTED TO BE MADE TO THE PLANS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ELECTRICAL ENGINEER AND THE PRIOR APPROVAL OF THE AUTHORITY HAVING JURISDICTION.

One-line Diagram
N.T.S.

LOAD SUMMARY

PANEL "H1" = 92 Amps
PANEL "L1"+"L2" = 60 Amps
S.E.S. TOTAL = 152 Amps



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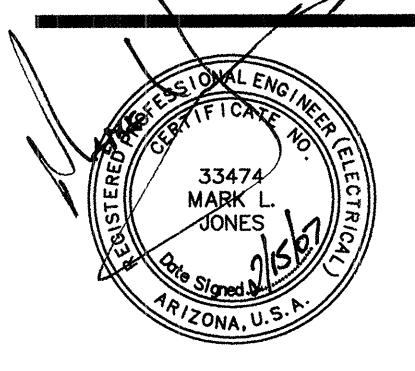
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ELECTRICAL
ONE-LINE DIAGRAM

Sheet number

E6.1