



NEW SINGLE LINE POWER RISER DIAGRAM

SCALE : N.T.S.

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E2

SERVICE ENTRANCE CALCULATIONS - (C.E.C. SECTION 78) - PANEL 'A'			
ITEM	DESCRIPTION	LOAD WATTS	TOTAL LOAD WATTS
1	PANEL 'A' FEEDER LOADS:		
	1 100% OF 1ST FOUR (4) LARGEST LOADS:		
	1 1-60A, 240V HOIST (1 x 48A x 240V x 100%)	11,520	
	2 1-50A, 240V WELDER (1 x 40A x 240V x 100%)	9,600	
	3 2-30A, 240V RECEPT (2 x 24A x 240V x 100%)	11,520	32,640
	2 65% OF NEXT FOUR (4) LARGEST LOADS:		
	1 4-30A, 240V RECEPT (4 x 24A x 240V x 65%)	14,976	14,976
	3 50% OF NEXT FIVE (5) LARGEST LOADS:		
	1 5-20A, 120V RECEPT (5 x 16A x 120V x 50%)	4,800	4,800
	4 25% OF NEXT SIXTEEN (16) LARGEST LOADS:		
	1 13-20A, 120V RECEPT (13 x 16A x 120V x 25%)	6,240	6,240
	5 100% OF LIGHTING LOAD:		
	1 10-35W LED LIGHTS (10 x 35W x 100%)	3,570	3,570
	6 100% OF FUEL SYSTEM:		
	1 CARD READER (1 x 500W x 100%)	500	
	2 FUEL PUMP (1 x 1440W x 100%)	1,440	1,940
	TOTAL:	64,166	
2	ADD 25% SPARE CAPACITY FOR FUTURE GROWTH:		
	64,166W X 25%	16,042	16,042
	TOTAL DEMAND LOAD:	80,208	
3	PANEL 'A' SERVICE SIZE		
	80,208W/240V = 334A X 1.25 = 418A		
4	PANEL 'A' SERVICE TO BE 600A, 120/240V, 1PH, 3W, PANEL 'A' FEEDER TO BE TWO (2) RUNS OF 38950MCM RW90 CU + 1#5 GND IN 103mm RIGID PVC CONDUIT.		

SERVICE ENTRANCE CALCULATIONS

SCALE : N.T.S.

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PANEL 'A' - VOLTAGE DROP/WIRE SIZE CALCULATIONS							
POWER CENTER	RECEPTACLE/LOAD WATTS	RATING AMPS	VOLTS	CIRCUIT	RATED CURRENT	METERS (M)	WIRE SIZE
SHROUD #1	R1/5760	30	240	A-1,3	24	53	3#8
	R2/5760	30	240	A-5,7	24	53	3#8
	R3/1920	20	120	A-9	16	53	2#6
	R4/1920	20	120	A-11	16	53	2#6
	R5/1920	20	120	A-13	16	53	2#6
SHROUD #2	R6/1920	20	120	A-15	16	53	2#6
	R7/5760	30	240	A-25,27	24	75	3#6
	R8/5760	30	240	A-29,31	24	75	3#6
	R9/1920	20	120	A-33	16	75	2#6
	R10/1920	20	120	A-35	16	75	2#6
SHROUD #3	R11/1920	20	120	A-37	16	75	2#6
	R12/1920	20	120	A-39	16	75	2#6
	R13/5760	30	240	A-49,51	24	94	3#6
	R14/5760	30	240	A-53,55	24	94	3#6
	R15/1920	20	120	A-57	16	94	2#4
POLE #1	R16/1920	20	120	A-59	16	94	2#4
	R17/1920	20	120	A-61	16	94	2#4
	R18/1920	20	120	A-63	16	94	2#4
	R19/1920	20	120	A-2	16	25	2#10
	R20/1920	20	120	A-4	16	25	2#10
POLE #2	R21/1920	20	120	A-18	16	55	2#6
	R22/1920	20	120	A-24	16	55	2#6
	R23/1920	20	120	A-34	16	80	2#4
	R24/1920	20	120	A-40	16	80	2#4
	R25/1920	20	120	A-50	16	105	2#4
POLE #3	R26/1920	20	120	A-56	16	105	2#4
	R27/1920	20	120	A-6	16	105	2#4
	R28/1920	20	120	A-12	16	105	2#4
	R29/1920	20	120	A-14	16	105	2#4
	R30/1920	20	120	A-16	16	105	2#4
POLE #4	R31/1920	20	120	A-18	16	105	2#4
	R32/1920	20	120	A-20	16	105	2#4
	R33/1920	20	120	A-22	16	105	2#4
	R34/1920	20	120	A-24	16	105	2#4
	R35/1920	20	120	A-26	16	105	2#4
LIGHT POLE #1	L1-1/782	15	120	A-4	6.0	25	2#12
	L1-2/782	15	120	A-6	6.0	25	2#12
LIGHT POLE #2	L2-1/391	15	120	A-20	3.0	55	2#12
	L2-2/391	15	120	A-22	3.0	55	2#12
LIGHT POLE #3	L3-1/391	15	120	A-36	3.0	80	2#12
	L3-2/391	15	120	A-38	3.0	80	2#12
LIGHT POLE #4	L4-1/391	15	120	A-52	3.0	105	2#10
	L4-2/391	15	120	A-54	3.0	105	2#10
HOIST	DIRECT CONNECT/11520	60	240	A-81,83	48	8	3#6
	R27/9600	50	240	A-82,84	40	3	3#8
	DIRECT CONNECT/500	15	120	A-78	4.2	15	2#12
	DIRECT CONNECT/1440	15	120	A-80	12	15	2#12
	ENCLOSURE	20	120	A-76	16	1	2#12

VOLTAGE DROP/WIRE SIZE CALCULATION

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PANEL A												
POWER SUPPLY: 120/240V, 1PH, 3W, 16KAC					FED FROM 600A 2P MAIN SERVICE							
MAINS: 600A					NEW							
NUMBER OF CIRCUITS: 84					ELECTRICAL ENCLOSURE SURFACE							
REMARKS	DESCRIPTION	WATTAGE		#	BKR	CIRCUIT	BKR	#	WATTAGE		DESCRIPTION	REMARKS
		A	B						A	B		
	SHROUD #1 - RECEPT R1	2880		2	30	1 a 2 20	1	1920			POLE 1 - RECEPT R19	
			2880		2	3 b 4 15	1		714		POLE 1 - LIGHTS L1-1	
	SHROUD #1 - RECEPT R2			2	30	5 a 6 15	1	714			POLE 1 - LIGHTS L1-2	
			2880	2	20	7 b 8 20	20	1	1920		POLE 1 - RECEPT R20	
	SHROUD #1 - RECEPT R3		1920	1	20	9 a 10 30	30	2			SPARE	
	SHROUD #1 - RECEPT R4		1920	1	20	11 b 12					SPARE	
	SHROUD #1 - RECEPT R5		1920	1	20	13 a 14 20	20	1			SPARE	
	SHROUD #1 - RECEPT R6		1920	1	20	15 b 16 20	20	1			SPARE	
				2	30	17 a 18 20	20	1	1920		POLE 2 - RECEPT R21	
	SPARE				1	19 b 20 15	15	1	357		POLE 2 - LIGHTS L2-1	
	SPARE			1	20	21 a 22 15	15	1	357		POLE 2 - LIGHTS L2-2	
	SPARE			1	20	23 b 24 20	20	1	1920		POLE 2 - RECEPT R22	
				2	30	25 a 26						
	SHROUD #2 - RECEPT R7		2880	2	30	27 b 28						
			2880	2	30	29 a 30						
	SHROUD #2 - RECEPT R8			2	30	31 b 32						
	SHROUD #2 - RECEPT R9		1920	1	20	33 a 34 20	20	1	1920		POLE 3 - RECEPT R23	
	SHROUD #2 - RECEPT R10		1920	1	20	35 b 36 15	15	1	357		POLE 3 - LIGHTS L3-1	
	SHROUD #2 - RECEPT R11		1920	1	20	37 a 38 15	15	1	357		POLE 3 - LIGHTS L3-2	
	SHROUD #2 - RECEPT R12		1920	1	20	39 b 40 20	20	1	1920		POLE 3 - RECEPT R24	
						41 a 42						
						43 b 44						
						45 a 46						
						47 b 48						
	SHROUD #3 - RECEPT R13		2800	2	30	49 a 50 20	20	1	1920		POLE 4 - RECEPT R25	
			2800	2	30	51 b 52 15	15	1	357		POLE 4 - LIGHTS L4-1	
	SHROUD #3 - RECEPT R14			2	30	53 a 54 15	15	1	357		POLE 4 - LIGHTS L4-2	
			2800			55 b 56 20	20	1	1920		POLE 4 - RECEPT R26	
	SHROUD #3 - RECEPT R15		1920	1	20	57 a 58						
	SHROUD #3 - RECEPT R16		1920	1	20	59 b 60						
	SHROUD #3 - RECEPT R17		1920	1	20	61 a 62						
	SHROUD #3 - RECEPT R18			1	20	63 b 64						
						65 a 66						
						67 b 68						
						69 a 70						
						71 b 72 15	15	1	200		ENCLOSURE STRIP HEATER	
	SPARE			2	50	73 a 74 15	15	1	100		LIGHT TIME CONTROL	
						75 b 76 20	20	1	1920		ENCLOSURE RECEPT R28	
	SPARE			2	60	77 a 78 20	20	1	500		FUEL SYSTEM CARD READER	
						79 b 80 20	20	1	1440		FUEL SYSTEM PUMP	
	HOST		5760	2	60	81 a 82	50	2	4800		WELDER R27	
			5760			83 b 84			4800			
	PHASE LOADS	34400	34400						14895	17825		
	TOTAL LOAD	101490										
	TOTAL PHASE LOADS	40265										
	+/- 5%	32219	35522									
	CURRENT (A) @ 240V:	423										
REMARKS:												
A - ARC FAULT CIRCUIT INTERRUPTER												
G - GROUND FAULT CIRCUIT INTERRUPTER												
L - LOCK-ON DEVICE												