

Low Voltage Momentary Short Circuit Analysis Report

Per Unit Method - IEEE Standards 141, 242

Sunday, Mar. 23, 2008
 Prepared By: Dan Laws
 Company: Dolphins Software

Utility Co.:
 XFMR Type: Delta to Wye
 1000 kVA, 3Ø, 60Hz
 Voltages: 13,200V pri / 480V sec
 Impedance: 3.2%
 XR Ratio: 5.7

Supplied Information and Base Values

Utility Line Starting Power: 1,000 MVA
 Base Line Voltage: 13.2 kV
 Base Transformer Power: 1,000 kVA
 Base XR Ratio: 5.7
 Cables' Resistance (R) Computed At: 25°C
 Max. Available Fault L-L: 43,739 Amperes
 Max. Available Fault L-G: 30,669 Amperes

Panel Name	Ø	Voltage	Maximum Fault Amperes		Protection Values	
			Symmetrical	Asymmetrical	OCPD Type	Duty Amperes
OfficePanel H	3	208	2,907.9	2,916.7	LVPCB MCCB 10-20 kA MCCB > 20 kA	2,907.9 4,013 4,449.2
Office Panel G	3	208	3,405	3,419	LVPCB MCCB 10-20 kA MCCB > 20 kA	3,405 4,698.9 5,209.6
Panel A-1	3	480	233.8	233.8	LVPCB MCCB 10-20 kA MCCB > 20 kA	233.8 322.7 357.8
Panel A	3	480	541.8	541.9	LVPCB MCCB 10-20 kA MCCB > 20 kA	541.8 747.7 829
Panel B	3	480	744	744.2	LVPCB MCCB 10-20 kA MCCB > 20 kA	744 1,026.7 1,138.3
Panel C	3	480	1,342.1	1,343	LVPCB MCCB 10-20 kA MCCB > 20 kA	1,342.1 1,852.1 2,053.4
Panel D	3	480	1,027.4	1,027.8	LVPCB MCCB 10-20 kA MCCB > 20 kA	1,027.4 1,417.8 1,571.9
Shop Panel E	3	208	1,830.5	1,832.7	LVPCB MCCB 10-20 kA MCCB > 20 kA	1,830.5 2,526.1 2,800.6
Shop Panel F	3	208	878.1	878.3	LVPCB MCCB 10-20 kA MCCB > 20 kA	878.1 1,211.7 1,343.5
MDP	3	480	51,009.2	86,208.3	LVPCB MCCB 10-20 kA MCCB > 20 kA	51,009.2 70,392.7 78,044.1

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Cable From	To	Cable Size	FLA	SCA asym	Max. A	Actions
MDP	Utility Transformer	4-Sets (3) 600 kcmils, THHN, Cu	956.50 A 480V, 3Ø	86,208 A	347,971 A	none
Transformer #2	MDP	(3) 1/0 ga., THHN, Cu	90.21 A 480V, 3Ø	86,208 A	61,243 A	increase to 3/0 ga.
Transformer #3	MDP	(3) 1/0 ga., THHN, Cu	90.21 A 480V, 3Ø	86,208 A	61,243 A	increase to 3/0 ga.
Transformer #1	MDP	(3) 1/0 ga., THHN, Cu	90.21 A 480V, 3Ø	86,208 A	61,243 A	increase to 3/0 ga.
Shop Panel F	Transformer #1	(3) 3/0 ga., THHN, Cu	25.94 A 208V, 3Ø	878 A	97,316 A	none
GAS HEATER	Shop Panel F	(1) 12 ga., THHN, Cu	5.46 A 120V, 1Ø	878 A	3,787 A	none
LIFT	Shop Panel F	(2) 10 ga., THHN, Cu	19.00 A 208V, 1Ø	878 A	6,020 A	none
GAS HEATER	Shop Panel F	(1) 12 ga., THHN, Cu	6.58 A 120V, 1Ø	878 A	3,787 A	none
LIFT	Shop Panel F	(2) 10 ga., THHN, Cu	19.00 A 208V, 1Ø	878 A	6,020 A	none
Shop Panel E	Transformer #2	2-Sets (3) 3/0 ga., THHN, Cu	60.84 A 208V, 3Ø	1,833 A	97,316 A	none
Receptacle Load #1	Shop Panel E	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	1,833 A	3,787 A	none
Receptacle Load #2	Shop Panel E	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	1,833 A	3,787 A	none
Receptacle Load #3	Shop Panel E	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	1,833 A	3,787 A	none
Receptacle Load #4	Shop Panel E	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	1,833 A	3,787 A	none
Receptacle Load #5	Shop Panel E	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	1,833 A	3,787 A	none
MIG-WELDER	Shop Panel E	(1) 14 ga., THHN, Cu	11.36 A 120V, 1Ø	1,833 A	2,384 A	none
MIG-WELDER	Shop Panel E	(1) 14 ga., THHN, Cu	11.36 A 120V, 1Ø	1,833 A	2,384 A	none
MIG-WELDER	Shop Panel E	(1) 14 ga., THHN, Cu	11.36 A 120V, 1Ø	1,833 A	2,384 A	none
MIG-WELDER	Shop Panel E	(1) 14 ga., THHN, Cu	11.36 A 120V, 1Ø	1,833 A	2,384 A	none
MIG-WELDER	Shop Panel E	(1) 14 ga., THHN, Cu	11.36 A 120V, 1Ø	1,833 A	2,384 A	none
MIG-WELDER	Shop Panel E	(1) 14 ga., THHN, Cu	11.36 A 120V, 1Ø	1,833 A	2,384 A	none
STUD-GUN	Shop Panel E	(1) 14 ga., THHN, Cu	7.10 A 120V, 1Ø	1,833 A	2,384 A	none
STUD-GUN	Shop Panel E	(1) 14 ga., THHN, Cu	7.10 A 120V, 1Ø	1,833 A	2,384 A	none

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STUD-GUN	Shop Panel E	(1) 14 ga., THHN, Cu	7.10 A 120V, 1Ø	1,833 A	2,384 A	none
THINNER RECYCLER	Shop Panel E	(1) 14 ga., THHN, Cu	10.00 A 120V, 1Ø	1,833 A	2,384 A	none
THINNER RECYCLER	Shop Panel E	(1) 14 ga., THHN, Cu	10.00 A 120V, 1Ø	1,833 A	2,384 A	none
THINNER RECYCLER	Shop Panel E	(1) 14 ga., THHN, Cu	10.00 A 120V, 1Ø	1,833 A	2,384 A	none
Panel D	MDP	(3) 3/0 ga., THHN, Cu	134.23 A 480V, 3Ø	1,028 A	97,316 A	none
W-HEATER	Panel D	(3) 14 ga., THHN, Cu	9.38 A 277V, 3Ø	1,028 A	2,384 A	none
Post Lift	Panel D	(3) 10 ga., THHN, Cu	14.35 A 480V, 3Ø	1,028 A	6,020 A	none
Post Lift	Panel D	(3) 10 ga., THHN, Cu	14.35 A 480V, 3Ø	1,028 A	6,020 A	none
Post Lift	Panel D	(3) 10 ga., THHN, Cu	14.35 A 480V, 3Ø	1,028 A	6,020 A	none
W-HEATER	Panel D	(3) 14 ga., THHN, Cu	9.38 A 277V, 3Ø	1,028 A	2,384 A	none
Post Lift	Panel D	(3) 10 ga., THHN, Cu	14.35 A 480V, 3Ø	1,028 A	6,020 A	none
Air Handler	Panel D	(3) 14 ga., THHN, Cu	5.00 A 480V, 3Ø	1,028 A	2,384 A	none
Air Handler	Panel D	(3) 14 ga., THHN, Cu	5.00 A 480V, 3Ø	1,028 A	2,384 A	none
A/C UNIT	Panel D	(3) 8 ga., THHN, Cu	28.00 A 480V, 3Ø	1,028 A	9,575 A	none
A/C UNIT	Panel D	(3) 10 ga., THHN, Cu	18.00 A 480V, 3Ø	1,028 A	6,020 A	none
EXHAUST FAN shop	Panel D	(3) 12 ga., THHN, Cu	5.00 A 480V, 3Ø	1,028 A	3,787 A	none
EXHAUST FAN shop	Panel D	(3) 12 ga., THHN, Cu	5.00 A 480V, 3Ø	1,028 A	3,787 A	none
EXHAUST FAN shop	Panel D	(3) 12 ga., THHN, Cu	5.00 A 480V, 3Ø	1,028 A	3,787 A	none
Panel C	Transformer #3	(3) 3/0 ga., THHN, Cu	79.85 A 480V, 3Ø	1,343 A	97,316 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Wash-Bay Lights	Panel C	(1) 12 ga., THHN, Cu	13.44 A 277V, 1Ø	1,343 A	3,787 A	none
Shop EXIT-Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Office Lights #1	Panel C	(1) 14 ga., THHN, Cu	10.68 A 277V, 1Ø	1,343 A	2,384 A	none
Office Lights #2	Panel C	(1) 14 ga., THHN, Cu	10.68 A 277V, 1Ø	1,343 A	2,384 A	none

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Cable From	To	Cable Size	FLA	SCA asym	Max. A	Actions
Office Lights #3	Panel C	(1) 14 ga., THHN, Cu	10.68 A 277V, 1Ø	1,343 A	2,384 A	none
Office Lights #4	Panel C	(1) 14 ga., THHN, Cu	10.68 A 277V, 1Ø	1,343 A	2,384 A	none
Canopy- Lights	Panel C	(1) 14 ga., THHN, Cu	10.68 A 277V, 1Ø	1,343 A	2,384 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Shop Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
EXTERIOR-Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
EMERG-Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
EMERG-Lights	Panel C	(1) 12 ga., THHN, Cu	14.40 A 277V, 1Ø	1,343 A	3,787 A	none
Panel B	MDP	(3) 4/0 ga., THHN, Cu	153.10 A 480V, 3Ø	744 A	122,718 A	none
Air Compressor	Panel B	(3) 2 ga., THHN, Cu	75.40 A 480V, 3Ø	744 A	38,486 A	none
Air Dryer	Panel B	(3) 14 ga., THHN, Cu	11.31 A 480V, 3Ø	744 A	2,384 A	none
Welder-Spot	Panel B	(3) 10 ga., THHN, Cu	22.13 A 480V, 3Ø	744 A	6,020 A	none
Welder-Spot	Panel B	(3) 10 ga., THHN, Cu	22.13 A 480V, 3Ø	744 A	6,020 A	none
Welder-Spot	Panel B	(3) 10 ga., THHN, Cu	22.13 A 480V, 3Ø	744 A	6,020 A	none
Panel A	MDP	(3) 250 kcmils, THHN, Cu	167.51 A 480V, 3Ø	542 A	144,988 A	none
Booth 2	Panel A	(3) 3 ga., THHN, Cu	53.46 A 480V, 3Ø	542 A	30,517 A	none
Prep Station	Panel A	(3) 3 ga., THHN, Cu	53.46 A 480V, 3Ø	542 A	30,517 A	none
Sanding Station	Panel A	(3) 8 ga., THHN, Cu	23.33 A 480V, 3Ø	542 A	9,575 A	none
Mixing Room	Panel A	(3) 10 ga., THHN, Cu	15.13 A 480V, 3Ø	542 A	6,020 A	none
Welder-Spot	Panel A	(3) 10 ga., THHN, Cu	22.13 A 480V, 3Ø	542 A	6,020 A	none
Panel A-1	MDP	(3) 3/0 ga., THHN, Cu	151.18 A 480V, 3Ø	234 A	97,316 A	none
Prep-Station	Panel A-1	(3) 3 ga., THHN, Cu	53.46 A 480V, 3Ø	234 A	30,517 A	none
Booth 1	Panel A-1	(3) 3 ga., THHN, Cu	53.46 A 480V, 3Ø	234 A	30,517 A	none
Welder-Spot	Panel A-1	(3) 10 ga., THHN, Cu	22.13 A 480V, 3Ø	234 A	6,020 A	none
Welder-Spot	Panel A-1	(3) 10 ga., THHN, Cu	22.13 A 480V, 3Ø	234 A	6,020 A	none

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Cable From	To	Cable Size	FLA	SCA asym	Max. A	Actions
Office Panel G	Transformer #1	(3) 3/0 ga., THHN, Cu	52.10 A 208V, 3Ø	3,419 A	97,316 A	none
Receptacle Load #3	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
Receptacle Load #1	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
Receptacle Load #5	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
Receptacle Load #2	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
Receptacle Load #7	Office Panel G	(1) 10 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	6,020 A	none
Receptacle Load #4	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
Receptacle Load #6	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
GFCI Receptacle Load #8	Office Panel G	(1) 12 ga., THHN, Cu	12.63 A 120V, 1Ø	3,419 A	3,787 A	none
OfficePanel H	Office Panel G	(3) 1 ga., THHN, Cu	18.34 A 208V, 3Ø	2,917 A	48,539 A	none
Receptacle Load #1	OfficePanel H	(1) 14 ga., THHN, Cu	11.05 A 120V, 1Ø	2,917 A	2,384 A	increase to 12 ga.
Receptacle Load #2	OfficePanel H	(1) 14 ga., THHN, Cu	11.05 A 120V, 1Ø	2,917 A	2,384 A	increase to 12 ga.
Receptacle Load #3	OfficePanel H	(1) 14 ga., THHN, Cu	11.05 A 120V, 1Ø	2,917 A	2,384 A	increase to 12 ga.
Receptacle Load #4	OfficePanel H	(1) 14 ga., THHN, Cu	11.05 A 120V, 1Ø	2,917 A	2,384 A	increase to 12 ga.
Receptacle Load #5	OfficePanel H	(1) 14 ga., THHN, Cu	11.05 A 120V, 1Ø	2,917 A	2,384 A	increase to 12 ga.