Short Circuit, Coordination, & Arc Flash Study

The Zucker Hillside Hospital

75-59 263rd Street

Glen Oaks, NY 11004

prepared for

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Adolescent Pavilion

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SECTION A

SHORT CIRCUIT, COORDINATION, & ARC FLASH STUDY OVERVIEW

SHORT CIRCUIT, COORDINATION, & ARC FLASH STUDY OVERVIEW

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I. INTRODUCTION

This overview functions as a guide for the Short-Circuit, Coordination, and Arc Flash Study performed for The Zucker Hillside Hospital located at 75-59 263rd Street in Glen Oaks, NY. The study was performed using relevant characteristics of the power distribution system at the subject facility as well as specific characteristics of the protective devices and other components of the system.

II. SHORT-CIRCUIT STUDY GENERAL INFORMATION

The primary reason for performing a Short-Circuit Study on a power system is to calculate the available short-circuit (fault) current at each bus location to facilitate the selection of protective device interrupting ratings. A protective device must be able to interrupt the available short-circuit (fault) current at its location in the power system, therefore the protective device must have an interrupting rating equal to or greater than that available short-circuit (fault) current. The three phase symmetrical RMS fault current (balanced fault) is typically considered to be the maximum available fault current, though under certain conditions the line-to-ground fault current magnitude can be greater at a given location (such as at transformers with solidly grounded neutrals) therefore the higher of the two calculated fault currents is used as the basis for the selection of protective device interrupting ratings. Calculated fault currents are also used in the Protective Device Coordination Study.

III. SHORT-CIRCUIT STUDY METHODOLOGY

The Short-Circuit Study was performed using the following computer-based software program:

Power*Tools for Windows® (PTW) by SKM System Analysis, Inc.
DAPPER® Comprehensive Fault Analysis Module

The methodology begins by developing a system one-line drawing (within the software program) that defines the electrical characteristics of the power system. Each of the power system components (utility sources, induction motors, transformers, cables, protective devices, etc.) is modeled accordingly. When the study is run the software program places an assumed three phase fault at each bus location in the system and the available short circuit (fault) current is calculated for each bus location. The results of the study are described below (VI. SHORT-CIRCUIT STUDY DATA).

IV. SHORT-CIRCUIT STUDY DATA

The data generated by the software program consists of the following:

- **One Line Drawings**
  Shows each of the relevant power system components (utility and generator sources, induction motors, transformers, cables, protective devices, etc.) and their interconnections.

- **Input Data Reports**
  Summarizes the bus-to-bus interconnections and data used in performing the Short Circuit Study. The identification of buses was taken from the project documents. Each bus represents one of the following: a utility contribution point, a generator contribution point, a service end box, a switch board bus, a distribution panel bus, a panel board bus, or a motor connection point.

- **Fault Analysis Summary Reports**
  Provides the three phase symmetrical RMS fault current for each major point (bus) in the power system when fed by utility power and when fed by utility power.

V. PROTECTIVE DEVICE EVALUATION

The evaluation consists of a comparison of the interrupting rating of each of the protective devices to the available short-circuit (fault) current at its location in the power system. The results of this evaluation are presented in the **Protective Device Evaluation Reports.**

VI. COORDINATION STUDY GENERAL INFORMATION

The major reason for performing a Protective Device Coordination Study on a power system is to determine if the protective devices provide a system of selective coordination. Coordination is defined as “properly localizing a fault condition to restrict outages to the equipment affected, accomplished by the choice of selective fault-protective devices”.

VII. COORDINATION STUDY METHODOLOGY

The Coordination Study was performed using the following computer-based software program:

Power*Tools® for Windows (PTW) by SKM System Analysis, Inc.
CAPTOR® Protective Device Coordination Module

The methodology begins by utilizing the system one-line drawing that defines the electrical characteristics of the power system. For fuse to fuse coordination, the ratio of the line side device rating to the load side device determines coordination. For circuit breaker coordination, each of the protective devices is individually modeled based on its specific time-current characteristics and the available three phase symmetrical RMS fault current. The results of the computer generated study are described below (VIII. COORDINATION STUDY DATA).

VIII. COORDINATION STUDY DATA

The data generated for the Coordination Study consists of the following:

- **Protective Device Settings Report**
  Summarizes the recommended settings for programmable/adjustable protective devices.

- **Time Current Curves**
  Curves are provided for selected circuits to illustrate protection and selectivity conditions, with each curve assembling the time-current characteristic curves for the protective devices, damage curves for cables and transformers, and other load current data such as transformer inrush, motor load profiles, cable ampacity, etc.

IX. ARC FLASH STUDY GENERAL INFORMATION

The reason for performing an Arc Flash Study on a power system is to analyze the level of risk to personnel while working on energized electrical equipment. This analysis provides the flash hazard boundary (an imaginary boundary within which a person could receive a second-degree burn if an electrical arc flash were to occur) as well as the level of personal protective clothing and equipment that must be used by qualified workers at a specific working distance (usually eighteen inches) within that boundary.

X. ARC FLASH STUDY METHODOLOGY

The Arc Flash Study was performed using a computer-based software program: Power Tools for Windows (PTW), Arc Flash Analysis Module. The systematic Arc Flash Study methodology begins by utilizing the available short circuit (fault) current that was calculated for each bus location within PTW for the Short Circuit Study as well as the protective device characteristics and settings that were developed within PTW for the Coordination Study. When the study is run the arcing fault current and the arc duration are calculated for each bus location in

the system. That information is then used to determine: the flash hazard boundary, the incident energy (the amount of energy impressed on a surface, at a certain distance from the source, during an electrical arc event) at a specific working distance (usually eighteen inches), and the level of personal protective equipment (PPE) required.

XI. ARC FLASH STUDY DATA

The data generated for the Arc Flash Study by the Power Tools for Windows (PTW) Arc Flash Analysis Module consists of the following:

a. Arc Flash Summary Report
b. Arc Flash Label Samples

XII. BASIC DATA AND ENGINEERING ASSUMPTIONS / OPEN ITEMS

Basic data for the studies, including the system configuration and specific details for the system components were obtained from the following sources:

- Site Visits By SDM Metro Field Engineers
- Con Edison (for available fault current) 160,000A

Unless otherwise noted, all portions of this study (including the Arc Flash Study) were conducted using the recommended settings for facility equipment (as shown in the Protective Device Settings section (F) of this report).

The following engineering assumptions were made:

- Equipment Designations

  Generally, protective devices had specific designations; however, cables did not have specific designations. Therefore, a general set of designations that were assigned for the purposes of the study are as follows:

BCB	Branch Circuit Breaker
CBL	Cable
FCB	Feeder Circuit Breaker
FSW	Fused Switch
FU	Fuse
MCB	Main Circuit Breaker
PNL	Panel
SW	Switch
XFMR	Transformer

- Distances for cables were estimated using the scaled overheads of the building
- All transformer inrush factors were assumed to be 8x (typical for transformers utilized in this service)
- All #3 AWG cable were assumed to be #2 AWG for computer software purposes
- Where wire size was not available (due to cable labeling issues) an estimate based on apparent size and breaker rating was made

XIII. EXECUTIVE SUMMARY

a. **Protective Device Evaluation**
All electrical panels have protective devices that have interrupting ratings higher than the worst-case calculated available short-circuit current.

b. **Protective Device Coordination**
The settings for all protective devices have been maximized in order to protect equipment (generators) as well as to best coordinate with protective devices further downstream.

In general, selective coordination between protective devices further downstream does not exist but has been maximized as depicted on the accompanying time current curves. More specifically, for each breaker pair we have set the curve of the upstream circuit breaker such that it is selectively coordinated with the next downstream circuit breaker to the greatest extent possible within the limits of the available settings and so as not to sacrifice coordination with the upstream circuit breaker. This practice ensures that any lack of coordination is limited to the equipment that is furthest from the source and provides maximum reliability within the limitations of the protective devices. *Some "overlapping" of device curves exists where devices of the same/similar ratings are used in series, and where non-adjustable ("fixed") trip molded case type circuit breakers are used.*

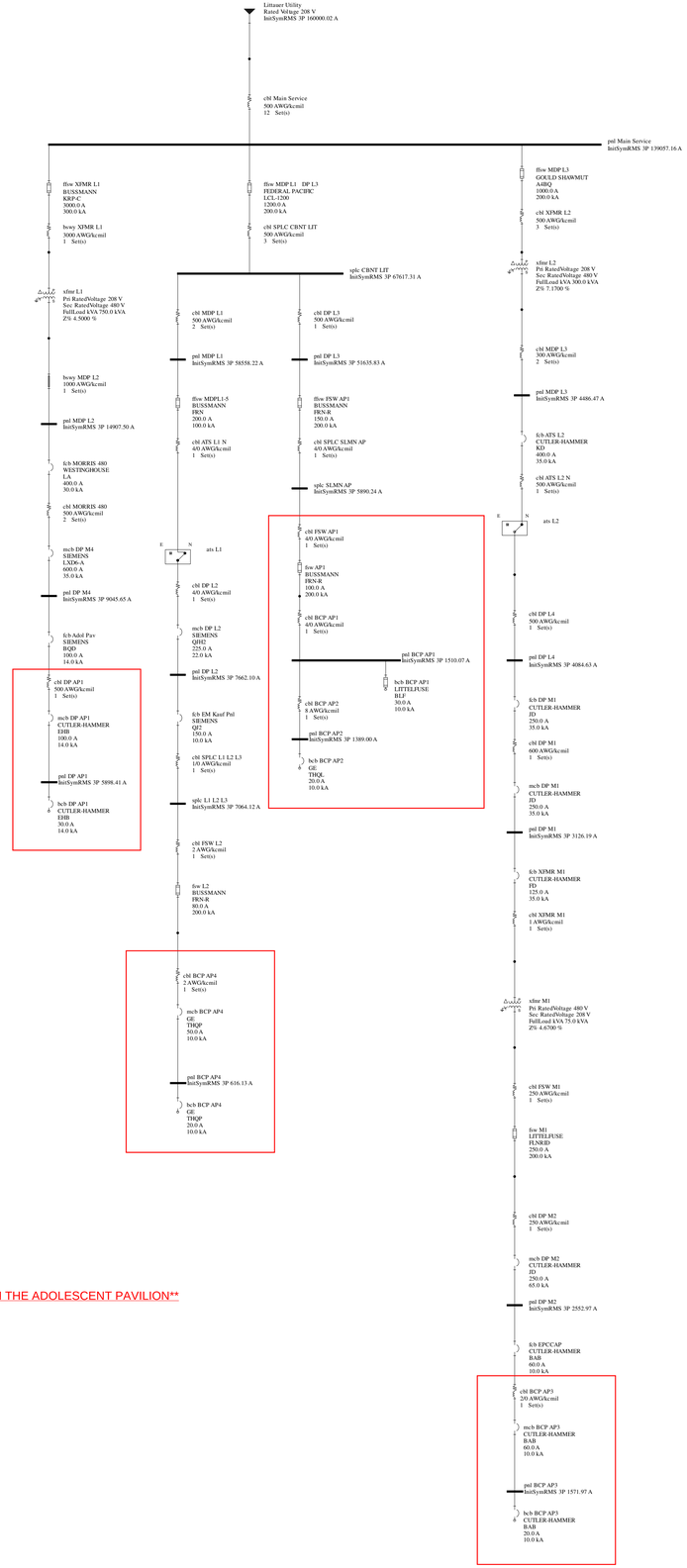
Circuits that utilize only fuses generally coordinate when sized properly; however, coordination is typically sacrificed in circuits with downstream circuit breakers that are non-adjustable ("fixed") trip molded case type circuit breakers. The circuits in this service, though, typically coordinate with the exception of the instantaneous segment of the time current curves.

Please refer to the TCC section (G) of this report for more information.

SECTION B

ONE-LINE DRAWINGS

NORMAL



BOXED ITEMS ARE LOCATED WITHIN THE ADOLESCENT PAVILION

SDM METRO

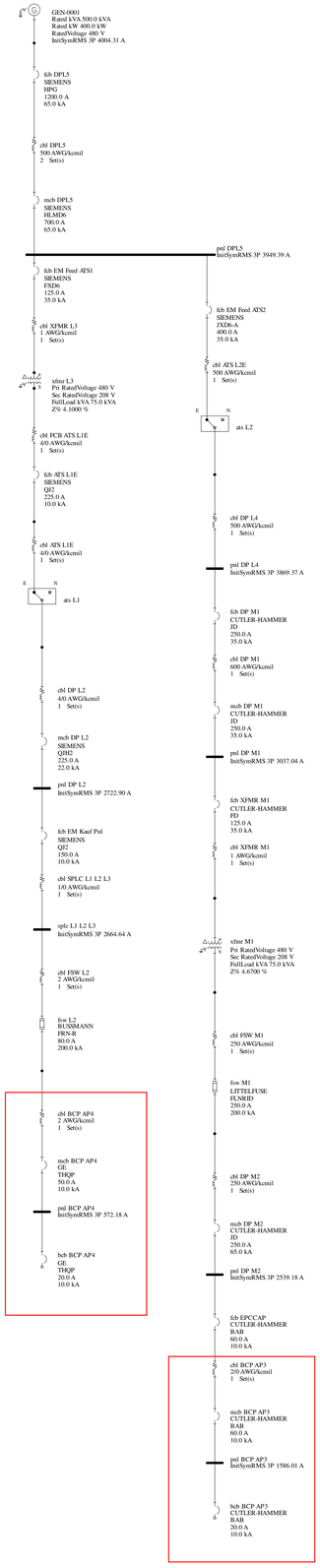
220 MAPLE AVENUE, SUITE 203, ROCKVILLE CENTRE, NY 11570

The Zucker Hillside Hospital (NSLIJ)
75-59 263rd Street, Glen Oaks, NY 11004

SINGLE LINE DIAGRAM
The Zucker Hillside Hospital (NSLIJ)
Adolescent Pavilion

DATE	DRAWN BY	SCALE	DRAWING NUMBER
5/7/2014	DL	NONE	ADP-1

EMERGENCY



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The Zucker Hillside Hospital (NSLIJ)
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5/7/2014	DL	NONE	ADP-1

SECTION C

INPUT DATA REPORT

NORMAL

ALL INFORMATION PRESENTED IS FOR REVIEW, APPROVAL
INTERPRETATION AND APPLICATION BY A REGISTERED ENGINEER ONLY
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FROM THE USE AND INTERPRETATION OF THIS SOFTWARE.

SKM POWER*TOOLS FOR WINDOWS
INPUT DATA REPORT

ALL PU VALUES ARE EXPRESSED ON A 100 MVA BASE.

FEEDER INPUT DATA

CABLE NAME	FEEDER FROM NAME	FEEDER TO NAME	QTY /PH	VOLTS L-L	LENGTH		FEEDER SIZE	TYPE	
bswy MDP L2	BUS-0142	pnl MDP L2	1	480	5.0	FEET	1000	Copper	
	Duct Material:	Bus	Insulation Type:		****		Insulation Class:		
	+/- Impedance:	0.0142 + J 0.0066	Ohms/1000 ft		0.0308 + J 0.0143		PU		
	Z0 Impedance:	0.0844 + J 0.0353	Ohms/1000 ft		0.1832 + J 0.0766		PU		
bswy XFMR L1	pnl Main Servi	BUS-0141	1	208	10.0	FEET	3000	Copper	
	Duct Material:	Bus	Insulation Type:		****		Insulation Class:		
	+/- Impedance:	0.0046 + J 0.0026	Ohms/1000 ft		0.1063 + J 0.0601		PU		
	Z0 Impedance:	0.0273 + J 0.0139	Ohms/1000 ft		0.6310 + J 0.3213		PU		
cbl ATS L1 N	pnl MDP L1	BUS-0185	1	208	70.0	FEET	4/0	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.0640 + J 0.0497	Ohms/1000 ft		10.36 + J 8.04		PU		
	Z0 Impedance:	0.2017 + J 0.1224	Ohms/1000 ft		32.63 + J 19.80		PU		
cbl ATS L2 N	pnl MDP L3	BUS-0168	1	480	100.0	FEET	500	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.0294 + J 0.0466	Ohms/1000 ft		1.28 + J 2.02		PU		
	Z0 Impedance:	0.0926 + J 0.1147	Ohms/1000 ft		4.02 + J 4.98		PU		
cbl BCP AP1	BUS-0133	pnl BCP AP1	1	208	80.0	FEET	4/0	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.0640 + J 0.0497	Ohms/1000 ft		11.83 + J 9.19		PU		
	Z0 Impedance:	0.2017 + J 0.1224	Ohms/1000 ft		37.30 + J 22.63		PU		
cbl BCP AP2	pnl BCP AP1	pnl BCP AP2	1	208	10.0	FEET	8	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.8110 + J 0.0754	Ohms/1000 ft		18.75 + J 1.74		PU		
	Z0 Impedance:	2.56 + J 0.1856	Ohms/1000 ft		59.08 + J 4.29		PU		
cbl BCP AP3	pnl DP M2	pnl BCP AP3	1	208	300.0	FEET	2/0	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.1020 + J 0.0533	Ohms/1000 ft		70.73 + J 36.96		PU		
	Z0 Impedance:	0.3214 + J 0.1312	Ohms/1000 ft		222.86 + J 90.98		PU		
cbl BCP AP4	BUS-0196	pnl BCP AP4	1	208	850.0	FEET	2	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.2020 + J 0.0585	Ohms/1000 ft		396.87 + J 114.93		PU		
	Z0 Impedance:	0.6366 + J 0.1440	Ohms/1000 ft		1250.72 + J 282.91		PU		
cbl DP AP1	pnl DP M4	pnl DP AP1	1	480	300.0	FEET	500	Copper	
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:		THHN
	+/- Impedance:	0.0294 + J 0.0466	Ohms/1000 ft		3.83 + J 6.07		PU		
	Z0 Impedance:	0.0926 + J 0.1147	Ohms/1000 ft		12.06 + J 14.93		PU		

FEEDER INPUT DATA

CABLE NAME	FEEDER FROM NAME	FEEDER TO NAME	QTY /PH	VOLTS L-L	LENGTH	FEEDER SIZE	TYPE
cbl DP L2	BUS-0186	pnl DP L2	1	208	100.0 FEET	4/0	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0640 + J 0.0497 Ohms/1000 ft					14.79 + J 11.49 PU	
	Z0 Impedance: 0.2017 + J 0.1224 Ohms/1000 ft					46.62 + J 28.29 PU	
cbl DP L3	splc CBNT LIT	pnl DP L3	1	208	10.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.6795 + J 1.08 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					2.14 + J 2.65 PU	
cbl DP L4	BUS-0170	pnl DP L4	1	480	15.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.1914 + J 0.3034 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					0.6029 + J 0.7467 PU	
cbl DP M1	pnl DP L4	pnl DP M1	1	480	400.0 FEET	600	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0257 + J 0.0463 Ohms/1000 ft					4.46 + J 8.04 PU	
	Z0 Impedance: 0.0809 + J 0.1140 Ohms/1000 ft					14.05 + J 19.79 PU	
cbl DP M2	BUS-0106	pnl DP M2	1	208	40.0 FEET	250	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0552 + J 0.0495 Ohms/1000 ft					5.10 + J 4.58 PU	
	Z0 Impedance: 0.1739 + J 0.1219 Ohms/1000 ft					16.08 + J 11.27 PU	
cbl FSW AP1	splc SLMN AP	BUS-0133	1	208	650.0 FEET	4/0	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0640 + J 0.0497 Ohms/1000 ft					96.15 + J 74.67 PU	
	Z0 Impedance: 0.2017 + J 0.1224 Ohms/1000 ft					303.03 + J 183.89 PU	
cbl FSW L2	splc L1 L2 L3	BUS-0196	1	208	2.0 FEET	2	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.2020 + J 0.0585 Ohms/1000 ft					0.9338 + J 0.2704 PU	
	Z0 Impedance: 0.6366 + J 0.1440 Ohms/1000 ft					2.94 + J 0.6657 PU	
cbl FSW M1	BUS-0105	BUS-0106	1	208	10.0 FEET	250	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0552 + J 0.0495 Ohms/1000 ft					1.28 + J 1.14 PU	
	Z0 Impedance: 0.1739 + J 0.1219 Ohms/1000 ft					4.02 + J 2.82 PU	
cbl Main Servi	BUS-0140	pnl Main Servi	12	208	25.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.1416 + J 0.2244 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					0.4459 + J 0.5523 PU	

FEEDER INPUT DATA

CABLE NAME	FEEDER FROM NAME	FEEDER TO NAME	QTY /PH	VOLTS L-L	LENGTH	FEEDER SIZE	TYPE
cbl MDP L1	splc CBNT LIT	pnl MDP L1	2	208	10.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.3398 + J 0.5386 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					1.07 + J 1.33 PU	
cbl MDP L3	BUS-0166	pnl MDP L3	2	480	10.0 FEET	300	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0464 + J 0.0493 Ohms/1000 ft					0.1007 + J 0.1070 PU	
	Z0 Impedance: 0.1462 + J 0.1214 Ohms/1000 ft					0.3173 + J 0.2635 PU	
cbl MORRIS 480	pnl MDP L2	pnl DP M4	2	480	450.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					2.87 + J 4.55 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					9.04 + J 11.20 PU	
cbl SPLC CBNT	pnl Main Servi	splc CBNT LIT	3	208	50.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					1.13 + J 1.80 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					3.57 + J 4.42 PU	
cbl SPLC L1 L2	pnl DP L2	splc L1 L2 L3	1	208	10.0 FEET	1/0	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.1280 + J 0.0540 Ohms/1000 ft					2.96 + J 1.25 PU	
	Z0 Impedance: 0.4034 + J 0.1329 Ohms/1000 ft					9.32 + J 3.07 PU	
cbl SPLC SLMN	pnl DP L3	splc SLMN AP	1	208	225.0 FEET	4/0	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0640 + J 0.0497 Ohms/1000 ft					33.28 + J 25.85 PU	
	Z0 Impedance: 0.2017 + J 0.1224 Ohms/1000 ft					104.90 + J 63.66 PU	
cbl XFMR L2	pnl Main Servi	BUS-0165	3	208	20.0 FEET	500	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.4530 + J 0.7181 PU	
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					1.43 + J 1.77 PU	
cbl XFMR M1	pnl DP M1	BUS-0104	1	480	10.0 FEET	1	Copper
	Duct Material: Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.1600 + J 0.0570 Ohms/1000 ft					0.6944 + J 0.2474 PU	
	Z0 Impedance: 0.5042 + J 0.1403 Ohms/1000 ft					2.19 + J 0.6089 PU	

TRANSFORMER INPUT DATA

TRANSFORMER NAME	PRIMARY RECORD NO	NAME		VOLTS L-L	* SECONDARY RECORD NO	NAME		VOLTS L-L	FULL-LOAD KVA	NOMINAL KVA
xfmr L1	BUS-0141		D	208.00	BUS-0142		YG	480.00	750.00	750.00
	Pos. Seq. Z%:	0.843 + J 4.42		(Zpu 1.12 + j 5.89)		Shell Type				
	Zero Seq. Z%:	0.843 + J 4.42		(Sec 1.12 + j 5.89 Pri Open)						
	Taps Pri. 0.000 % Sec. 0.000 % Phase Shift (Pri. Leading Sec.): 30.00 Deg.									
xfmr L2	BUS-0165		D	208.00	BUS-0166		YG	480.00	300.00	300.00
	Pos. Seq. Z%:	1.68 + J 6.97		(Zpu 5.60 + j 23.24)		Shell Type				
	Zero Seq. Z%:	1.68 + J 6.97		(Sec 5.60 + j 23.24 Pri Open)						
	Taps Pri. 0.000 % Sec. 0.000 % Phase Shift (Pri. Leading Sec.): 30.00 Deg.									
xfmr M1	BUS-0104		D	480.00	BUS-0105		YG	208.00	75.00	75.00
	Pos. Seq. Z%:	1.41 + J 4.45		(Zpu 18.81 + j 59.36)		Shell Type				
	Zero Seq. Z%:	1.41 + J 4.45		(Sec 18.81 + j 59.36 Pri Open)						
	Taps Pri. 0.000 % Sec. 0.000 % Phase Shift (Pri. Leading Sec.): 30.00 Deg.									

GENERATION CONTRIBUTION DATA

BUS NAME	CONTRIBUTION NAME	VOLTAGE L-L	MVA	X"d	X/R
BUS-0140	Littauer Utili	208.00	57.64		
	Three Phase Contribution:		160000. AMPS		2.54
	Single Line to Ground Contribution:		160000. AMPS		2.54
	Pos Sequence Impedance (100 MVA Base)		0.6355 + J		1.61 PU
	Zero Sequence Impedance (100 MVA Base)		0.6355 + J		1.61 PU

EMERGENCY

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FROM THE USE AND INTERPRETATION OF THIS SOFTWARE.

SKM POWER*TOOLS FOR WINDOWS
INPUT DATA REPORT

ALL PU VALUES ARE EXPRESSED ON A 100 MVA BASE.

FEEDER INPUT DATA

CABLE NAME	FEEDER FROM NAME	FEEDER TO NAME	QTY /PH	VOLTS L-L	LENGTH		FEEDER SIZE	TYPE
cbl ATS L1E	BUS-0237	BUS-0238	1	208	5.0	FEET	4/0	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0640 + J 0.0497 Ohms/1000 ft					0.7396 + J 0.5744 PU		
	Z0 Impedance: 0.2017 + J 0.1224 Ohms/1000 ft					2.33 + J 1.41 PU		
cbl ATS L2E	pnl DPL5	BUS-0232	1	480	15.0	FEET	500	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.1914 + J 0.3034 PU		
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					0.6029 + J 0.7467 PU		
cbl BCP AP3	pnl DP M2	pnl BCP AP3	1	208	300.0	FEET	2/0	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.1020 + J 0.0533 Ohms/1000 ft					70.73 + J 36.96 PU		
	Z0 Impedance: 0.3214 + J 0.1312 Ohms/1000 ft					222.86 + J 90.98 PU		
cbl BCP AP4	BUS-0196	pnl BCP AP4	1	208	850.0	FEET	2	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.2020 + J 0.0585 Ohms/1000 ft					396.87 + J 114.93 PU		
	Z0 Impedance: 0.6366 + J 0.1440 Ohms/1000 ft					1250.72 + J 282.91 PU		
cbl DP L2	BUS-0186	pnl DP L2	1	208	100.0	FEET	4/0	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0640 + J 0.0497 Ohms/1000 ft					14.79 + J 11.49 PU		
	Z0 Impedance: 0.2017 + J 0.1224 Ohms/1000 ft					46.62 + J 28.29 PU		
cbl DP L4	BUS-0170	pnl DP L4	1	480	15.0	FEET	500	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.1914 + J 0.3034 PU		
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					0.6029 + J 0.7467 PU		
cbl DPL5	BUS-0234	pnl DPL5	2	480	40.0	FEET	500	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0294 + J 0.0466 Ohms/1000 ft					0.2552 + J 0.4045 PU		
	Z0 Impedance: 0.0926 + J 0.1147 Ohms/1000 ft					0.8038 + J 0.9957 PU		
cbl DP M1	pnl DP L4	pnl DP M1	1	480	400.0	FEET	600	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0257 + J 0.0463 Ohms/1000 ft					4.46 + J 8.04 PU		
	Z0 Impedance: 0.0809 + J 0.1140 Ohms/1000 ft					14.05 + J 19.79 PU		
cbl DP M2	BUS-0106	pnl DP M2	1	208	40.0	FEET	250	Copper
	Duct Material: Magnetic		Insulation Type:				Insulation Class:	THHN
	+/- Impedance: 0.0552 + J 0.0495 Ohms/1000 ft					5.10 + J 4.58 PU		
	Z0 Impedance: 0.1739 + J 0.1219 Ohms/1000 ft					16.08 + J 11.27 PU		

FEEDER INPUT DATA

CABLE NAME	FEEDER FROM NAME	FEEDER TO NAME	QTY /PH	VOLTS L-L	LENGTH		FEEDER SIZE	TYPE
cbl FCB ATS L1	BUS-0236	BUS-0237	1	208	5.0	FEET	4/0	Copper
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance:	0.0640 + J 0.0497	Ohms/1000 ft		0.7396 + J 0.5744		PU	
	Z0 Impedance:	0.2017 + J 0.1224	Ohms/1000 ft		2.33 + J 1.41		PU	
cbl FSW L2	splc L1 L2 L3	BUS-0196	1	208	2.0	FEET	2	Copper
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance:	0.2020 + J 0.0585	Ohms/1000 ft		0.9338 + J 0.2704		PU	
	Z0 Impedance:	0.6366 + J 0.1440	Ohms/1000 ft		2.94 + J 0.6657		PU	
cbl FSW M1	BUS-0105	BUS-0106	1	208	10.0	FEET	250	Copper
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance:	0.0552 + J 0.0495	Ohms/1000 ft		1.28 + J 1.14		PU	
	Z0 Impedance:	0.1739 + J 0.1219	Ohms/1000 ft		4.02 + J 2.82		PU	
cbl SPLC L1 L2	pnl DP L2	splc L1 L2 L3	1	208	10.0	FEET	1/0	Copper
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance:	0.1280 + J 0.0540	Ohms/1000 ft		2.96 + J 1.25		PU	
	Z0 Impedance:	0.4034 + J 0.1329	Ohms/1000 ft		9.32 + J 3.07		PU	
cbl XFMR L3	pnl DPL5	BUS-0235	1	480	15.0	FEET	1	Copper
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance:	0.1600 + J 0.0570	Ohms/1000 ft		1.04 + J 0.3711		PU	
	Z0 Impedance:	0.5042 + J 0.1403	Ohms/1000 ft		3.28 + J 0.9134		PU	
cbl XFMR M1	pnl DP M1	BUS-0104	1	480	10.0	FEET	1	Copper
	Duct Material:	Magnetic	Insulation Type:				Insulation Class:	THHN
	+/- Impedance:	0.1600 + J 0.0570	Ohms/1000 ft		0.6944 + J 0.2474		PU	
	Z0 Impedance:	0.5042 + J 0.1403	Ohms/1000 ft		2.19 + J 0.6089		PU	

TRANSFORMER INPUT DATA

TRANSFORMER NAME	PRIMARY RECORD NO	NAME		VOLTS L-L	* SECONDARY RECORD NO	NAME		VOLTS L-L	FULL-LOAD KVA	NOMINAL KVA
xfmr L3	BUS-0235		D	480.00	BUS-0236		YG	208.00	75.00	75.00
	Pos. Seq. Z%:		1.24 + J	3.91	(Zpu	16.51 + j	52.11)		Shell Type	
	Zero Seq. Z%:		1.24 + J	3.91	(Sec	16.51 + j	52.11 Pri	Open)		
	Taps Pri. 0.000 %		Sec. 0.000 %		Phase Shift (Pri. Leading Sec.):			30.00 Deg.		
xfmr M1	BUS-0104		D	480.00	BUS-0105		YG	208.00	75.00	75.00
	Pos. Seq. Z%:		1.41 + J	4.45	(Zpu	18.81 + j	59.36)		Shell Type	
	Zero Seq. Z%:		1.41 + J	4.45	(Sec	18.81 + j	59.36 Pri	Open)		
	Taps Pri. 0.000 %		Sec. 0.000 %		Phase Shift (Pri. Leading Sec.):			30.00 Deg.		

GENERATION CONTRIBUTION DATA

BUS NAME	CONTRIBUTION NAME	VOLTAGE L-L	MVA	X"d	X/R
BUS-0234	GEN-0001	480.00	0.500	0.1500	19.88

Neutral impedance 0.4608 + J 0.00000 Ohms
Pos Sequence Impedance (100 MVA Base) 1.51 + J 30.00 PU
Neg Sequence Impedance (100 MVA Base) 1.51 + J 30.00 PU
Zero Sequence Impedance (100 MVA Base) 601.51 + J 30.00 PU

SECTION D

FAULT ANALYSIS SUMMARY REPORT

NORMAL

********** F A U L T A N A L Y S I S S U M M A R Y **********

BUS NAME	VOLTAGE L-L	AVAILABLE FAULT CURRENT 3 PHASE	X/R	LINE/GRND	X/R
pnl BCP AP1	208.	1510.1	0.8	927.80	0.7
pnl BCP AP2	208.	1389.0	0.7	847.38	0.6
pnl BCP AP3	208.	1572.0	1.3	1275.80	0.9
pnl BCP AP4	208.	616.1	0.3	363.54	0.3
pnl DP AP1	480.	5898.4	2.1	4529.78	1.7
pnl DP L2	208.	7662.1	0.9	4789.47	0.7
pnl DP L3	208.	51635.8	1.8	37566.70	1.6
pnl DP L4	480.	4084.6	3.4	4012.62	3.1
pnl DP M1	480.	3126.2	2.8	2743.25	2.4
pnl DP M2	208.	2553.0	2.6	2774.69	2.4
pnl DP M4	480.	9045.7	2.5	7761.76	2.1
pnl MDP L1	208.	58558.2	1.9	43370.51	1.6
pnl MDP L2	480.	14907.5	3.8	16221.15	4.0
pnl MDP L3	480.	4486.5	3.7	4635.15	3.8
pnl Main Servi	208.	139057.2	2.4	129895.62	2.2
splc CBNT LIT	208.	67617.3	1.9	51288.38	1.6
splc L1 L2 L3	208.	7064.1	0.8	4394.66	0.7
splc SLMN AP	208.	5890.2	0.9	3665.63	0.7

********** FAULT ANALYSIS REPORT COMPLETED **********

EMERGENCY

********** F A U L T A N A L Y S I S S U M M A R Y **********

BUS NAME	VOLTAGE L-L	AVAILABLE FAULT CURRENT 3 PHASE	X/R	LINE/GRND	X/R
pnl BCP AP3	208.	1586.0	1.4	1286.28	1.0
pnl BCP AP4	208.	572.2	0.5	355.54	0.4
pnl DP L2	208.	2722.9	2.7	2708.17	2.0
pnl DP L4	480.	3869.4	14.4	586.63	0.2
pnl DP M1	480.	3037.0	5.9	560.22	0.2
pnl DP M2	208.	2539.2	3.2	2769.15	2.7
pnl DPL5	480.	3949.4	17.2	588.89	0.2
splc L1 L2 L3	208.	2664.6	2.5	2606.06	1.8

********** FAULT ANALYSIS REPORT COMPLETED **********

SECTION E

PROTECTIVE DEVICE EVALUATION REPORT

NORMAL

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
bcb BCP AP3	Pass	BAB, 1-Pole	120	1.57		50.00		
pnl BCP AP3		10-70A	240	10.00		15.72		
CUTLER-HAMMER		BAB						Symm
fsw M1	Pass	FLNR_ID, 250V Class RK5	208	3.07		83.20		
BUS-0106		35-600A	250	200.00		1.53		
LITTELFUSE		FLNRID						Symm
fsw AP1	Pass	FRN-R, 250V Class RK5	208	1.64		83.20		
BUS-0133		0.1-600A	250	200.00		0.82		
BUSSMANN		FRN-R						Symm
fsw L2	Pass	FRN-R, 250V Class RK5	208	6.91		83.20		
BUS-0196		0.1-600A	250	200.00		3.45		
BUSSMANN		FRN-R						Symm
bcb BCP AP1	Pass	BLF	208	1.51		*166.40		
pnl BCP AP1		0.5-30A	*125	10.00		15.10		
LITTELFUSE		BLF						Symm
bcb BCP AP2	Pass	THQL	208	1.39		86.67		
pnl BCP AP2		15-125A	240	10.00		13.89		
GE		THQL						Symm
mcb BCP AP3	Pass	BAB, 3-Pole	208	1.57		86.67		
pnl BCP AP3		15-100A	240	10.00		15.72		
CUTLER-HAMMER		BAB						Symm
bcb BCP AP4	Pass	THQP	208	0.62		86.67		
pnl BCP AP4		15-50A	240	10.00		6.16		
GE		THQP						Symm

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
mcb BCP AP4	Pass	THQP	208	0.62		86.67		
pnl BCP AP4		15-50A	240	10.00		6.16		
GE		THQP						Symm
fcb EM Kauf Pnl	Pass	QJ2	208	7.66		86.67		
pnl DP L2		60-225A	240	10.00		76.62		
SIEMENS		QJ2						Symm
mcb DP L2	Pass	QJH2	208	7.66		86.67		
pnl DP L2		60-225A	240	22.00		34.83		
SIEMENS		QJH2						Symm
ffsw FSW AP1	Pass	FRN-R, 250V Class RK5	208	51.64		83.20		
pnl DP L3		0.1-600A	250	200.00		25.82		
BUSSMANN		FRN-R						Symm
fcb EPCCAP	Pass	BAB, 3-Pole	208	3.01 (*N1)		86.67		
pnl DP M2		15-100A	240	10.00		30.14		
CUTLER-HAMMER		BAB						Symm
mcb DP M2	Pass	JD	208	2.77		86.67		
pnl DP M2		70-250A	240	65.00		4.27		
CUTLER-HAMMER		JD						Symm
ffsw MDP L1 DP L3	Pass	LCL Econolim	208	139.06		34.67		
pnl Main Service		800-6000A	600	200.00		69.53		
FEDERAL PACIFIC		LCL-1200						Symm
ffsw MDP L3	Pass	A4BQ, 600V Class L	208	139.06		34.67		
pnl Main Service		100-6000A	600	200.00		69.53		

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
GOULD SHAWMUT		A4BQ						Symm
ffsw XFMR L1	Pass	KRP-C, 600V Class L	208	139.06		34.67		
pnl Main Service		601-6000A	600	300.00		46.35		
BUSSMANN		KRP-C						Symm
ffsw MDPL1-5	Pass	FRN, 250V	208	58.56		83.20		
pnl MDP L1		0.1-600A	250	100.00		58.56		
BUSSMANN		FRN						Symm
bcb DP AP1	Pass	EHB, 1-Pole	277	5.90		100.00		
pnl DP AP1		15-100A	277	14.00		42.13		
CUTLER-HAMMER		EHB						Symm
mcb DP AP1	Pass	EHB, 2 & 3-Pole	480	5.90		100.00		
pnl DP AP1		15-100A	480	14.00		42.13		
CUTLER-HAMMER		EHB						Symm
fcb DP M1	Pass	JD	480	4.08		100.00		
pnl DP L4		70-250A	480	35.00		11.67		
CUTLER-HAMMER		JD						Symm
fcb XFMR M1	Pass	FD	480	3.13		100.00		
pnl DP M1		15-225A	480	35.00		8.93		
CUTLER-HAMMER		FD						Symm
mcb DP M1	Pass	JD	480	3.13		100.00		
pnl DP M1		70-250A	480	35.00		8.93		
CUTLER-HAMMER		JD						Symm
fcb Adol Pav	Pass	BQD	480	9.05		100.00		

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
pnl DP M4		15-100A	480	14.00		64.61		
SIEMENS		BQD						Symm
mcb DP M4	Pass	LXD6-A Sentron	480	9.05		100.00		
pnl DP M4		450-600A	480	35.00		25.84		
SIEMENS		LXD6-A						Symm
fcb MORRIS 480	Pass	LAB, LA	480	16.22		100.00		
pnl MDP L2		125-600A	480	30.00		54.07		
WESTINGHOUSE		LA						Symm
fcb ATS L2	Pass	KD	480	4.64		100.00		
pnl MDP L3		100-400A	480	35.00		13.24		
CUTLER-HAMMER		KD						Symm
(*N1) System X/R higher than Test X/R, Calc INT kA modified based on low voltage factor.								
(*Device Voltage) Device did not pass. Device is either Marginal (100%) or Failed (100%) of the device voltage rating.								

EMERGENCY

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
bcb BCP AP3	Pass	BAB, 1-Pole	120	1.59		50.00		
pnl BCP AP3		10-70A	240	10.00		15.86		
CUTLER-HAMMER		BAB						Symm
fsw M1	Pass	FLNR_ID, 250V Class RK5	208	3.05		83.20		
BUS-0106		35-600A	250	200.00		1.52		
LITTELFUSE		FLNRID						Symm
fsw L2	Pass	FRN-R, 250V Class RK5	208	2.65		83.20		
BUS-0196		0.1-600A	250	200.00		1.32		
BUSSMANN		FRN-R						Symm
fcb ATS L1E	Pass	QJ2	208	4.48 (*N1)		86.67		
BUS-0237		60-225A	240	10.00		44.80		
SIEMENS		QJ2						Symm
mcb BCP AP3	Pass	BAB, 3-Pole	208	1.59		86.67		
pnl BCP AP3		15-100A	240	10.00		15.86		
CUTLER-HAMMER		BAB						Symm
bcb BCP AP4	Pass	THQP	208	0.57		86.67		
pnl BCP AP4		15-50A	240	10.00		5.72		
GE		THQP						Symm
mcb BCP AP4	Pass	THQP	208	0.57		86.67		
pnl BCP AP4		15-50A	240	10.00		5.72		
GE		THQP						Symm
fcb EM Kauf Pnl	Pass	QJ2	208	3.06 (*N1)		86.67		
pnl DP L2		60-225A	240	10.00		30.59		
SIEMENS		QJ2						Symm

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
mcb DP L2	Pass	QJH2	208	2.72		86.67		
pnl DP L2		60-225A	240	22.00		12.38		
SIEMENS		QJH2						Symm
fcb EPCCAP	Pass	BAB, 3-Pole	208	3.12 (*N1)		86.67		
pnl DP M2		15-100A	240	10.00		31.22		
CUTLER-HAMMER		BAB						Symm
mcb DP M2	Pass	JD	208	2.77		86.67		
pnl DP M2		70-250A	240	65.00		4.26		
CUTLER-HAMMER		JD						Symm
fcb DPL5	Pass	PG, 525	480	4.86 (*N1)		100.00		
BUS-0234		1200-1600A	480	65.00		7.48		
SIEMENS		HPG						Symm
fcb DP M1	Pass	JD	480	4.57 (*N1)		100.00		
pnl DP L4		70-250A	480	35.00		13.07		
CUTLER-HAMMER		JD						Symm
fcb XFMR M1	Pass	FD	480	3.16 (*N1)		100.00		
pnl DP M1		15-225A	480	35.00		9.02		
CUTLER-HAMMER		FD						Symm
mcb DP M1	Pass	JD	480	3.16 (*N1)		100.00		
pnl DP M1		70-250A	480	35.00		9.02		
CUTLER-HAMMER		JD						Symm
fcb EM Feed ATS1	Pass	FXD6 Sentron	480	4.74 (*N1)		100.00		
pnl DPL5		70-250A	480	35.00		13.55		

Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K Factor Ith 3P/SLG	PartingTime Speed Cycles
SIEMENS		FXD6						Symm
fcb EM Feed ATS2	Pass	JXD6-A Sentron	480	4.74 (*N1)		100.00		
pnl DPL5		200-400A	480	35.00		13.55		
SIEMENS		JXD6-A						Symm
mcb DPL5	Pass	HLMD6 Sentron	480	4.74 (*N1)		100.00		
pnl DPL5		500-800A	480	65.00		7.30		
SIEMENS		HLMD6						Symm
(*N1) System X/R higher than Test X/R, Calc INT kA modified based on low voltage factor.								

SECTION F

PROTECTIVE DEVICE SETTINGS

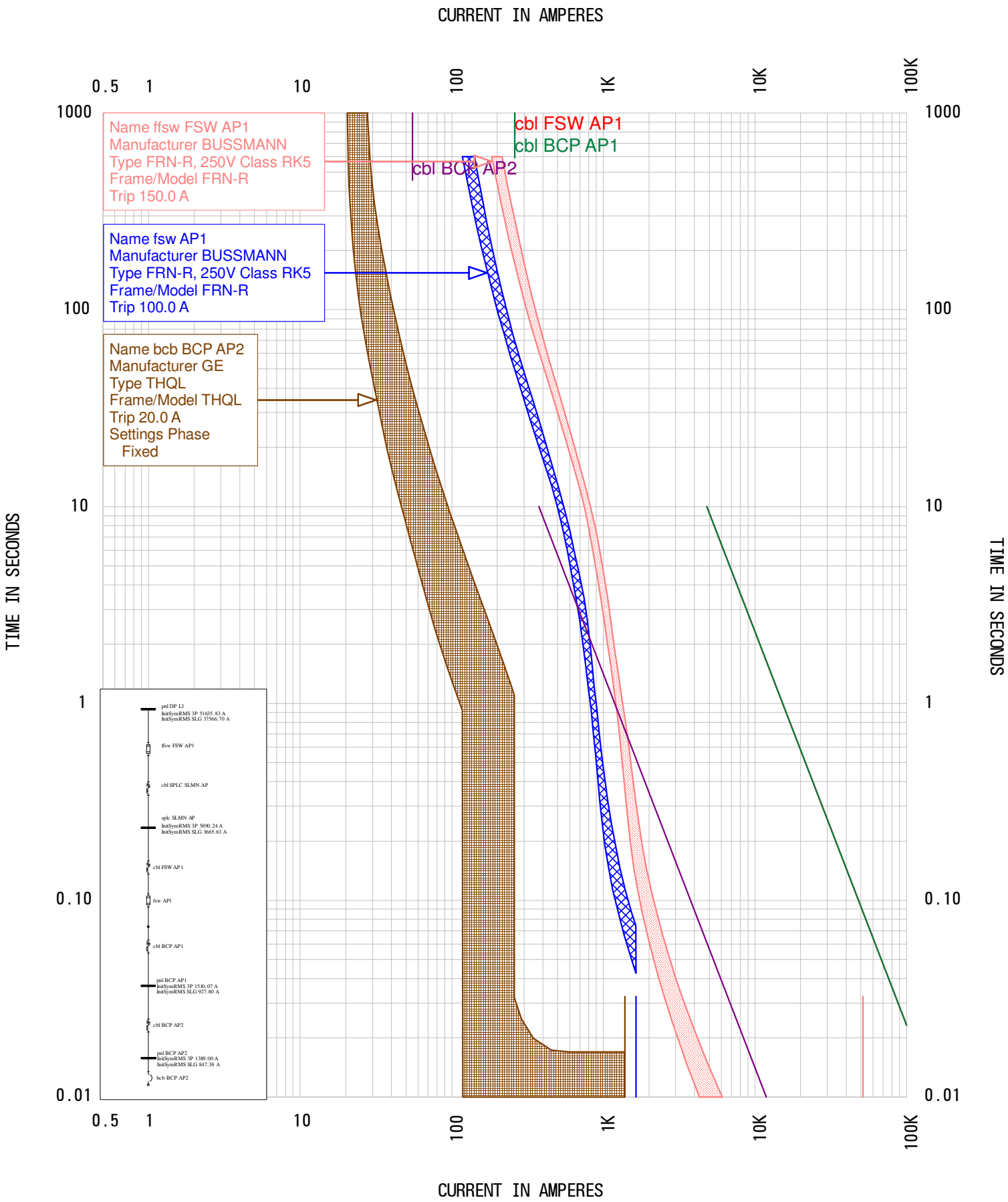
Project: Zucker Hillside MKLLSA				
Scenario: Rec Norm AD MOD				
The Zucker Hillside Hospital (NSLIJ)				
DL				
Adolescent Pavilion				
ADP				
75-59 263rd Street, Glen Oaks, NY 11004				
LV Breakers				
Name/Type	Description	Frame/Model	Frame/Sensor/Plug	Settings
bcb BCP AP2	GE	THQL	20.0A	Fixed
Thermal Magnetic	THQL		20.0A	
bcb BCP AP3	CUTLER-HAMMER	BAB	20.0A	Fixed
Thermal Magnetic	BAB, 1-Pole		20.0A	
bcb BCP AP4	GE	THQP	20.0A	Fixed
Thermal Magnetic	THQP		20.0A	
bcb DP AP1	CUTLER-HAMMER	EHB	30.0A	Fixed
Thermal Magnetic	EHB, 1-Pole		30.0A	
fcb Adol Pav	SIEMENS	BQD	100.0A	Fixed
Thermal Magnetic	BQD		100.0A	
fcb ATS L1E	SIEMENS	QJ2	225.0A	Thermal Curve (Fixed)
Thermal Magnetic	QJ2		225.0A	INST Fixed (2650A)
fcb ATS L2	CUTLER-HAMMER	KD	400.0A	Thermal Curve (Fixed)
Thermal Magnetic	KD		400.0A	INST (5-10 x Trip) 5 (2000A)
fcb DP M1	CUTLER-HAMMER	JD	250.0A	Thermal Curve (Fixed)
Thermal Magnetic	JD		250.0A	INST (5-10 x Trip) 5 (1250A)
fcb DPL5	SIEMENS	HPG	1200.0A	Thermal Curve (Fixed)
Thermal Magnetic	PG, 525		1200.0A	INST (7-12kA) 7000 (7000A)
fcb EM Feed ATS1	SIEMENS	FXD6	150.0A	Thermal Curve (Fixed)
Thermal Magnetic	FXD6 Sentron		125.0A	INST (LO-HI) LO (800A)
fcb EM Feed ATS2	SIEMENS	JXD6-A	400.0A	Thermal Curve (Fixed)
Thermal Magnetic	JXD6-A Sentron		400.0A	INST (LO-HI) LO (2000A)
fcb EM Kauf Pnl	SIEMENS	QJ2	150.0A	Thermal Curve (Fixed)
Thermal Magnetic	QJ2		150.0A	INST Fixed (1750A)
fcb EPCCAP	CUTLER-HAMMER	BAB	60.0A	Fixed

Thermal Magnetic	BAB, 3-Pole		60.0A	
fcb MORRIS 480	WESTINGHOUSE	LA	600.0A	LTD
Thermal Magnetic	LAB, LA		400.0A	INST 5.0 (2000A)
fcb XFMR M1	CUTLER-HAMMER	FD	125.0A	Fixed
Thermal Magnetic	FD		125.0A	
mcb BCP AP3	CUTLER-HAMMER	BAB	60.0A	Fixed
Thermal Magnetic	BAB, 3-Pole		60.0A	
mcb BCP AP4	GE	THQP	50.0A	Fixed
Thermal Magnetic	THQP		50.0A	
mcb DP AP1	CUTLER-HAMMER	EHB	100.0A	Fixed
Thermal Magnetic	EHB, 2 & 3-Pole		100.0A	
mcb DP L2	SIEMENS	QJH2	225.0A	Thermal Curve (Fixed)
Thermal Magnetic	QJH2		225.0A	INST Fixed (2650A)
mcb DP M1	CUTLER-HAMMER	JD	250.0A	Thermal Curve (Fixed)
Thermal Magnetic	JD		250.0A	INST (5-10 x Trip) 5 (1250A)
mcb DP M2	CUTLER-HAMMER	JD	250.0A	Thermal Curve (Fixed)
Thermal Magnetic	JD		250.0A	INST (5-10 x Trip) 5 (1250A)
mcb DP M4	SIEMENS	LXD6-A	600.0A	Thermal Curve (Fixed)
Thermal Magnetic	LXD6-A Sentron		600.0A	INST (LO-HI) LO (3000A)
mcb DPL5	SIEMENS	HLMD6	800.0A	Thermal Curve (Fixed)
Thermal Magnetic	HLMD6 Sentron		700.0A	INST (LO-HI) LO (3200A)
Fuses				
Name/Type	Description	Frame/Model	Cartridge/Trip	
bcb BCP AP1	LITTELFUSE	BLF	30.0A	
Low Voltage	BLF		30.0A	
ffsw FSW AP1	BUSSMANN	FRN-R	150.0A	
Low Voltage	FRN-R, 250V Class RK5		150.0A	
ffsw MDP L1 DP L3	FEDERAL PACIFIC	LCL-1200	1200.0A	
Low Voltage	LCL Econolim		1200.0A	
ffsw MDP L3	GOULD SHAWMUT	A4BQ	1000.0A	
Low Voltage	A4BQ, 600V Class L		1000.0A	
ffsw MDPL1-5	BUSSMANN	FRN	200.0A	

Low Voltage	FRN, 250V		200.0A	
ffsw XFMR L1	BUSSMANN	KRP-C	3000.0A	
Low Voltage	KRP-C, 600V Class L		3000.0A	
fsw AP1	BUSSMANN	FRN-R	100.0A	
Low Voltage	FRN-R, 250V Class RK5		100.0A	
fsw L2	BUSSMANN	FRN-R	80.0A	
Low Voltage	FRN-R, 250V Class RK5		80.0A	
fsw M1	LITTELFUSE	FLNRID	400.0A	
Low Voltage	FLNR_ID, 250V Class RK5		250.0A	

SECTION G

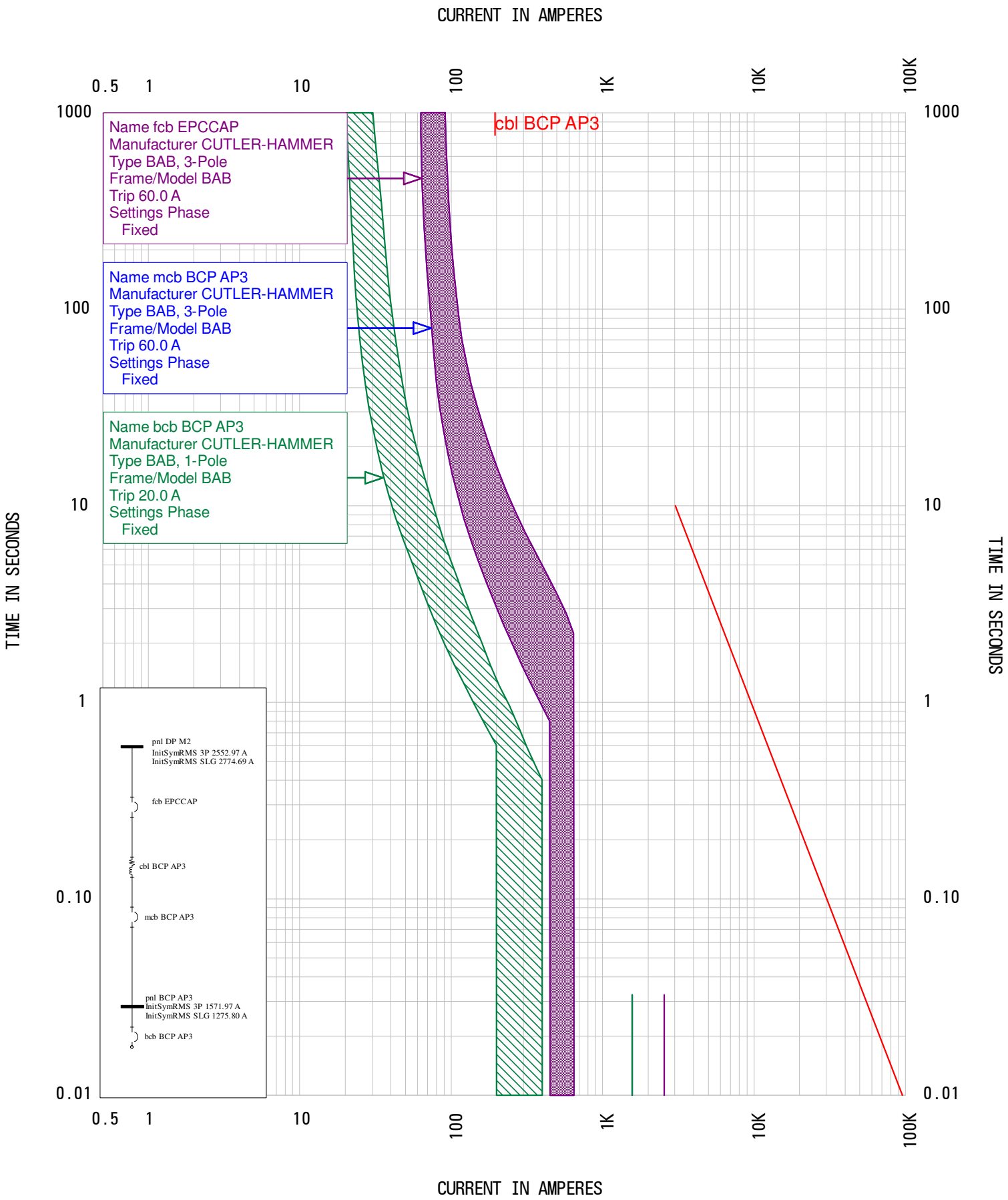
TIME CURRENT CURVES (TCC'S)



TCC Name: TCC BCP AP2
One-Line Name: TCC BCP AP2
Project: The Zucker Hillside Hospital (NSLIJ) - Adolescent Pavilion

Current Scale x 1

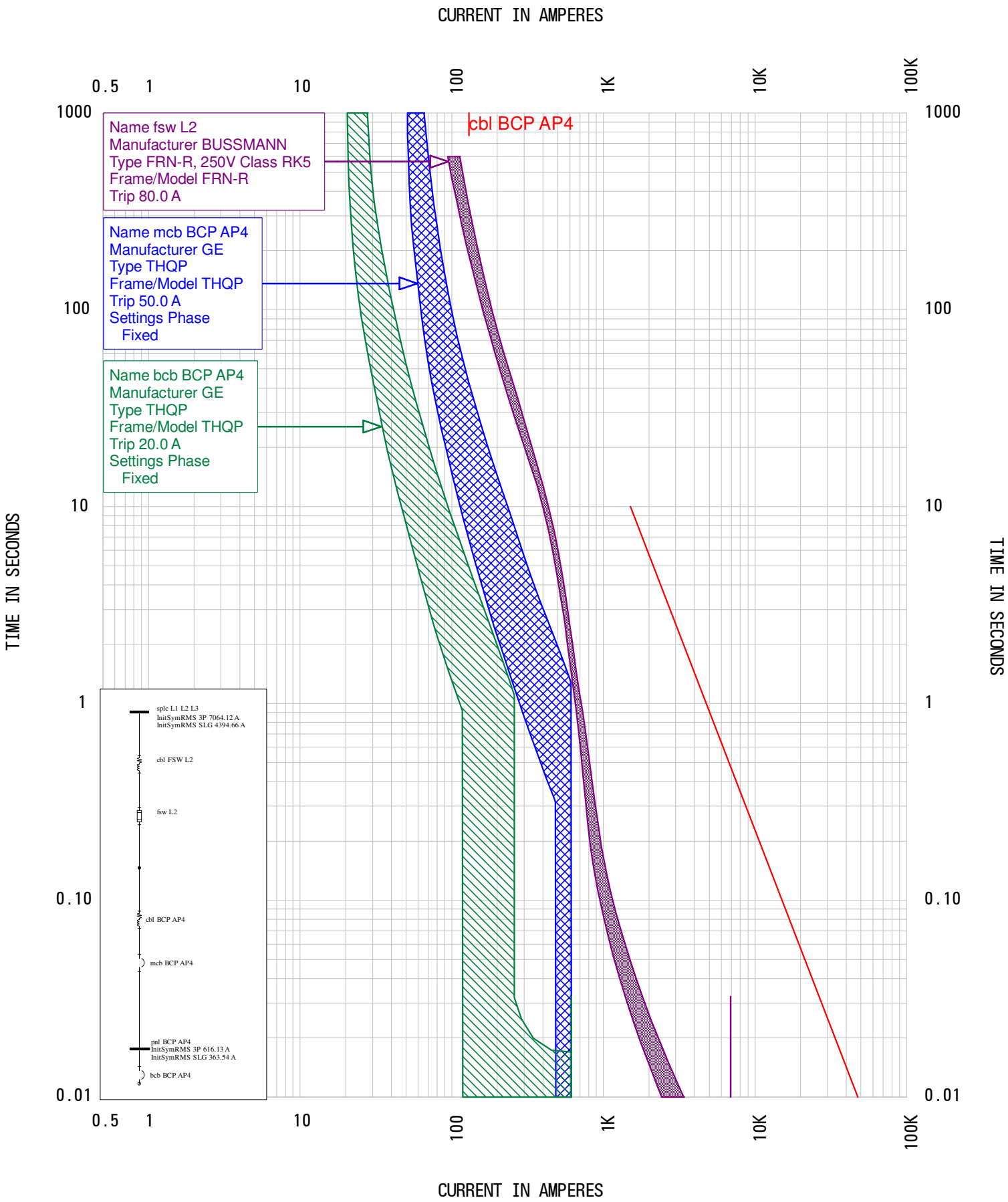
Reference Voltage: 208
Prepared by: DL
Firm: SDM METRO



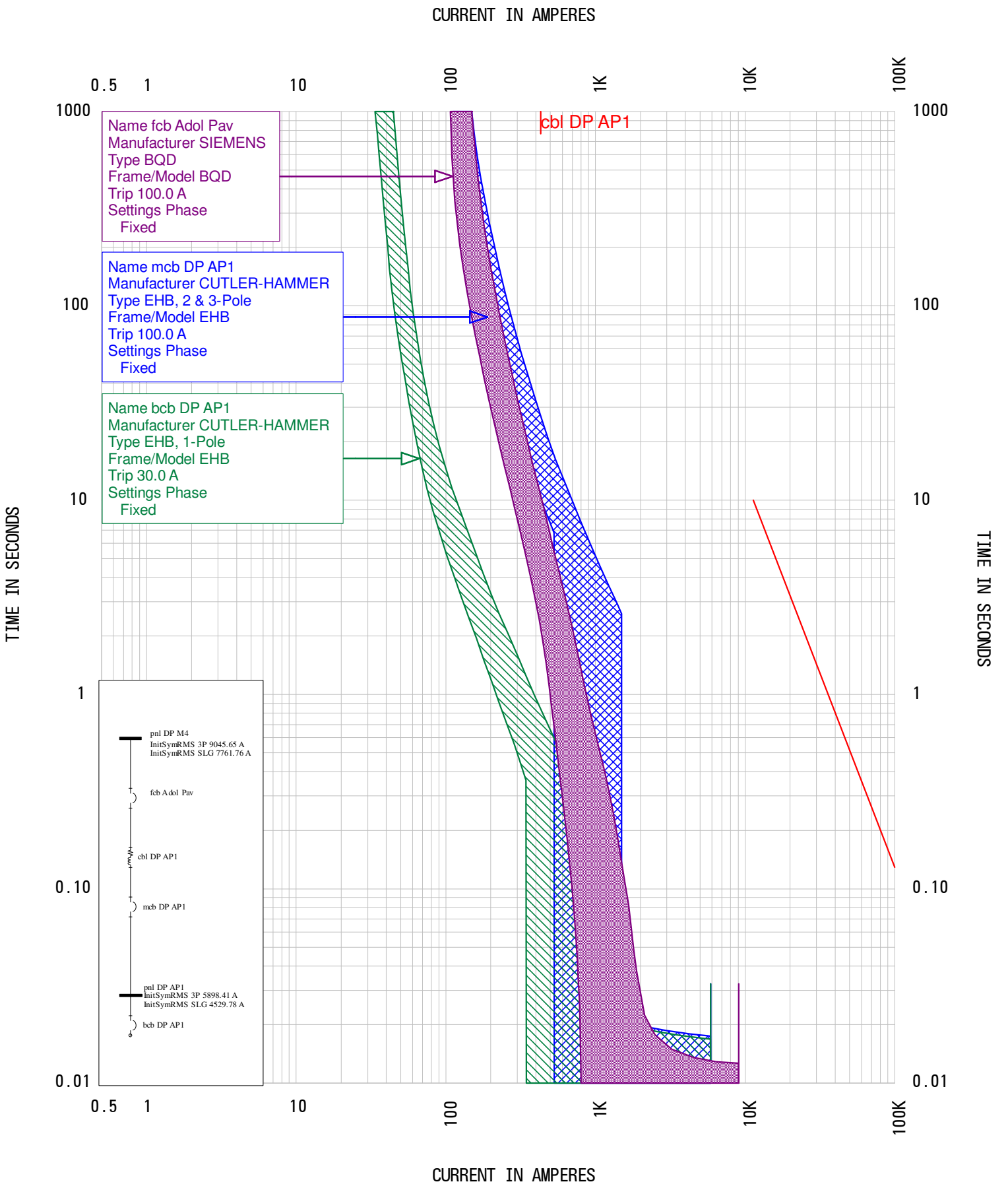
TCC Name: TCC BCP AP3
One-Line Name: TCC BCP AP3
Project: The Zucker Hillside Hospital (NSLIJ) - Adolescent Pavilion

Current Scale x 1

Reference Voltage: 208
Prepared by: DL
Firm: SDM METRO



TCC Name: TCC BCP AP4	Current Scale x 1	Reference Voltage: 208
One-Line Name: TCC BCP AP4		Prepared by: DL
Project: The Zucker Hillside Hospital (NSLIJ) - Adolescent Pavilion		Firm: SDM METRO



TCC Name: TCC DP AP1	Current Scale x 1	Reference Voltage: 480
One-Line Name: TCC DP AP1		Prepared by: DL
Project: The Zucker Hillside Hospital (NSLIJ) - Adolescent Pavilion		Firm: SDM METRO

SECTION H

Arc Flash Summary Report

NORMAL

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
1	pnl BCP AP1	fsw AP1	0.208	1.51	0.98	1.51	0.98	0.577	0.000	25	PNL	21	18	1.6	Level 1 (*N3)	# 0011		
2																		
3	pnl BCP AP2	fsw AP1	0.208	1.39	0.92	1.39	0.92	0.842	0.000	25	PNL	26	18	2.1	Level 1 (*N3)	# 0012		
4																		
5	pnl BCP AP3	mcb BCP AP3	0.208	1.57	1.19	1.57	1.19	0.01	0.000	25	PNL	2	18	0.03	Level 0 (*N15)	# 0013		
6																		
7	pnl BCP AP4	mcb BCP AP4	0.208	0.62	0.62	0.62	0.62	1.279	0.000	25	PNL	10	18	0.40	Level 0 (*N11)	# 0014		
8																		
9	pnl DP AP1	fcb Adol Pav	0.48	5.90	4.18	5.90	4.18	0.014	0.000	25	PNL	6	18	0.18	Level 0	# 0091		
10																		
11	pnl DP L2	mcb DP L2	0.208	7.66	3.61	7.66	3.61	0.012	0.000	25	PNL	5	18	0.13	Level 0	# 0095		
12																		
13	pnl DP L3	ffsw MDP L1 DP L3	0.208	51.64	13.78	51.64	13.78		0.000	25	PNL	9	18	0.39	Level 0 (*N4)	# 0096		
14																		
15	pnl DP L4	fcb ATS L2	0.48	4.08	2.59	4.08	2.59	0.025	0.000	25	PNL	6	18	0.20	Level 0 (*N3)	# 0097		
16																		
17	pnl DP M1	mcb DP M1	0.48	3.13	2.43	3.13	2.43	0.021	0.000	25	PNL	5	18	0.15	Level 0	# 0098		
18																		
19	pnl DP M2	fcb XFMR M1 (mcb DP M2)	0.208	2.55	1.42	2.55	1.42	2	0.000	25	PNL	18	18	1.2	Level 0 (*N3) (*N5) (*N9) (*N15)	# 0099		1.20
20																		
21	pnl DP M4	fcb MORRIS 480	0.48	9.05	6.02	9.05	6.02	0.025	0.000	25	PNL	10	18	0.47	Level 0	# 0101		
22																		
23	pnl Main Service	MaxTripTime @2.0s	0.208	139.06	139.06	139.06	139.06	2	0.000	25	PNL	196	18	142	Dangerous! (*N2) (*N9) (*N11)	# 0113		
24																		
25	pnl MDP L1	ffsw MDP L1 DP L3	0.208	58.56	15.05	58.56	15.05		0.000	25	PNL	9	18	0.39	Level 0 (*N4)	# 0114		

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
26																		
27	pnl MDP L2	ffsw XFMR L1	0.48	14.91	9.22	14.91	9.22	2	0.000	25	PNL	197	18	61	Dangerous! (*N9)	# 0115		
28																		
29	pnl MDP L3	ffsw MDP L3	0.48	4.49	2.81	4.49	2.81	1.956	0.000	25	PNL	89	18	16	Level 3 (*N3)	# 0116		
30																		
31	splc CBNT LIT	ffsw MDP L1 DP L3	0.208	67.62	16.65	67.62	16.65		0.000	25	PNL	9	18	0.39	Level 0 (*N4)	# 0137		
32																		
33	splc L1 L2 L3	fcb EM Kauf Pnl	0.208	7.06	3.41	7.06	3.41	0.012	0.000	25	PNL	4	18	0.12	Level 0	# 0141		
34																		
35	splc SLMN AP	ffsw FSW AP1	0.208	5.89	2.55	5.89	2.55	0.068	0.000	25	PNL	11	18	0.52	Level 0 (*N3)	# 0146		
36																		
37	Level 0: Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd	0.0 - 1.2 cal/cm^2												#Level 0 = 13	(*N11) - Out of IEEE 1584 Range, Lee Equation Used. Applicable for Open Air only. Existing Equipment type is not Open Air!			
38	Level 1: Arc-rated shirt & pants or arc-rated coverall	1.2 - 4.0 cal/cm^2												#Level 1 = 2	(*N2) < 80% Cleared Fault Threshold			
39	Level 2: Arc-rated shirt & pants or arc-rated coverall	4.0 - 8.0 cal/cm^2												#Level 2 = 0	(*N3) - Arcing Current Low Tolerances Used			
40	Level 3: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit	8.0 - 25.0 cal/cm^2												#Level 3 = 1	(*N4) - Equipment Specific Equations Used			

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
41	Level 4: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit	25.0 - 40.0 cal/cm^2												#Level 4 = 0	(*N5) - Miscoordinated, Upstream Device Tripped			
42	Level Dangerous!: DO NOT WORK ON LIVE!	40.0 - 999.0 cal/cm^2												#Danger = 2	(*N9) - Max Arcing Duration Reached			
43														#Equip Eval Failed = 0	(*N15) - Report as category 0 if fed by one transformer size < 125 kVA			
44	For additional information refer to NFPA 70 E, Standard for Electrical Safety in the Workplace.	Device with 80% Cleared Fault Threshold													NFPA 70E 2012 Annex D.7 - IEEE 1584 Bus Report (80% Cleared Fault Threshold, include Ind. Motors for 5.0 Cycles), mis-coordination checked			
45	Level 0: Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd, Safety Glasses or Goggles + Ear Canal Inserts, Leather Gloves, Safety glasses, Non-melting or untreated natural fiber (cotton/wool/rayon/silk > 4.5 oz/sq yd), shirt (long-sleeve), pants (long)., > 50V voltage rated tools + Class 0 (minimum) gloves, Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
46	Level 1: Arc-rated shirt & pants or arc-rated coverall , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Leather Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield., 4 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long), or Arc-rated coverall, plus arc-rated face shield or arc flash suit hood, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash) as needed., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
47	Level 2: Arc-rated shirt & pants or arc-rated coverall , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Leather Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield. Hearing protection., 8 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long), or Arc-rated coverall, plus arc-rated flash suit hood or arc-rated face shield and arc rated balaclava, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash)., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
48	Level 3: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Arc-rated Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield. Hearing protection., 25 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long) plus Arc-rated coverall, plus arc rated arc flash suit jacket, pants, & hood, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash)., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
49	Level 4: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Arc-rated Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield. Hearing protection., 40 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long) plus Arc-rated coverall, plus arc rated arc flash suit jacket, pants, & hood, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash)., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

EMERGENCY

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
1	pnl BCP AP3	mcb BCP AP3	0.208	1.59	1.19	1.59	1.19	0.01	0.000	25	PNL	2	18	0.03	Level 0 (*N15)	# 0013		
2																		
3	pnl BCP AP4	mcb BCP AP4	0.208	0.57	0.57	0.57	0.57	1.491	0.000	25	PNL	11	18	0.43	Level 0 (*N11) (*N15)	# 0014		
4																		
5	pnl DP L2	mcb DP L2	0.208	2.72	1.74	2.72	1.74	2	0.000	25	PNL	18	18	1.2	Level 0 (*N9) (*N15)	# 0095		1.20
6																		
7	pnl DP L4	fcb EM Feed ATS2	0.48	3.87	2.48	3.87	2.48	2	0.000	25	PNL	83	18	15	Level 3 (*N3) (*N9)	# 0097		
8																		
9	pnl DP M1	mcb DP M1	0.48	3.04	2.37	3.04	2.37	0.021	0.000	25	PNL	5	18	0.15	Level 0	# 0098		
10																		
11	pnl DP M2	fcb XFMR M1 (mcb DP M2)	0.208	2.54	1.41	2.54	1.41	2	0.000	25	PNL	18	18	1.2	Level 0 (*N3) (*N5) (*N9) (*N15)	# 0099		1.20
12																		
13	pnl DPL5	mcb DPL5	0.48	3.95	2.97	3.95	2.97	2	0.000	25	PNL	93	18	18	Level 3 (*N9)	# 0007		
14																		
15	splc L1 L2 L3	fcb EM Kauf Pnl	0.208	2.66	1.72	2.66	1.72	2	0.000	25	PNL	18	18	1.2	Level 0 (*N9) (*N15)	# 0141		1.20
16																		
17	Level 0: Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd	0.0 - 1.2 cal/cm^2												#Level 0 = 6	(*N11) - Out of IEEE 1584 Range, Lee Equation Used. Applicable for Open Air only. Existing Equipment type is not Open Air!			
18	Level 1: Arc-rated shirt & pants or arc-rated coverall	1.2 - 4.0 cal/cm^2												#Level 1 = 0	(*N3) - Arcing Current Low Tolerances Used			

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
19	Level 2: Arc-rated shirt & pants or arc-rated coverall	4.0 - 8.0 cal/cm^2												#Level 2 = 0	(*N5) - Miscoordinated, Upstream Device Tripped			
20	Level 3: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit	8.0 - 25.0 cal/cm^2												#Level 3 = 2	(*N9) - Max Arcing Duration Reached			
21	Level 4: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit	25.0 - 40.0 cal/cm^2												#Level 4 = 0	(*N15) - Report as category 0 if fed by one transformer size < 125 kVA			
22	Level Dangerous!: DO NOT WORK ON LIVE!	40.0 - 999.0 cal/cm^2												#Danger = 0	NFPA 70E 2012 Annex D.7 - IEEE 1584 Bus Report (80% Cleared Fault Threshold, include Ind. Motors for 5.0 Cycles), mis-coordination checked			
23														#Equip Eval Failed = 0				
24	For additional information refer to NFPA 70 E, Standard for Electrical Safety in the Workplace.	Device with 80% Cleared Fault Threshold																

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
25	Level 0: Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd, Safety Glasses or Goggles + Ear Canal Inserts, Leather Gloves, Safety glasses, Non-melting or untreated natural fiber (cotton/wool/rayon/silk > 4.5 oz/sq yd), shirt (long-sleeve), pants (long)., > 50V voltage rated tools + Class 0 (minimum) gloves, Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
26	Level 1: Arc-rated shirt & pants or arc-rated coverall , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Leather Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield., 4 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long), or Arc-rated coverall, plus arc-rated face shield or arc flash suit hood, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash) as needed., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
27	Level 2: Arc-rated shirt & pants or arc-rated coverall , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Leather Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield. Hearing protection., 8 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long), or Arc-rated coverall, plus arc-rated flash suit hood or arc-rated face shield and arc rated balaclava, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash)., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
28	Level 3: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Arc-rated Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield. Hearing protection., 25 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long) plus Arc-rated coverall, plus arc rated arc flash suit jacket, pants, & hood, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash)., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time/Tol (sec.)	Gap (mm)	Equip Type	Arc Flash Boundary (in)	Working Distance (in)	Incident Energy (cal/cm2)	PPE Level	Label #	Incident Energy at Low Marginal	Incident Energy at High Marginal
29	Level 4: Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit , Hardhat + Arc-rated hard hat liner + Safety Glasses or Goggles + Ear Canal Inserts, Arc-rated Gloves, Leather work shoes, Safety glasses, electrically rated hard hat with hood and face shield. Hearing protection., 40 cal/sq cm, Arc-rated shirt (long-sleeve) plus Arc-rated pants (long) plus Arc-rated coverall, plus arc rated arc flash suit jacket, pants, & hood, Arc-rated rainwear as needed., > 50V voltage rated tools + Class 0 (minimum) gloves and leather protectors (flash)., Leather shoes (flash) as needed. Dielectric shoes or insulating mat (step and touch potential).																	

SECTION I

Arc Flash Label Samples

NORMAL

WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

21 in	Flash Hazard Boundary
1.6 cal/cm^2	Flash Hazard at 18 in
Level 1	Arc-rated shirt & pants or arc-rated coverall
208 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
Avoid Contact	Restricted Approach
Avoid Contact	Prohibited Approach

Location: pnl BCP AP1

SDM METRO

SDM METRO
220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Normal	Prepared on:	05/07/14	By:	DL

Warning: Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements

WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

2 in	Flash Hazard Boundary
0.03 cal/cm^2	Flash Hazard at 18 in
Level 0	Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd
208 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
Avoid Contact	Restricted Approach
Avoid Contact	Prohibited Approach

Location: pnl BCP AP3

SDM METRO

SDM METRO
220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Normal	Prepared on:	05/07/14	By:	DL

Warning: Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements

WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

26 in	Flash Hazard Boundary
2.1 cal/cm^2	Flash Hazard at 18 in
Level 1	Arc-rated shirt & pants or arc-rated coverall
208 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
Avoid Contact	Restricted Approach
Avoid Contact	Prohibited Approach

Location: pnl BCP AP2

SDM METRO

SDM METRO
220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Normal	Prepared on:	05/07/14	By:	DL

Warning: Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements

WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

10 in	Flash Hazard Boundary
0.40 cal/cm^2	Flash Hazard at 18 in
Level 0	Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd
208 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
Avoid Contact	Restricted Approach
Avoid Contact	Prohibited Approach

Location: pnl BCP AP4

SDM METRO

SDM METRO
220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Normal	Prepared on:	05/07/14	By:	DL

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WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

6 in	Flash Hazard Boundary
0.18 cal/cm^2	Flash Hazard at 18 in
Level 0	Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd
480 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
1 in	Prohibited Approach

Location:	pnl DP AP1

SDM METRO

220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Normal	Prepared on:	05/07/14	By:	DL

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EMERGENCY

WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

2 in	Flash Hazard Boundary
0.03 cal/cm^2	Flash Hazard at 18 in
Level 0	Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd
208 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
Avoid Contact	Restricted Approach
Avoid Contact	Prohibited Approach

Location:	pnl BCP AP3

SDM METRO

SDM METRO

220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Generator	Prepared on:	05/08/14	By:	DL

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WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required

11 in	Flash Hazard Boundary
0.43 cal/cm^2	Flash Hazard at 18 in
Level 0	Nonmelting or Untreated Fiber with Weight >= 4.5 oz/sq yd
208 VAC	Shock Hazard when cover is removed
00	Glove Class
42 in	Limited Approach
Avoid Contact	Restricted Approach
Avoid Contact	Prohibited Approach

Location:	pnl BCP AP4

SDM METRO

SDM METRO

220 Maple Ave.,
Rockville Centre, NY 11570
(516) 536-2600

Mode:	Generator	Prepared on:	05/08/14	By:	DL

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