

# Facilities Standards & Guidelines

## C.69 Electrical One-line Documentation Guidelines

Revision 0

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## Section 1 – Summary

This document establishes standardized procedures for documenting electrical riser diagrams and identifies the Revit families provided by BAE Systems, with the intent to speed up the one-line diagram creation process and provide BAE Systems with consistent one-line diagrams. These guidelines may not include all items to be verified in every one-line encountered. Therefore, you may tailor the project symbols and Revit families to meet project requirements. Additionally, BAE Systems will accept key identifiers used in feeder schedules on the one-line.

## Section 2 – Riser Diagram (One-line)

The riser diagram shall identify the following circuit breaker characteristics, conductor size, conductor quantity, conduit size, and all connected loads as specified in the Revit Families included in this standard. It shall be created in Revit per the version year dictated in the latest BIM Standard using a drafting view set to a  $\frac{3}{4}'' = 1''$  scale. Follow standard electrical requirements (ANSI/IEEE) for creating a one-line diagram. The following information shall be included on the riser diagram:

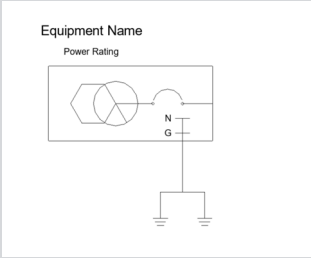
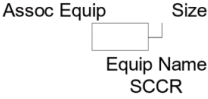
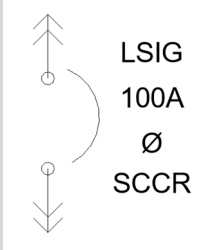

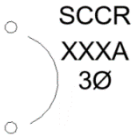
1. Identify the service entrance and incoming voltage.
2. Indication points (nodes) at line and load points along the one-line diagram.
3. Panelboard ampacity, A.I.C. rating, and overcurrent protection.
4. Equipment load and voltage.
5. Equipment name, voltage, A.I.C. rating, and overcurrent protection rating.
6. Power quality equipment such as surge protection devices, uninterruptible power supplies, transfer switches, or ground fault protection when required.
7. Equipment disconnect name, ampacity, and overcurrent protection type and size.
8. Feeder, number of conductors, conductor size and type, conduit size, and number of parallel runs.




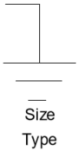


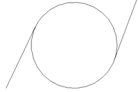
9. Transformer size, voltage ratio, and configuration.

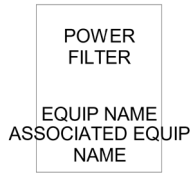
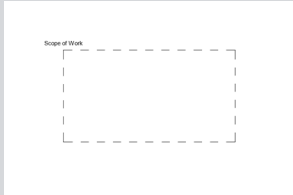


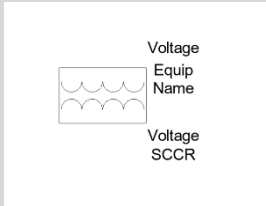

**Section 3 – Symbol Definitions**

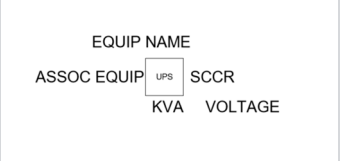
The following one-line families are provided by BAE Systems SMS, Inc. to ensure consistency across all one-line(s). The provided families are intended to help you complete the project scope and may not require all families to be used. All parameters indicated in the table below shall be filled out for all symbols placed on the one-line(s). All Parameters must be represented on the one-line unless they are highlighted in **BOLD** (optional) text or approved by BAE Systems. It is acceptable to use additional equipment types, parameters, and symbols not defined to complete the project if needed. Coordinate with BAE Systems if you need to add symbols. All symbols are a part of the Detail Items Family Category, and the parameters are grouped under identity data.

Type	Detail Name (.rfa)	Parameter(s)	Symbol
<b>Automatic/Manual Transfer Switch</b>	B_One-Line Automatic Transfer Switch	B_Equipment Name B_Power Rating (A)	
<b>Bus Bar</b>	B_One-Line Bus_Bar		
<b>Combination Motor Starter (removable disconnect)</b>	B_One-Line Combination Motor Starter	B_Equipment Name B_Size <b>B_Associated Equipment</b>	
<b>Conductive Path</b>	B_One-Line Conductor Line		
<b>Conveyance of Conduit</b>	B_One-Line Grade Text	B_Grade	OH
<b>Feeders</b>	B_One-Line Conductor Text	B_Feeder Size	3(3#400,1#3/0G) 3"C

<p><b>Generator</b></p>	<p>B_One-Line Generator</p>	<p>B_Equipment Name B_Power Rating (KW)</p>	
<p><b>Disconnect Switch (optional Fused)</b></p>	<p>B_One-Line Disconnect Switch</p>	<p>B_Equipment Name B_Size (A) B_Fuse Size (A) *when applicable B_AIC <b>B_Associated Equipment</b></p>	
<p><b>Drawout Circuit Breaker</b></p>	<p>B_One-Line Plugin Circuit Breaker</p>	<p>B_Amperage B_LSIG B_Phases <b>B_SCCR (withstand)</b></p>	
<p><b>Electrical Panel</b></p>	<p>B_One-Line Electrical Panel</p>	<p>B_Equipment Name B_Amperage <b>B_SCCR (withstand)</b></p>	
<p><b>Equipment Text Identifier</b></p>	<p>B_One-Line Equipment Text</p>	<p>B_Equipment Name</p>	<p><b>EQUIPMENT TEXT</b></p>
<p><b>Fixed Circuit Breaker</b></p>	<p>B_One-Line Circuit Breaker</p>	<p>B_Amperage B_# of Phases <b>B_AIC</b> <b>B_SCCR</b></p>	

<b>Level Identifier Line</b>	B_One-Line Floor Identifier Line	B_Associated Level	
<b>Fuse and Switch</b>	B_One-Line Fuse and Switch	B_Amperage Fuse Rating B_Amperage Switch B_# of Phases B_Fuse Type	
<b>Ground Fault Interrupter Circuit Breaker</b>	B_One-Line Ground Fault Interrupter Breaker	B_Equipment Name B_SCCR	
<b>Grounding</b>	B_One-Line Ground	B_Size B_GEC Type	
<b>Junction</b>	B_One-Line Junction Node		
<b>Measurement Device</b>	B_One-Line Meter	B_Equipment Name B_Model Number	Equipment Name Model Number 
<b>Motor</b>	B_One-Line Motor	B_Equipment Name B_SCCR (withstand)	Equipment Name SCCR 

<b>Power Filter</b>	B_One-Line Panel Power Filter	B_Equipment Name B_Associated Equipment	
<b>Scope of Work Box</b>	B_One-Line Scope Box		
<b>Space for Circuit Breaker</b>	B_One-Line Space Circuit Breaker	B_Circuit	<b>SPACE</b>
<b>Surge Protection Device</b>	B_One-Line Surge Protection Device	B_Associated Equipment	
<b>Switchgear</b>	B_One-Line Switchgear Group	B_Equipment Name B_Power Rating (A) B_Voltage & Phase B_Nema Rating <b>B_SCCR (Withstand)</b>	
<b>Transformer</b>	B_One-Line Transformer	B_Equipment Name B_Configuration B_Voltage Ratio B_Size (KVA)	
<b>Variable Frequency Device (removable disconnect)</b>	B_One-Line VFD Variable Frequency Drive	B_Equipment Name B_Associated Equipment B_Voltage B_HP <b>B_SCCR</b>	

<b>Uninterruptible Power Supply</b>		B_Equipment Name B_Size (KVA) B_Voltage <b>B_Associated Equipment</b> <b>B_SCCR (Withstand)</b>	
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### Supplemental Document Information

The following resource documents should be referenced for execution of the standards and guidelines described above.

Document Number	Document Title
B.01	BIM Standard

### Revision Log

Revision	Release Date	Description of Changes
0	04/01/2025	Initial Release