



PROCESS  
INDUSTRY  
PRACTICES

COMPLETE REVISION  
October 2019

**Electrical**

**PIP ELCGL01  
Electrical Design Criteria**

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## PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determination concerning fitness for purpose and particular matters or application of the Practice to a particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

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### **PUBLICATION HISTORY**

November 2002	Issued	October 2019	Complete Revision
December 2007	Complete Revision		
December 2013	Complete Revision		

Not printed with State funds



## PIP ELCGL01 Electrical Design Criteria

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### Data Form

ELCGL01-D – Data Sheet for Electrical  
Design Criteria

## 1. Scope

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This Practice describes the general design requirements and basis of design for electrical systems. This Practice includes requirements for system components and typical configurations.

## 2. References

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Applicable parts of the following Practices, industry codes and standards, and references shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

### 2.1 Process Industry Practices (PIP)

- PIP ELEGL01 - *Overall Electrical One-Line Diagram Guideline*
- PIP ELEGL02 - *Arc Flash Hazard Analysis Guideline*
- PIP ELEHA01 - *Engineering Procedure for Developing Electrical Area Classifications*
- PIP ELEMTO1 - *Guidelines for Selecting IEEE and NEMA Standards for AC Motors 250 HP (185kW) and Larger*
- PIP ELIGD000 - *Grounding Installation Details*
- PIP ELILS000 - *Lighting and Receptacle Installation Details for Class I Division 2, Class II Division 2, and Unclassified Areas*
- PIP ELIMTD00 - *Motor Installation Details for Class I, Division 1 Area*
- PIP ELIMTG00 - *Motor Installation Details for Class I, Division 2; Class II, Division 2; and Unclassified Areas*
- PIP ELIMTN00 - *Motor Installation Details - Nameplate Details*
- PIP ELIMTS00 - *Motor Installation Details - Stand*
- PIP ELIMTT00 - *Motor Installation Details - Motor Termination Detail – 600 Volts*
- PIP ELSAP01 - *Design and Fabrication of Battery Chargers*
- PIP ELSAP04 - *Uninterruptible Power Supply (UPS) System Specification*
- PIP ELSAP11 - *Design and Fabrication of Flood Cell Lead-Acid Batteries*
- PIP ELSAP12 - *Design and Fabrication of Valve-Regulated Lead-Acid Batteries*
- PIP ELSAP20 - *Low-Voltage Automatic Transfer Switches*
- PIP ELSBD01 - *Design and Fabrication of Metal- Enclosed Nonsegregated-Phase Bus Duct Assemblies*
- PIP ELSGS01 - *Design and Fabrication of High-Resistance Grounding System (1000 Volts or Below)*
- PIP ELSGS07 - *Design and Fabrication of High Resistance Grounding System (2.4 kV to 15 kV)*
- PIP ELSGS11 - *Design and Fabrication of Low Resistance Neutral Grounding Resistor 2.4 to 15kV*
- PIP ELSHT01 - *Self-Regulated Electric Heat Trace System Specification*