

Subject: Grounding of Experimental Devices and Electrical Equipment	Effective Date: June 2, 2016	Initiated by: Head, Engineering and Infrastructure
	Supersedes: NEW	Approved: Director

Management System (Primary): 03.00 Engineering
Management System Owner: Head, Engineering and Infrastructure
Management Process: 03.03 System Engineering
Process Owner: Head, Engineering and Infrastructure
Subject Matter Expert (SME): System Engineer for Machine Grounding

APPLICABILITY

This policy applies to all PPPL Laboratory Experimental Devices.

REFERENCE DOCUMENTS

National Electrical Code	Article 250 on Grounding and Bonding
NFPA 70E	Standard for Electrical Safety in the Workplace
DOE-HDBK-1092-2013	DOE Handbook on Electrical Safety
ESHD 5008 Section 2	Electrical Safety Program
P-107	Approval of Electrical Equipment and Electrical Installations
ENG-023	PPPL Electrical Equipment Approval
ENG-032	PPPL Work Planning Procedure
ENG-033	PPPL Design Verification

PURPOSE

This policy and its supporting processes provide assurance that experimental and electrical equipment are installed in a safe manner following the requirements found in the reference documents.

POLICY STATEMENT

It is the policy of PPPL that Laboratory Experimental Devices shall be connected to earth in a manner that will limit the voltage imposed by unintentional contact with electrical equipment, line surges, lightning, etc.. PPPL engineering designs for the grounding and bonding of experimental devices and electrical equipment must meet the intent of Article 250 of the National Electrical Code (NEC), NFPA 70, and the DOE Handbook on Electrical Safety, and as described in PPPL ESHD 5008, Section 2, Electrical Safety Program. Also, the design of grounding schemes on unique and complicated experimental devices must take into account the need to minimize electrical noise on sensitive electronics.

Per PPPL Engineering Procedures, all experimental devices must be installed per an approved Work Plan as described in ENG-032, and in accordance with PPPL design verification policy and safety requirements as described in ENG-033. The PPPL Equipment Grounding System Engineer is the Lab's subject matter expert and an important resource in these design verification processes. A project may require, as part of their work plan, formal approval of all electrical/grounding drawings as well as field inspections of all installations by the Machine Grounding System Engineer. In all cases, the PPPL Electrical Safety Specialist must review all electrical installations and electrical installation procedures as described in ENG-023.

TRAINING REQUIREMENTS (if applicable)

- Head, Electrical Engineering
1. Requires all Electrical Engineers and System Engineers to read this policy.
Target Audience: Electrical Engineers and System Engineers
Instructor: N/A
Training Method:
 Read only
Frequency:
 Once only