



**Standard Operating Procedure for
Public Experimental Electrical Apparatus and Student Projects**

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DOCUMENT REVISION LOG

Document: **Experimental Electrical Apparatus and Student Projects SOP**

Rev. No.	Effective Date	Revision Description	Pages Replaced	Completed by:
0	4/4/14	Initial implementation of SOP as an attachment of Electrical Safety Program	N/A	Larry Crum
1	6/22/21	Updated formatting, performed full review and update with Will Monette (Electrical Inspector) and Salvador Portillo (Research Professor, Electrical Engineering)	Multiple	Zachary Peterson
2	9/9/22	Added JHA and PI to Acronyms section	v	Zachary Peterson
2	9/9/22	Replaced name of Electrical Inspector with title.	2 & 3	Zachary Peterson
2.1	5/9/23	Annual review of SOP. No changes.	N/A	ZP & TD
3	5/23/23	Updated formatting for the signatures, updated formatting of the header and footer, inserted link to the Electrical Safety Program, added a link to the CID page, added link to the FM Inspections group, rephrased the portion for internal and external inspections to add convenience and make it more like a checklist, created subsections of the Project Review & Approval section, updated the phone number for FM Engineering/the Electrical Trades Inspector as the number listed was disconnected, added a link to the FM Engineering specifications for electrical work	All	VG

ACRONYMS & DEFINITIONS

Building Power Connection Point	The point at which the UNM owned and maintained building electrical system ends, and Experimental Electrical Apparatus begins. Further defined, it is the point at which the building power is transferred to the Experimental Electrical Apparatus via a receptacle, disconnect switch, circuit breaker (stand-alone or in a panel), transformer, or another similar device.
EHS	Environmental Health and Safety
Experimental Electrical Apparatus (EEA)	A device or assembly of devices, experimental in nature and requiring electricity to operate. The apparatus may be pre-assembled, purchased, donated, or assembled by college students and their faculty, who by nature of their chosen field of pursuit, have at minimum a basic knowledge of electrical theory and associated safety requirements.
P.I.	Principal Investigator
JHA	Job Hazard Analysis
CID	Construction Industries Division
FM	Facilities Management

TABLE OF CONTENTS

1. Purpose	1
2. Requirements of Experimental Electrical Apparatus	1
2.1. Project Review & Approval	2
2.1.1. Job Hazard Analysis.....	2
2.1.2. JHA Review:.....	2
2.1.3. Department Approval:	2
2.1.4. Final Inspection:	2
2.2. Special Considerations	2
3. FM Engineering Guidelines	3

1. PURPOSE

From time to time, various disciplines create projects as part of their educational requirements that are displayed or otherwise accessible to the public. When these projects utilize electricity, they create a potential safety risk to the public and need to be reviewed and approved prior to exposing the public to them.

The purpose of this SOP is to develop standard guidelines for these projects, as well as outline the review and approval process.

2. REQUIREMENTS OF EXPERIMENTAL ELECTRICAL APPARATUS

The following requirements shall be verified and enforced by the Principal Investigator (PI):

1. Aside from the building power connection point, all Experimental Electrical Apparatus (EEA) should be self-contained, in that once assembled it sits on the floor, table top, stand, rack, or within an enclosure for its specific purpose. The PI should not mount (affix) EEA to floors, walls, ceilings, tables, or any other item or surface that is a permanent fixture of a building owned by UNM. Such mounting is considered a building alternation and will need to be performed by FM in accordance with [UAP 5050: Facility Maintenance, Repair, and Alternation](#).
2. All EEA shall be capable of having all electrical supply power disconnected from the apparatus. All disconnect points must:
 - a. Be within 15 feet proximity of the apparatus,
 - b. Maintain un-restricted access at all times, and
 - c. Be clearly labeled and identified.
3. All EEA shall have appropriate warning signs relevant to all significant hazards visibly displayed.
4. All EEA shall be assembled with the safety of the users and any bystanders as the paramount consideration.
5. Any damaged EEA with exposed hazards shall be removed from service immediately and not re-energized until appropriate repairs are made.
6. Other than industry standard plugs (cord caps), any and all electrical supply circuits, up to and including the Building Power Connection Point, must be inspected and approved by:
 - a. The applicable FM Maintenance Area Manager,
 - b. The [UNM Electrical Inspector](#), and
 - c. The [NM Construction Industries Division \(CID\)](#).
7. Additionally, all installations must be:
 - a. Performed in accordance with the [UNM Electrical Program](#).

2.1. Project Review & Approval

The following is a list of requirements, relative to the use of electrical power that must be met prior to public interface:

2.1.1. Job Hazard Analysis

The PI (or Faculty Advisor) shall complete a job hazard analysis (JHA) that identifies all potential hazards and controls implemented to eliminate those hazards.

2.1.2. JHA Review:

The PI (or Faculty Advisor) shall send the completed JHA form to:

1. The Dean of the appropriate college
2. UNM Environmental Health & Safety
3. UNM Electrical Inspector

2.1.3. Department Approval:

Upon review of the JHA, the Dean shall provide final approval of the project in writing.

2.1.4. Final Inspection:

After approval, and prior to public display, The PI (or Faculty Advisor) shall perform a field inspection verifying the following are in place:

1. Warning labels
2. Demarcation and barriers of live components
3. Written Standard Operating Procedure
4. Completed Job Hazard Analysis
5. Training and sign-off of all personnel working on or around the system
6. Emergency response procedures

2.2. Special Considerations

Any project that utilizes building electrical energy must be inspected by the UNM Electrical Inspector prior to being accessible to the public. The office of the UNM Electrical Inspector is at the UNM Service Building. The Inspector can be contacted:

1. By calling 505-321-5627, or
2. Bu [submitting an Inspection Request](#) via the FM Workorder System.

This request should come in at least a week before the EEA is launched.

Projects utilizing line voltage (required to be plugged in) must be wired in a manner that is appropriate to the operating conditions (indoor, outdoor, extreme temperatures, steam, proximity to water, etc.).

Standard consumer electrical items must be rated for the environment in which they will operate. Any electrical components that require termination points to building power must be wired by a New Mexico Licensed Electrician with a valid New Mexico Journeyman Wireman License (NO Exceptions). The electrician must be available (with their license) at the time of inspection.

Additional considerations will be given to the following:

1. Wiring methods and workmanship,
2. The structural integrity of the overall project,
3. The safety of the public, esp. if the project is interactive, and
4. The ability of the project to function in the environment it is intended to be displayed in.

3. FM ENGINEERING GUIDELINES

More requirements for all Contractors and UNM Personnel doing electrical work at the University can be found via the [Electrical Specifications for Contractors](#) put out by FM Engineering.












EEA and Projects SOP R3

Final Audit Report

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