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1. Introduction

The standard operating procedure (SOP) for electrical equipment certification was developed by the Department of Environmental Health & Safety in accordance with the University's Policy Statement on Health and Safety and to ensure compliance with the Ontario Occupational Health & Safety Act and Regulations, as well as other applicable codes and standards.

The purpose of this SOP is to outline criteria for the purchase, installation, and inspection of electrical equipment and appliances.

2. Applicable Legislation

- Occupational Health and Safety Act
- Ontario (Canadian) Electrical Safety Code
- CSA International (Canadian Standards Association)
- National Electric Code
- Electricity Act, 1998

3. Scope

This SOP applies throughout the University and for off-site activities performed by University personnel. The SOP requires that all electrical equipment and appliances currently in use at the university or purchased by, loaned to, demonstrated to, fabricated or modified by, or otherwise obtained by the University shall be suitable for its use and certified by a recognized certification agency.

4. Responsibilities

4.1 Department of Environmental Health and Safety

Responsibilities of the Department of Environmental Health & Safety (EHS) will include the following:

- Ensure that each department is aware of this SOP.
- Review this SOP periodically and amend as necessary.
- Serve as a resource to departments which require assistance obtaining approvals.



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4.2 Directors, Department Heads, Managers and Supervisors/Principal Investigators

Each has the following responsibilities under this SOP:

- Ensure that pertinent supervisors and employees are notified of their responsibilities outlined in this SOP.
- Ensure that all equipment in the department/unit meets the certification requirements.
- Ensure immediate modifications, maintenance, repair or replacement of any malfunctioning electrical equipment is undertaken.
- Ensure that all personnel who purchase equipment are aware of the requirements outlined in this Standard Operating Procedure.
- Ensure that an internal electrical equipment certification inspection is conducted in the department.
- Ensure that any uncertified electrical equipment found during electrical equipment certification inspections is inspected and certified by a recognized certification agency.

4.3 Departmental Safety Officer

Departmental Safety Officers shall:

- Assist their department in raising awareness about the requirements of this SOP and the responsibilities that supervisors as principal investigators have under this SOP.
- Assist in the establishment of department-specific policies as necessary.

5. Definitions

CSA: Canadian Standards Association.

ESA: Electrical Safety Authority.

GFCI: Ground fault circuit interrupter; protects against electrical leakage shocks.

Qualified Electrician: a person who, because of knowledge, training and experience, is licensed and otherwise qualified to perform safely and properly a specified job.



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6. Purchase and Installation Requirements

All electrical products sold, displayed or connected to a source of power must be approved by a recognized certification agency in Ontario.

When purchasing new equipment, ensure the equipment supplier is aware of the requirement for approvals acceptable to the ESA of Ontario.

Electrical products which have been imported from abroad are likely to require approval. Do not use this equipment until it receives the approval of one of the testing services acceptable to the ESA.

7. Internal Electrical Equipment Certification Inspection

Electrical equipment certification inspections shall be conducted annually to ensure that all equipment in the department meets compliance with current Ontario legislation, and has been certified by a recognized certification agency. Equipment which has been approved will have one of the following labels from an accredited certification organization.

The labels shown below are found on approved equipment, usually near the power cord. The labels indicate that the equipment has been inspected, conforms to electrical safety standards and presents no undue hazard to persons or property.



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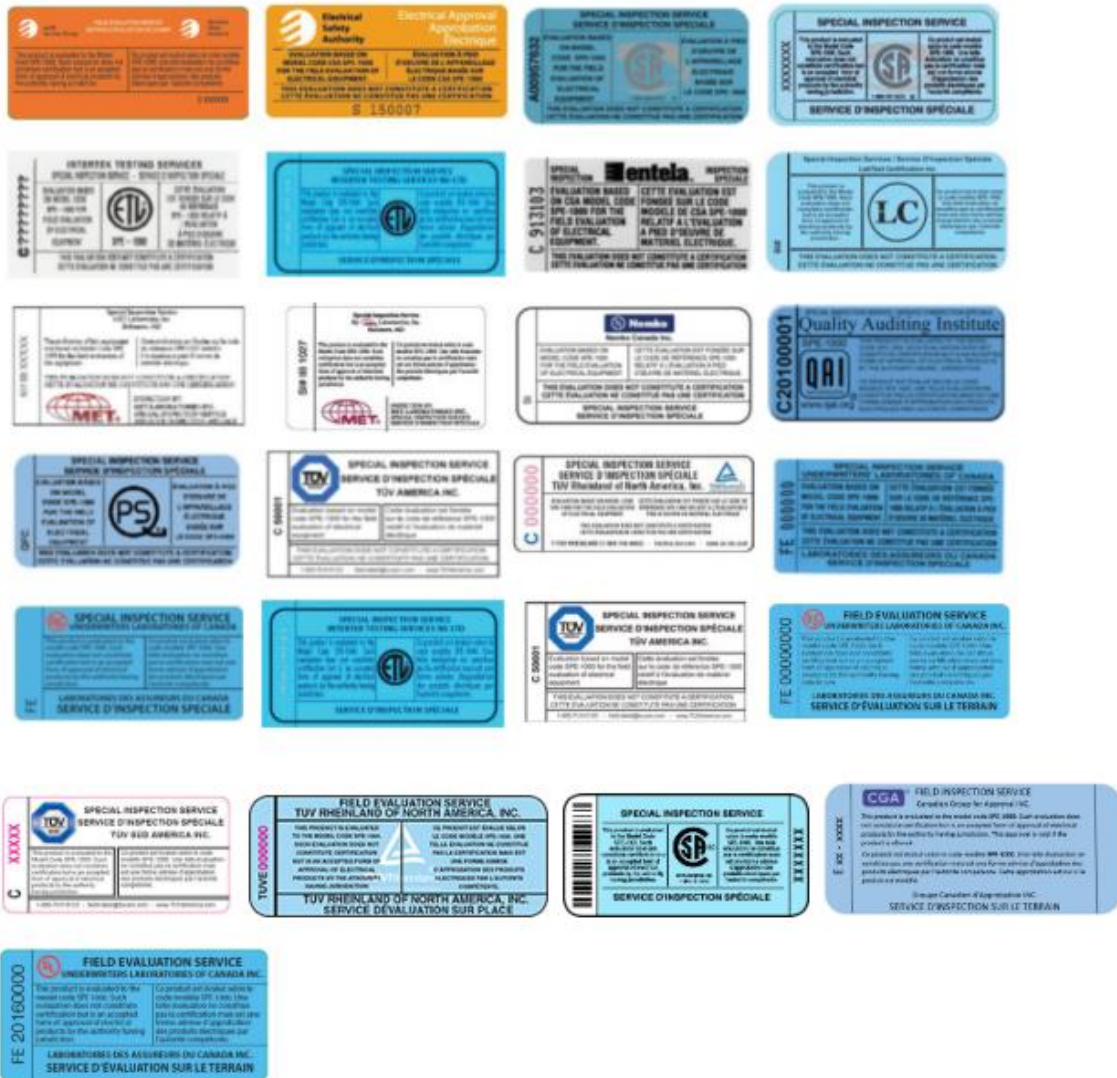
Recognized Certification Markings:





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Recognized Field Evaluation Agency Markings



Recognized Panel-Only* Field Evaluation Agency Markings





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*Note: "PANEL ONLY" label identifies that the panel has been evaluated to the SPE-1000. It does not cover equipment that is added or connected to the panel.

Recognized Field Evaluation Agency Marking for SPE-3000



Component Certification Markings that are not Recognized on Complete End-use Products



Note: Electrical components bearing these marks may have restrictions on their performance, or may be incomplete in construction, and are intended to be used as part of a larger approved product or system. The Component Recognition marking is found on a wide range of products, including some switches, power supplies, printed wiring boards, some kinds of industrial control equipment and thousands of other products.

Electrical products that do not bear the label of a recognized certification organization may be unsafe and could pose serious electrical shock and/or fire hazards. If any electrical equipment is found during the Internal Electrical Safety Inspection which does not have one of the above marking of an accredited certification agency, it is not in compliance with current Ontario legislation, and must be removed from service until approved by an accredited agency.

8. Direction for Obtaining Approval

Electrical equipment can only be inspected by approved agencies that have been accredited by the Standards Council of Canada to approve electrical equipment. To submit an inspection application, please contact one of the following accredited agencies:

Canadian Standards Association (CSA)
1-866-797-4272
<http://www.csagroup.org>

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Electrical Safety Authority Field Evaluation (ESAFE)
1-800-559-5356
www.esafieldevaluation.ca

Intertek Testing Services
<http://www.intertek.com>
1-978-929-2100

Met Laboratories Inc. (MET)
<http://www.metlabs.com>
1-410-949-1833

Nemko
<http://nemko.com/>

QPS
<http://www.qps.ca/>
1-877-746-4777

TUV America
<http://www.tuvam.com/>
1-800-888-0123

TUV Rheinland
<http://www.tuv.com>
1-888-743-4652

Underwriters Laboratories of Canada (ULC)
<https://canada.ul.com/>
1-866-937-3852

A complete list of recognized certification agencies can be found on the [Electrical Safety Authority](#) or [Standards Council of Canada](#) website.

The process of obtaining approval for electrical equipment is as follows:

Once an application for inspection has been received, an inspector will arrange a time and date for inspection. At the time of the inspection, if the equipment meets the requirements of the standard, the inspector will immediately label the equipment and provide a certification certificate.



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Alternatively, if the equipment does not meet the requirements of the standard, the inspector will issue a “Notice of Alteration” outlining repairs which are required to meet the standard. After the equipment has been repaired, the inspector will re-inspect, and if the equipment meets the requirements of the standard, the inspector will label the equipment and provide a certification certificate.

9. Student Projects

Projects which are designed by students at Queen’s University for the explicit purpose of obtaining a mark, and dismantled immediately afterward, shall be exempt from obtaining approval from the Electrical Safety Authority. The following criteria must be met and documented:

1. A schematic of the wiring of the equipment must be provided.
2. The device and the schematic are examined by a Supervisor to ensure wiring safety.
3. Prior to plugging in the device, access to the area must be controlled by some means.
4. Ground Fault Circuit Interrupters (GFCI) are installed on electrical source which will be used to energize the device.
5. The Supervisor has a current First Aid/CPR certification.

10. Research Equipment

Research equipment that is fabricated for, or modified for, research purposes, must be inspected and certified by a recognized certification agency before it is connected to a power source.

Any equipment which requires hard-wiring must be installed by Physical Plant Services.

Revision History:

- March 2006 – Initial Release
- December 2008 – Revision 1.0 – Updated electrical certification markings
- February 2016 – Revision 2.0 – Updated electrical certification markings
- March 2019 – Revision 3.0 – Updated electrical certification markings
- October 2019 – Revision 4.0 – Updated electrical certification markings
- February 2020 – Revision 5.0 – Updated electrical certification markings