

# Occupational Health & Safety

## Electrical Safety Advisory

### Electrical Installations and Approvals

#### Objective:

This document is intended to provide Faculty and Staff with the basic electrical safety information to minimize the risk of a fire and/or personal harm while operating electrical equipment on campus.

#### Concern:

Installation concerns continue to be identified with electrical equipment and improper installations during the course of our internal inspection program. These concerns include:

- Equipment which has been incorrectly wired, and which has not been inspected by the Electrical Safety Authority (ESA), representing either a shock or fire hazard
- Use of equipment which is not approved or certified as required by the ESA
- Frayed or damaged power cords
  - o Where the exterior insulation has cracked, exposing the wires inside
- Use of extension power cords which are inappropriately sized for the application. This is either based on the amperage rating requirements for the equipment, or the type of application
  - o This can also be compounded by the use of non-CSA approved materials
- Prolonged use of extension power cords in lieu of proper permanent electrical distribution connections
- Overloading of circuits
  - o Ie. Plugging a power bar into another power bar for additional connections
    - Note that this is not permitted on Campus

#### Required Electrical Safety Guidelines:

Each installation concern mentioned above is in direct violation of the Electrical Safety Code and represents potentially hazardous situations which may put you or fellow Western personnel in danger. Below are practices that we encourage you to follow:

- Be familiar with the electrical hazards associated within your workplace
- Refrain from using extension power cords as much as possible
  - o If required, use only on a temporary basis (Ie. No longer than 3 months). Do not use in place of a permanent connection
  - o If damaged due to fraying, exposed wiring or heat, they must be replaced
  - o Do not run electrical power cords above ceiling tiles or through walls
  - o Do not run electrical power cords under carpet or other types of flooring
  - o Keep electrical power cords away from areas where they might be pinched (Ie. Doorways)
  - o Keep electrical power cords out of areas that may pose a tripping or fire hazard (Ie. Doorways, hallways, etc.)
- Inspect power bars on a regular basis and repair or replace damaged power bars as required
  - o Never plug a power bar into another power bar
    - If your workplace requires additional power supply in your work area, contact Facilities Management
  - o Avoid plugging more than one large appliance in to each outlet. If multiple smaller appliances are necessary, use an approved power bar for the application if required

- Refer to the following link for a sample list of common appliances power usage;  
<https://www.burlingtonhydro.com/powertoconserve/residential/appliance-usage.html>
  - Note that on a standard 15 Amp 120 Volt duplex receptacle, the maximum capacity is 1800 Watts (Ex. An electric kettle may require approximately 1500 Watts to operate)
  - If you are unsure of your requirements, contact Facilities Management
- Do not remove the prongs of an electrical plug. If plug prongs are missing, loose or bent, replace the entire plug
  - This includes using an adapter or extension power cord to circumvent a standard grounding device
    - The Facilities Management Electrical Shop, at your request, can assist with repairs, alterations, installation of receptacles, etc. that adhere to ESA standards and requirements for a nominal charge
- Only qualified persons should install cords on equipment.
  - Contact the Facilities Management Electrical Shop for assistance
- Use only CSA or equivalent approved components
  - Refer to the following link for the Recognized Certification Markings; <https://esasafe.com/electrical-products/recognized-certification-marks/>
  - This includes the purchase and installation of new equipment
    - If required, have the equipment properly field inspected and approved by ESA. Contact ESAFE or an equivalent inspector for further information
  - Facilities Management can be called on to conduct a preliminary review of the equipment and installation prior to setting up for an inspection. They can also assist you with the arrangements if required. Note that this may be at a nominal charge which can be provided to you prior to proceeding
- If the use of high voltage (Greater than 750 V) is required, contact Facilities Management at 519-661-3304 for assistance in design and installation
- Any modifications of the electrical installations in a facility, such as the addition of receptacles, must be coordinated by Facilities Management.

To ensure all electrical equipment has the appropriate certification or approvals, the following steps must be taken:

- When purchasing new equipment, ensure that the equipment supplier is aware of the requirement for approvals acceptable to ESA. This should be stated on the purchase order. Contact purchasing if you receive the equipment without acceptable approvals (Click on the ESA below). Do not use this equipment until it receives an ESA or equivalent approval
- To identify existing electrical equipment which is not approved, an inventory should be conducted and each piece checked for the acceptable certifications or field approval mark
  - Those pieces of equipment which do not have an appropriate approval need to be clearly identified. Some of this equipment may be identified as surplus and disposed of appropriately (Equipment donated to other institutions must be certified). For the unapproved equipment that is kept, a plan should be developed appropriate to your area to have it inspected by an approved ESA inspector

#### **Support Links:**

ESA Home Page; <https://esasafe.com>

ESA – Recognized Certification Markings; <https://esasafe.com/electrical-products/recognized-certification-marks/>

ESA – Electrical Safety Tips; <https://esasafe.com/safety/home-electrical-safety/back-to-school/>

ESA – Don't Work on Energized Equipment; <https://esasafe.com/safety/occupational-safety/don%E2%80%99t-work-with-energized-equipment/>

Appliance Usage Chart - <https://www.burlingtonhydro.com/powertoconserve/residential/appliance-usage.html>

If you have any further concerns from a health and safety perspective, contact [hsw@uwo.ca](mailto:hsw@uwo.ca)

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