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Hazards due to misuse of extension cords

The misuse of extension cords has contributed to increasing reports of electrical fires and fatalities in Ontario.

The Electrical Safety Authority (ESA) warns consumers to use extension cords safely - follow these important rules. Only use extension cords:

- *That are rated for the particular task:*
Select the appropriate cord for the application. Not all cords are created equal, some are designed for exterior use, others for interior use only, some for hard usage in wet locations, others not.
- *For temporary installations:*
Flexible extension cords must never take the place of permanent wiring; they are not designed or intended for permanent installations. Once the task has been completed, the cord should always be disconnected and properly stored away for future use.
- *For portable electrical equipment:*
Always follow the manufacturer's instructions. For example, follow the manufacturer's installation regarding the number of Christmas tree or decorative lighting strings that can be connected to the cord.

Failure to use and maintain extension cords in the manner they were intended may create a fire or shock hazard that puts you or your family at risk.

Safe use of Extension Cords

ESA encourages consumers to ask the following questions before using an extension cord:

1. Will I use the cord indoors or outdoors?
2. What is the total current or wattage rating of the appliances I'll use with the cord?
3. How far is the nearest outlet from where I'll be working?

1. Will I use the cord indoors or outdoors?

The first step in determining which extension cord you will need is to decide whether you will be using the appliance indoors or outdoors. Extension cords that can be used outdoors will be clearly marked "Suitable for Use with Outdoor Appliances." Never use an indoor extension cord outdoors; it could result in an electric shock or fire hazard. If you are working outdoors purchase an outdoor rated extension cord – it's a small price to pay for safety.

The Ontario Electrical Safety Code (OESC) requires all outdoor receptacles on residential properties within 2.5 m of grade to be protected by a ground fault circuit interrupter (GFCI). If the outdoor receptacle is not GFCI protected, please ensure that all plug-in electrical equipment used outdoors has GFCI protection, or is connected to a GFCI protected cord (see Figure F1); your life may depend on it.

Figure F1 – Outdoor GFCI cord and receptacle



2. What is the total current or wattage rating of the appliances I'll use with the cord?

Extension cords are labelled with valuable information as to the use, size, current and wattage rating of the cord. Cords are offered in many lengths and are marked with a size or "gauge". The gauge is based on the American Wire Gauge (AWG) System, in which the larger the wire, the smaller the AWG number. For example, a 14 gauge wire would be larger and could power larger wattage appliances than a 16 gauge wire.

If you don't have a properly rated cord, purchase a new extension cord – it's a small price to pay for safety.

3. How far is the nearest outlet from where I'll be working?

To determine what size -- or gauge -- cord you will need, you will also have to determine how long you need the cord to be. A cord, based on its gauge, can power an appliance of a certain wattage only at specific distances. As the cord gets longer, the current carrying capacity of the cord gets lower. For example, a 16 gauge extension cord less than 50 ft in length can power a 1625 watt (W) appliance. A 16 gauge cord that is longer than 50 ft in length can only power an appliance up to 1250 W. If you are going to use the extension cord with two or more appliances, you must add together the wattage rating for all appliances used on the cord to determine the gauge size you will need.

Power Bars

Power bars, not unlike extension cords, are also widely misused. The safety steps listed above are also required to determine if the power bar is suitable for your intended application. ESA recommends that you purchase power bars with a minimum 14 gauge copper conductor to ensure a higher level of safety. The practice of daisy chaining power bars is not recommended by ESA.