

## GFCIs and Assured Grounding Program

### Introduction

Section 19.15(1) of the Occupational Health and Safety Regulation states: “When used outdoors or in a wet or damp location, portable electrical equipment, including temporary lighting, must be protected by an approved ground fault circuit interrupter of the class A type installed at the receptacle or on the circuit at the panel, unless another acceptable means of protection is provided.”

The “portable electrical equipment” referred to in Section 19.15(1) includes extension cords and power tools that are used on 120 volt systems at 20 amps or less and are not hard-wired to a permanent electrical system.

This bulletin outlines good work practices for the efficient use of ground fault circuit interrupters (GFCIs) and describes an Assured Grounding Program, which is an alternative to using GFCIs. A worksite with contractors or subcontractors may have a combination of the Assured Grounding Program and GFCIs.

### Ground Fault Circuit Interrupters (GFCIs)

A GFCI is a device that detects any leakage current in an electrical circuit and trips (turns off) the circuit whenever the leakage current is greater than 5 mA.

Three types of GFCIs can be used at worksites:

1. A **GFCI receptacle** can be used in place of a standard receptacle.
2. A **portable GFCI**, when plugged into a standard receptacle, converts a standard receptacle into a GFCI receptacle.
3. A **GFCI circuit breaker** combines leakage current detection with the function of a circuit breaker.

To prevent nuisance tripping of GFCIs, the following good work practices are recommended:

- Mount GFCI receptacles and GFCI circuit breakers in dry locations; if this is not possible, use portable GFCIs rated rainproof.
- Connect only one power tool to each GFCI.
- Cover power tools to protect them from the rain when they are not in use.
- Store power tools and extension cords in a dry location.
- Maintain extension cords and power tools in good condition.
- Use extension cords that are rated for hard usage or better.
- Do not use extension cords longer than 45 metres (150 feet).



## Assured Grounding Program

An Assured Grounding Program may be used as an alternative to GFCIs to meet the requirements of Section 19.15(1) of the Regulation. The purpose of this program is to ensure that the black wires (hot), white wires (neutral), and, in particular, green wires (ground) of extension cords and power tool cords are properly connected. This is done by testing every extension cord and power tool when it is first put into service, following repairs, and every three months.

An Assured Grounding Program contains four parts:

### 1. Worker training

All workers using extension cords and power tools under an Assured Grounding Program must be trained on the program.

### 2. Daily visual inspection

Extension cords and power tools must be checked daily for damage by the persons who will be using them. Any damage found must be repaired before the cord or tool is used. Damaged extension cords and power cords of tools must not be spliced. The cords can either be replaced or shortened to remove the damaged portion.

### 3. Continuity and polarity testing every three months

A qualified worker must test every extension cord and power tool for circuit continuity and correct polarity before they are used for the first time, following repairs, and during the months of January, April, July, and October. A qualified worker is a person who has been authorized by a supervisor to perform the task and who has received appropriate training.

### 4. Colour-coding extension cords and power tools

Extension cords and power tools that have been tested must be tagged with a coloured band about 10 centimetres (4 inches) from the male plug. Coloured electrical tape is suitable for this purpose. A different colour is required for each quarter of the year (see box below). These colours are standard for all worksites using an Assured Grounding Program in British Columbia.

Red	January, February, March
White	April, May, June
Blue	July, August, September
Green	October, November, December

As an example, a new extension cord tested on February 8 will have a red tag at the male plug. The extension cord must be retested and marked with a white tag during April.

## For more information

To find out more about GFCIs or the Assured Grounding Program, call:

- Your local WCB office
- WCB Prevention Information Line:  
604 276-3100 in the Lower Mainland or  
toll-free in B.C. at 1 888 621-7233