



## **Guidelines for Inspection of Portable Wiring and Equipment**

Idaho Division of Building Safety January 2016

When inspecting portable wiring and equipment for carnivals, circuses, fairs, and similar functions the state of Idaho will examine that portion of the portable structures as listed below in accordance with article 525 of the National Electric Code (NEC).

1. Lights requiring assembly and disassembly when the structure has been relocated. This includes portable lights that sit on the ground or are attached and detached each time the amusement itself is relocated.
2. Temporary wiring methods, disconnects, receptacles, equipment and lights in concessions, games and what are commonly known as "joints."
3. All portable wiring up to and including the portable structure disconnect. This includes the operator disconnect and/or the remote disconnect operation and wiring methods associated with it.
4. Wiring and Equipment that is portable and a permanent part of the portable structure will also be inspected. To be clear, if it must be terminated or reconnected following relocation, we will inspect it.

Because fairs and carnivals spend only a short time in DBS jurisdictions, we will not inspect for normal wear and tear incurred in the assembly and disassembly of equipment. We will also not be inspecting routine maintenance type items that can be corrected by fair or carnival maintenance personnel. Following are some examples of what will not be part of a DBS on-site inspection:

1. Motor connections.
2. Permanent non-portable wiring on portable structures that was installed at the time of manufacture.
3. Cord grip bushings on permanent wiring for portable structures that were installed at the time of manufacture.
4. Lights on portable structures that were installed at the time of manufacture.

Other inspection items to consider:

Article 680 will apply to attractions that utilize water and have electricity as an inherent part of the attraction. An example would be the children's motor driven boat rides.

Many fairs and carnivals have utilized multi-conductor **SO** type cords with “cam-loks” intended for use with single conductors. Use of a single pole connector with multi-conductor cable creates a situation that exposes conductor insulation. The NEC does not address the use of multi-conductor cable with single pole connectors. The State of Idaho will therefore allow the use of multi-conductor cable with single pole connectors with the following provisions:

1. 530.22(3) shall apply.
2. A listed heavy duty break-out boot must be installed.
3. Heavy wall heat-shrink must be placed over the recovered leg of the break out boot of each conductor; it shall run the length of the conductor and be recovered in a way that exposes no conductor insulation.



Example of “cam-lok” used with multi-conductor cable with exposed insulation. No protective jacket exists.



Example of heat shrink heavy duty break out boots.



Example of Heavy-Wall heat shrink cable sleeves.