



ELECTRICAL INSPECTION BULLETIN (Effective 2005-06-02)

Rule 2-300

Electrical Equipment Exposed to Water Damage

Electrical equipment may be exposed to water damage through flooding, hurricanes, fire fighting or other natural disasters. When submerged or exposed to water the integrity of electrical insulation can be compromised by moisture, metals can rust, trip units in some moulded case circuit breakers can be impaired, and damaged filler material in fuses can degrade their insulation and interruption capabilities. Not only electrical distribution equipment, but motor circuits, power equipment, transformers, wire, cable, flexible cord, ground fault circuit interrupters, arc fault circuit breakers and other electronic devices can all be affected.

The following provides guidelines related to water damage equipment.

Equipment

It is recommended that all electrical components and equipment below the flood line be replaced, with the possible exception of submersible pumps and cables suitable for direct burial or wet locations. In limited situations, some equipment may be reconditioned, however for common household loads like electric furnaces, electric baseboard heaters, ceiling fans, lamp fixtures, etc all should be replaced. The result of water damage does not always occur right away. It may cause a problem or a situation later on that may result in a potential injury, shock or fire hazard. Water damage to electrical equipment will result in many opinions as to what should be done, the easiest motto to remember is **when in doubt -- throw it out**. Below is a general guide of different electrical equipment products and the recommended actions for both flood & hydrant water damage.

Wire, Cables and Flexible Cords

When any wire or cable product is exposed to water, the metallic component is subject to corrosion that can damage the component itself and/or cause termination failures. Failures can result in fire and shock hazards.

In the case of water damage from floods, the manufacturer should be consulted before any decision is made to continue using any wire or cable products. The cable may not only be subjected to water and moisture but to other contaminants such as oil, gasoline or corrosive liquids. In most cases the wire or cable requires replacement.

For hydrant water damage any wire that is approved for dry locations should be completely replaced, also any cable that contains fillers, such as polypropylene, paper, etc., should be replaced if the ends of the product have been exposed to water. Items that may be reconditioned include any wire or cable that is suitable for wet locations and whose ends have not been exposed to water. A qualified person should make the determination of the product's suitability for wet locations.

Wire and cable that do not contain fibres which are approved for wet locations and whose ends have been exposed to water may be considered for purging (using an inert gas under pressure to remove water contained in the product) under engineering supervision.

All conductors and cables shall be meggered to confirm the insulation integrity is intact. Replace where failure is present. Replace all wire nuts at all wire connections. The conductor splices are to be taken apart, cleaned and rejoined.

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