

Water Contact On Electric by Finn Home Inspectors

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Data Bulletin

Water Damaged Electrical Distribution and Control Equipment

Class 0110

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Background

Flooding and other disasters prompt many questions about water damaged electrical equipment. Can the equipment be dried out? Is the circuit breaker still okay to use? Can the switchboard be re-energized?

Considering these and other questions, it's most important to remember that, in many cases, the water that has been in contact with the equipment has been contaminated with sewage, chemicals, or other substances that can negatively affect the electrical equipment's integrity.

The answers are not always simple, but this data bulletin is intended to provide some guidelines to help answer these and other questions related to water damaged electrical equipment.

Wet Electrical Equipment

Consider the following information when assessing wet electrical equipment.

- Electrical equipment that has been submerged or has come in contact with water must be replaced. There are exceptions to this rule for larger equipment (see "Reconditioning of Larger Equipment" on page 2).
- Attempting to dry out the equipment in many cases leaves portions of the current-carrying parts with damp or wet surfaces. These surfaces may be in contact with insulators or other materials that prevent them from being properly dried out and cleaned of debris.
- Residual debris or wet surfaces may result in a loss of dielectric spacing within the equipment, and could present a hazard upon re-energization.
- Molded case circuit breakers should never be re-energized if they have been subjected to or immersed in water. It is likely that wet or damp surfaces and foreign debris remain inside the circuit breaker housing.
- New equipment is built at the factory by trained personnel based on strict design guidelines. Non-trained personnel should not attempt to disassemble and reassemble equipment. This may result in improper assembly and could create a hazard upon re-energization.
- Equipment that must be replaced in its entirety is listed below:
 - — Miniature and molded case circuit breakers
 - — Molded case switches
 - — Multi-metering equipment
 - — Safety switches (AC and DC switches)
 - — Load centers or panelboard interiors and other components (see exceptions under "Equipment with Field Replaceable Interior Components" on page 2)
 - — Dry-type transformers
 - — Busway—mylar wrapped bars
 - — Solid state components
 - — Programmable logic controllers
 - — Fuses
 - — Electro-mechanical relays, contactors, starters, push buttons, limit switches, and other input logic and output controls
 - — Solid state motor starters
 - — Adjustable speed drives
 - — Motor control center components

Non-Submerged Equipment in Flooded Areas

Equipment in this situation should be inspected carefully by a qualified person to determine whether moisture has entered the enclosure. If any signs of moisture or damage exist, the equipment should be replaced or repaired, as previously described.

Other Considerations

Consideration must be given to other components in the electrical system such as conductors, connected utilization equipment, connections in junction boxes, etc.

Summary

In general, water damaged equipment must be replaced. It is important to the entire electrical system that distribution and control equipment function properly. Equipment or components that have been replaced due to water damage should be destroyed; they should not be reused in another application.

The Square D® Customer Information Center can answer any questions you have about water damaged equipment. In addition, the CIC offers a variety of services, including inspecting, testing, and reconditioning of electrical equipment. Contact the CIC or your local Schneider Electric/Square D representative by calling 1-888-SquareD (1-888-778-2733).



Bottom Line

If a breaker has contact with water, moisture, vapors from chemicals or high humidity it needs to be replaced. This is because the breakers are not hermetically sealed, thus moisture/vapors can get inside causing undetectable damage. The damage can lead to failure of the breaker, that can lead to electrocution and fires.