





# Electrical Distribution System

Visual Observations	Equipment	Definition	Observations
	Cables and Bus	Distributes electrical power throughout a building, connecting various components of an electrical distribution system.	<ul style="list-style-type: none"> <li>No sharp bends</li> <li>No physical damage</li> <li>No signs of heat</li> <li>No temporary wiring</li> <li>Free of moisture and oil</li> </ul>
	Switchgear	Combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to deenergize equipment to allow work to be done and to clear faults downstream.	<ul style="list-style-type: none"> <li>Covers in place</li> <li>Labeled</li> <li>Accessible</li> <li>No signs of water</li> <li>Vent openings clear</li> </ul>
	Circuit Breakers	Controlling power to a circuit as well as providing protection to equipment in that circuit by interrupting fault conditions.	<ul style="list-style-type: none"> <li>Enclosed</li> <li>Labeled</li> <li>Accessible</li> <li>No physical damage</li> <li>No signs of heat</li> <li>No signs of distress</li> <li>No missing knockouts</li> </ul>
	Transformers	Device that transfers electric energy from one alternating current circuit to one or more other circuits, either increasing (stepping up) or reducing (stepping down) the voltage.	<ul style="list-style-type: none"> <li>Open and accessible</li> <li>No dirt accumulations</li> <li>No physical damage</li> <li>No signs of overheating</li> <li>No leakage (oil filled)</li> <li>Adequately protected</li> </ul>

## Operation and Maintenance

Read and follow all manufacturers' guidelines and instructions for periodic service, maintenance and inspection of equipment and systems.

**Caution—Always de-energize electrical equipment before testing, cleaning or performing maintenance.**

## Keep It \_\_\_\_\_

COOL	All vent and air circulation openings must be clear and operational. Installed filters should be cleaned or replaced. It is important to prevent excessive heat buildup in electrical enclosures and equipment rooms.
CLEAN	Dust and/or dirt accumulations should be removed from the equipment and surroundings. Space in switchrooms and switchgear enclosures should not be used for storing tools, supplies, or other material.
DRY	Precaution should be taken to prevent steam, chemicals, moisture, or condensation from entering electrical enclosures.
TIGHT	Clean and tighten all loose parts and replace any that are worn. Equipment should be manually exercised to establish that moving parts do not bind and are free to operate.

## Electrical Testing

Testing frequency guidelines should be tempered by the size of the equipment, the location of the equipment, the frequency of operation, and the criticality it represents.

Equipment	Testing	Frequency
Cables and Bus	Infrared Thermography	Annually
	Visual Inspect/Clean/Adjust	3 Years
Switchgear	Infrared Thermography	Annually
	Visual Inspect/Clean/Adjust	3 Years
	Contact Resistance Test	3 Years
Circuit Breakers	Infrared Thermography	Annually
	Visual Inspect/Clean/Adjust	3 Years
	Contact Resistance, Breaker Trip, Relay Calibration	3 Years
Transformers	Infrared Thermography	Annually
	Visual Inspect	Annually
	Power Factor, Turns Ratio	5 Years
<i>In addition:</i>		
Dry-Type	Insulation Resistance Test	3 Years
Power & Distribution	Dissolved Gas Analysis, Oil Screen Tests	Yearly

For a more detailed description on electrical maintenance and testing, consult HSB Recommended Practice for Electrical Preventive Maintenance.

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