

**(D) Written Record.** A written record shall be kept of such tests and maintenance.

**(E) Testing Under Load.** Means for testing all emergency lighting and power systems during maximum anticipated load conditions shall be provided.

Informational Note: See NFPA 110-2019, *Standard for Emergency and Standby Power Systems*, for information on testing and maintenance of emergency power supply systems (EPSSs).

Emergency system testing can be divided into two general categories — acceptance testing and operational testing. Section 700.3 requires both types of testing as well as written records of testing and maintenance.

Acceptance testing is performed after the emergency system has been installed but before the system is placed into service. Acceptance testing ensures that the emergency system meets the original installation specification.

Operational testing ensures that the emergency system remains functional. Generally, actual emergency system loads are smaller than the design capacity of the emergency generator system.

Visual inspections are an important aspect of routine maintenance. For lead-acid batteries, it is important that electrolyte levels be maintained. Transparent cases for lead-acid batteries allow easy viewing of electrolyte levels. Terminals should be inspected for signs of corrosion, even on batteries that are labeled maintenance free.

Further information on tests and maintenance can be found in NFPA 70B, *Recommended Practice for Electrical Equipment Maintenance*; NFPA 99, *Health Care Facilities Code*; NFPA 101, *Life Safety Code*; NFPA 110, *Standard for Emergency and Standby Power Systems*; and NFPA 111, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*.

**Δ (F) Temporary Source of Power for Maintenance or Repair of the Alternate Source of Power.** If the emergency system relies on a single alternate source of power, which will be disabled for maintenance or repair, the emergency system shall include permanent switching means to connect a portable or temporary alternate source of power that shall be available for the duration of the maintenance or repair. The permanent switching means to connect a portable or temporary alternate source of power shall comply with the following:

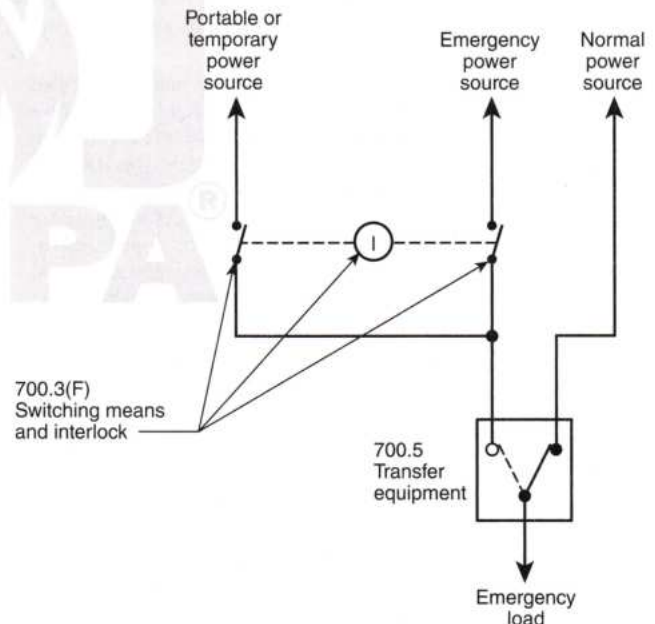
- (1) Connection to the portable or temporary alternate source of power shall not require modification of the permanent system wiring.
- (2) Transfer of power between the normal power source and the emergency power source shall be in accordance with 700.12.
- (3) The connection point for the portable or temporary alternate source shall be marked with the phase rotation and system bonding requirements.
- (4) The switching means, including the interlocks, shall be listed and provided with mechanical or mechanical and

electrical interlocking to prevent inadvertent interconnection of power sources.

- (5) The switching means shall include a contact point that shall annunciate at a location remote from the generator or at another facility monitoring system to indicate that the permanent emergency source is disconnected from the emergency system.
- (6) The permanent connection point for the temporary generator shall be located outdoors and shall not have cables from the connection point to the temporary generator routed through exterior windows, doors, or similar openings.
- (7) A permanent label shall be field applied at the permanent connection point to identify the system voltage, maximum amperage, short-circuit current rating of the load side of equipment supplied, and ungrounded conductor identification in accordance with 210.5.

It shall be permissible to use manual switching to switch from the permanent source of power to the portable or temporary alternate source of power and to use the switching means for connection of a load bank.

Informational Note: See Informational Note Figure 700.3(F) for one example of many possible methods to achieve the requirements of 700.3(F).



#### INFORMATIONAL NOTE FIGURE 700.3(F)

*Exception: The permanent switching means to connect a portable or temporary alternate source of power for the duration of the maintenance or repair shall not be required where any of the following conditions exists:*

- (1) All processes that rely on the emergency system source are capable of being disabled during maintenance or repair of the emergency source of power.