

# Emergency generator testing and inspection

## About

Emergency generators provide emergency and standby power during a power grid failure. Unless the hotel is a high-rise, emergency generators are oftentimes not required by the fire code but may still be installed for other reasons such as a backup power source. If this voluntary installation provides power to the fire alarm system or emergency lighting, the emergency generator will be installed and maintained as if it were a required system.

## Applicable codes

- Minnesota State Fire Code Section 604
- NFPA 110, Emergency and Standby Power Systems, 2010 Edition
- NFPA 111, Stored Electrical Energy Emergency and Standby Power Systems, 2010 Edition
- NFPA 70, National Electric Code, 2011 Edition

## Standby power

The following loads are classified as standby power loads:

- Smoke control system.
- Ventilation and automatic fire detection equipment for smoke-proof enclosures.
- Fire pumps.
- Standby power will be provided for elevators in accordance with section 3003 of the International Building Code.

The standby power system will pick up its connected loads within 60 seconds of failure of the normal power supply.

## Emergency power

The following loads are classified as emergency power loads:

- Emergency voice/alarm communication systems.
- Fire alarm systems and automatic fire detection systems.
- Elevator car lighting.
- Means of egress lighting and exit sign illumination as required by Chapter 10.

The emergency power system will pick up its connected loads within 10 seconds of failure of the normal power supply.



# Minnesota Department of Public Safety State Fire Marshal Division

## Fuel supply

An on-premises fuel supply, sufficient for not less than two-hour full-demand operation of the system, will be provided except when the generator is supplied by natural gas pipeline.

## Operational testing, inspection and maintenance

- **Schedule.** Inspection, testing and maintenance of emergency and standby power systems will follow the schedule established upon completion and approval of the system installation.
  - Weekly visual inspection of fluids, fuel and condition of the generator and automatic transfer switch.
  - Monthly load test whereby the generator is run providing power to the electrical system for a minimum of 30-minutes.
  - Annual service based upon manufacturer or installer recommendations.
  - The test of the transfer switch will consist of electrically operating the transfer switch from the normal position to the alternate position and then return to the normal position.
- **Written record.** Written records of the inspection, testing and maintenance of emergency and standby power systems will include the date of service, name of the servicing technician, a summary of conditions noted and a detailed description of any conditions requiring correction and what corrective action was taken. Records will be kept on the premises served by the emergency or standby power system and be available for inspection by the fire code official.
  - Date of the maintenance report and identification of servicing personnel.
  - Notification of unsatisfactory conditions and corrective action taken, including parts replaced.
  - Testing of any repair for the time as recommended by the manufacturer.
- **Switch maintenance.** Emergency and standby power system transfer switches will be included in the inspection, testing and maintenance schedule required. Transfer switches will remain free of dust and dirt. Inspection will include examination of the transfer switch contacts for evidence of deterioration. When evidence of contact deterioration is detected, the contacts will be replaced in accordance with the transfer switch manufacturer's instructions.

## Some words of caution on testing

Shutting off power, especially shutting off the main breaker, can expose a person to possible shock, electrocution or arc flash hazards. It is important that anyone performing a test be adequately trained and take proper safety precautions, including the wearing of proper personal protective equipment. To reduce the safety risks, it is recommended that facilities not already so equipped consider adding a switch for testing of their transfer switches. It's important that at least two people in your facility know where your logs are kept to increase the likelihood they can be readily provided if requested during an inspection. It is recommended that these logs be maintained for at least three years.

## Questions

Any questions related to this issue should be directed to the code specialist with the SFMD at 651-201-7221 or you can e-mail questions to [fire.code@state.mn.us](mailto:fire.code@state.mn.us).

