



Coffee Break Training - Fire Protection Series

Inspection Techniques: Understanding Emergency and Standby Power Levels

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Learning Objective: The student will be able to explain the difference between emergency and standby Level 1 and Level 2 power supply systems.

When emergency or standby power systems are required by the model fire codes, they refer to National Fire Protection Association (NFPA) 110, *Standard for Emergency and Standby Power Systems* for design and installation guides for emergency power supply systems (EPSS).¹

NFPA 110 recognizes two levels of classification: critical to life and safety (Level 1) or less critical (Level 2). Level 1 systems generally are employed where critical life safety systems are employed, such as for emergency lighting.

Level 2 systems are intended to supply power to so-called selected loads, where interruptions of the primary electrical supply could create hazards or hamper rescue or firefighting operations.

The following table compares some of the Level 1 and 2 applications.



These diesel-powered generators provide an emergency power supply for a high-rise office building.

| Level 1 | Level 2 |
|---|---------------------------------------|
| Life safety illumination | Heating and refrigeration systems |
| Fire detection and alarm systems | Communications systems |
| Elevators | Ventilation and smoke removal systems |
| Fire pumps | Sewage disposal |
| Public safety communications systems | Lighting |
| Industrial processes where current interruption would produce serious life safety or health hazards | Industrial processes |
| Essential ventilating and smoke removal systems | |

It is important to note that NFPA 110 does not specify where or what type of system is required; that is a function of the adopted building or fire code. NFPA 110 provides performance standards for the EPSS when the codes say one is required.

For additional information, consider enrolling in the National Fire Academy course “Fire Protection for the Built Environment” (R0135) at <http://apps.usfa.fema.gov/nfacourses/catalog/details/645>.

¹ Another standard, NFPA 111, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*, exists for uninterruptible power supplies for rectifier plants or similar installations.

