Coffee Break Training - Fire Protection Series

Fire Pumps: Alternate Power Sources for Electrically-Driven Fire Pumps

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Learning Objective: *The student shall be able to identify when one or more alternate power sources are required for electrically-driven fire pumps.*

Fire pumps that are driven by electricity, such as this suction pump that draws from an underground cistern, generally are allowed a single power source if the electrical supply is reliable. It is often up to the code official to interpret whether National Fire Protection Association (NFPA) 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, requires alternate power supplies.

Electrically-driven fire pumps requires an alternate power source when the height of the structure they service is beyond the pumping capacity of the responding fire department.

However, there is one condition where NFPA 20 specifically requires alternate power supplies for electrically-driven pumps—when the normal power source cannot be considered reliable and the height of the structure that the pump serves is beyond the pumping capacity of the fire department apparatus. The fire engine or stationary pump must be capable of delivering at least 500 gallons per minute (gpm) (1,892 Lpm) at 150 pounds per square inch (psi) (10.3 bar) at the topmost Class I or III standpipe outlet in a building.

An alternate source of power is not required where a backup engine, driven or backup steam turbine, driven fire pump is installed in accordance with NFPA 20.

When alternate power sources are provided, they should be from one of the following sources if the alternate power is provided separate from the primary power:

- a generator installed in accordance with the requirements of Level 1, Type 10, Class X systems of NFPA 110, *Standard for Emergency and Standby Power Systems*;
- electrical service connection dedicated to the fire pump installation;
- onsite power production facility connection dedicated to the fire pump installation;
- a dedicated feeder connection derived directly from the dedicated service to the fire pump installation; or
- a dedicated transformer connection directly from the service and meeting the requirements of Article 695 of NFPA 70, *National Electrical Code®*.

Where the alternate source consists of two or more sources of power and one of the sources is a dedicated feeder derived from a utility service separate from that used by the normal source, the disconnecting means, overcurrent protective device, and conductors are not required to meet the conditions of the last four bullets as long as they are installed in accordance with NFPA 70.

For additional information, refer to NFPA 20, Chapter 9.