

DEPARTMENT OF LICENSES AND INSPECTIONS <b>CODE INTERPRETATION</b> <div style="text-align: right;"><b>No. 0802</b></div>		CODE OF GENERAL ORDINANCES OF THE CITY OF PHILADELPHIA  <b>TITLE 4 — BUILDING  CONSTRUCTION AND  OCCUPANCY CODE</b>
SUBJECT OF INTERPRETATION:  <div style="text-align: center;">STANDBY POWER FOR ELECTRIC FIRE PUMPS</div>		REFERENCE CODE SECTION(S): B-403.10.2, B-405.9.1, F-604.2.15.1.3, and F-604.2.16.1.1
ISSUED BY		ISSUE DATE <div style="text-align: center;">12/03/2008</div>
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**NOTE:** This Code Interpretation updates Code Interpretation E-9701 originally issued 12/22/97. E-9701 is hereby retired and no longer applicable.

### QUESTION:

Is standby power required for all electric fire pumps?

### DISCUSSION:

The question was prompted by the issue of reliability of the primary power source, but one needs to examine the basic purpose and intent of fire pumps and standby power for them.

The *Philadelphia Building Code* which sets forth the requirements for all new construction and for the installation of new systems in existing buildings only requires standby power for electrically powered fire pumps in:

High-rise buildings (see Section B-403.10.2) and  
Underground buildings (see Section B-405.9.1).

The *Philadelphia Fire Code* duplicates this (Section F-604.2.15.1.3 for high-rise buildings and Section F-604.2.16.1.1 for underground buildings).

High-rise buildings – generally, buildings with an occupied floor located more than 75 feet above the lowest level of fire department vehicle access.

Underground buildings – generally, buildings with a floor level used for human occupancy that is more than 30 feet below the lowest level of exit discharge.

The reason for this limited requirement is that all water-based fire protection systems are required to have a fire department connection (Sections B-912 and F-912). This allows a fire department to use its pumpers to supplement the system's automatic water supply in the event of the loss or diminishment of that supply. For non-high-rise structures that are not underground, both the time and quantity of water delivery to the fire are readily handled by a fire department. A confirmation of fire department capability is NFPA 14 which allows the installation of a standpipe system without an auxiliary means of supply in zones served by means of fire department pumpers through a fire department connection. Further, the City of Philadelphia is different than many suburban or rural jurisdictions with volunteer firefighters who have to be mustered and who are not full time professionals. The Philadelphia Fire Department has very short response times to properties anywhere in the City, and has no difficulty supplying

low-rise buildings quickly with any water demand required. None the less, at a height determined by the capability of fire department pumpers their ability to deliver an adequate water supply comes into question. Therefore, the fire department can not serve as the back up to the primary water delivery system in high-rise structures.

In underground buildings, standby power systems are required for all fire pumps due to the significant hazard to the occupants created by the structure's isolation and inaccessability.

Philadelphia Fire Code Section F-913 states that all required fire pumps are to be installed in accordance with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection. NFPA 20 Article 9.2.4 and NFPA 70, National Electrical Code, Article 695.3 (B) require standby power for fire pumps where a reliable source can not be obtained. The key to this requirement is the intent of the word "reliable." NFPA 20, Annex A, Explanatory Material, Section A.9.2.4 defines a reliable power source as one possessing the following characteristics:

- (1) Infrequent power disruptions from environmental or manmade conditions
- (2) A separate service connection or connection to the supply side of the service disconnect
- (3) Service and feeder conductors either buried under 50 mm (2 in.) of concrete or encased in 50 mm (2 in.) of concrete or brick within a building

There is little doubt that PECO Energy should be accepted as a reliable source of primary power. As a supplier of electricity in the City, PECO has a superior record of continuous service. There are extremely few interruptions of power, even during periods of severe weather. All one has to do is listen to the news reports to hear of power losses in the suburbs or other remote areas during times when the city has no such power losses. It is safe to say that based on experience, PECO Energy is more reliable than infrequently used generators that rely on the diligence of maintenance and service personnel to keep in proper running condition. PECO Energy certainly meets the provisions of (1) above, and the rest is up to the Department when reviewing permits for installation. With a reliable primary power source neither NFPA 20 nor NFPA 70 requires a standby power source for electric fire pumps.

Requiring that **every** electric fire pump be connected to a standby generator in non-high-rise, above ground buildings is clearly going beyond minimum standards of safety to life and property which is a basic premise of all codes.

## INTERPRETATION:

Standby power is required for new or existing electric fire pumps installed in high-rise buildings ([see definition](#)) as follows:

- New high-rise buildings.
- Existing high-rise buildings, if the original approval required standby power (generally, post 1/1/1984).
- Existing high-rise buildings undergoing a change in use and occupancy classification or in which a new sprinkler or standpipe system is being installed.

Standby power is required for new or existing electric fire pumps installed in underground buildings ([see definition](#)) as follows:

- New underground buildings.
- Existing underground buildings, if the original approval required standby power (generally, post 9/15/97).

- Existing high-rise buildings undergoing a change in use and occupancy classification or in which a new sprinkler or standpipe system is being installed.

Standby power is **not** required for new or existing electric fire pumps installed in:

- New or existing non-high-rise buildings that are not defined as underground buildings.
- Existing high-rise and underground buildings, if the original approval did not require standby power (generally, high-rise – pre-1/1/1984 and underground – pre-9/15/97) and the building is not undergoing a change in use and occupancy classification or a new sprinkler or standpipe system is not being installed.