

6 Add Backup Fire Safety Communication

I. Summary

Issue:

Loss of power to telecommunications systems and flooding that damages underground phone and data lines can cut off communication between buildings and the Fire Department.

Recommendation:

All large buildings in flood zones should consider having a backup wireless fire communication system, and new large critical buildings must have backup phone and data connections. Mandate the use of storage batteries with a life of at least eight hours to serve buildings' fire and life safety communication systems.

II. Proposed Legislation, Rule or Study

As a best practice, buildings in the Special Hazard Flood Area (100-year flood zone) over 75 feet above the lowest level of Fire Department vehicle access, or having a total gross area exceeding 100,000 square feet, should have one of the two lines to the supervising station (as required by the Fire Code) be wireless.

The Fire Code should be modified to require Group I-2 occupancies (hospitals) to require communication systems to the supervising station to have two different carrier sources entering the building at separate service points of entry. Additionally, the Building Code should be modified so that all new buildings that are classified as I-2 and are hospitals providing acute medical care located in areas of special or moderate flood hazard shall be designed with two independent points of entry for telecommunications and IT services, such that backup services are available when services from the primary supplier are disrupted.

Amendments to the New York City Electrical Code:

1. Amend Subsection 700.12(A) as follows:

Storage batteries shall be used as a source of power for emergency and life safety telecommunications systems and shall be of suitable rating and capacity to supply and maintain the total load for a minimum period of eight hours, without the voltage applied to the load falling below 87 1/2 percent of normal.

III. Supporting Information

Expanded Issue and Benefits:

After Superstorm Sandy, telecommunication carriers experienced different timelines for recovery of services due to varying installation methods and locations of both street network infrastructures and central office facilities. As a result, as of February 2013, more than three months after loss of telecommunications from Superstorm Sandy, there were still 171 commercial properties in lower Manhattan that did not have operational traditional life safety circuits.

NYC Fire Code currently requires two lines of communications to the supervisory station. FDNY has advised that wireless communications are allowed as one of these lines. Requiring a secondary (dual or redundant) telecommunications carrier, and in some cases wireless in addition to wired circuits, to service Fire Department communication systems enhances a building's critical life safety system and building management telecommunications connectivity.

The installation of dual telecommunications carriers in a building for an essential use, like Fire Department communications, encourages nonessential building functions to also use this dual arrangement, thereby increasing the building's overall resiliency without any added cost. This proposal does not identify or mandate if and/or how the building will incorporate additional communication functions, as these will remain individual business decisions.

As telecommunications carriers move to fiber optic cables rather than traditional copper circuits, having different circuit technologies will provide added resiliency to buildings.

For hospitals, redundant communication carriers are of particular importance, so the proposal is extended to include all communications, not just the supervisory station. This includes contact with emergency services, external communications for patient transfer and evacuation, and access to critical records that may be stored electronically off-site. As a best practice, hospitals should also maintain a satellite phone since both wired and wireless systems can be disrupted by the same event.

Cost:

Turner Construction Company prepared cost estimates based upon several standardized building typologies. Due to the innate variances in construction costs between projects, the complexity of the Task Force proposals, and the wide range of buildings to which the proposals may apply, these cost estimations should only be used as rough order-of-magnitude guides. The cost analysis is presented at the end of this proposal; more information about the cost methodology is given at the end of the full report.

