

4 Remove Barriers to Elevating Buildings & Building Systems

I. Summary

Issue:

Building owners may wish to elevate buildings or building systems, but are restricted by building regulations and zoning height limitations.

Recommendation:

Allow building owners to raise telecommunications rooms and to store more fuel above the flood line. Consider allowing zoning relief for buildings elevating to the 500-year flood line.

II. Proposed Legislation, Rule or Study

Amendments to the New York City Electrical Code:

1. Amend Section 27-3025 as follows:

Subsection 770.48(A) – Add a new second and third sentence to subsection 770.48(A) to read as follows: All other cables shall be considered to be within the building. Exception: In Special and Moderate Flood Hazard Areas, carrier service cabling shall be permitted to a distance that supports direct delivery to a level five (5) feet above the FEMA 500-year flood plain, even if such a distance exceeds 15m (50 ft).

Section 800.48 – Add a new second sentence to read as follows: Exception: In Special and Moderate Flood Hazard Areas, carrier service cabling shall be permitted to a distance that supports direct delivery to a level five (5) feet above the FEMA 500-year flood plain, even if such a distance exceeds 15m (50 ft). If the distance of such cabling exceeds 15m (50 ft), it shall be installed in conduit sufficient to protect against the intrusion of water during flood conditions and in conformance with all other requirements of this Code, including grounding, bonding and protection.

Amendments to the New York City Mechanical Code:

1. Amend Section 1305.11.1.3 as follows:

1305.11.1.3 Inside of buildings; above the lowest floor. Fuel oil above the lowest floor inside of a building shall be limited to 330 gallons (1249 L) per story. The maximum quantity

shall include oversized piping as described in Section 1305.9.12. Piping installations shall comply with the requirements of Section 1305.9.

Exception: In areas designated as a Special or Moderate Flood Hazard Area, fuel oil storage on the floor immediately above the design flood elevation shall be limited to the lesser of 3,000 gallons, with no single tank greater than 1,500 gallons or 24 hours of run time for emergency or standby generator(s) served by this storage tank(s). Each tank shall be enclosed in a separate vault (i) with walls, floor, and top having a fire resistance rating of not less than 3 hours, (ii) with such walls bonded to the floor, and (iii) with such top and walls of the vault independent of or connected to the building structure. An exterior building wall having a fire resistance rating of not less than 3 hours shall be permitted to serve as a wall of a vault. The vault shall be located in a dedicated room or area of the building that is cut off vertically and horizontally from other areas and floors of the building by assemblies having a fire resistance rating of not less than 2 hours. Such storage shall be protected with an alternate extinguishing system complying with Section 904 of the *New York City Building Code*.

Recommended Study by the Department of City Planning:

The New York City Department of City Planning should perform a study of the effects of allowing elevation to the 0.2% Advisory Base Flood Elevation (ABFE) to receive zoning relief. This would allow building owners who wish to elevate to this higher level of safety to receive the same zoning relief as is currently given to the buildings elevating to the 1% ABFE. The study should include additional height for freeboard, and be applicable to Moderate Flood Hazard Areas (also known as the Shaded-X or 500-year flood zone; the areas where there is a 0.2% annual chance of flooding) in addition to Special Flood Hazard Areas (the 100-year flood zone; the areas where there is a 1% annual chance of flooding).

III. Supporting Information

Expanded Issue and Benefits:

Carrier Service Cabling

The NYC Electrical Code limits the type of cable used for telecom services to 50 feet in length within a building, which may make it difficult to extend cabling to a telecom service room elevated above the DFE. Greater length needs to be allowed so that the room can be raised and the carrier service cabling can be brought to it in a code-compliant manner. This proposal therefore recommends permitting the installation of carrier service cabling to an extended distance that supports direct delivery to a position 5 feet above the 0.2% ABFE.

Maximum Fuel Tank Size

In general, reduced fuel storage capacity above the design flood elevation (DFE) limits the duration of operation of emergency generators for life safety systems. By increasing the allowable size of fuel storage tanks, emergency systems, life safety equipment and building systems will remain operable for longer periods of time following a flood event. This increase

also minimizes the operational hazards of portable generators, which are typically connected through temporary wiring, and of installed systems, which often require fuel delivery in 55 gallon drums for manual filling of storage tanks. Currently, NYC Mechanical Code Chapter 13 allows no tanks larger than 330 gallons above the lowest level of a building. Allowing larger fuel tanks is addressed in the 2012 International Fire Code, 603.3.2.1 Quantity limits, which may be a valuable reference.

To address this issue, intended for buildings in the Special or Moderate Flood Hazard Areas, are to:

1. Provide a tank design option for an 'intermediary tank' from which fuel stored in bulk could be pumped with a submersible pump to a lower floor or basement, or which could be filled from the street.
2. Directly serve equipment connected to the tank, such as emergency generators and boilers. The proposal is not intended to regulate tanks used as dispensing stations to fill other containers.
3. Provide a performance standard for the hours of equipment runtime.

Department of City Planning Study

Executive Order 233 created the Zoning Design Flood Elevation (ZDFE) designation, which allows building owners to elevate lower floors 1-2 feet above the 1% ABFE and suspends height limits to the extent necessary to raise the level of the lowest habitable floor above the ZDFE. However, some owners in Special Flood Hazard Areas may wish to plan for the 0.2% ABFE, and owners in Moderate Flood Hazard Areas may also wish to elevate their structures to prepare for future risks. Therefore, the Department of City Planning should perform a study to consider the effects of modifying the ZDFE height designation to allow elevation as high as the 0.2% ABFE, plus freeboard. The study should encompass both Special and Moderate Flood Hazard Areas.

Because the 0.2% ABFE can be 2-4 feet higher than the 1% ABFE, raising buildings to this higher level may present additional design and planning issues for individual buildings and the streetscape. Therefore, the effects of allowing additional height, while desirable from the perspective of increased flood resilience, should be carefully studied.

Issues to be addressed in the study:

1. It may be desirable to provide a floor area ratio bonus for the relocation of fuel oil from basement levels (generally low value rental space) to above the DFE in order to account for the loss of this valuable amenity space.
2. The reconfiguration of floors may result in a loss of leasable space and reduced ceiling heights, as reconfigured floors may be restricted by floor-to-floor heights, potentially requiring the removal of portions of the floors or the entire floors.
3. Compliance with accessibility regulations (including ADA) as lower floors are elevated.
4. Zero lot line conditions make the implementation of stairs, ramps and elevators that connect the street to higher floor levels challenging.

Cost:

No cost estimation was performed for this proposal.