NEW YORK CITY AFTER SUPERSTORM SANDY: REGULATORY REFORM

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NEW YORK CITY AFTER SUPERSTORM SANDY: REGULATORY REFORM

New York City Department of Buildings

Short-term Regulatory Response
- Zoning Resolution - Mayoral Executive Orders
- Building Code - Emergency Freeboard Rule

Longer-term Regulatory Response
- Zoning Resolution - Comprehensive Changes
- Building Codes
NEW YORK CITY DEPARTMENT OF BUILDINGS

Floodplain administrator
975,000 buildings
1,044 employees
169 plan examiners
446,000 plan examinations/yr
281,000 inspections/yr
49,000 violations/yr
1,462 new building permits/yr
NEW YORK CITY DEPARTMENT OF BUILDINGS

Effective FIRMS (1983):

100-year floodplain:

<table>
<thead>
<tr>
<th>FIRM (1983)</th>
<th>Residents</th>
<th>Jobs</th>
<th>Buildings</th>
<th>Floor area (sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>218,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jobs</td>
<td>190,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>36,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor area (sq. ft.)</td>
<td>374 million</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

100-year floodplain:

<table>
<thead>
<tr>
<th></th>
<th>FIRM (1983)</th>
<th>ABFE 2013</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>218,000</td>
<td>447,000</td>
<td>105%</td>
</tr>
<tr>
<td>Jobs</td>
<td>190,000</td>
<td>341,000</td>
<td>79%</td>
</tr>
<tr>
<td>Buildings</td>
<td>36,000</td>
<td>71,000</td>
<td>97%</td>
</tr>
<tr>
<td>Floor area (sq. ft.)</td>
<td>374 million</td>
<td>589 million</td>
<td>57%</td>
</tr>
</tbody>
</table>
HURRICANE SANDY DESTRUCTION

Breezy Point, Queens, FEMA News Photo

Breezy Point, Queens, FEMA/Walter Jennings
HURRICANE SANDY DESTRUCTION

Brooklyn, FEMA Mitigation Assessment Team Report
HURRICANE SANDY DESTRUCTION

FEMA/Ashley Andujar

FEMA/Ashley Andujar
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SHORT-TERM RESPONSE – Zoning Resolution

1 or 2 family residence

This drawing illustrates a 1 or 2 family home as it existed on October 28, 2012. If this home were to be elevated to standards recommended by FEMA advisory maps in order to protect it from future flooding, it would violate zoning height limitations. The Executive Order suspends these height limitations if the home is elevated to any level selected by the homeowner that is at least as high as the Advisory Base Flood Elevation (ABFE), but not higher than 3 feet above the ABFE (an additional level of protection known as “freeboard”). The level selected in this range is referred to in the Executive Order as the Zoning Design Flood Elevation (ZDFE).

**EFFECTIVE PER EXECUTIVE ORDER:**
Height limitations are suspended to the extent necessary to raise the level of the lowest habitable floor (LHF) previously located above grade to the zoning design flood elevation (ZDFE).

- The lowest habitable floor (LHF) is raised 5’ to the maximum zoning design flood elevation (ZDFE).
- Any level selected within this range is the zoning design flood elevation (ZDFE).

Existing on October 28, 2012
*Grades and elevations are for illustration only, and will differ depending upon location
**North American Vertical Datum (NAVD) of 1988

Elevated to Zoning Design Flood Elevation

ABFE = +12"
LHF = +9"
GRADE = +6"

ZDFE = +12-14"
ABFE = +12"
GRADE = +6"

NAVDD = 0"
SHORT-TERM RESPONSE – Zoning Resolution

EXAMPLE
1 or 2 family residence, non-complying as to yards

This diagram illustrates a single or two family home, non-complying as to yards as of October 28, 2012. This home can be elevated to the zoning design flood elevation (ZDFE), and an increase in existing non-compliances and the creation of new non-compliances would be permitted pursuant to Section 3, paragraph (a)(l) of the Executive Order.

Existing on October 28, 2012

Zoning design flood elevation (ZDFE) may be set at any level within this range
*Grades and elevations are for illustration only, and will differ depending upon location
**North American Vertical Datum (NAVD) of 1988
***Example utilizes an R3 district bulk envelope

Elevated to Zoning Design Flood Elevation

allowable bulk envelope measured from the base flood elevation (BFE)***
existing non-compliance in required rear yard
lowest habitable floor (LHF)
previous roof-line

lowest habitable floor (LHF) elevated 7 to the maximum zoning design flood elevation (ZDFE)
existing non-compliance may be rebuilt under current zoning

ABFE = +13"
BFE = +11"
LHF = +8"
GRADE = +6"

ABFE = +13"
BFE = +11"
GRADE = +6"

NAVHD = 0"
SHORT-TERM RESPONSE – Building Code

Existing (pre-FIRM) building built at grade
Previous Building Code requirements
Building Code requirements with freeboard rule

Emergency rule requiring freeboard
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LONGER-TERM RESPONSE – Comprehensive Zoning Changes

Draft issued May 20, 2013
Adopted October 9, 2013
51 Pages of amendments to the NYC Zoning Resolution
LONGER-TERM RESPONSE – Comprehensive Zoning Changes

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Proposal:
- Allow the option of measuring the ground floor location from the FRCE and transparency requirements from the floor level rather than the sidewalk.
- Current transparency requirements are often measured from the adjoining sidewalk.
- Allow the option of measuring the transparency requirement from floor level raised.
- Location and transparency requirements can be achieved where building is dry flood proofed.
- Where establishment is raised to FRCE and entryway is well flood proofed, allow option to measure floor level and transparency rules from FRCE.
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LONGER-TERM RESPONSE – Building Code

Permit Fee Waivers (Local Laws 4/13, 31/13, 51/13)
Raising and Moving of Buildings (Local Law 29/13)
Flood Construction Guide (Local Law 82/13)
Backflow Prevention (Local Law 83/13)
Patient Care Areas (Local Law 95/13)
Flood Maps (Local Law 96/13)
Cabling and Fuel Oil Storage (Local Law 99/13)

(cont’d . . . .)
LONGER-TERM RESPONSE – Building Code

Elevated Building Systems (Local Law 100/13)
Secondary Power, Heating and Cooling (Local Law 108/13)
Flood Barriers (Local Law 109/13)
Emergency /Standby Power Systems & Natural Gas Usage (Local Law 111/13)
Coastal A-Zones (LL 141/13)
Mold Resistant Gypsum and Cement Board (LL 13/14)
LONGER-TERM RESPONSE – Building Code

Permit Fee Waivers (Local Laws 4/13, 31/13, 51/13)

• Red-tagged buildings: all permit fees waived for reconstructions/alterations
• Other damaged buildings: permit fees waived for plumbing/electrical permits
• Affected businesses: certain permit fees waived
LONGER-TERM RESPONSE – Building Code

Raising and Moving of Buildings (Local Law 29/13)

RAISING/MOVING OPERATIONS
SPECIAL INSPECTIONS BC 1704.27
LONGER-TERM RESPONSE – Building Code

Raising and Moving of Buildings (Local Law 29/13)

Buildings Bulletin 2013-013

LONGER-TERM RESPONSE – Building Code

Local Law 82/13 (Intro 1095A/13) – Flood Construction Guide

• DOB required to develop and maintain guide on flood-resistant design and construction requirements

Backflow Prevention (Local Law 83/13)

• Makes explicit that backwater valves required in floodplain
• Modifies PC 715.1, 1101.9 and ASCE 24-05 (Section 7.3.3)
LONGER-TERM RESPONSE – Building Code

Patient Care Areas (Local Law 95/13)
• Applies to Occupancy Group I-2 (hospitals, nursing homes)
• “Patient Care Areas” must be above DFE (no dry-floodproofing)
  ➢ Excludes emergency departments
  ➢ Excludes spaces with specialized equipment
LONGER-TERM RESPONSE – Building Code

Flood Maps (Local Law 96/13)

• Mandates use of 2013 PFIRMs (or 2007 effective FIRMs, whichever is more stringent)

• Requires all construction documents to reference NAVD 88 (not NGVD 29 or local data)
LONGER-TERM RESPONSE – Building Code
Flood Maps
LONGER-TERM RESPONSE – Building Code

Cabling and Fuel Oil Storage (Local Law 99/13)

• **Electrical work.** Amends NYC Electrical Code to make explicit that flood requirements are applicable

• **Unlisted entrance cables.** Permits unlisted conductive and nonconductive outside plant optical fiber cables entering buildings to exceed 15m (50 ft), to allow direct delivery above the DFE

• **Fuel storage limitations.** Permits up to 3,000 gallons of fuel storage on story above DFE (instead of 330 gallon limit). Must meet fire safety requirements.
LONGER-TERM RESPONSE – Building Code

Elevated Building Systems (Local Law 100/13)

• Fire protection equipment. Pumps, electric valves, certain alarm components, must be elevated (no dry-floodproofing)

• Certain storage. Medical, compressed or flammable gas, and hazardous materials, must be elevated (no dry-floodproofing)

• Fuel oil fill/vent pipe outlets. Must be 3 feet above DFE.

• Hospitals:
  • 500-year flood zone must design to 0.2% flood elevation
  • 100-year flood zone must design to higher of 0.2% flood elevation, or BFE + freeboard
LONGER-TERM RESPONSE – Building Code
Secondary Power, Heating and Cooling (Local Law 108/13):
RETROACTIVE, Compliance by 2033

• Hospitals:
  • Generators must power certain emergency, standby AND heating/cooling loads (72 hours or natural gas), unless temp connections provided
  • Generators, heating and cooling plants must be above DFE (no dry floodproofing), unless temp connections provided

• Nursing homes, assisted living, adult homes, etc.:
  • Generators must power certain emergency loads (72 hours or natural gas), unless temp connections provided
  • Generators must be located above DFE (no dry floodproofing), unless temp connections provided
LONGER-TERM RESPONSE – Building Code

Flood Barriers (Local Law 109/13)

- **Encroachments into public right-of-way.** Flood shields, temporary stairs and footings can project 1 foot into sidewalk without DOT approvals.

- **Temporary stairs.** Allows temporary stairs (instead of permanent) may be used at egress points as part of a flood barrier plan for existing:
  - Existing buildings
  - Building that will not remain occupied
LONGER-TERM RESPONSE – Building Code
Flood Barriers
LONGER-TERM RESPONSE – Building Code

Emergency and Standby Power Systems & Natural Gas Usage (Local Law 111/13)

• Aligns NYC Building and Electrical Codes with IBC and NEC
• Introduces concept of standby power into NYC
  • Previously, any backup power must meet “emergency” power standards
• Allows natural gas as a power source for standby power
  • Previously, natural gas prohibited, except for apartment buildings
LONGER-TERM RESPONSE – Building Code
Coastal A Zones (LL 141/13)

ASCE 24-05 (IBC 2012): Coastal A-Zones design like V-Zone
LONGER-TERM RESPONSE – Building Code
Coastal A Zones (LL 141/13)

ASCE 24-13 (IBC 2015):
Wave-resisting stem wall foundation
LONGER-TERM RESPONSE – Building Code
Coastal A Zones (LL 141/13)

Urban environment?
LONGER-TERM RESPONSE – Building Code
Coastal A Zones (LL 141/13)

NYC:
Wave-resisting dry floodproofing for commercial buildings.
LONGER-TERM RESPONSE – Building Code

Mold Resistant Gypsum and Cement Board (LL 13/14)

- Gypsum and cement boards installed in basements, cellars and below ground spaces must be mold resistant
- Applies to alterations to existing buildings as well as new buildings
- ASTM D3273 rating of 10
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