Amendments to Appendix G, Flood-Resistant Construction

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Director of Engineering & Floodplain Administrator
Technical Affairs Division
BRTF (Building Resiliency Task Force)

SIRR (Special Initiative for Rebuilding and Resiliency)

27 Total resiliency-related City Council bills
17 Local Laws have passed
Recent Local Laws Amending the 2008 and 2014 Building Code

- Local Law 82/13 – Flood Manual
- Local Law 83/13 – Backflow Prevention
- Local Law 95/13 – Healthcare Facilities
- Local Law 96/13 – Flood Maps
- Local Law 99/13 – Raising Building Systems
- Local Law 100/13 – Relocating and Protecting Building Systems
- Local Law 108/13 – Connections for Secondary Building Systems
- Local Law 109/13 – Flood Barriers
- Local Law 13/14 – Mold Resistant Gypsum and Cement Board
Amendments to Appendix G, Flood-Resistant Construction

• BRTF Bills (2014 Code effective date):
  – LL 100/2013: Relocating and protecting building systems in flood-prone areas
  – LL 108/2013: Secondary electrical power, heating and cooling systems for I-1 and I-2 occupancies and for adult homes, enrichment housing, community residences and Immediate care facilities
Alterations and 2014 Building Code (28-101.4.3)

Within areas of special flood hazard compliance with 2014 Building Code Appendix G required for:

– New Construction
– Alterations pursuant to 28-101.4.3
Amendments to Appendix G (BC G304.1.2)

• Dry Floodproofing revisions:
  – Delete restriction that in nonresidential buildings not more than one toilet, sink and a two compartment laundry tray be located within dry floodproofed enclosures
Amendments to Appendix G (BC G501)

TABLE 5-1
MINIMUM ELEVATION, RELATIVE TO DESIGN FLOOD ELEVATION (DFE), BELOW WHICH FLOOD-DAMAGE-RESISTANT MATERIALS SHALL BE USED

<table>
<thead>
<tr>
<th>STRUCTURAL OCCUPANCY CATEGORY</th>
<th>A-ZONE</th>
<th>[V-ZONES] Coastal High Hazard Areas and Coastal A-Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>DFE=BFE</td>
<td>Orientation Parallelb</td>
</tr>
<tr>
<td>[11] I(1- and 2-family dwellings)</td>
<td>DFE=BFE+ 2 ft</td>
<td>DFE=BFE+ 2 ft</td>
</tr>
<tr>
<td>II(all others)</td>
<td>DFE=BFE+ 1 ft</td>
<td>DFE=BFE+ 1 ft</td>
</tr>
<tr>
<td>III</td>
<td>DFE=BFE+ 1 ft</td>
<td>DFE=BFE+ 2 ft</td>
</tr>
<tr>
<td>IV</td>
<td>DFE=BFE+ 2 ft</td>
<td>DFE=BFE+ 2 ft</td>
</tr>
</tbody>
</table>

a. See Table 1-1, or Table 1604.5 of the New York City Building Code, for structural occupancy category descriptions.
b. Orientation of lowest horizontal structural member relative to the general direction of wave approach; parallel shall mean less than or equal to +20 degrees from the direction of approach; perpendicular shall mean greater than +20 degrees from the direction of approach.
Coastal A-Zone

• Coastal A-Zone revisions:
  – Section G104.5.2: Coastal A-zone certifications
  – Section G201.2:
    • Revised definition of SFHA
    • Coastal A-zone definition and applicability
  – Section G 304.3: Coastal construction standards
  – Section G501: Amendments to ASCE 24 tables
Coastal A-Zone

Coastal A-Zone Definition (BC G201.2)

**COASTAL A-ZONE:** An area within a special flood hazard area, shown on FEMA FIRMs 360497 as an area bounded by a “Limit of Moderate Wave Action,” landward of a V-Zone or landward of an open coast without mapped V-Zones. In a Coastal A-Zone, the principal source of flooding must be astronomical tides, storm surges, seiches, or tsunamis, and not riverine flooding. During the base flood conditions, the potential for breaking wave heights must be greater than or equal to 1 foot, 6 inches (457 mm). In no case shall an area of special flood hazard be deemed a coastal A-Zone unless and until it has been identified as such on the adopted FEMA FIRMs 360497.
FIRM ADOPTION TIMELINE

- Preliminary Work Map Release
- Preliminary FIS/FIRM Release
- Post-Release of Preliminary FIS/FIRM
- March 2015
- Early 2016
- Mid 2016

- Preliminary Work Maps released on Region 2 Coastal Website
- Flood Risk Review Meeting
- Preliminary Flood Insurance Rate Maps released to the communities and the general public
- Resilience Meeting
- CCO/Open House Meetings and regulatory formal 90 day appeal period will be determined
- FEMA will issue Letter of Final Determination (LFD) that initiates the 6 month adoption period before the new maps become effective – all appeals will be resolved prior to LFD
- Effective FIRMs become the basis for community floodplain management and insurance requirements

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9
Coastal A-Zones and PFIRM
Coastal A-Zone Construction Standards (BC G 304.3)

New buildings and substantial improvements in a Coastal A-Zone shall comply with the V-Zone construction standards.

**Exceptions:**

– Wave-resisting stem wall foundation
– Wave-resisting dry floodproofing wall and foundation system
Coastal A-Zone Construction Standards (BC G 304.3)

Coastal A-Zone shall comply with the V-Zone construction standards.
Coastal A-Zone Construction Standards (BC G 304.3)

Wave-resisting stem wall foundation:

– The underside of such floor system shall be located at or above the design flood elevation specified in ASCE 24, Table 4-1
– Stem walls enclosing areas below the design flood elevation prohibited
– Flood openings shall not be required in stem walls
Coastal A-Zone Construction Standards

ASCE 24-13 (IBC 2015):
Wave-resisting stem wall foundation
Coastal A-Zone Construction Standards (BC G 304.3)

Wave-resisting stem wall foundation design considerations:

- Wave action, debris impact, erosion, local scour
- Soil pressure behind walls
- Hydrostatic loads
- Live and dead surcharge loads from the slab above
- Sliding, uplift, or overturning
Coastal A-Zone Construction Standards (BC G 304.3)

Wave-resisting dry floodproofing wall and foundation system:

• Non-residential buildings dry floodproofed in accordance with Section G304.1.2:
  – Design flood elevation specified in ASCE 24, Table 6-1
  – Calculations demonstrating foundation, building and flood shields will resist wave action
Coastal A-Zone Construction Standards (BC G 304.3)

Wave-resisting dry floodproofing for commercial buildings.

FEMA P 936
Coastal A-Zone Construction Standards (BC G 304.3)

Wave-resisting dry floodproofing
Coastal A-Zones Certifications (BC G 104.5.2)

V-Zones and coastal A-Zones. Permit application shall include the following certifications, as applicable:

• Structural design certification
• Breakaway wall certification
• Utility certification