Zoning for Flood Resilience

Southern Brooklyn Community Workshop
At the Coney Island YMCA
Wednesday, October 18th – 6:30pm – 8:30pm
Zoning for Flood Resilience
Workshop Agenda

**Agenda:**

1. Welcome and introduction – 10 min
2. Overview of zoning for flood resilience – 15 min
3. Table activity and discussion: How can zoning help achieve building-scale resilience? – 45 min
4. Open house: Explore our stations –
   - FloodHelpNY,
   - Build It Back,
   - Parks & Recreation,
   - Resiliency @ NYCHA,
   - Emergency Management
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A more resilient NYC is one where neighborhoods, buildings and infrastructure can withstand and recover quickly from flooding and climate events.

Coastal defenses are strengthened as first line of defense against flooding by the US Army Corps of Engineers, NYS DEC, NYC DPR.

Buildings are designed to withstand and recover from flooding by FEMA, DCP, DOB, HRO, NYCHA.

Infrastructure is protected from climate hazards by DOT, DEP, DDC, Utility Companies, MTA.

Residents and businesses are prepared by OEM.
Flood Resilience Zoning Projects at DCP

2013
“Flood Text”
initial temporary regulations to facilitate recovery

2018
“Flood Text Update” improve upon, and make permanent, the Flood Text
Zoning for Flood Resilience
Overview of DCP’s Timeline

As part of this outreach process, DCP has been:

• Partnering with stakeholders to educate and promote awareness of flood risk and resiliency issues
• Explain how zoning tools relate to resiliency
• Explore unique neighborhood issues through in-depth public presentations and workshops
• Develop a proposal through an iterative process that is shaped by feedback

DCP plans a robust public engagement process:

2016 2017 2018
Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

Community Outreach Scoping / ULURP

* Schedule is tentative and subject to change
How are buildings in the floodplain regulated?

**Flood Insurance Rate Maps (FIRMs)**
- Determine where floodplain regulations apply

**National Flood Insurance Program**
- Set up Insurance Rates depending on building elevation and other requirements

**Construction Standards (ASCE 24)**
- Design minimum construction requirements for flood hazard areas

**Building Code (DOB)**
- Requires new buildings and substantial improvements to meet FEMA standards

**Zoning Resolution (DCP)**
- Zoning accommodates these regulations and improves neighborhood character
Flood resilient construction
Required by DOB

- **Required** for all new buildings
- **Not required** for existing buildings (unless substantially damaged or improved)
Flood insurance rates
Set by FEMA

Raising or retrofitting your building or home will reduce costs

FEMA’s flood insurance premiums are lowest when the lowest inhabited floor (any area not used solely for storage, access or parking) is elevated above the Base Flood Elevation (BFE).
NYC's flood risk is high.

The floodplain affects a large geography and most community and council districts.

100 Year Floodplain
FEMA 2015 PFIRM

Population: 400,000 50 of 59 Community Boards
Buildings: 71,500 45 of 51 Council Districts

- Buildings:
  - 80% 1-4 units
  - 7% 5+ units
  - 13% nonresidential

- Residential Units:
  - 30% 1-4 units
  - 70% 5+ units
## Future Flood Map
Flood Risk in Southern Brooklyn (CD 13)

<table>
<thead>
<tr>
<th></th>
<th>2015 PFIRMS</th>
<th>2050’s Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>R units in floodplain</td>
<td>42,600</td>
<td>45,850</td>
</tr>
<tr>
<td>Buildings in floodplain</td>
<td>7,300</td>
<td>7,760</td>
</tr>
</tbody>
</table>

- **8% increase** in R units in floodplain from 2015 to 2050’s projected.
- **6% increase** in buildings in floodplain from 2015 to 2050’s projected.
South Brooklyn
Building Typologies in the Floodplain

- **Attached buildings** – 2-3 story, parking on ground level
- **Large scale apartment buildings** – 6+ stories
- **Mixed-use apartment buildings** – 2-6 stories, ground floor retail
- **Small bungalows** – 1-2 stories, detached, wood frame
- **Larger homes** – 2-3 stories, masonry and wood frame
- **Commercial corridors** – 1-2 stories buildings with parking
Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).

- Living spaces are elevated above DFE
- Mechanical systems are elevated above DFE
- Site is filled to lowest adjacent grade
- Use below DFE is restricted to parking, storage or access
- WET FLOODPROOF (Water comes in and out)

Building Code (DOB)
Flood resilient construction
Examples of Residential Buildings

Residential Building
Elevated to DFE

Residential Building Under Construction
Elevated to DFE
Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).
Flood resilient construction
Examples of Residential Buildings

Residential Building
Elevated to DFE ~ 6 feet above grade

Residential units are elevated above the DFE

Ground floor is used for parking and access
Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).
Flood resilient construction required by DOB

- Deployable floodgate (currently allowed only at doors and operable windows)
- Aquarium Glass (‘aquarium-grade’ glass for glazing or curtain-wall systems)
Flood resilient construction
Examples of Commercial Buildings

Commercial Ground Floor
Existing Building with access at grade (deployable flood shields)

Commercial Ground Floor
Elevated to DFE ~ 3 feet
Flood resilient construction

NYCHA’s Recovery Program
Main Goal
Facilitate Recovery from Hurricane Sandy

2013: Temporary provisions that allow storm-damaged and new buildings to comply with higher flood elevations and resilient construction requirements by removing zoning barriers.

2015: Accelerate post-Sandy recovery in certain areas by simplifying documentation requirements and removing disincentives to resiliency investments, through 2022.
2013 Citywide Flood Text
Amended zoning in six key areas

1. Height
   Measured from flood elevation

2. Access
   Flexibility for stairs, ramps, lifts

3. Parking
   Flexibility to relocate parking

4. Systems
   Flexibility to relocate/elevate

5. Ground Floors
   Account for costs of new flood risk

6. Streetscape
   Require features to mitigate blank wall
Flood Text Update
Permanent Rules

Goal 1
Facilitate Recovery from Future Storms by making the provisions of the temporary Flood Text permanent.

Goal 2
Promote Long-Term Resiliency by encouraging proactive retrofitting and development that is safe in the long run.

Goal 3
Enhance Neighborhood Character by encouraging good resilient design within coastal communities.

Zoning Resolution (DCP)
Zoning for Flood Resilience Update

Issues identified by DCP and coastal communities

1 Subgrade Spaces
Homeowners may face the loss of subgrade spaces when retrofitting

2 Future Flood Risk
Property owners may want to address future risk or reduce insurance by over-elevating

5 Old neighborhoods
Old buildings may need more flexibility to rebuild, elevate, or retrofit to resiliency standards

4 Future Storms
Existing homes in Manufacturing Districts, may not be able to rebuild

5 Active Uses
Current incentives and use options to keep active ground floors, may not be enough

6 Active Streetscapes
Design requirements may be needed to mitigate the effects of elevated buildings
Resources

NYC Flood Hazard Mapper
www.nyc.gov/floodhazardmapper

Info briefs on Flood Resilience Zoning, Flood Risk, Flood Resilient Construction, and Flood Insurance (available in 6 other languages!)
www.nyc.gov/resilientneighborhoods
FloodHelpNY.org
Home Resiliency Plan
presented by
About FloodHelpNY.org

Created to Engage & Inform NYC Homeowners

Help NYC Residents Protect Their Home & Finances from Flooding

Flooding is Expected to Worsen with Rising Sea Levels

The Cost of Flood Insurance Coverage is Expected to Increase

The Special Flood Hazard Areas in NYC Will Expand by 2020
Find yourself on the flood map

NYC’s flood zones are changing soon. With just your address, we can tell you what it means for you.
Learn about flood risk

This property is currently in a high risk zone.

Since maps can be imprecise, we can’t be 100% certain your property is in one or more of these zones. Learn More in our Terms & Conditions.
Lower your risk & your rate

There are many ways to reduce your flood risk — and many of those ways also lower your flood insurance cost.
Ways to lower your rate

**Elevate your home**

- Puts your house completely above predicted flood water levels.
- For your current zone (AE):
  - \$7439 saved /year*
- For your future zone (AE):
  - \$9996 saved /year*

**Fill in your basement**

- Reduces damage to your home’s structural foundation.
- For your current zone (AE):
  - \$6525 saved /year*
- For your future zone (AE):
  - \$9082 saved /year*

Learn More
Home Resiliency Plans
About Home Resiliency Plans

**Connect** eligible homeowners with engineers in select communities

**Provide** resiliency assessments so that you can make **informed decisions** about reducing risk of future floods

**Counseling** on the financial impact of the resiliency measures

**ELEVATION CERTIFICATES & MITIGATION MEASURES MAY HELP LOWER FLOOD INSURANCE RATES NOW & IN THE FUTURE**
What do homeowners receive?

- Resiliency Assessment by a Qualified Engineering Firm
- An Elevation Certificate
- Customized Resiliency Plan
- Counseling to Review Your Plan & Resiliency Options
HOW IT WORKS

An Engineer Assesses Your Home’s Vulnerability to Flooding

A qualified engineering firm will take measurements of your home to assess its strength and resistance to flooding, and will issue you an elevation certificate.

A Customized Resiliency Plan is Created for You

We will provide a plan that outlines the options that fit your home best. You can share this report with contractors, insurance agents, and others who will be helping to make your home more flood resistant.
Eligibility

- Applicant is the property owner
- Property is a primary residence
- Property is located in one of the 9 selected neighborhoods:
Questions?
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**STEP 1**
Pick a building in your neighborhood. It can be the place you live, work or are interested in!

**STEP 2**
Build the existing conditions of your building with available cut-out cards (black and white).

**STEP 3**
Place your flood elevation (low, medium or high) above existing building and check your risk!

**STEP 4**
Retrofit your building to become resilient by using available cards (colored).

**STEP 5**
Add the zoning envelope that reflects your neighborhood's zoning above the flood level.

**STEP 6**
Check if there are any zoning conflicts. Does the retrofitted building fit within the envelope?

**STEP 7**
Add your building to the wall and imagine how your neighborhood could look like!

**STEP 8**
What do you think about the results? Add a post-it with your thoughts on the wall!