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Storm Recovery**

# Public Housing Resiliency PILOT Project

Long Beach Housing Authority | Channel  
Park Homes

Day, Month Date, Year

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# Partners



## Enterprise Community Partners

- Provides technical and advisory support for the selection of resiliency interventions;
- Facilitates planning to establish project guidelines, outline project goals, and create milestones.

## D&B Engineers and Architects, P.C.

- Develops detailed designs and construction documents for proposed improvements.

## Long Beach Public Housing Authority (LBHA)

- Partners with GOSR and other Project Partners on the implementation of proposed resiliency work;
- Partners with GOSR and other Project Partners to engage Housing Authority staff and residents.



## Funding Summary

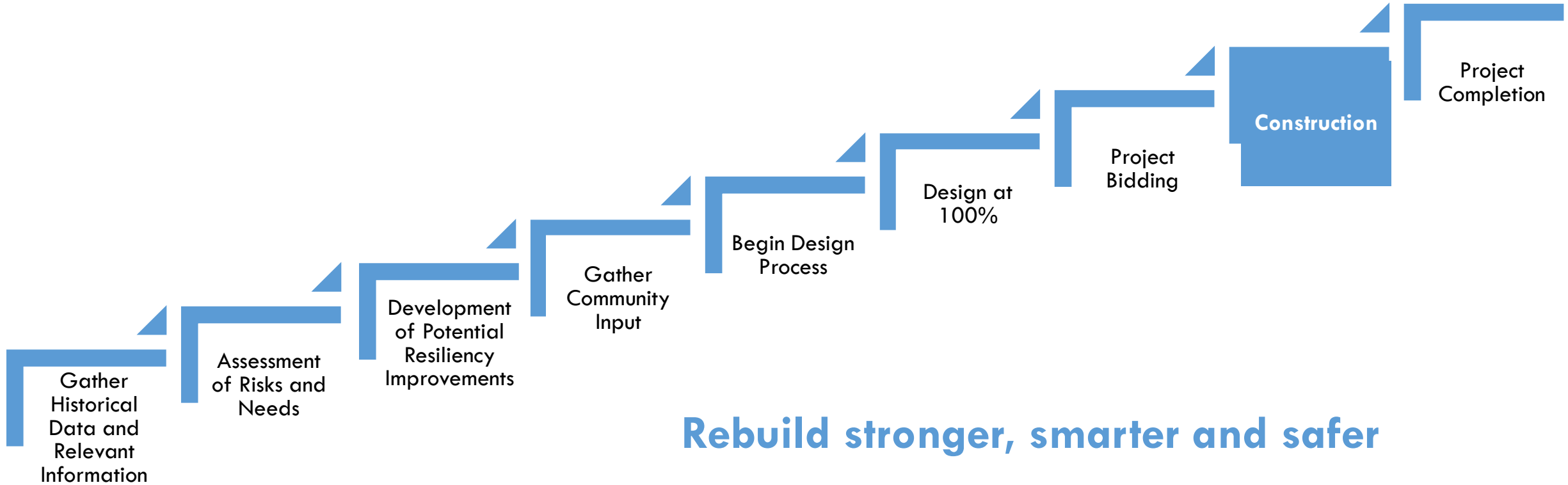
- ❖ The U.S. Department of Housing and Urban Development (HUD) made \$1 billion available to communities that have been struck by natural disasters in recent years through National Disaster Resilience Competition (NDR).
- ❖ \$35.8M was awarded for Resiliency improvements and Workforce Development at five public housing developments on Long Island and Upstate New York
- ❖ The Public Housing Resiliency Pilot Project is part of Governor Andrew M. Cuomo's directive to help New York communities to build back stronger and smarter



# Project Progress Overview



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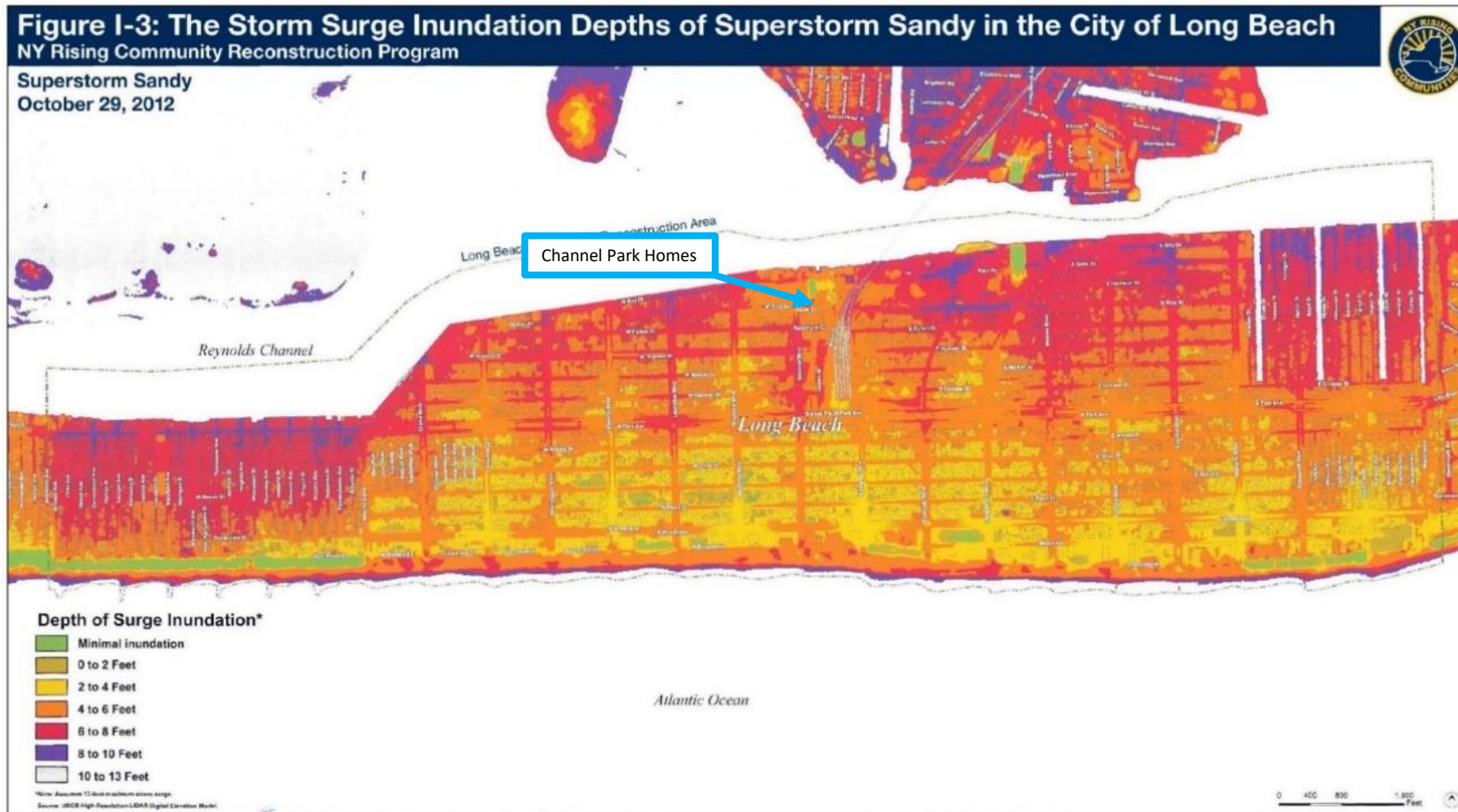
# VULNERABILITY



# Recap - Wake of the Storm



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- ❖ Approximately 2 million utility customers lost power. At Channel Park, electricity was lost for approximately one month.
- ❖ 300,000 housing units were damaged or destroyed statewide. Channel Park Homes sustained flood damage to all 108 units.
- ❖ The central administration building and community facility spaces were also damaged by rising floodwaters..

## RECAP – IMPROVEMENTS UNDERTAKEN FOLLOWING STORM

### FEMA Hazard Mitigation Project:

- Installation of new MEP equipment and flood walls around the MEP buildings and flood barrier systems around the entrances of the MEP buildings. (Similar work will be performed for the administration building and construction is expected to begin towards the end of 2020.)

### FEMA/PHARP

- The Public Housing Assistance Relief Program (PHARP) seeks to repair/reconstruct storm-damaged Public Housing Authorities (PHAs) properties, and new construction to mitigate the impact on housing authorities in future events.

### NDR

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## Recap – LBHA Community Meeting

The Community was asked to evaluate the following proposals:

- ▶ Community Building
- ▶ Comprehensive Exterior Protections
- ▶ Site Lighting / Solar Panels / Backup Power
- ▶ Flat Roof Surfaces
- ▶ Interior Storm-safe AC Units
- ▶ Stormwater Drainage / Site Enhancements
- ▶ Perimeter Walls

### *Survey Results*

| <i>Resiliency Improvements</i>          | <b>Aggregate Ranking</b> |
|---|--------------------------|
| Comprehensive Exterior Protections      | 1                        |
| Site Lighting/Solar Panels/Backup Power | 1                        |
| Flat Roof Surfaces                      | 3                        |
| Stormwater Drainage/Site Enhancements   | 3                        |
| Interior Storm-Safe Heat Pumps          | 5                        |
| Perimeter Walls                         | 6                        |
| Community Building                      | 7                        |

# Recap – Improvement Rankings



Channel Park Homes, Long Beach – DASNY/GOSR Resiliency Project D&B 3848 – II  
ALTERNATIVE RANKING MATRIX - UPDATED APRIL 2019

| Improvements   | Primary Factors (Double Weighted)** |                      |              | Secondary Factors     |            |                         |            |                |                 | Total* | Ranking |
|--|-------------------------------------|----------------------|--------------|-----------------------|------------|-------------------------|------------|----------------|-----------------|--------|---------|
|  | Resiliency                          | Community Acceptance | Capital Cost | Life Span/ Expectancy | Aesthetics | Annual Maintenance Cost | Redundancy | Sustainability | Quality of Life |        |         |
| Comprehensive Exterior Protections - (Dry Floodproof Apartment Buildings)          | 3                                   | 3                    | 2            | 3                     | 3          | 3                       | 3          | 3              | 3               | 34     | 1       |
| Resilient Flat Roof Surfaces - (New Roofs for Apartment Buildings)                 | 3                                   | 3                    | 2            | 3                     | 3          | 3                       | 2          | 3              | 3               | 33     | 2       |
| Sitewide Backup Generators and Emergency Site Lighting-                            | 3                                   | 3                    | 3            | 3                     | 1          | 2                       | 3          | 2              | 3               | 32     | 3       |
| Installation of Interior Storm-safe AC Units                                       | 2                                   | 3                    | 3            | 2                     | 3          | 3                       | 2          | 2              | 3               | 31     | 4       |
| Construction of Second Story Over Administration Building                          | 3                                   | 1                    | 1            | 3                     | 3          | 3                       | 3          | 3              | 3               | 28     | 5       |
| Installation of Solar Panels with Battery Backup Storage - Administration Building | 2                                   | 2                    | 3            | 2                     | 1          | 3                       | 3          | 3              | 1               | 27     | 6       |
| Green Infrastructure - Rain Gardens  | 1                                   | 3                    | 3            | 1                     | 3          | 1                       | 1          | 3              | 3               | 26     | 7a      |
| Green Infrastructure - Underground Storage/Infiltration                            | 1                                   | 3                    | 3            | 2                     | 3          | 2                       | 1          | 1              | 3               | 26     | 7b      |
| Installation of Solar Panels with Battery Backup Storage - Apartment Buildings     | 2                                   | 3                    | 1            | 2                     | 1          | 1                       | 3          | 3              | 3               | 25     | 8       |
| Installation of Flood Walls/Barriers at Building and/or Site Perimeter             | 2                                   | 1                    | 3            | 3                     | 1          | 2                       | 2          | 3              | 1               | 24     | 9       |

**Notes**

\*Highest Score = Most Feasible Alternative  
\*\*Primary Factors receive double the points scored

1 = Not Effective  
2 = Satisfactory  
3 = Very Effective

# Proposed Resiliency Improvements – Channel Park Homes

- Comprehensive Exterior Protections - Apartment Buildings
- Roof Replacement – Apartment and Administration Buildings
- Back-up Power – Administration Building
- Interior Storm-safe AC Units – Apartment Buildings
- Social Resilience – Workforce Development Training at Long Beach Adult Learning Center



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## Elevation Terminology

Guidance on flood mitigation can be highly technical. Being familiar with these terms will help you better understand the recommendations in the following strategies.

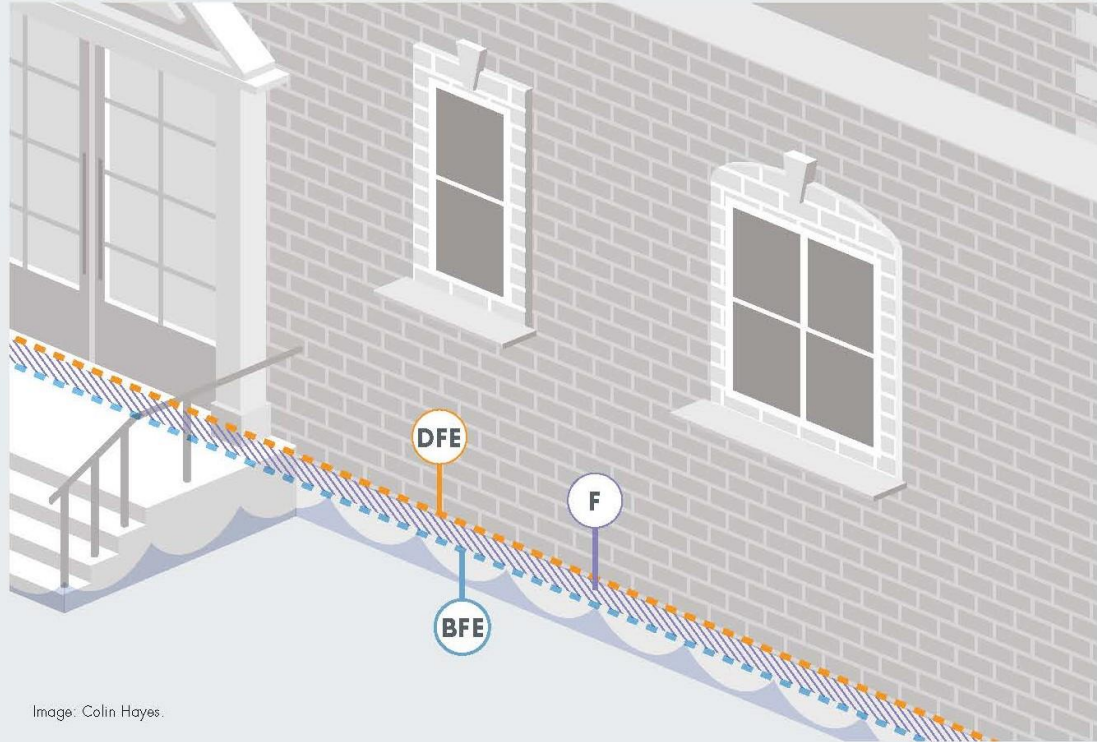


Image: Colin Hayes.

**BFE** **Base Flood Elevation (BFE)** is measured from the crest of expected wave height. It does not take into account future sea-level rise from climate change.

**DFE** **Design Flood Elevation (DFE)** is BFE plus an additional amount of safety buffer or “freeboard”. Although guidance varies by local codes, this is generally 1-2 ft. above the BFE. All design and elevation recommendations in this manual will refer to DFE.

**F** **Freeboard** is an additional safety buffer above the Base Flood Elevation. It can be thought of as the difference between the Base Flood Elevation and Design Flood Elevation

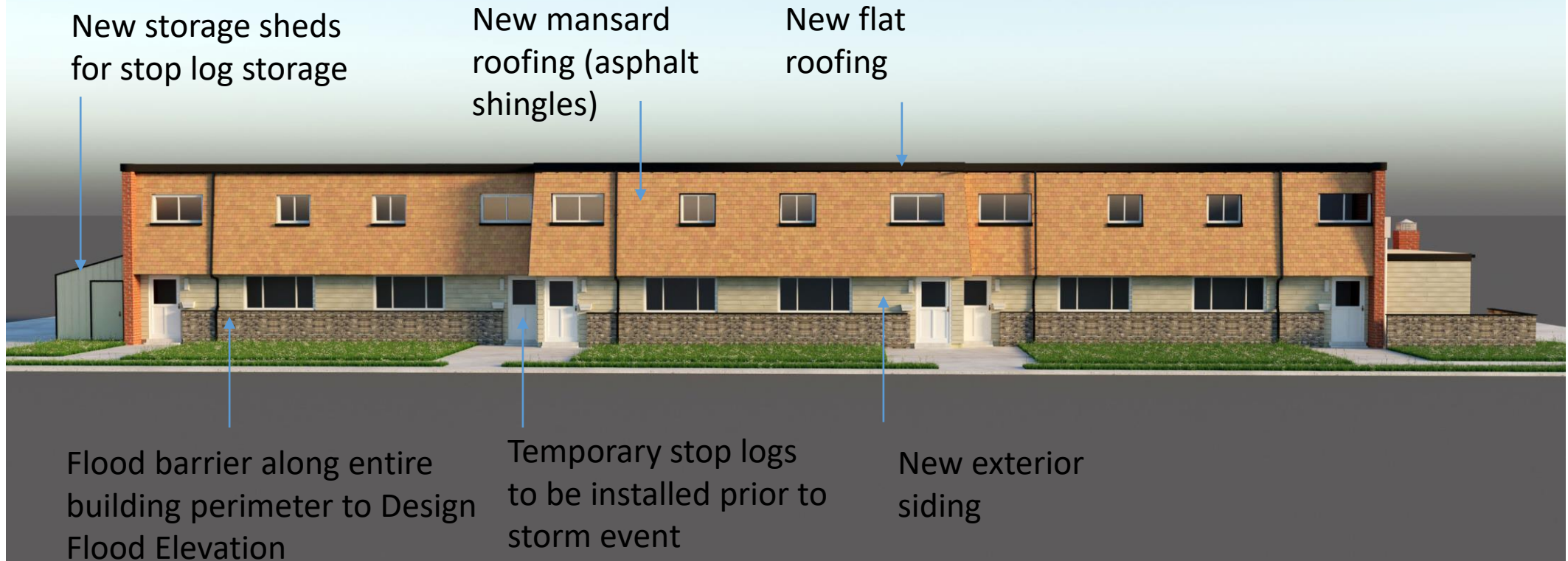
**Elevation Certificate** lets a homeowner determine where their building lies in relation to the BFE. This document is required when purchasing flood insurance.

# ELEVATION TERMINOLOGY

# Proposed Resiliency Improvements – Overview: Apartment Buildings



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# Proposed Resiliency Improvements Comprehensive Exterior Protections



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## Installation of Flood Barrier at Building Walls

- ❖ **Description:** Concrete flood barrier finished with stone veneer will be constructed along the lower portions of apartment building walls.
- ❖ **Primary Benefit:** Water will be prevented from entering and damaging buildings.
- ❖ **Ancillary Benefit:** New siding will improve the look and feel of the apartment buildings.



Proposed Flood Barrier

# Proposed Resiliency Improvements Comprehensive Exterior Protections



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## Installation of Stop Logs at Building Entrances

- ❖ **Description:** Temporary stop logs will be installed at all building entrances prior to a storm event.
- ❖ **Primary Benefit:** Water will be prevented from entering and damaging buildings. Entrances will be kept free of obstructions during non-flooding periods.



Sample Stop Log System

Source: PS Flood Barriers

# Proposed Resiliency Improvements Comprehensive Exterior Protections



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## Installation of metal storage sheds

- ❖ **Description:** Installation of new metal storage sheds to store proposed stop logs.
- ❖ **Primary Benefit:** Storage sheds in the vicinity of apartment buildings will allow for quick deployment of stop logs. Stop logs will be properly stored and protected from the elements ensuring functionality.







# Proposed Resiliency Improvements Comprehensive Exterior Protections

## Improve Existing Flood Walls

- ❖ **Description:** Installation of new stone veneer on existing concrete flood walls.
- ❖ **Primary Benefit:** New stone veneer will improve the look and feel of the existing flood walls and match proposed apartment improvements.





# Proposed Resiliency Improvements Comprehensive Exterior Protections

## Installation of Sliding Doors, Front Doors, and Storm Doors

- ❖ Description: All existing doors for the apartment units will be replaced including sliding doors, front doors, and storm doors.
- ❖ Primary Benefits: New doors will provide better energy efficiency and protection from elements.
- ❖ Ancillary Benefit: New doors will improve the look and feel of the apartment buildings.





# Proposed Resiliency Improvements Comprehensive Exterior Protections

## Installation of Hardie-Plank Siding at Building Walls

- ❖ Description: Existing vinyl siding will be replaced with durable fiber-cement siding.
- ❖ Primary Benefits: Fiber-cement siding will provide more protection than other siding materials against moisture, freezing conditions, and hot, humid weather. This siding can be installed with a water-proof membrane behind.
- ❖ Ancillary Benefit: New siding will improve the look and feel of the apartment buildings.

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# Proposed Resiliency Improvements Comprehensive Exterior Protections

## Sealing of Penetrations below Design Flood Elevation

- ❖ **Description:** Penetrations at cracks, utility services, vents, and other openings will be sealed and waterproofed. Sanitary lines will receive backflow prevention devices.
- ❖ **Primary Benefit:** Sealing penetrations below the design flood elevation will prevent flood waters from entering buildings and damaging mechanical and electrical equipment, damaging structures, and causing mold.



# Proposed Resiliency Improvements: Roof Replacement



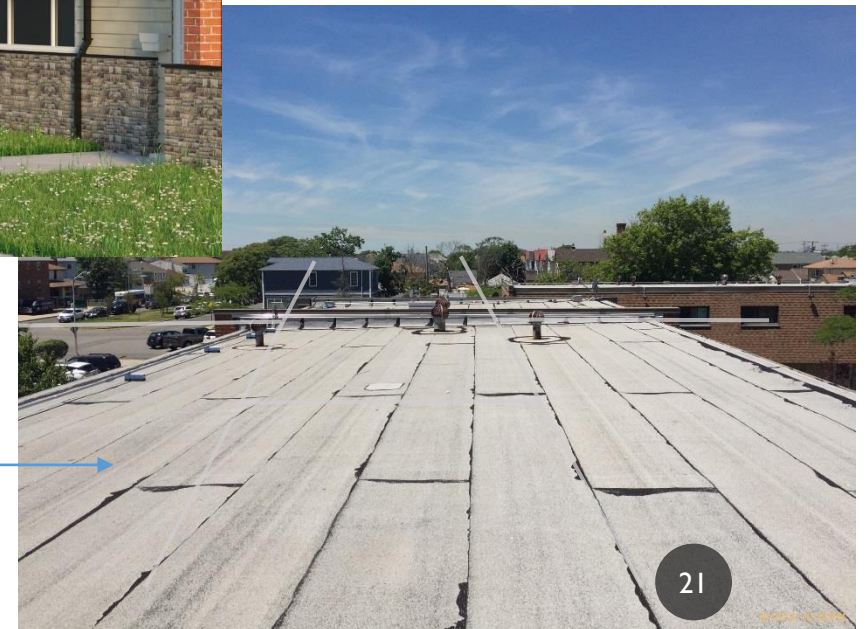
## Replace Roofs

- ❖ **Description:** Install new asphalt shingle mansard roofing on all apartment buildings. Install new modified bitumen flat roofing on all apartment buildings and administration building.
- ❖ **Primary Benefit:** New roofing will protect buildings from rain and UV damage.



New asphalt  
shingle mansard  
roofing

New modified  
bitumen asphalt  
roofing





# Proposed Resiliency Improvements: Interior Storm-Safe AC Units

## Interior Storm-Safe AC Units

- ❖ **Description:** New air conditioning units protected from storms will be installed in all apartment units.
- ❖ **Primary Benefit:** During extreme events, equipment will be protected from damage and windows will be more easily secured.
- ❖ **Ancillary Benefit:** New air conditioning equipment will be more efficient and effective at cooling apartments in the summer.



Note: Work will be required inside of apartment unit to install AC unit.



# Proposed Resiliency Improvements: Back-up Power for Administration Building

## Backup Generators

- ❖ **Description:** New stand-by natural gas backup generator installed on top of administration building roof.
- ❖ **Primary Benefit:** In a power outage, administration building will continue to have power in order to provide critical services and logistics.





# Proposed Resiliency Improvements: HVAC Equipment Replacement for Administration Building

## Replacement of HVAC Equipment on Administration Building Roof

- ❖ **Description:** All existing Heating Ventilation, and Air Conditioning (HVAC) equipment on the administration building roof will be replaced.
- ❖ **Primary Benefit:** Existing equipment is in poor condition and has exceeded the useful lifespan.





# Exterior Building Finishes: Scheme A



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# Exterior Building Finishes: Scheme B



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# Exterior Building Finishes: Scheme C



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# What to Expect During Construction?

- Access within each apartment will be required by the Contractor for the installation of AC units.
- The Contractor will be required to submit a schedule 30 days in advance of any work required inside apartments. Residents must be given 48-hour minimum notice.
- Contractors are expected to keep work areas clean. Residents will be asked to clear personal belongings as best as possible near the area of work.
- For AC unit installation residents should expect power to be unusable for a period of time while the units are installed- perhaps over the course of a few hours.
- For plumbing modifications (backflow prevention devices) residents should expect showers, toilets and other drains to be unusable for a period of time while the modifications to the sanitary plumbing outfall is being performed - perhaps over the course of a few hours.



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# Wrap-Up

- The proposed housing improvements will provide the community with more resilient housing better equipped against future storm events to maintain its habitability while concurrently providing a new look and feel to the apartment buildings.
- A connected community is a more resilient community. Through the flood protection measures being implemented through FEMA, and the standby generator being installed through GOSR, the Administration Building will have the ability to better assist residents before, during and after future disasters.





# Questions?

Please contact [info@stormrecovery.ny.gov](mailto:info@stormrecovery.ny.gov) with any questions about this project.