

Flood resilient construction reduces potential damages from flooding and can lower flood insurance premiums. New buildings in the floodplain are required to meet flood resilient standards. Existing buildings can reduce their risk by retrofitting or rebuilding to meet these standards, or can take partial, short-term measures to address safety concerns.

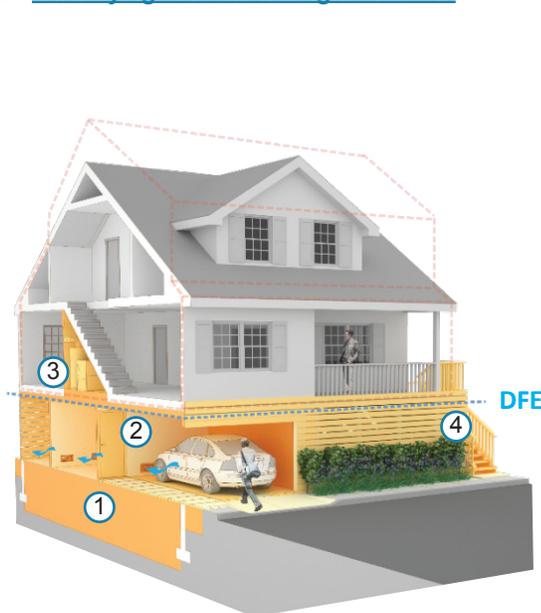
## Overview

There is a wide range of accepted flood resilient construction practices for buildings to better withstand floods and reoccupy more quickly following a storm. These include:

- Elevating the lowest floor.
- Elevating mechanical equipment such as electrical, heating, and plumbing equipment.
- **Wet floodproofing** by utilizing water resistant building materials and limiting uses below the Design Flood Elevation (DFE) to parking, building access, and minor storage. This allows water to move in and out of uninhabited, lower portions of the building with minimal damage.
- **Dry floodproofing** sealing the building's exterior to flood waters and using removable barriers at all entrances below the expected level of flooding in mixed-use and non-residential buildings.

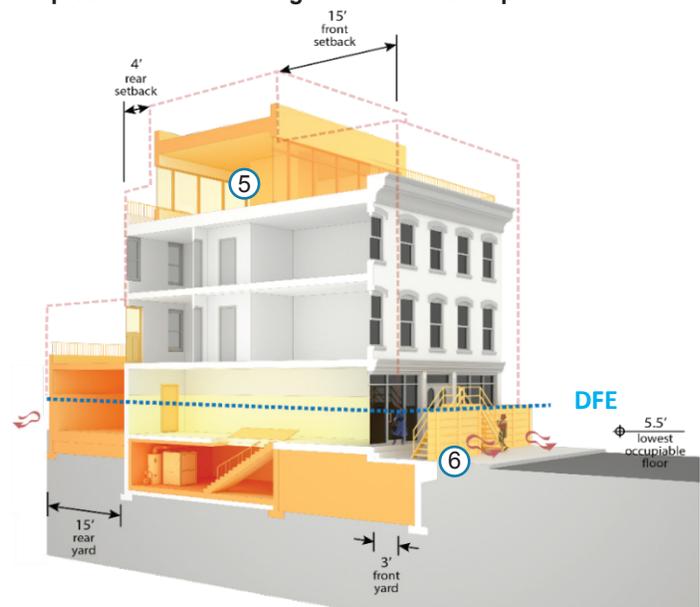
## Examples of Flood Resilient Construction

Visit [www.nyc.gov/resilientneighborhoods](http://www.nyc.gov/resilientneighborhoods) to see more examples in the *Retrofitting for Flood Risk* report.



**Wet floodproofed residential building**

- ① Site is filled to the lowest adjacent grade
- ② Space below the DFE is for parking, building access or minor storage
- ③ Mechanical systems are above the DFE
- ④ Plants and stair turns improve the look of the building from the street



**Dry floodproofed mixed-use building**

- ⑤ Rooftop addition replaces lost below grade space
- ⑥ Commercial space is dry floodproofed with removable barriers

## Requirements for New Buildings

NYC Building Code requires that all new buildings or substantial improvements within the 1% annual chance floodplain\* meet federal requirements for flood resilient construction.

- Residential buildings must elevate living spaces and may only use space below the DFE for parking, storage or building access. Mechanical systems must be elevated and enclosed walls must be wet floodproofed.
- Within the V Zone, which denotes areas subject to wave hazards, the space below the DFE must be either kept open to accommodate wave action or designed to break away during a storm.
- Mixed-use or non-residential buildings can either elevate and wet floodproof or dry floodproof.

\*Per the more restrictive of the 2007 FIRMs or 2015 PFIRMs.

## Flood Insurance

NYC is required to enforce these standards through building code to participate in FEMA's National Flood Insurance Program. Buildings that do not comply with flood resilient construction standards are at risk for both flooding and increased flood insurance rates. See the Info Brief on Flood Insurance for more information.

## Requirements for Existing Buildings

Retrofitting buildings will significantly reduce their vulnerability to damage from flooding, and could save homeowners thousands of dollars annually in flood insurance premiums.

Buildings that are substantially improved must also meet flood resilient construction code.

For buildings that are not substantially improved, lower cost, short-term adaptation measures can help reduce risk to damages caused by flooding. For example, elevating mechanical equipment to minimize damage or installing backflow valves can prevent water from flowing in the reverse direction (back up through pipes). However, such measures may not reduce premiums.

## Zoning

The **Flood Resilience Zoning Text Amendment**, a temporary measure enacted by the City after Sandy to support storm recovery, removes regulatory barriers that would hinder or prevent the reconstruction of storm-damaged properties. It also ensures that flood resilient buildings maintain neighborhood character and plants and stair turns improve the look of the building from the street. A future update of this text, guided by community input, will aim to make the text permanent and to incorporate lessons learned during the recovery and rebuilding process.

## Terms to Know

**Design Flood Elevation (DFE):** the minimum elevation to which a structure must be elevated or floodproofed, determined by adding the specified amount of freeboard, an additional height for more safety (usually 1 to 2 feet depending on building type), to the Base Flood Elevation—the anticipated elevation of a flood during a 1% annual chance storm.

**Substantial Improvement:** any repair, reconstruction, rehabilitation, addition, or improvement with a cost equaling or exceeding 50% of the current market value of the building.

City Planning is working with communities throughout the floodplain to identify zoning and land use strategies to reduce flood risks and support the city's vitality and resiliency through long-term adaptive planning. To learn more, visit [www.nyc.gov/resilientneighborhoods](http://www.nyc.gov/resilientneighborhoods).

About the Department of City Planning

The Department of City Planning (DCP) plans for the strategic growth and development of the City through ground-up planning with communities, the development of land use policies and zoning regulations, and its contribution to the preparation of the City's 10-year Capital Strategy. For more information, go to: [nyc.gov/data-insights](http://nyc.gov/data-insights)