

# *Proposed Flood Resilience Text Amendment*



# INTRODUCTION

## **Context**

January 31, 2013: Mayor's Emergency Executive Order

- Interim emergency measure to temporarily suspend certain zoning provisions in order to enable property owners to make key decisions about rebuilding
- Must be followed by a zoning text amendment

## **Purpose**

This text amendment codifies many provisions of the EO and introduces new provisions to:

- Enable buildings in flood zones to be built to FEMA flood resilient standards
- Reduce vulnerability to future flooding
- Protect against future increases in flood insurance premiums
- In coordination with other planning efforts, give owners more choices for ways to rebuild and support the recovery of neighborhoods

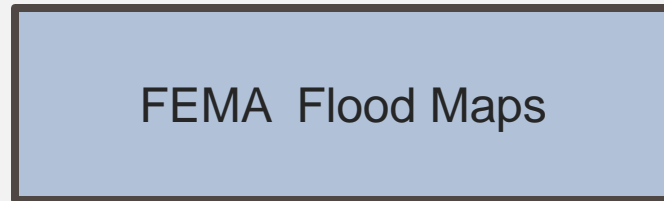
## **Applicability**

- Applies only within FEMA 100-year flood zones

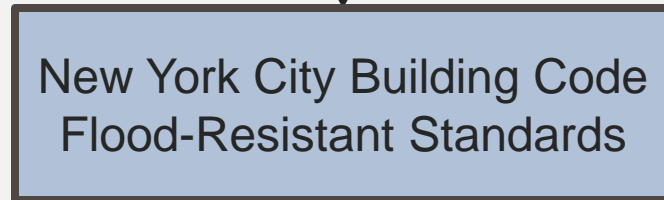
## **Emergency Nature of this Action**

- Address urgent needs to recover from the storm and rebuild to the best available flood-resistant standards
- Further text amendments expected to address more complex issues associated with buildings in flood zones
- Additional local planning will be needed in severely affected areas

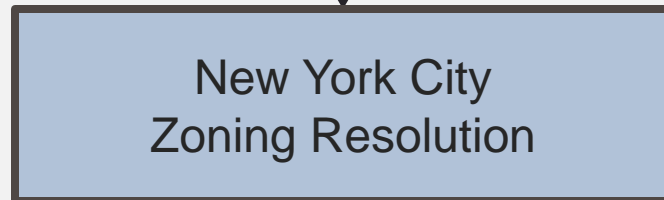
# REGULATORY FRAMEWORK



The Federal Emergency Management Agency (FEMA) creates flood maps and sets standards for flood-resistant construction.



New York City Building Code's flood-resistant construction standards must meet standards required by FEMA for flood-resistant construction, as well as State Building Code requirements for buildings in Flood Zones.



The Zoning Resolution, which regulates building size, location, and use, must accommodate buildings that meet the standards established in the Building Code.

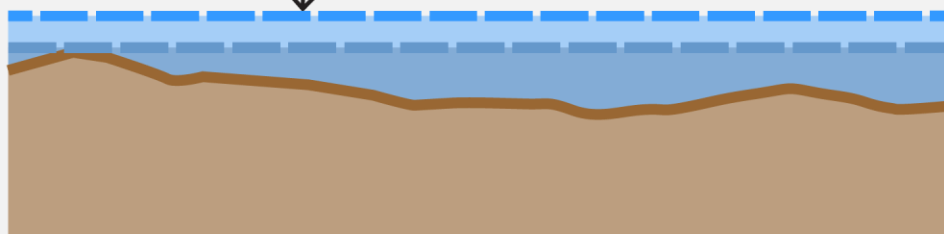
# FEMA MAPS AND BASE FLOOD ELEVATIONS

**Extent of Latest  
FEMA Flood Zones**



- FEMA Flood Maps were first adopted by NYC in 1983, and have not been significantly changed since then
- After Hurricane Sandy, FEMA released updated advisory flood maps
- These latest flood maps have not been officially adopted, but represent the best available information on flood risk, and can be used to plan the rebuilding of your home
- In these latest flood maps, the 100-year flood plain covers a larger area and flood elevations are higher
- FEMA expects new flood maps to be adopted by 2015, replacing the current maps from 1983

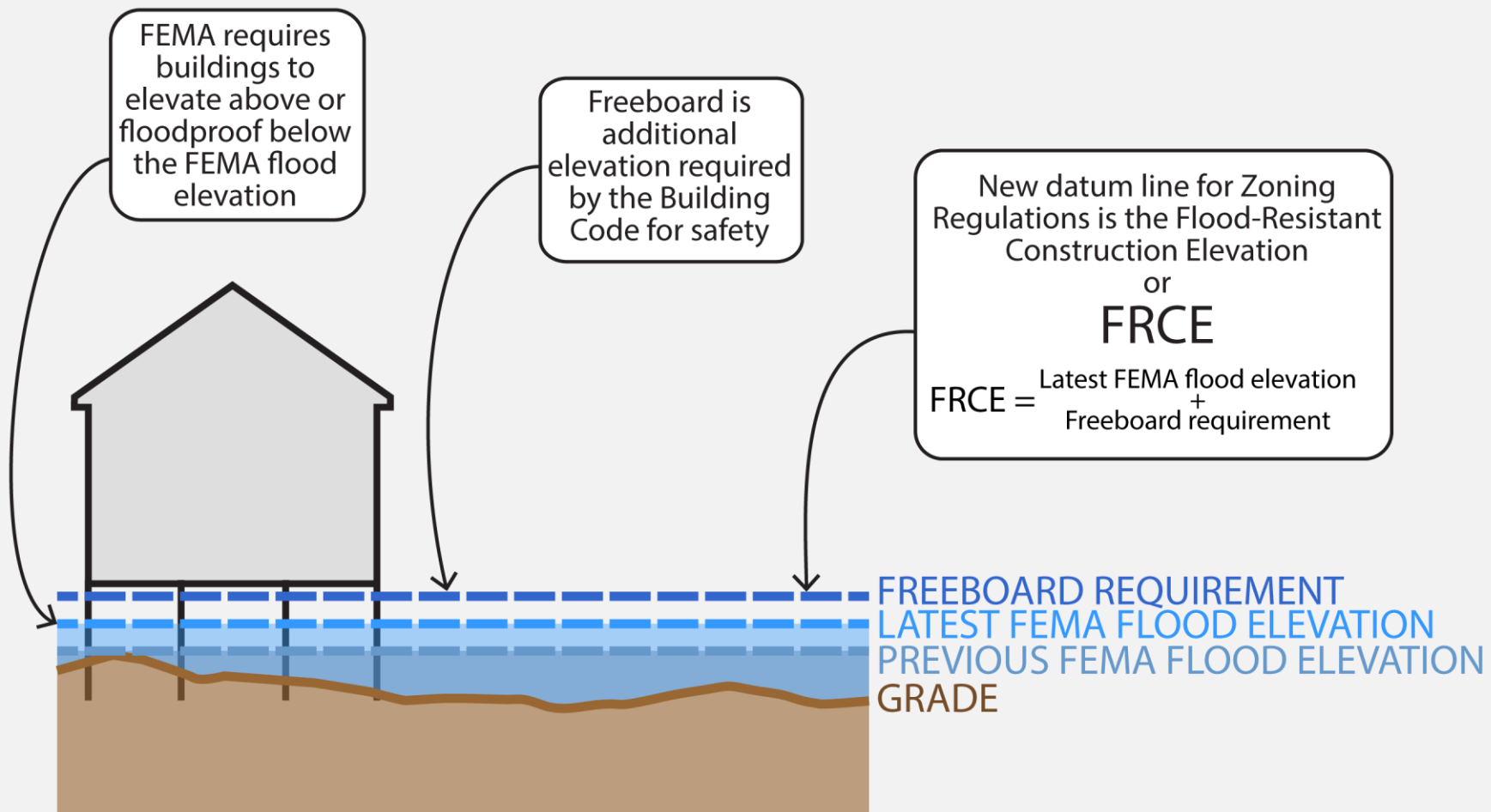
Revised flood level based on  
most current available data



**LATEST FEMA FLOOD ELEVATION**  
**PREVIOUS FEMA FLOOD ELEVATION**  
**GRADE**

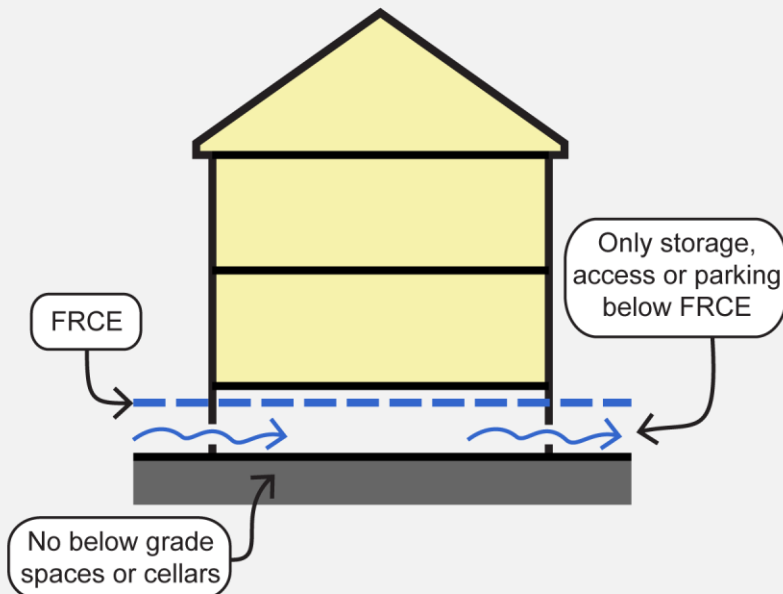


# BUILDING CODE – FREEBOARD REQUIREMENTS



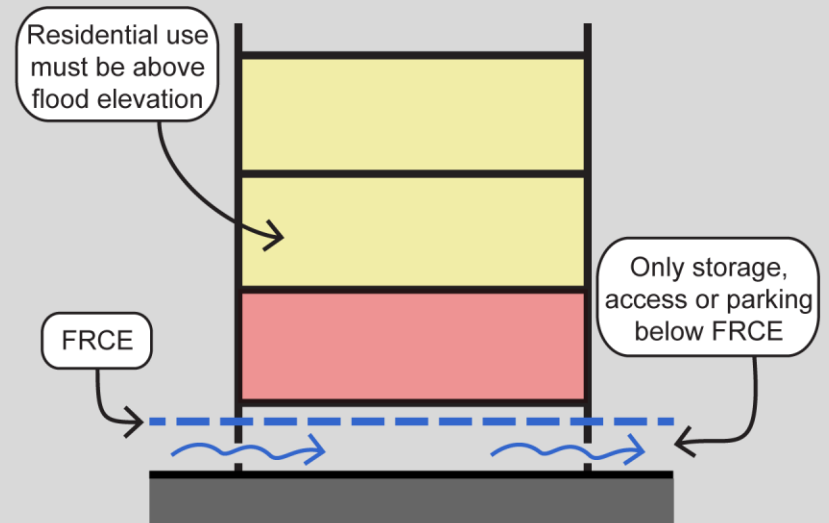
# FEMA: FLOOD ZONE CONSTRUCTION STANDARDS

## Residential buildings

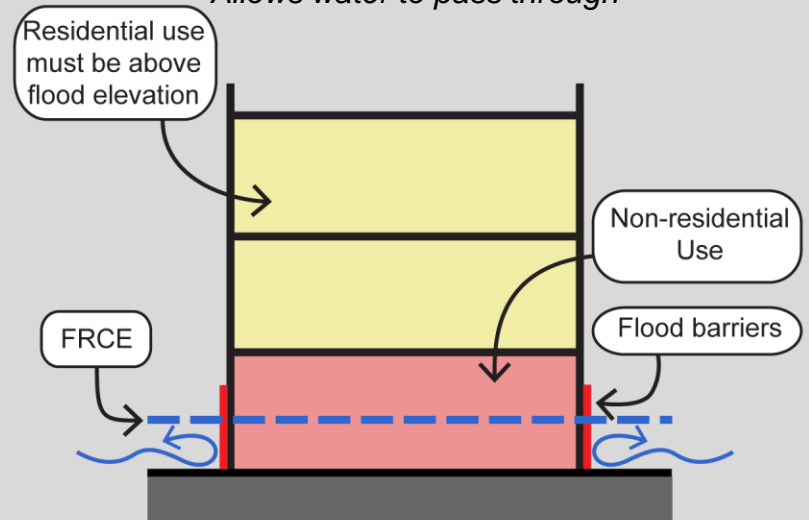


**ELEVATED / WET FLOOD-PROOFED**  
*Allows water to pass through*

## Non-residential and mixed-use

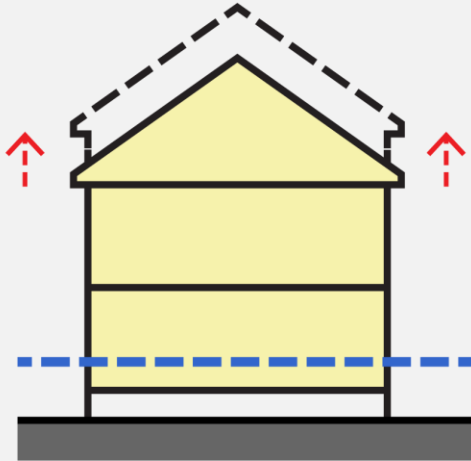


**ELEVATED / WET FLOOD-PROOFED**  
*Allows water to pass through*



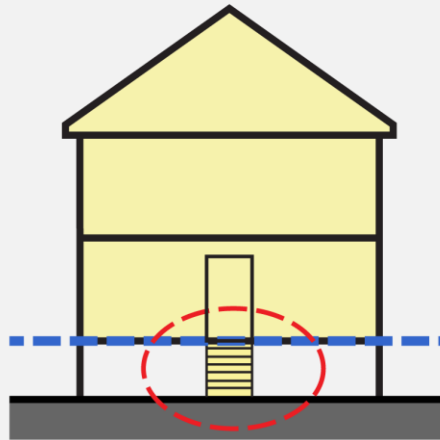
**AT GRADE / DRY FLOOD-PROOFED**  
*Keeps water out*

# ZONING ISSUES RESULTING FROM FEMA RULES



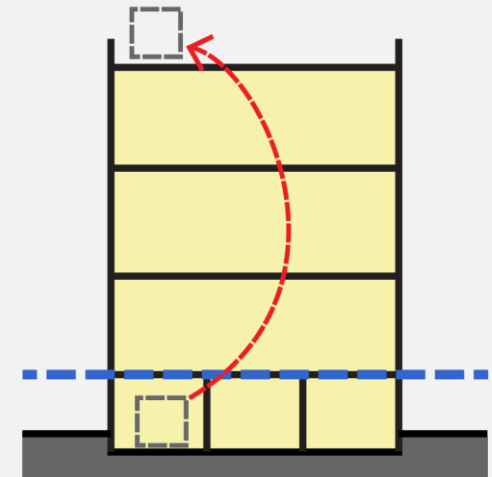
## HEIGHT

*must recognize elevation requirements in flood zones*



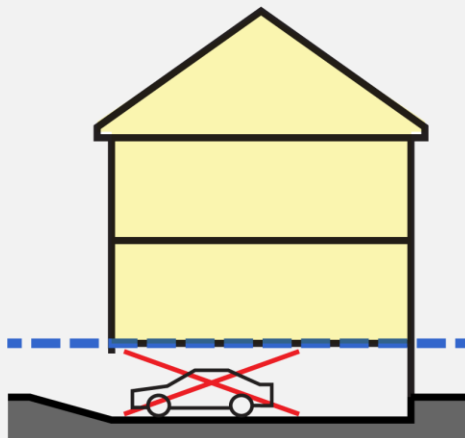
## ACCESS

*need for stairs or ramps requires imaginative solutions*



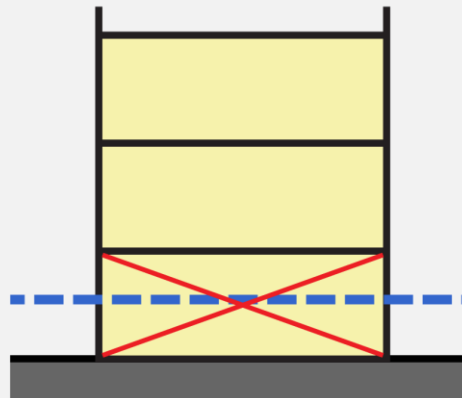
## MECHANICAL SYSTEMS

*must allow relocation out of flood-prone areas*



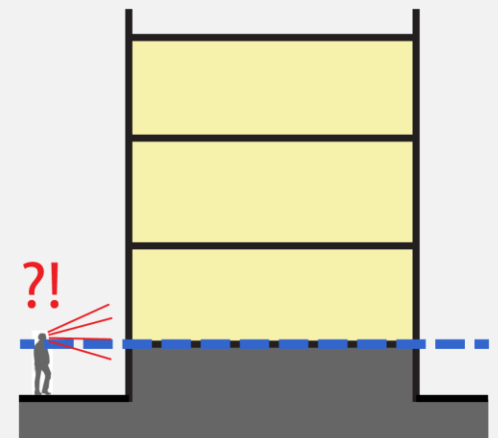
## PARKING

*may not be possible below ground*



## GROUND FLOOR USE

*buildings may be allowed only limited use of ground floors*



## STREETSCAPE

*limit negative effect of blank walls on streetscape*

# APPLICABILITY OF PROPOSAL

- ❑ Applies within the 100-year flood zones shown on the latest FEMA flood maps
- ❑ Applies to buildings that comply with the flood-resistant standards of the Building Code using latest FEMA flood elevations.
  - ❑ New buildings are required to comply with the flood-resistant standards
  - ❑ Substantially damaged or substantially improved buildings (improvements exceed 50 percent of pre-storm value of the building) must also comply
  - ❑ Other buildings may choose to comply to lower their flood insurance premiums
- ❑ All new or elevated buildings in 100-year flood zones will be subject to new zoning rules to mitigate the visual effect of higher first floors

# OUTLINE OF THE PROPOSAL

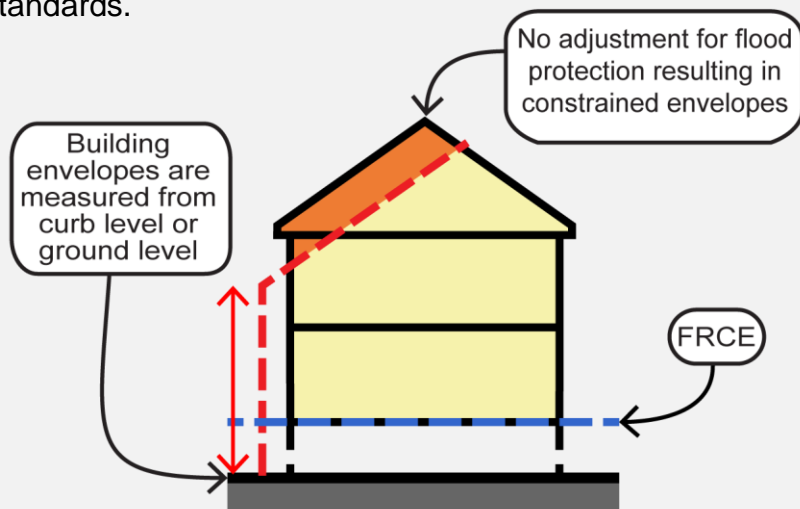
- ❑ MEASURING BUILDING HEIGHT
- ❑ ACCESS
- ❑ MECHANICAL SYSTEMS
- ❑ PARKING
- ❑ GROUND FLOOR USES
- ❑ STREETSCAPE
- ❑ WATERFRONT ZONING
- ❑ GRANDFATHERING, CERTIFICATIONS, AND BSA PERMITS

# MEASURING BUILDING HEIGHT

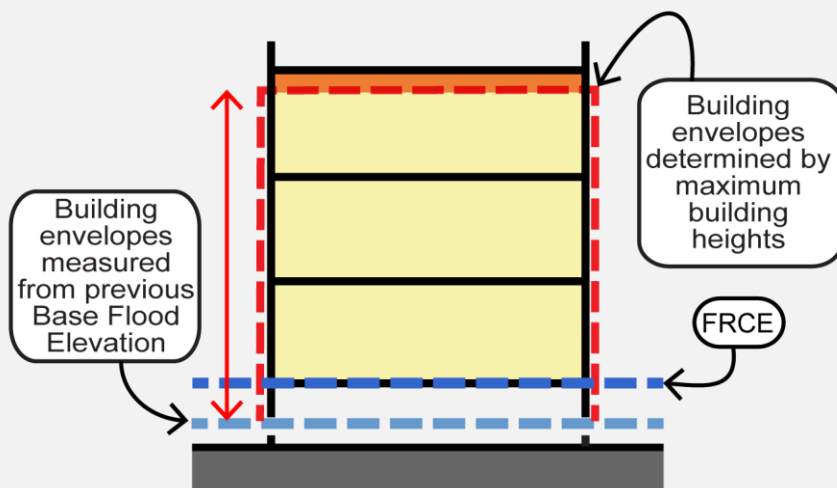
# NEW REFERENCE POINT

## Issue

Existing rules are not based on current flood-resistant standards.



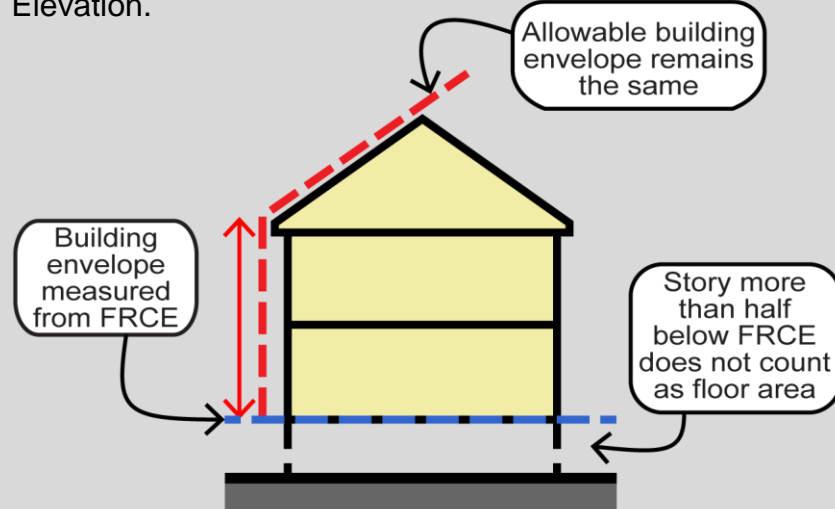
**Sky exposure plane districts**



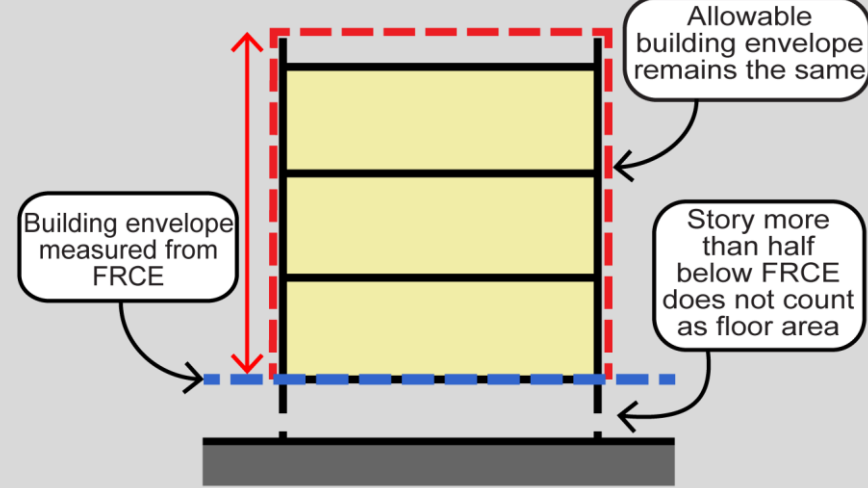
**Base plane districts**

## Proposal

Measure all buildings from Flood Resistant Construction Elevation.



**Sky exposure plane districts**



**Base plane districts**

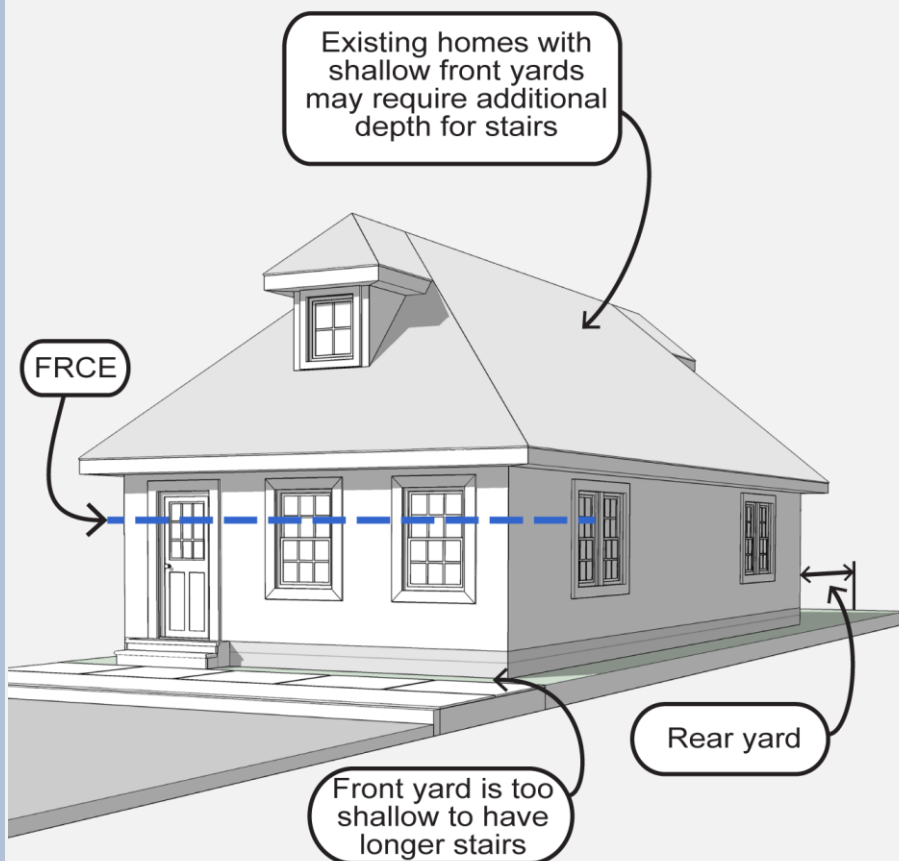




# REPOSITIONING OF EXISTING 1 & 2 FAMILY HOMES TO ACCOMMODATE LONGER STAIRS

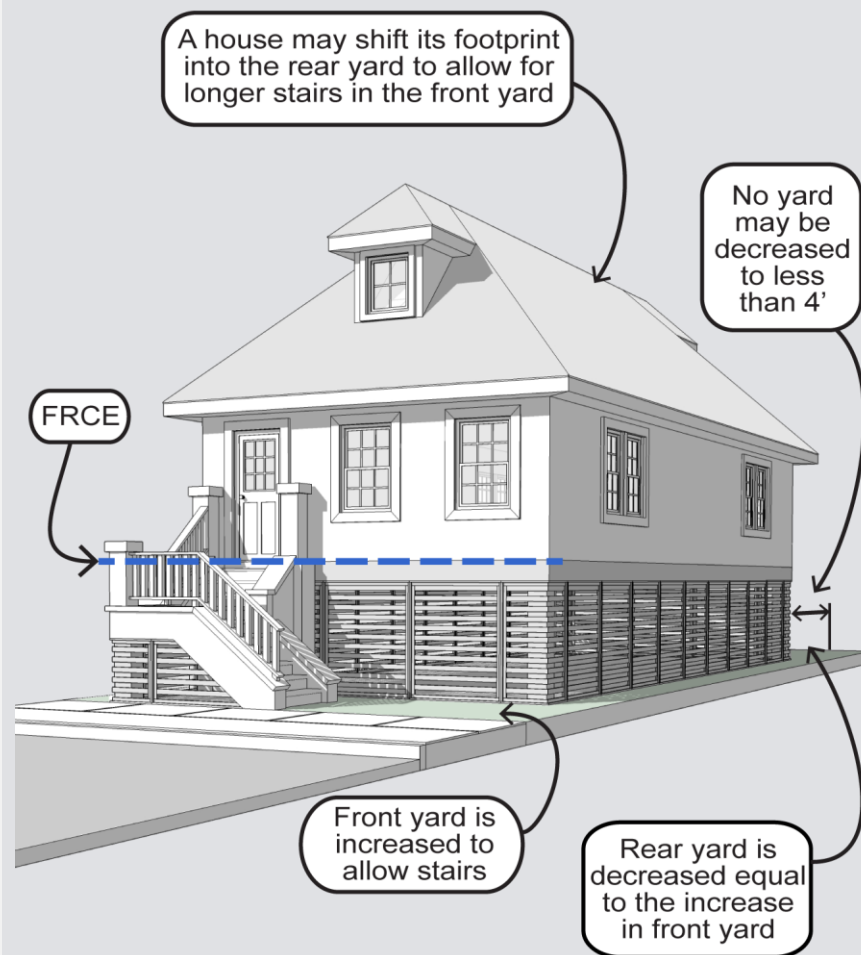
## Issue

Existing homes may need to be elevated, but new, longer stairs may not fit within the existing front yard.



## Proposal

To accommodate a front stair, allow existing one or two-family homes that are elevated to encroach into a rear yard by an equal amount that the front yard is increased.



# ACCOMMODATE INTERIOR STAIRS IN 1 & 2 FAMILY HOMES

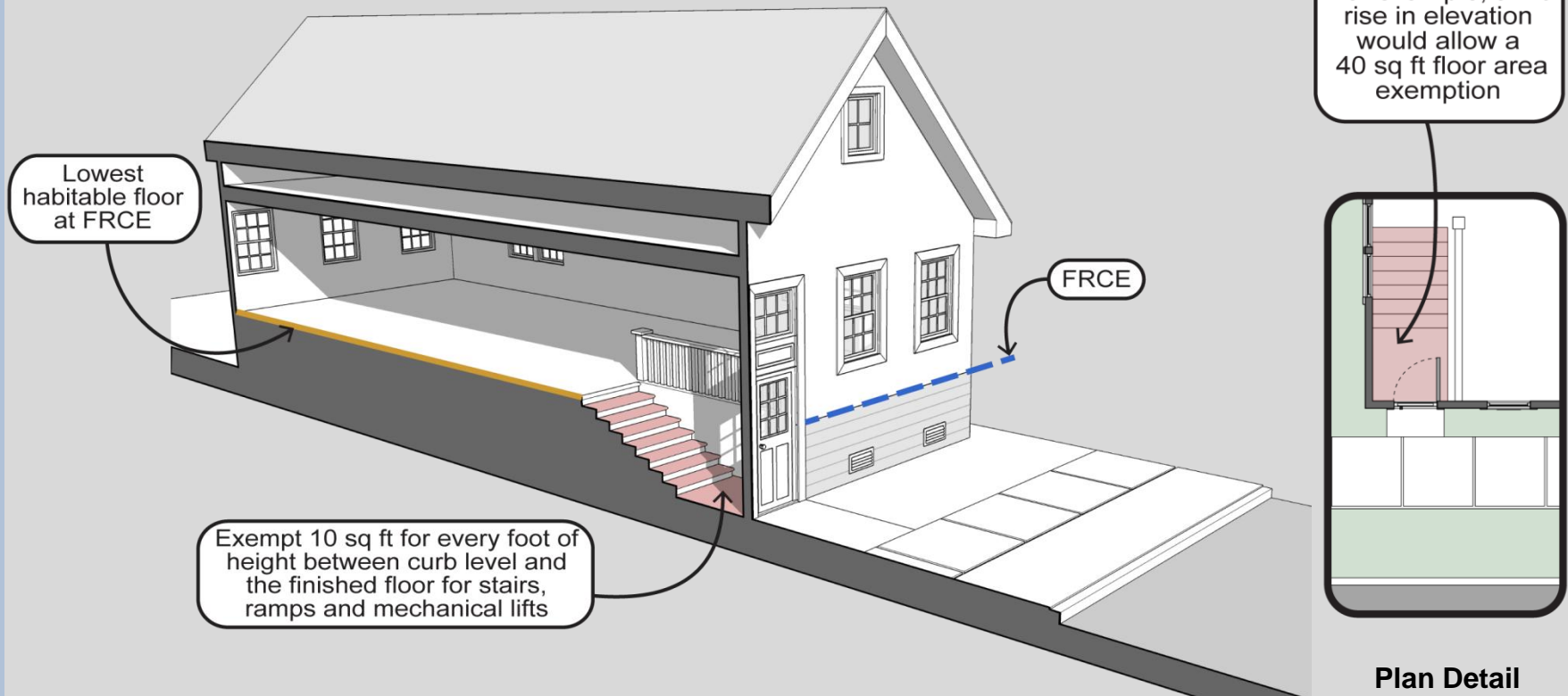
## Issue

An alternative to repositioning a home may be to provide stairs inside the front door rather than in the front yard, for weather protection or because shifting the foundation would be difficult.

In this situation, counting enclosed entryways as “floor area” would reduce the amount of living space allowed within the home.

## Proposal

For all 1 and 2 family homes, exempt enclosed entryways that access the first habitable floor from floor area calculations, with a cap based on the elevation of the lowest floor.



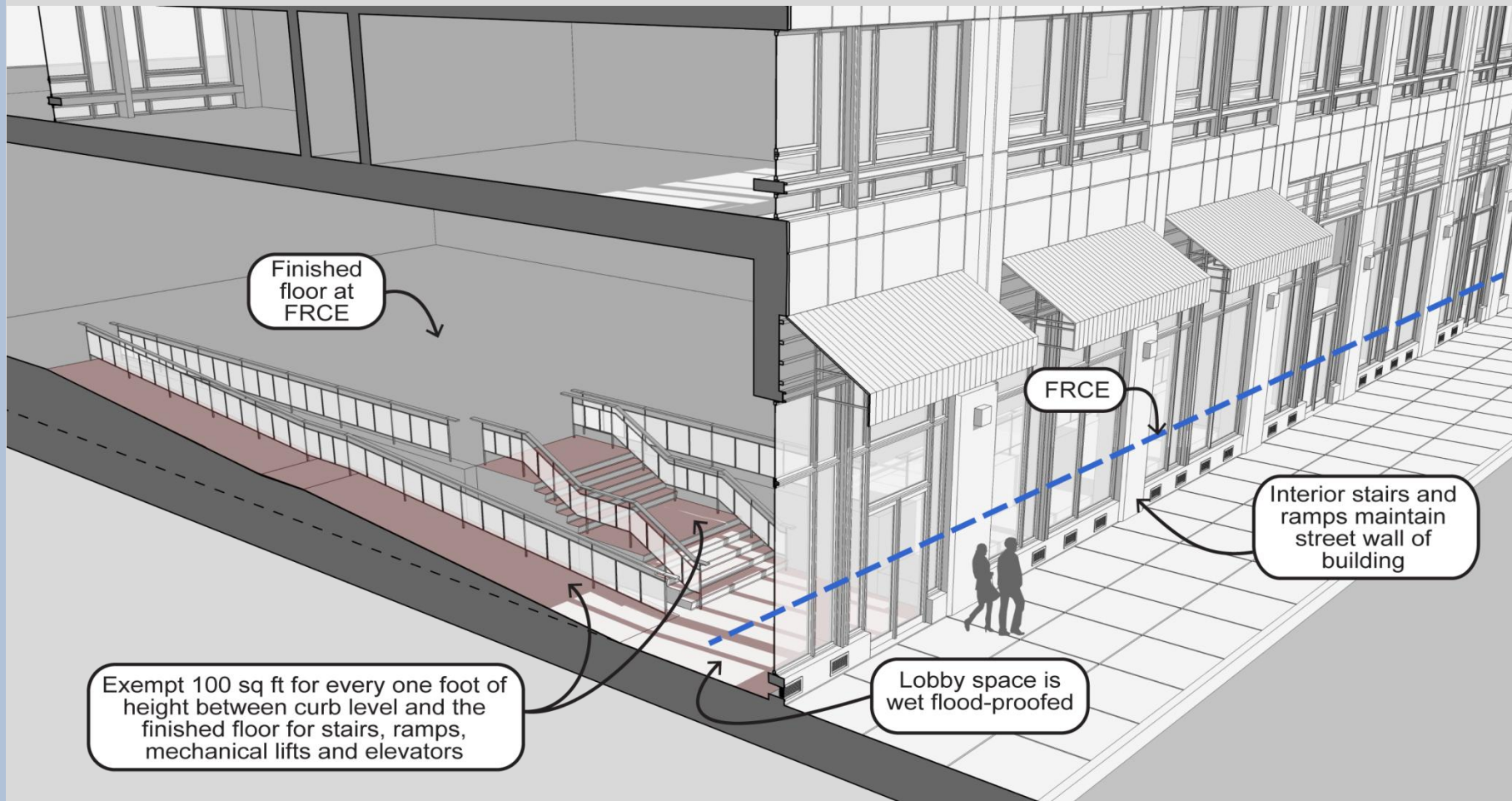
# ACCOMMODATE INTERIOR ACCESS TO FIRST FLOOR

## Issue

Interior stairs and ramps (required for buildings other than 1- and 2-family homes) may be preferable to exterior stairs and ramps, but require large amounts of floor space.

## Proposal

Exempt interior stairs, ramps and elevators from floor area, with a cap based on the elevation of the lowest floor.





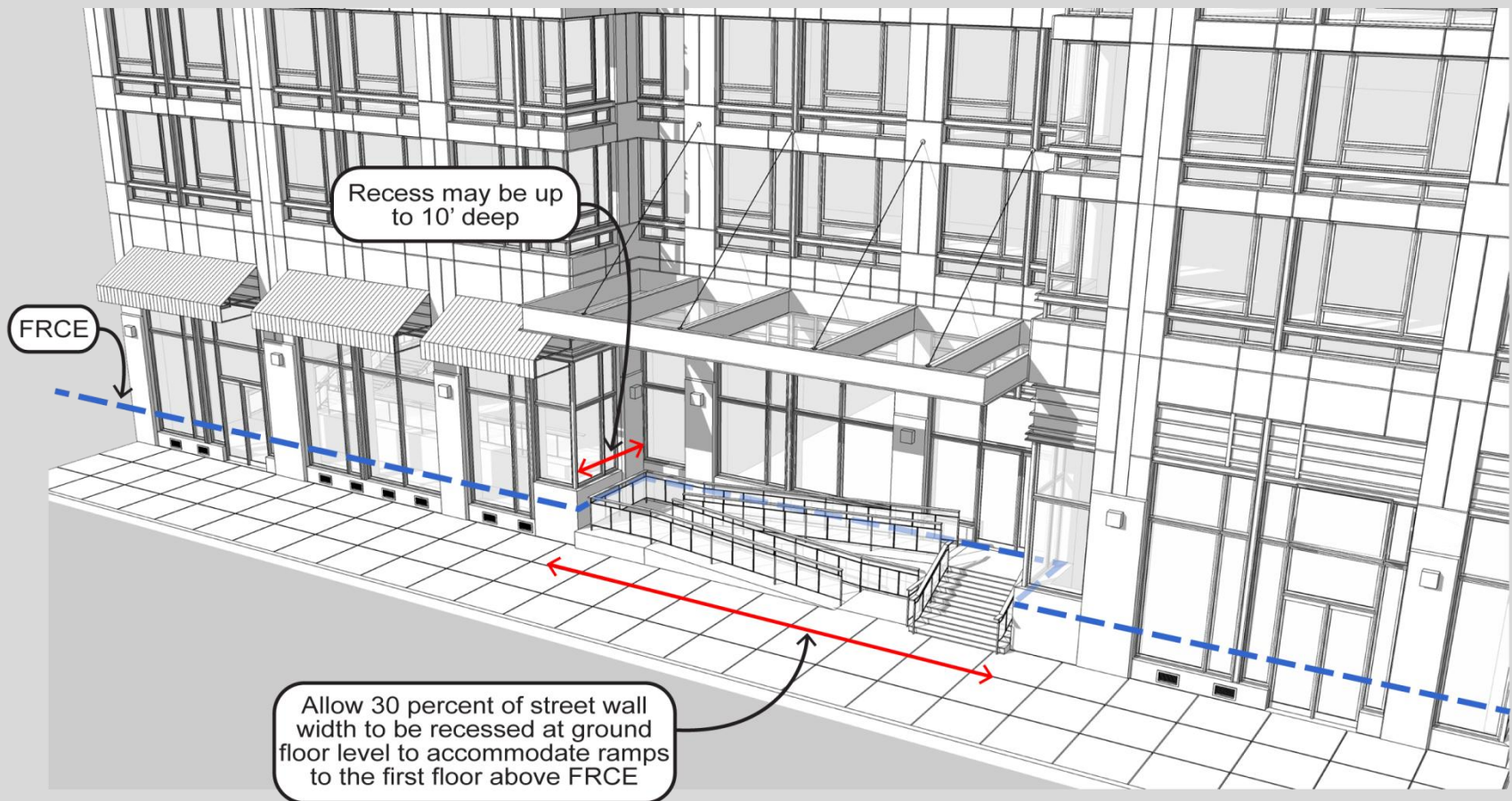
# MODIFY STREET WALL RULES

## Issue

Continuous street wall location requirements can conflict with the need for access to raised first floors.

## Proposal

Allow more flexibility to accommodate longer stairs and ramps.



# FLOOD PANELS IN YARDS, COURTS, AND OTHER OPEN AREAS

## Issue

Certain flood protection features are not allowed in yards, courts, and other open areas.

## Proposal

Allow deployable flood panels within yards, courts and other open areas as permitted obstructions.



Image courtesy of [www.floodpanel.com](http://www.floodpanel.com)





# PERMITTED OBSTRUCTIONS : LIFTS

## Issue

Certain access features, such as lifts for persons with disabilities are not allowed in required yards, courts or other open areas.

## Proposal

Allow lifts in required yards, open areas, and courts as permitted obstructions.



All images on this page © [www.trustram.com](http://www.trustram.com)

# MECHANICAL SYSTEMS

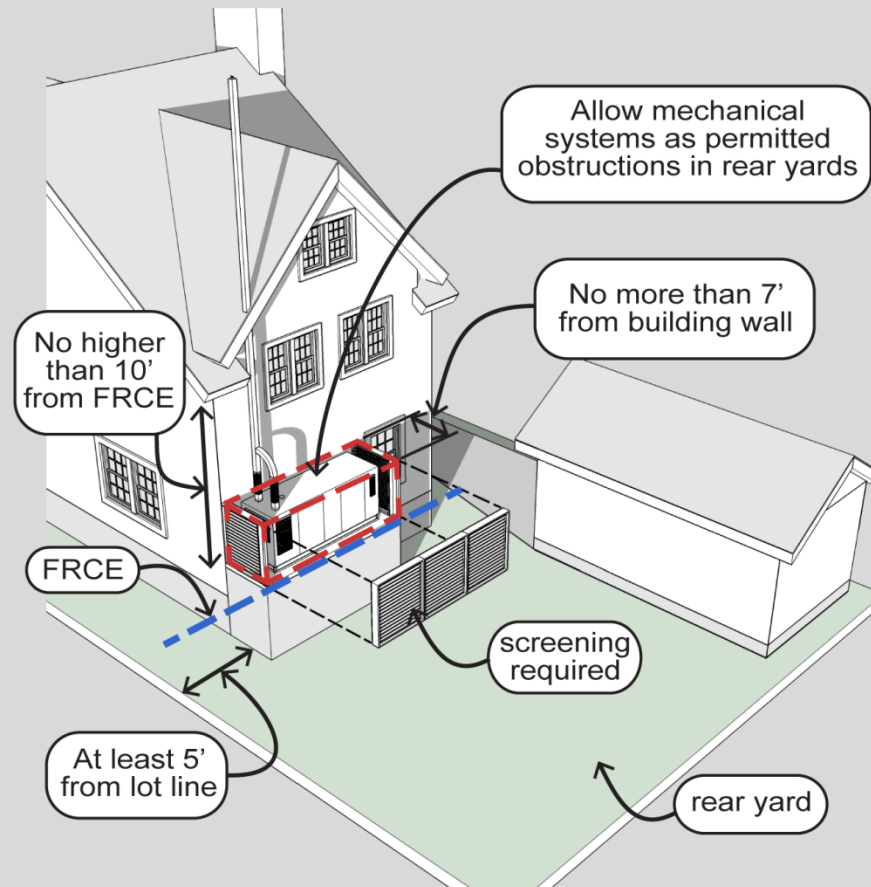
# ALLOW IN YARDS FOR EXISTING 1 & 2 FAMILY HOMES

## Issue

Existing homes may need to safeguard their mechanical equipment by removing it from below-grade spaces, but there may be no place to put the equipment within the home.

## Proposal

Allow alternative locations for mechanical equipment for existing one- and two-family homes, such as rear and side yards.





# ALLOW ABOVE DETACHED GARAGES FOR EXISTING 1 & 2 FAMILY HOMES

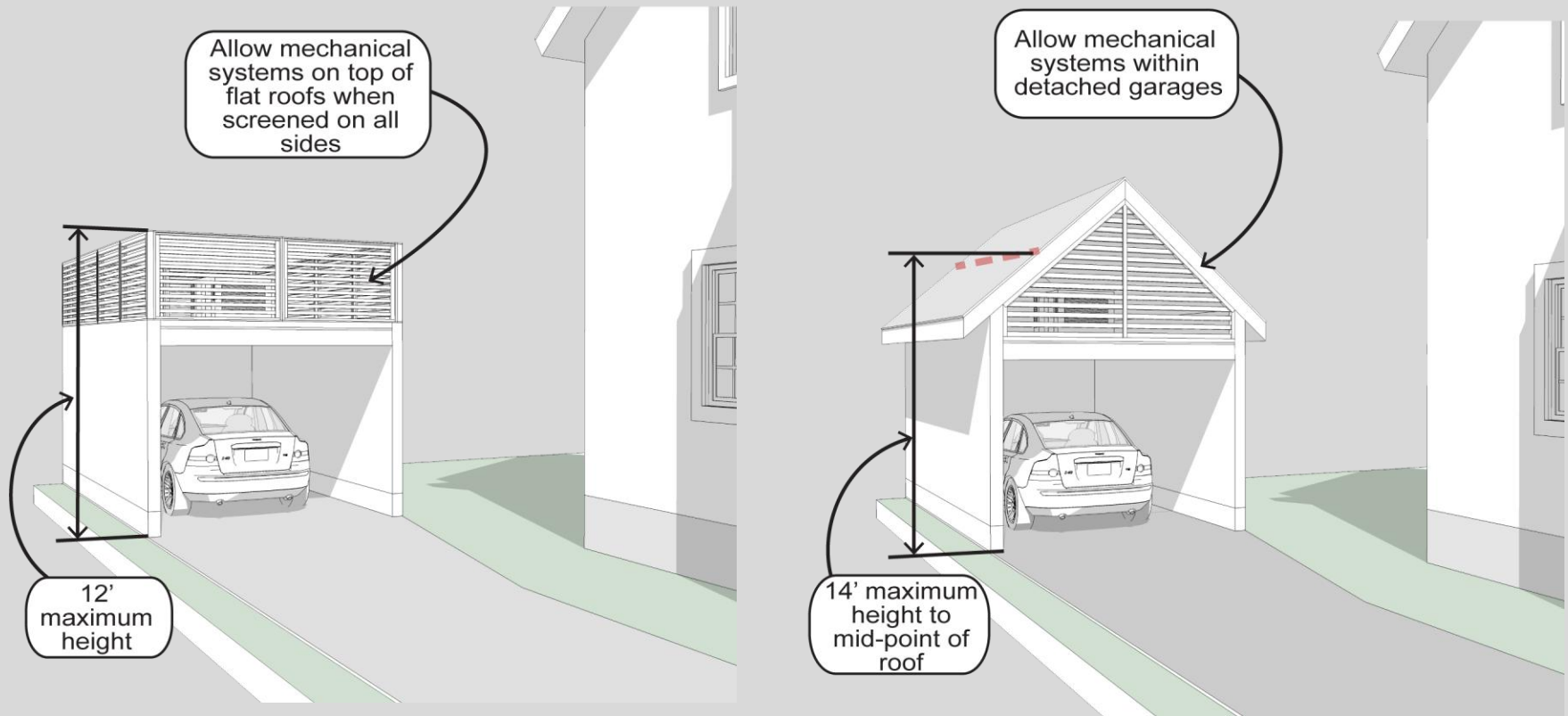
## Issue

Existing homes may need to safeguard their mechanical equipment by removing it from below-grade spaces, but there may be no place to put the equipment within the home.

## Proposal

Additionally, allow accessory mechanical equipment on flat roofed accessory structures, when:

- Equipment is screened on all sides
- Does not exceed 12 feet in height for shallow-pitch or flat roofs
- Does not exceed 14 feet to the mid-point of the roof for steep-pitch roofs



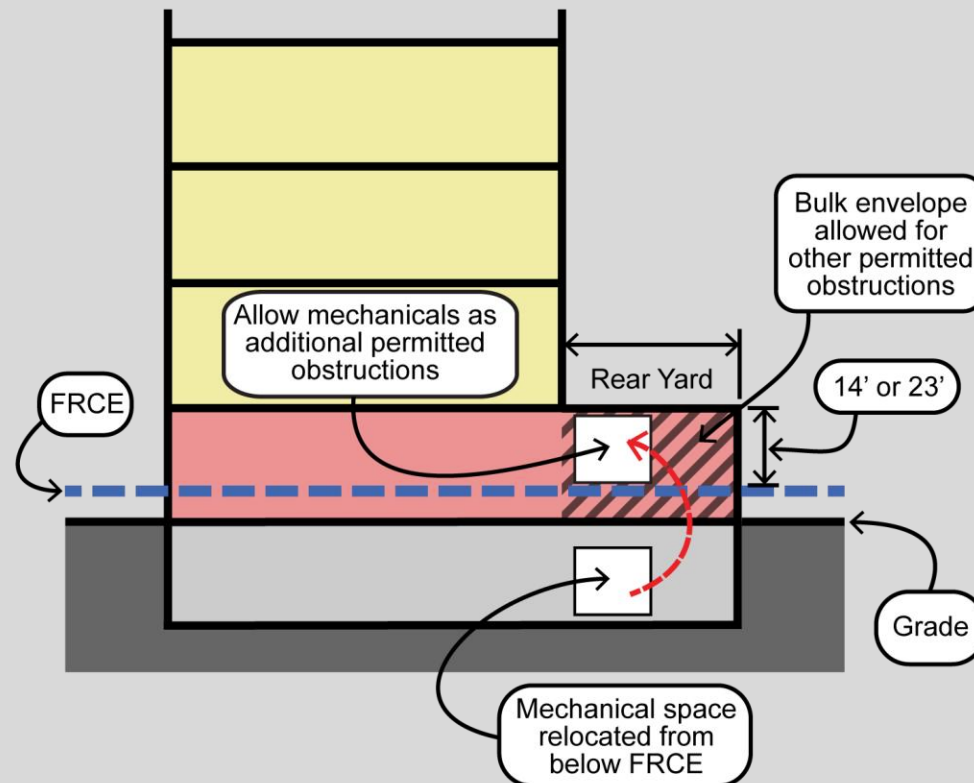
# ALLOW MECHANICAL SYSTEMS IN YARDS

## Issue

Many buildings have mechanical systems located below-grade. In order to comply with flood-resistant standards, these mechanical systems may need to be relocated above the FRCE.

## Proposal

For all buildings, other than one- or two-family homes, allow mechanical systems within required rear yards, provided they are screened or enclosed, and within the same bulk envelope permitted for other rear yard obstructions (enclosed parking and commercial and community facility uses may extend into rear yards up to a height of 14 or 23 feet).



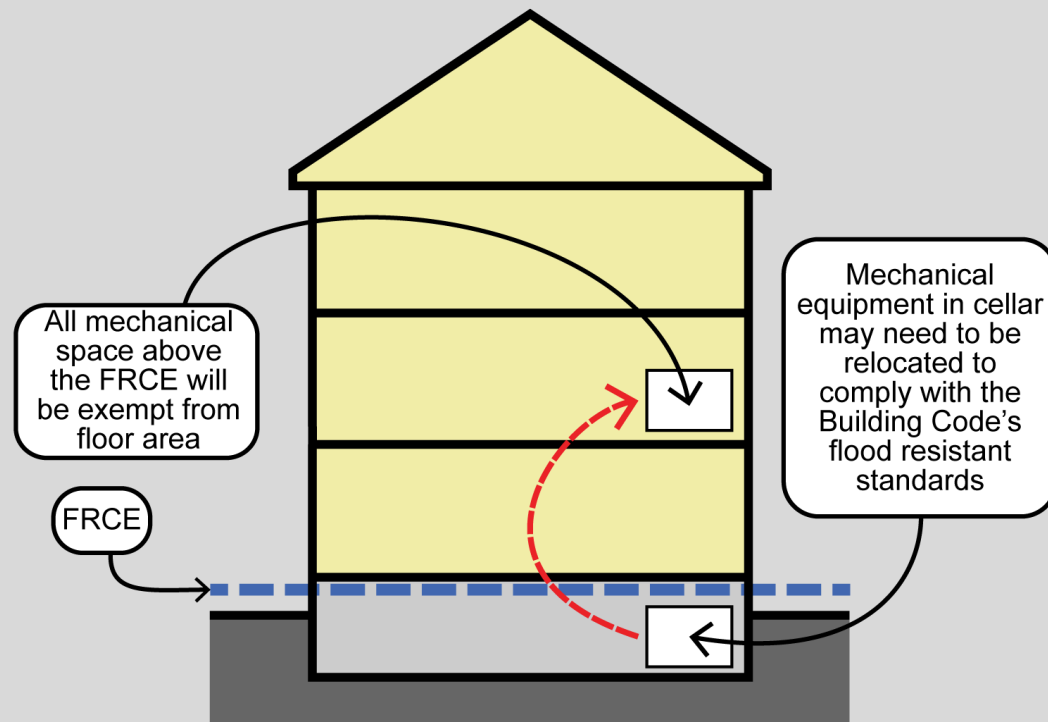
# MECHANICAL SPACE IN LOW DENSITY DISTRICTS

## Issue

In low density districts, there are caps on the amount of mechanical space that can be exempt from floor area calculations. These caps conflict with the need to locate mechanical systems above the FRCE in flood zones.

## Proposal

For all buildings in flood zones, in low density districts, remove caps and exempt mechanical space from floor area calculations in the same way it is exempt in all other districts.



# ALLOW BULKHEADS FOR APARTMENT BUILDINGS IN R3-2 & R4

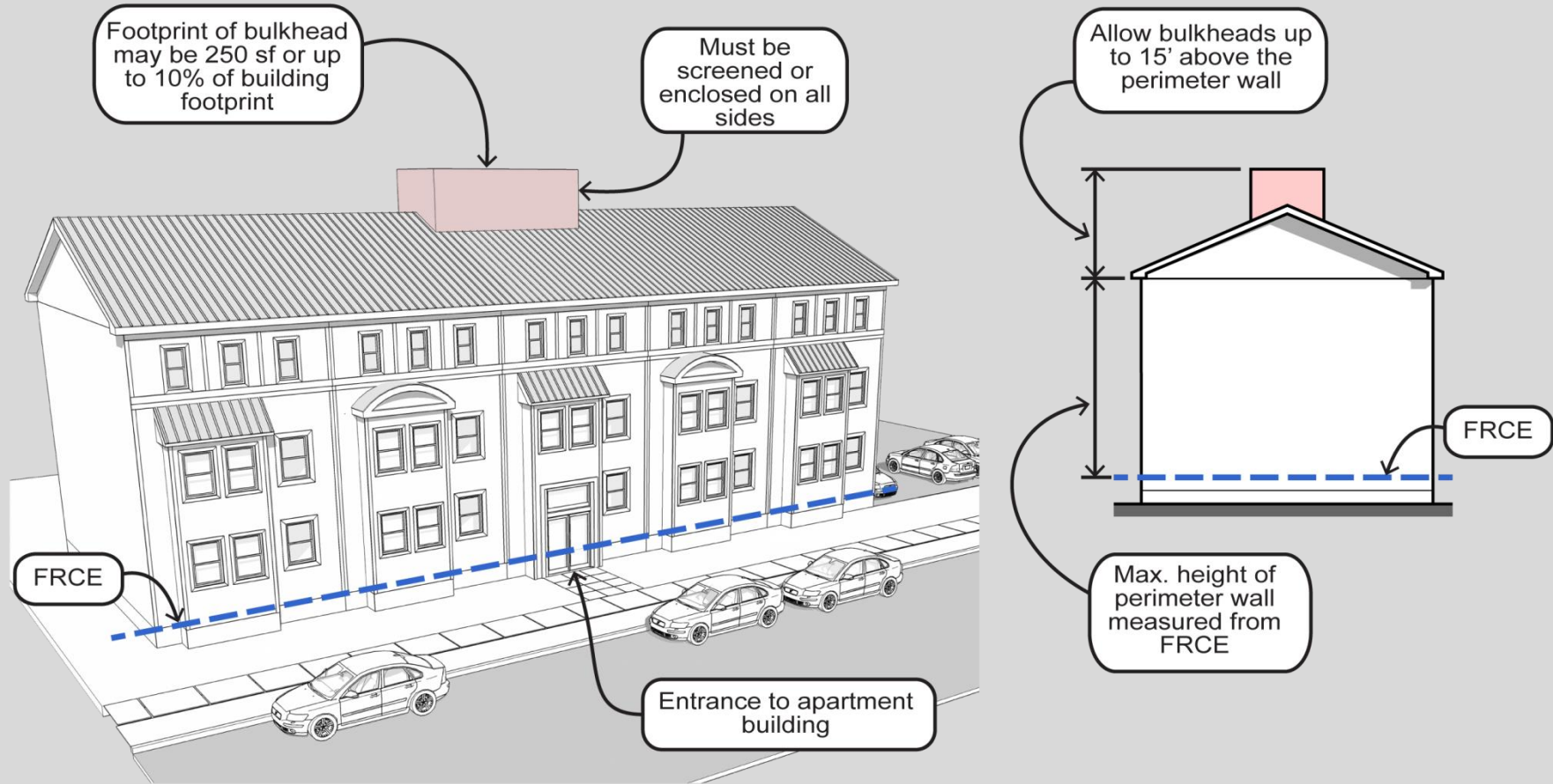
## Issue

Mechanical systems in flood zones generally need to be located above the FRCE to comply with the Building Code's flood-resistant standards.

R3-2 and R4 are the only districts that do not allow elevator, stair and mechanical bulkheads for apartment buildings to exceed height limits.

## Proposal

Allow these bulkheads in flood zones.



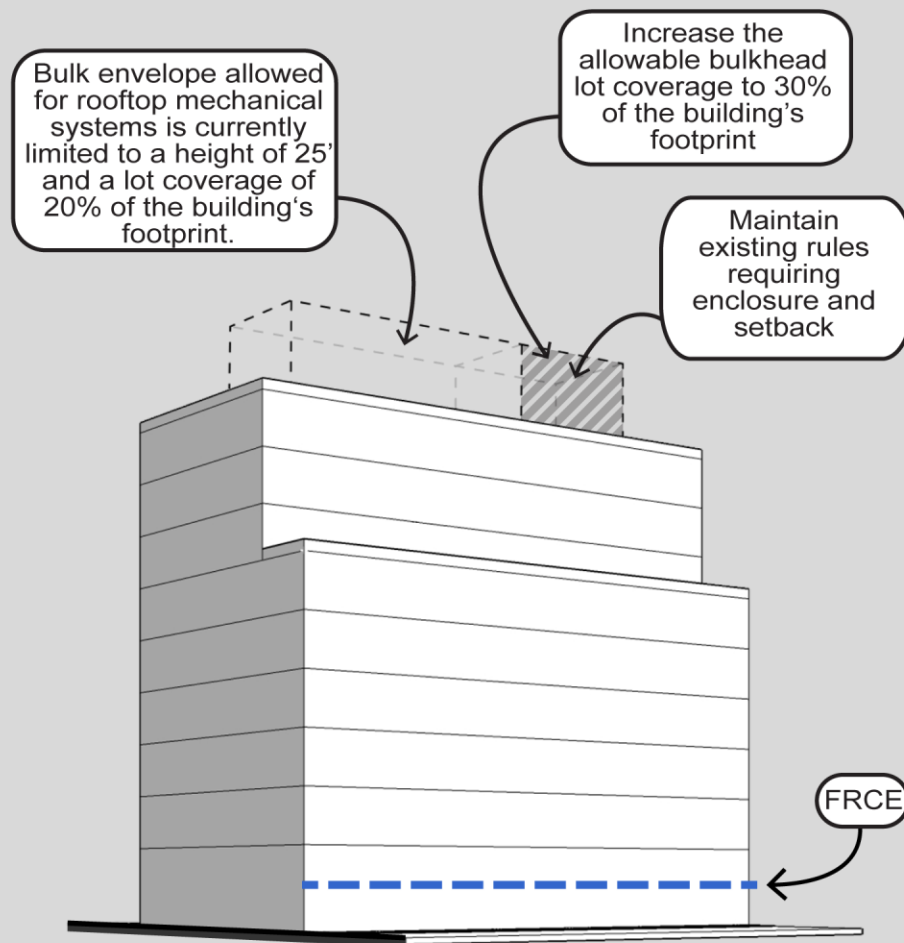
# ROOFTOP MECHANICAL FOR BUILDINGS IN R5 – R10

## Issue

Mechanical systems in flood zones generally need to be located above the FRCE to comply with the Building Code's flood-resistant standards, but in many cases, there may not be enough space within the allowed envelope.

## Proposal

Enlarge envelope for permitted obstructions on roofs to accommodate mechanical space that would have been located in cellars.



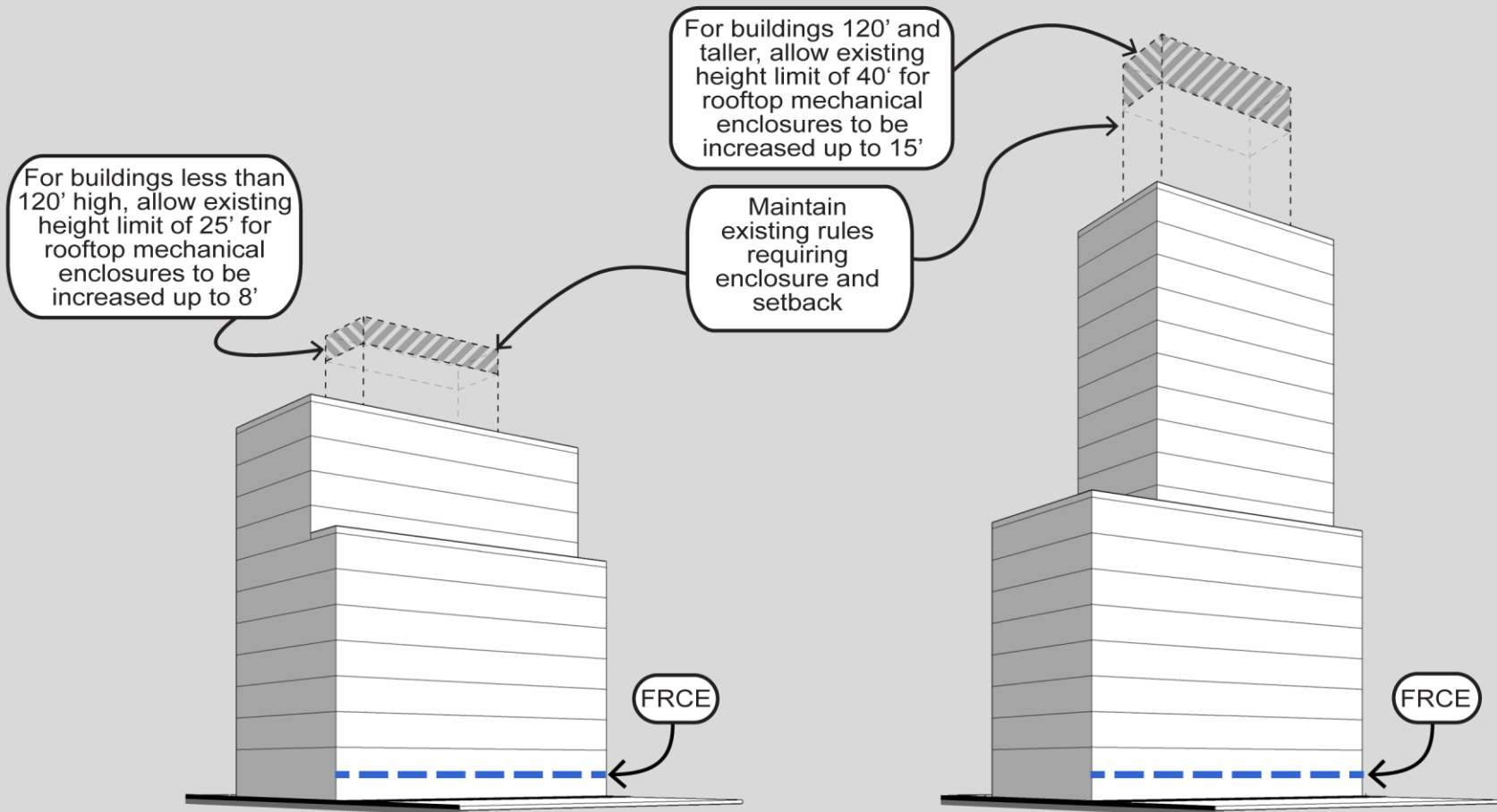
# ROOFTOP MECHANICAL FOR EXISTING BUILDINGS IN R5 – R10

## Issue

The rooftops of existing buildings are often not engineered to sustain the weight of wider mechanical bulkheads, making it difficult to relocate mechanical space from cellars.

## Proposal

For existing buildings, allow an alternative solution that maintains the maximum 20% lot coverage, but allows greater height.



# PARKING

# LOSS OF BELOW-GRADE PARKING SPACES

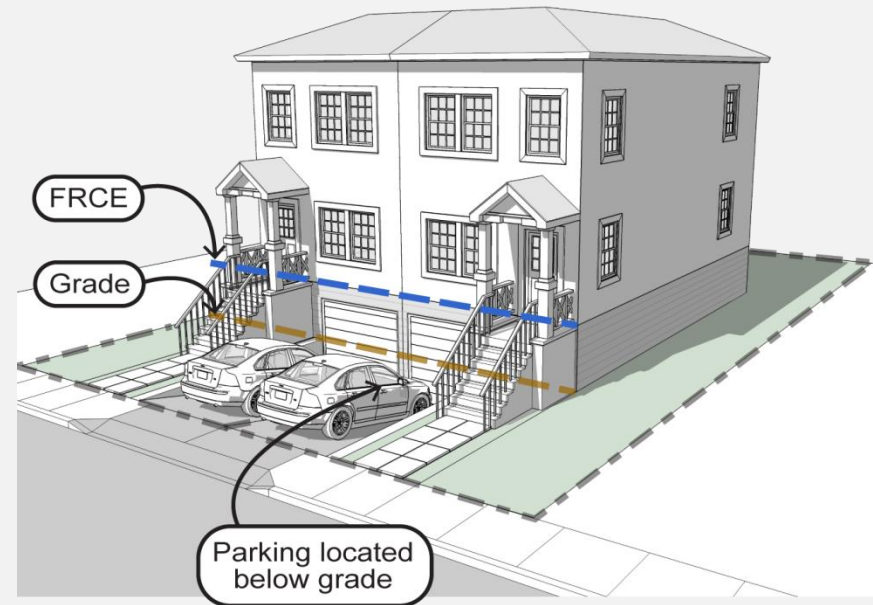
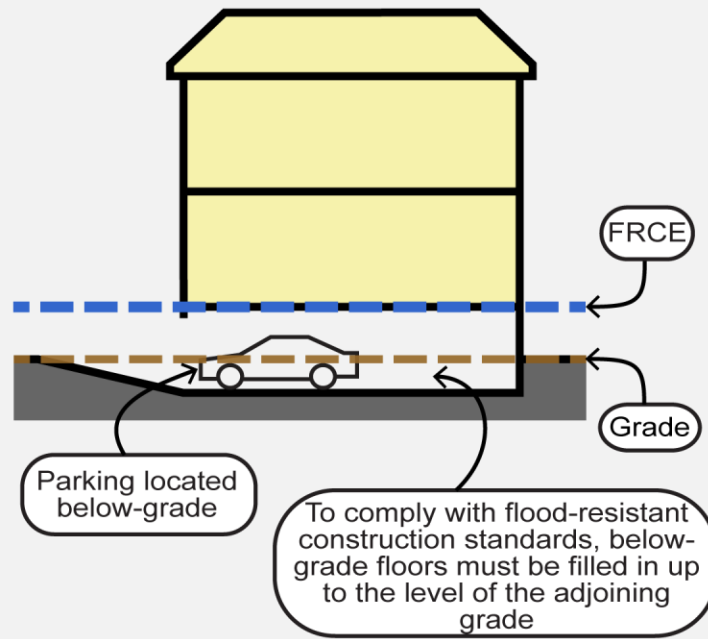
## Issue

Many existing homes have parking garages that are below-grade.

Severely damaged homes must be rebuilt to comply with the Building Code's flood-resistant standards, which prohibit below-grade floors in residential buildings.

A home owner whose house is not severely damaged may elect to comply with the flood-resistant standards to lower their flood insurance premiums.

In either case, compliance with the flood-resistant standards will result in the loss of parking spaces.



**Prior to Compliance with Building Code's Flood-Resistant Standards**



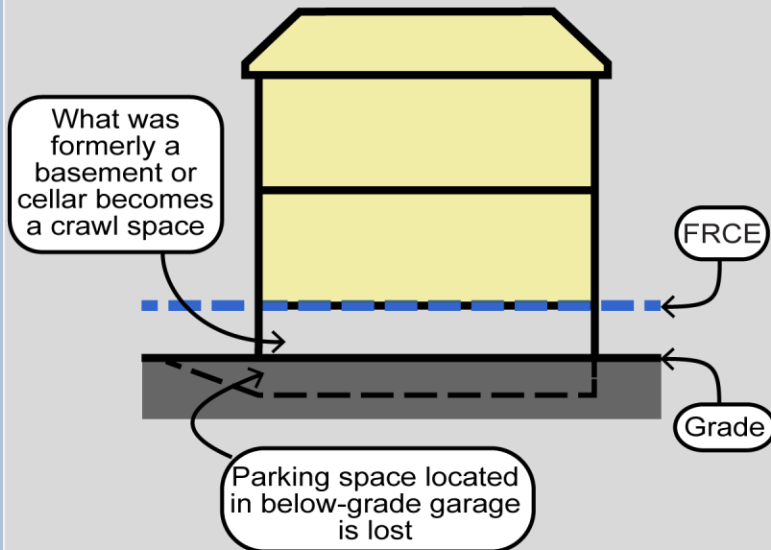
# LOSS OF BELOW-GRADE PARKING SPACES

## Proposal

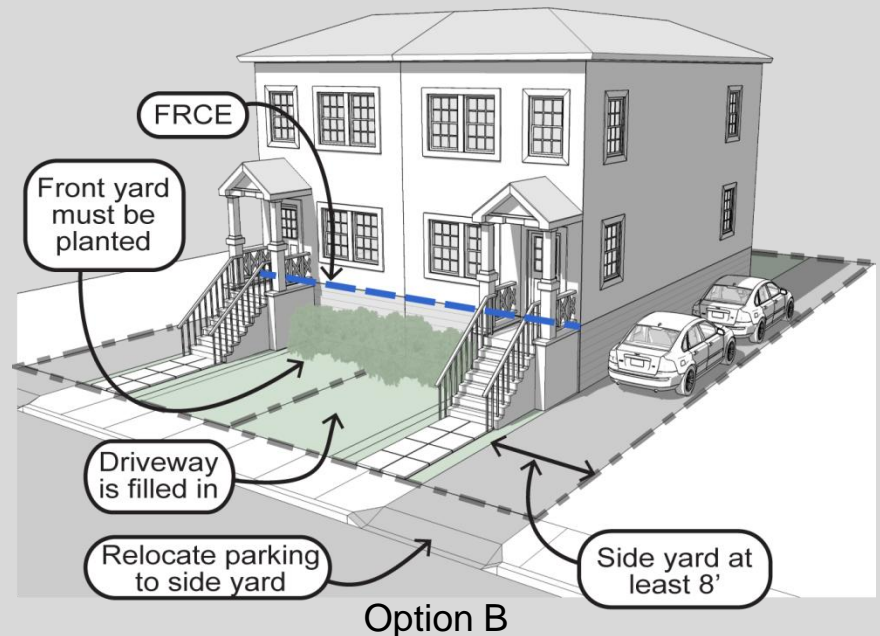
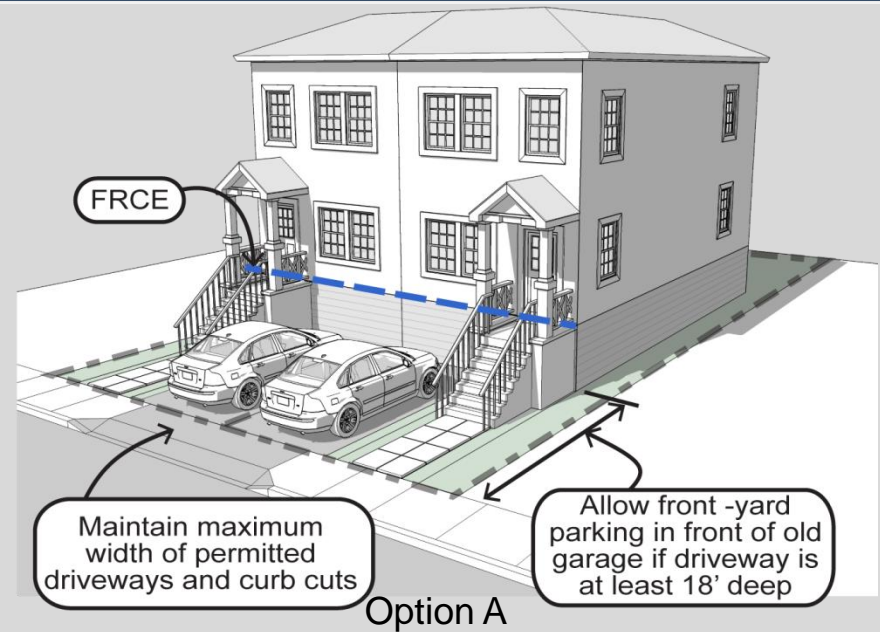
Provide alternatives for existing homes that must relocate their parking spaces.

Allow the Buildings Commissioner to waive required parking if there is no feasible way to provide parking on-site.

- Not applicable in R4B and R5B districts



After Compliance with Building Code's Flood-Resistant Standards



# RELAX CURB CUT RULES IN R1 – R5 DISTRICTS

## Issue

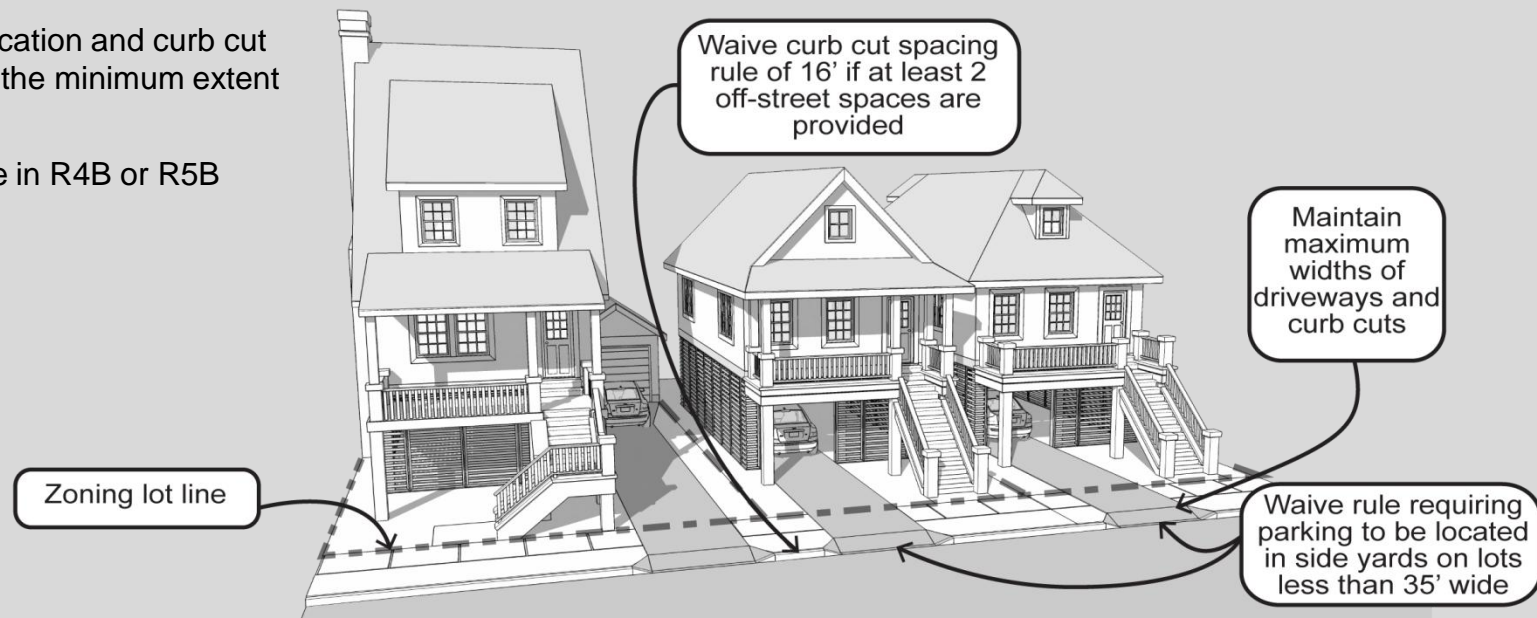
Existing curb cut spacing rules may prevent elevated or rebuilt homes from providing off-street parking spaces.



## Proposal

Relax parking location and curb cut spacing rules to the minimum extent necessary.

- Not applicable in R4B or R5B Districts

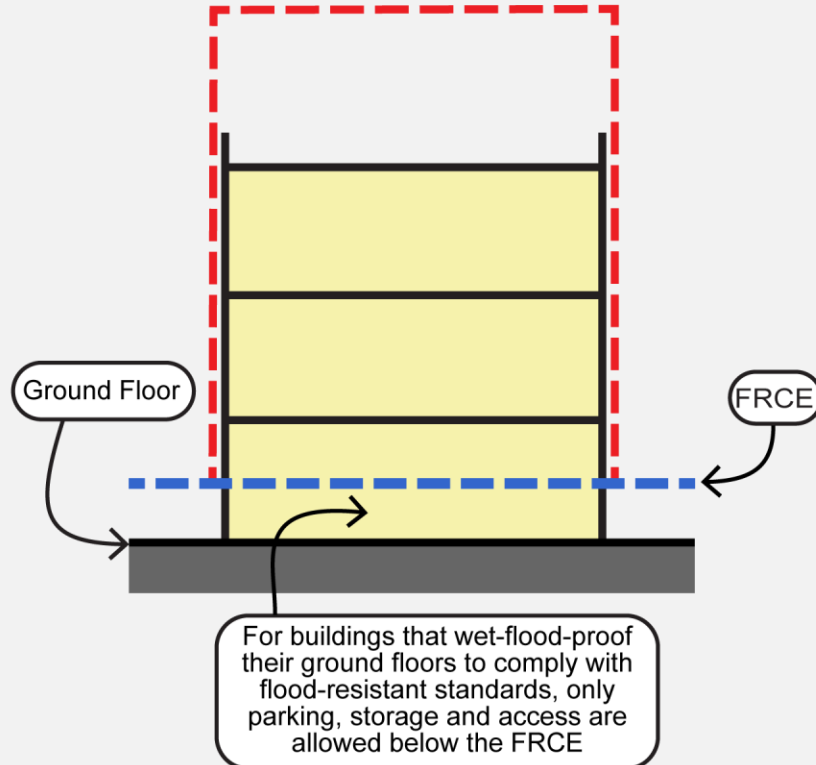


# GROUND FLOOR USE

# LOSS OF USABLE SPACE

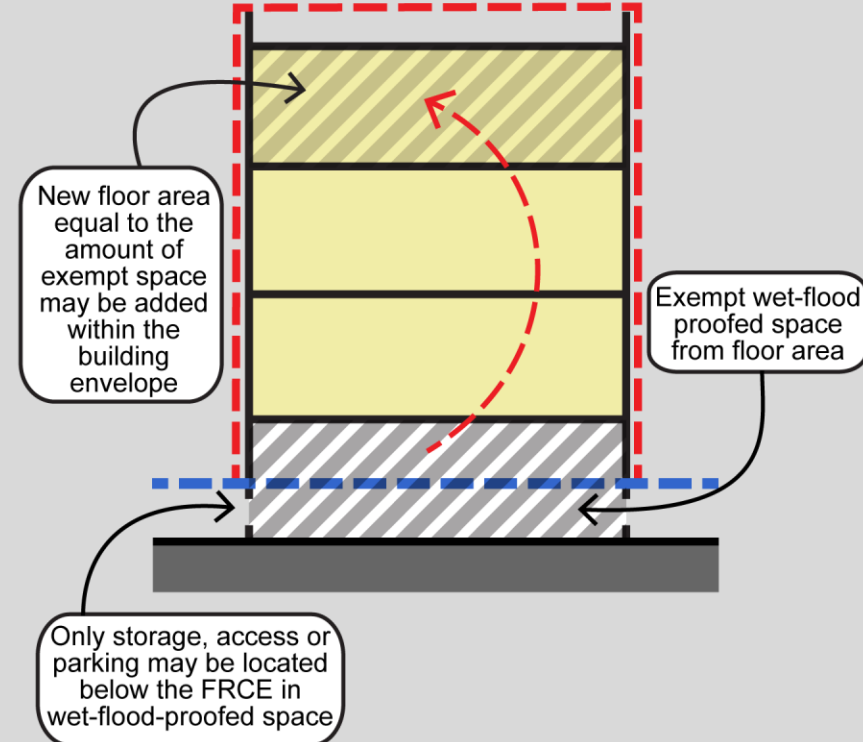
## Issue

Compliance with Building Code's flood-resistant standards may result in the loss of useable ground floors for existing buildings.



## Proposal

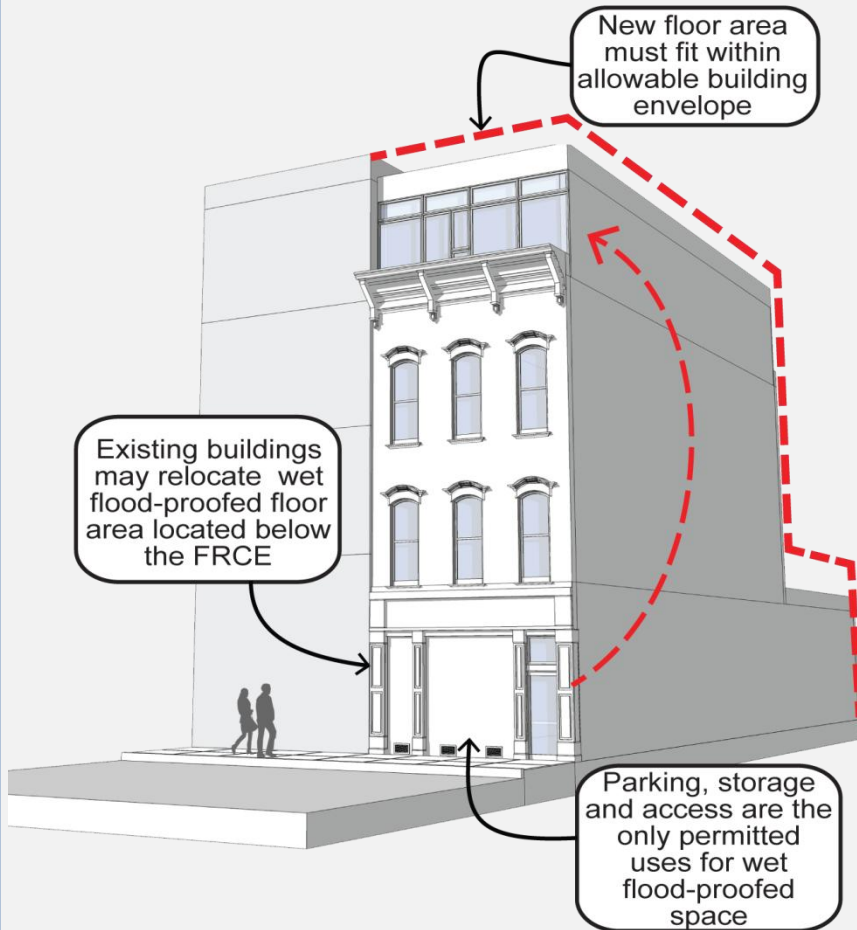
Allow building owners to add an equivalent amount of space above the FRCE within the building envelope, where the ground floor is wet-flood-proofed in compliance with the Building Code's flood-resistant standards



# LOSS OF USABLE SPACE – LOW DENSITY COMMERCIAL

## Wet Flood-proof Option (All Buildings)

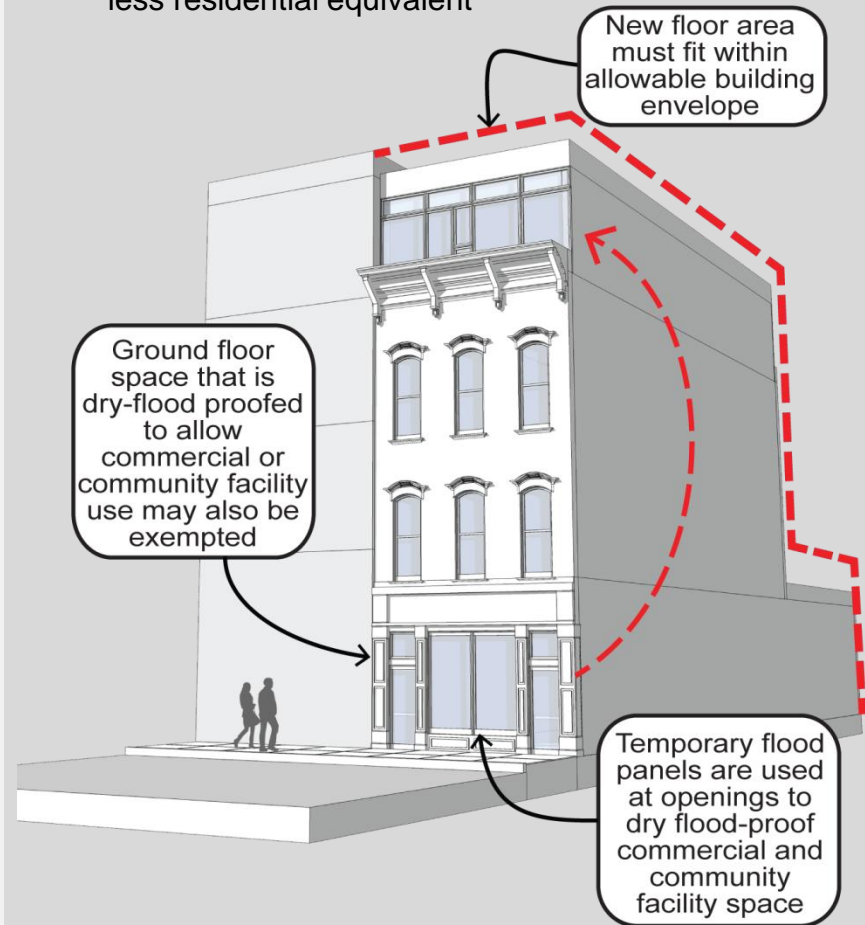
Allow building owners to recapture floor space made unusable due to compliance with the Building Code's wet flood proofing standards.



## Dry Flood-proof Option (Commercial Districts)

To encourage active commercial streets, in low density commercial districts, allow building owners to exempt ground-level commercial or community facility floor area that is dry flood-proofed.

- Available only in commercial districts with an R6 or less residential equivalent





# RETAIN EXISTING AMOUNT OF LIVING SPACE

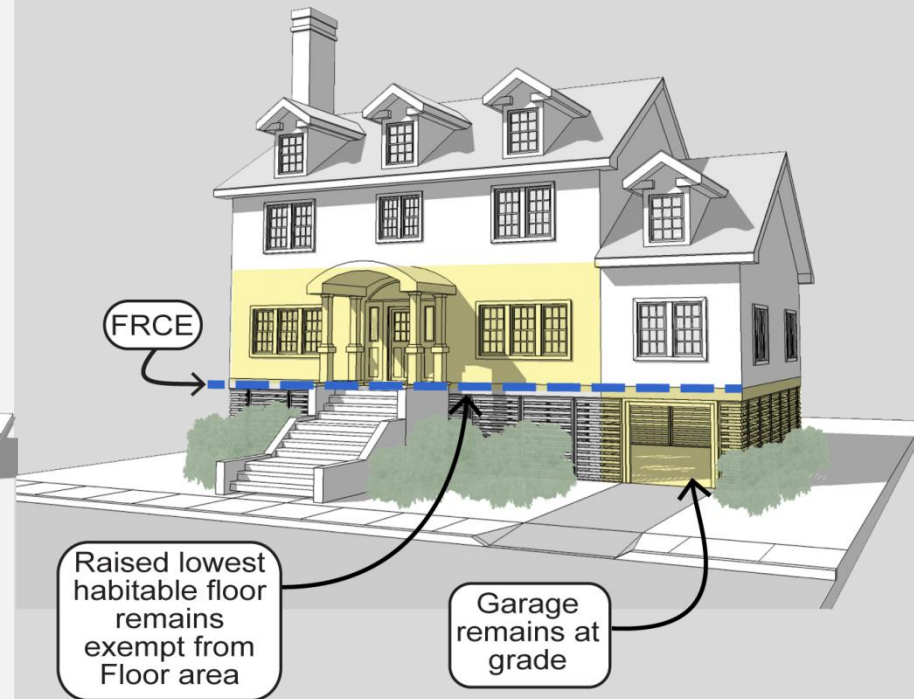
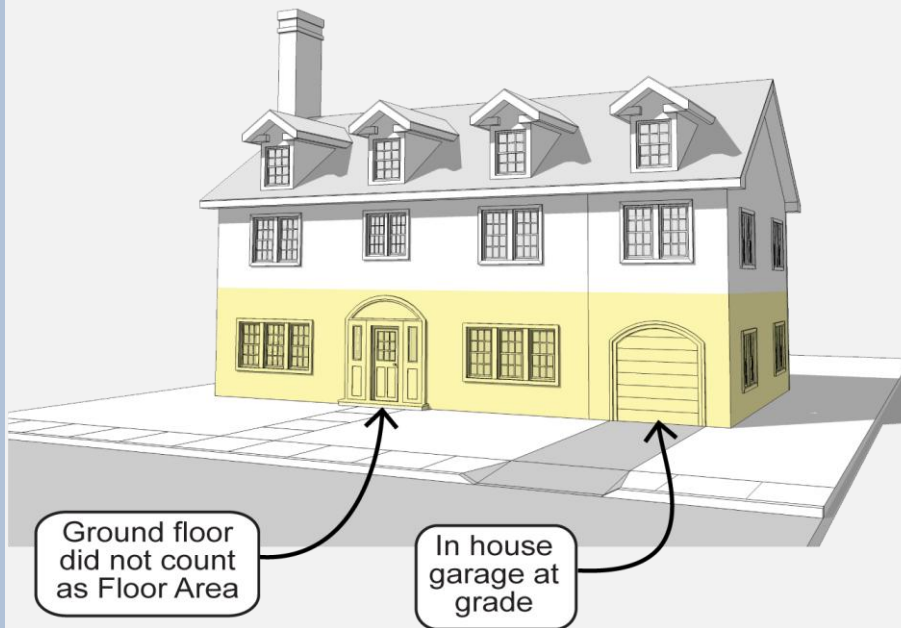
## Issue

Many existing homes were built with a floor area exemption that applies to ground floors that also contain a garage.

When these homes are rebuilt or elevated to the FRCE, and the garage is no longer on the same level as the living space, the floor area exemption will be lost, resulting in smaller homes.

## Proposal

Retain the existing amount of living space for existing homes elevated to FRCE that were built with a floor area exemption that applied to ground floors with a garage.



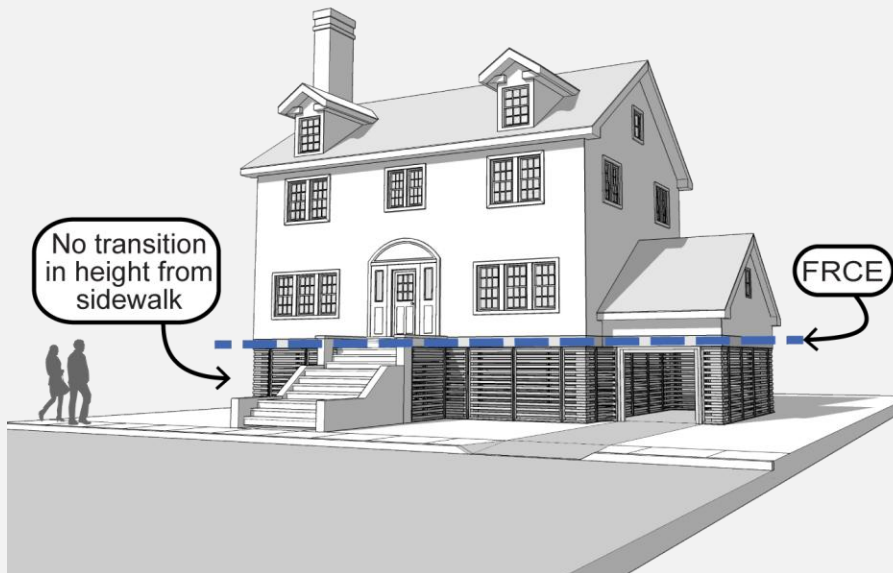
# STREETSCAPE: DESIGN FLEXIBILITY

# ALLOW RAISING OF YARDS

## Issue

Required yards are not allowed to be raised higher than curb level.

This prevents the ability to grade a site for flood resiliency or to soften the effect of higher first floors on the streetscape.



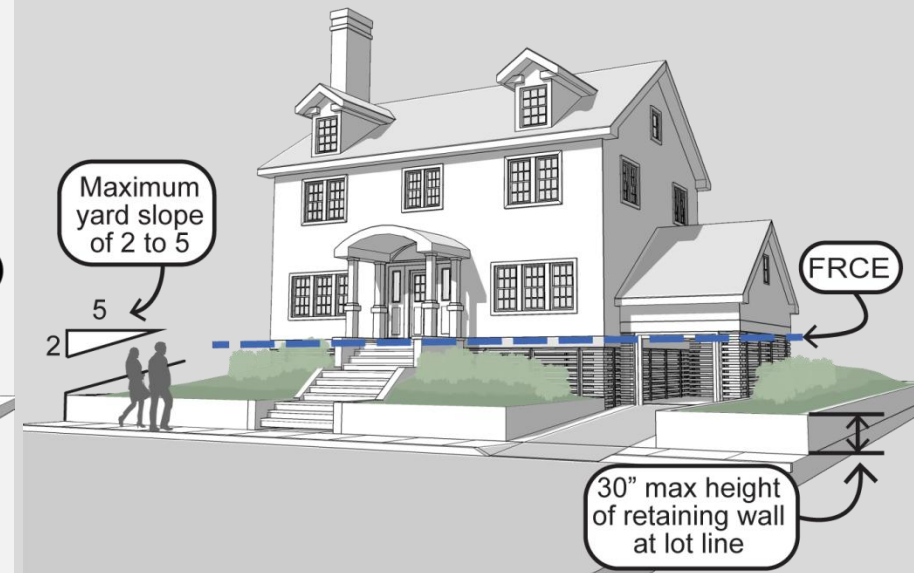
## Proposal

Allow required yards above curb level with a maximum slope of 2 vertical to 5 horizontal.

Allow retaining walls at lot lines to be up to 30" high.

In front yards, any portion of a fence higher than 4 feet above curb level must be no more than 50 percent opaque.

In C8 and M districts, allow yards to be raised to the FRCE except where rear yards are adjacent to Residence Districts.





# MODIFY SPECIAL TRANSPARENCY AND GROUND FLOOR LOCATION RULES

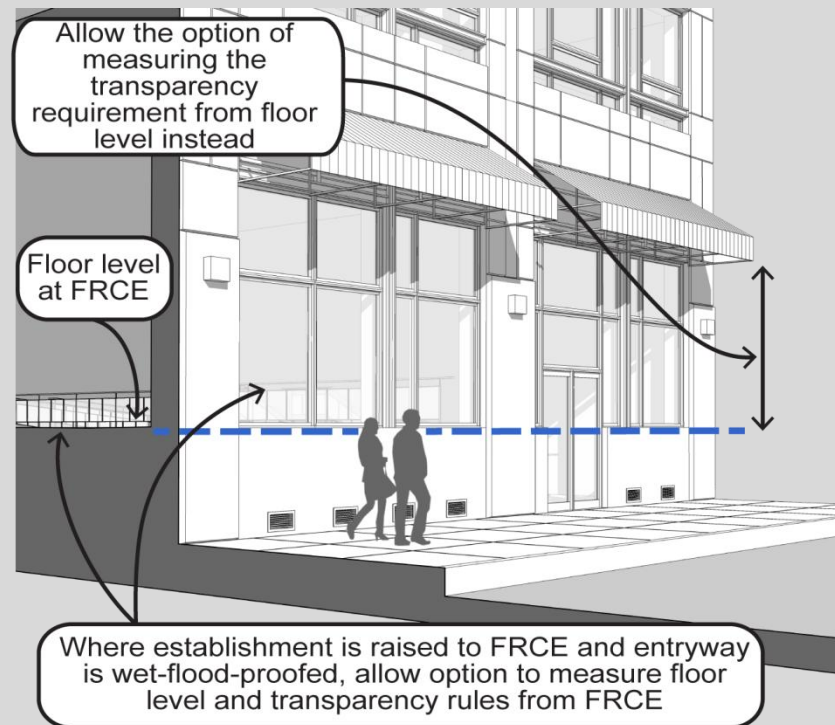
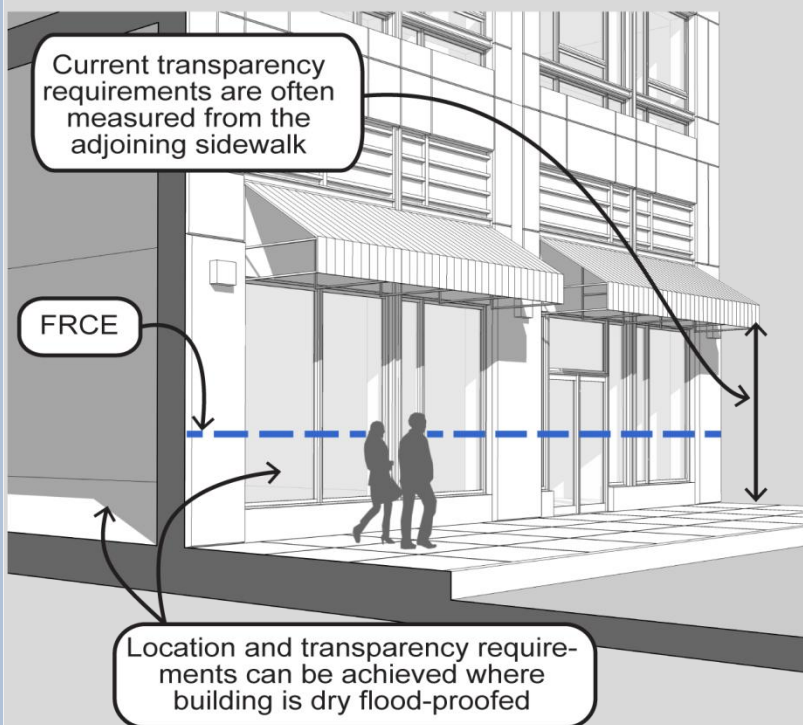
## Issue

In some areas of the city, zoning requires commercial or community facility establishments on the ground floor and minimum amounts of transparency in the street wall.

The floor level of the establishment and the amount of transparency is usually measured from the level of the sidewalk. These requirements may become impractical in flood zones, especially where the FRCE is high above the sidewalk.

## Proposal

Allow the option of measuring the ground floor location from the FRCE and transparency requirements from the floor level rather than the sidewalk.

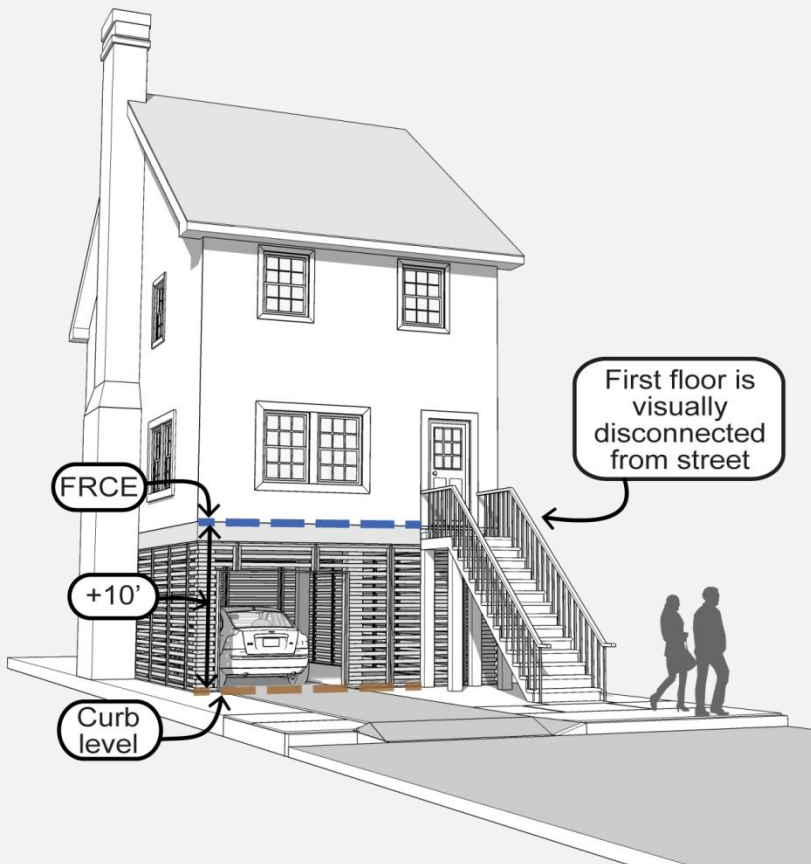


# STREETSCAPE STANDARDS

# SINGLE- AND TWO-FAMILY HOMES

## Issue

When the lowest habitable floor of a house is 5 feet or more above curb level, it can create an unattractive streetscape.

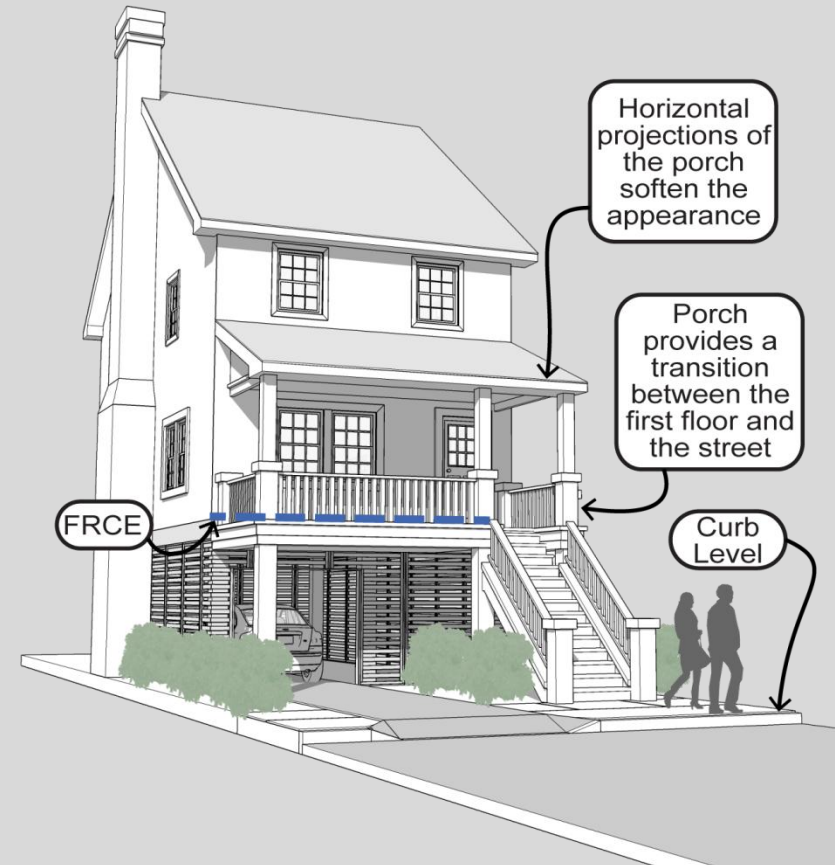


Home without streetscape enhancements

## Proposal

Establish streetscape requirements to provide a transition between the first floor and curb level when homes are required to be raised 5 feet or more above curb level.

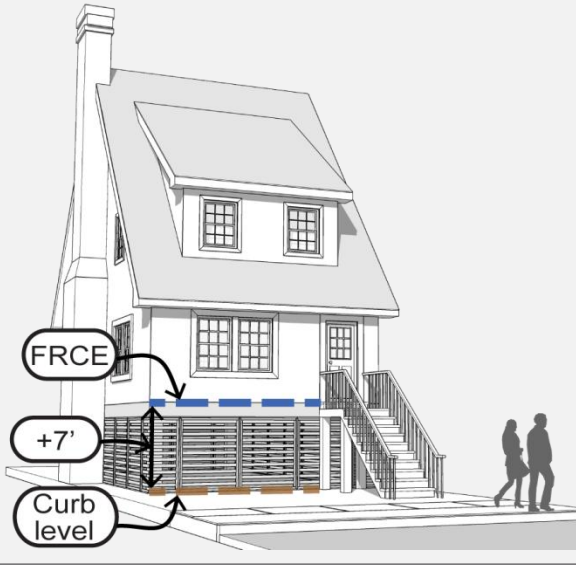
Applies in R1- R5 Districts, and to detached and semi-detached houses in R6 Districts.



Home with roofed porch and planting  
*Additional options shown on next slide*

# STREETSCAPE ENHANCEMENTS

**Issue:** No visual transition



**Proposal:** When lowest floor is located 5–9 feet above curb level, choose 1  
When lowest floor is 9 feet or more above curb level, choose 2



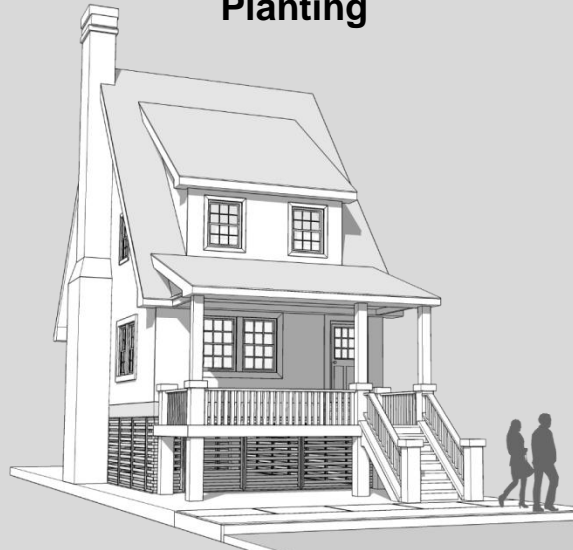
**Planting**



**Stair turn**



**Unenclosed porch**



**Roofed porch**

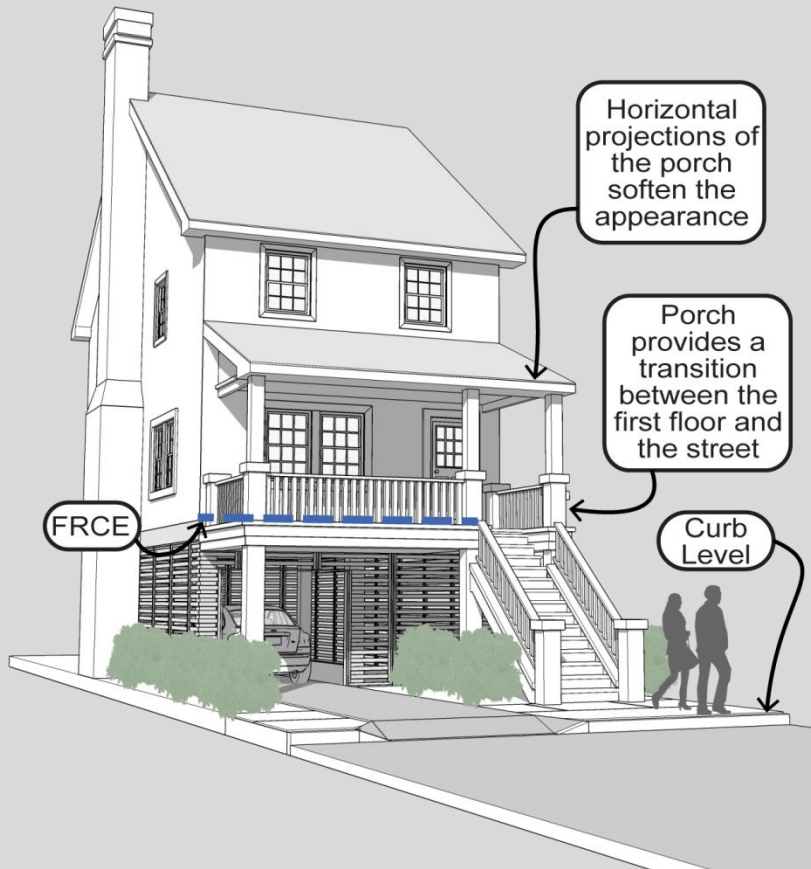


**Raised yard**

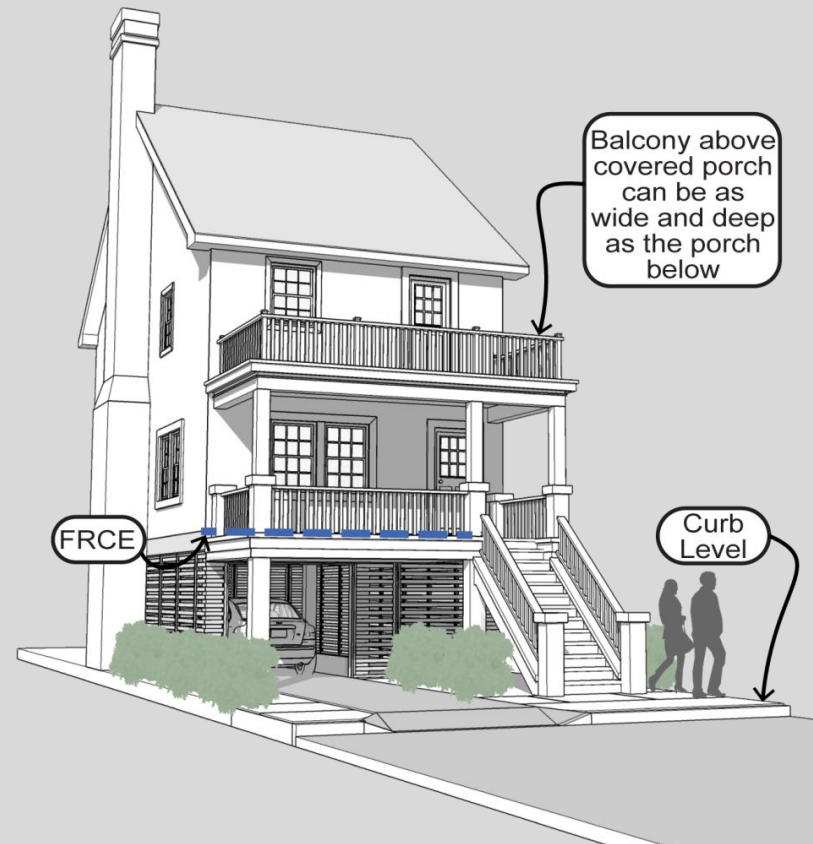
# ADDITIONAL STREETSCAPE OPTIONS

## Covered Porch Options:

For additional design flexibility, allow trellis roofs to count as covered porches and allow additional width for balconies to extend up to the width and depth of the porch below.



Home with roofed porch and planting  
*Additional options shown on next slide*



House with flat-roofed porch and  
balcony above

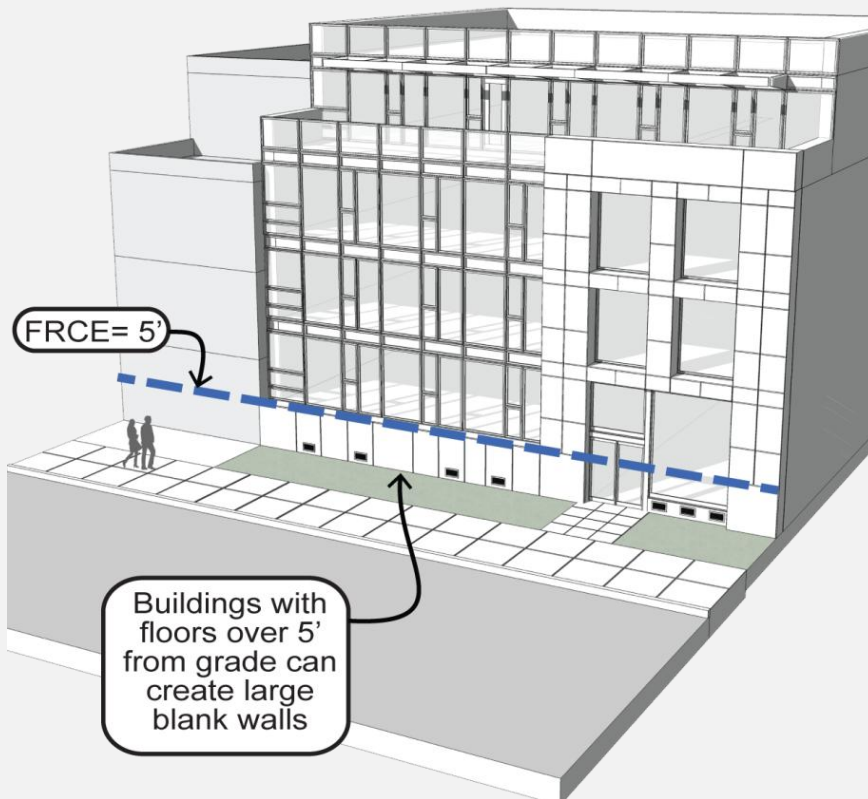


# PLANTING REQUIREMENT MULTI-FAMILY AND COMMUNITY FACILITY BUILDINGS

## Issue

For new buildings where the FRCE is 5 feet or more above grade:

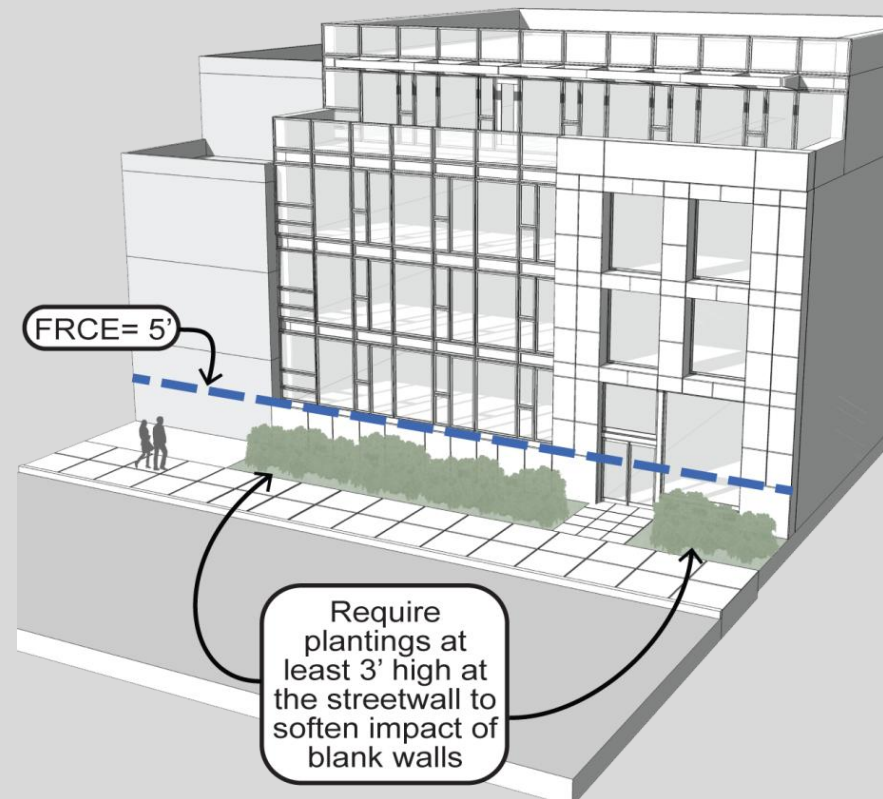
- In many cases, the ground floor can only be used for parking, storage and access.
- This can result in blank walls and an unattractive streetscape.



## Proposal

Establish planting requirements where the FRCE is 5 or more feet above grade for all new or elevated multi-family and community facility buildings.

- Does not apply to industrial uses
- Does not apply to buildings that are required to be less than 3 feet from the street line



# WIDE LOBBY REQUIREMENT MULTI-FAMILY AND COMMUNITY FACILITY BUILDINGS

## Issue

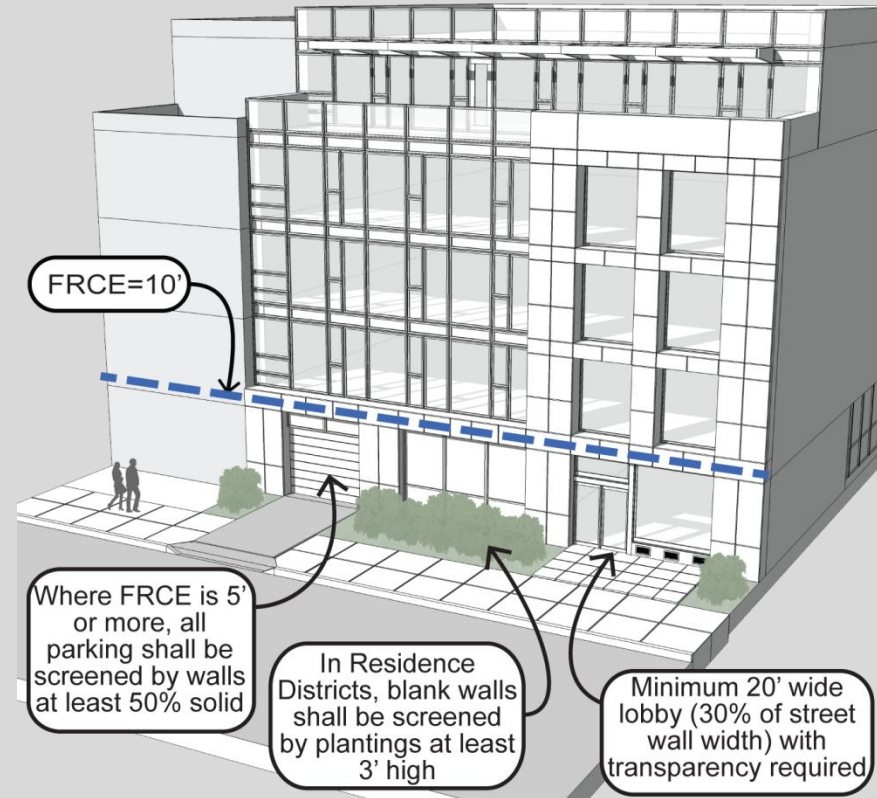
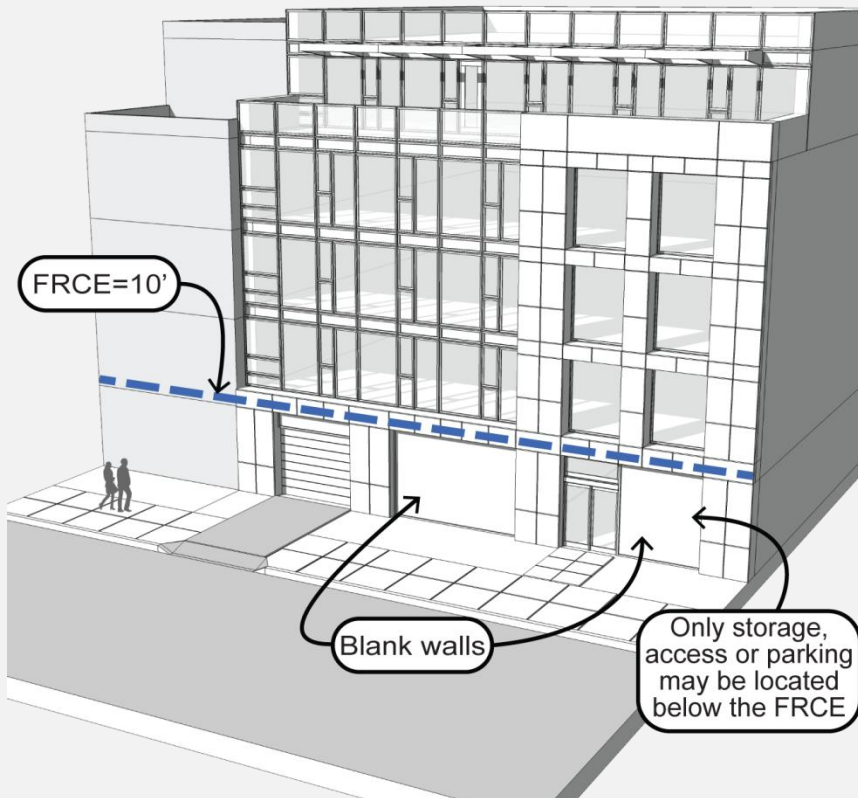
For new buildings where the FRCE is 10 feet or more above grade:

- In many cases, the ground floor can only be used for parking, storage and access.
- This can result in blank walls and an unattractive streetscape.

## Proposal

Establish enhanced streetscape requirements for all new buildings in flood zones where the FRCE is 10 feet or more above grade.

- Does not apply to light and heavy industrial uses
- Planting requirements do not apply in commercial districts



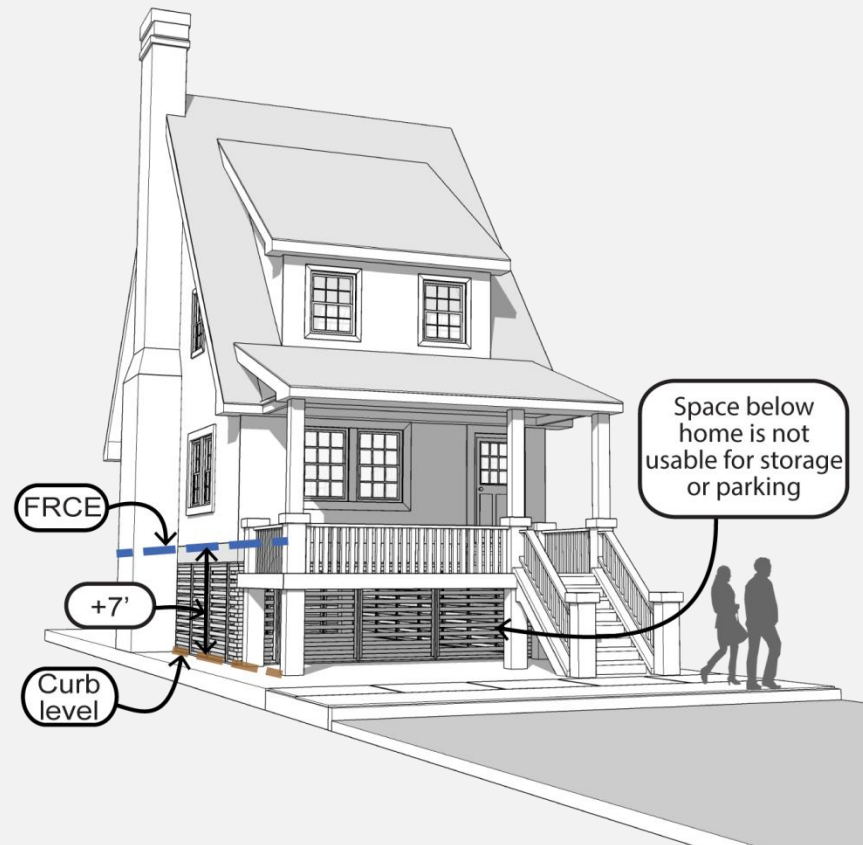
# INCENTIVES TO PROMOTE USABLE GROUND FLOORS AND ENHANCE THE STREETScape



# STREETSCAPE AND USABLE PRIVATE SPACE

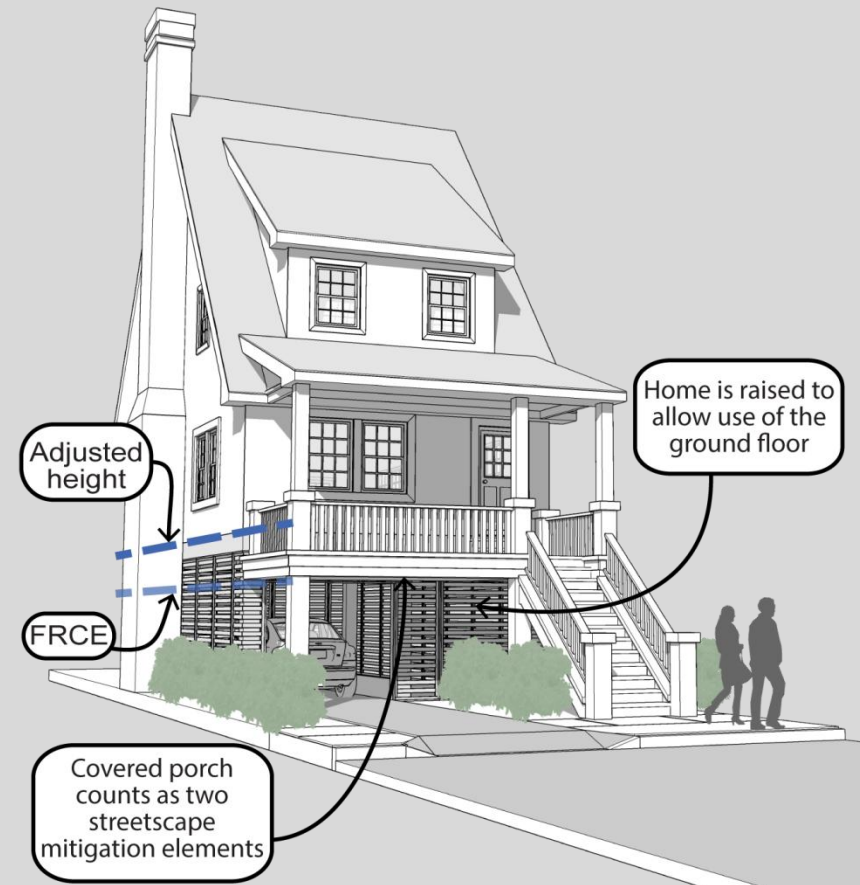
## Issue

Where one and two-family homes are required to be raised to a FRCE of between 6 and 8 feet, the area below the home is unusable because of insufficient head room.



## Proposal

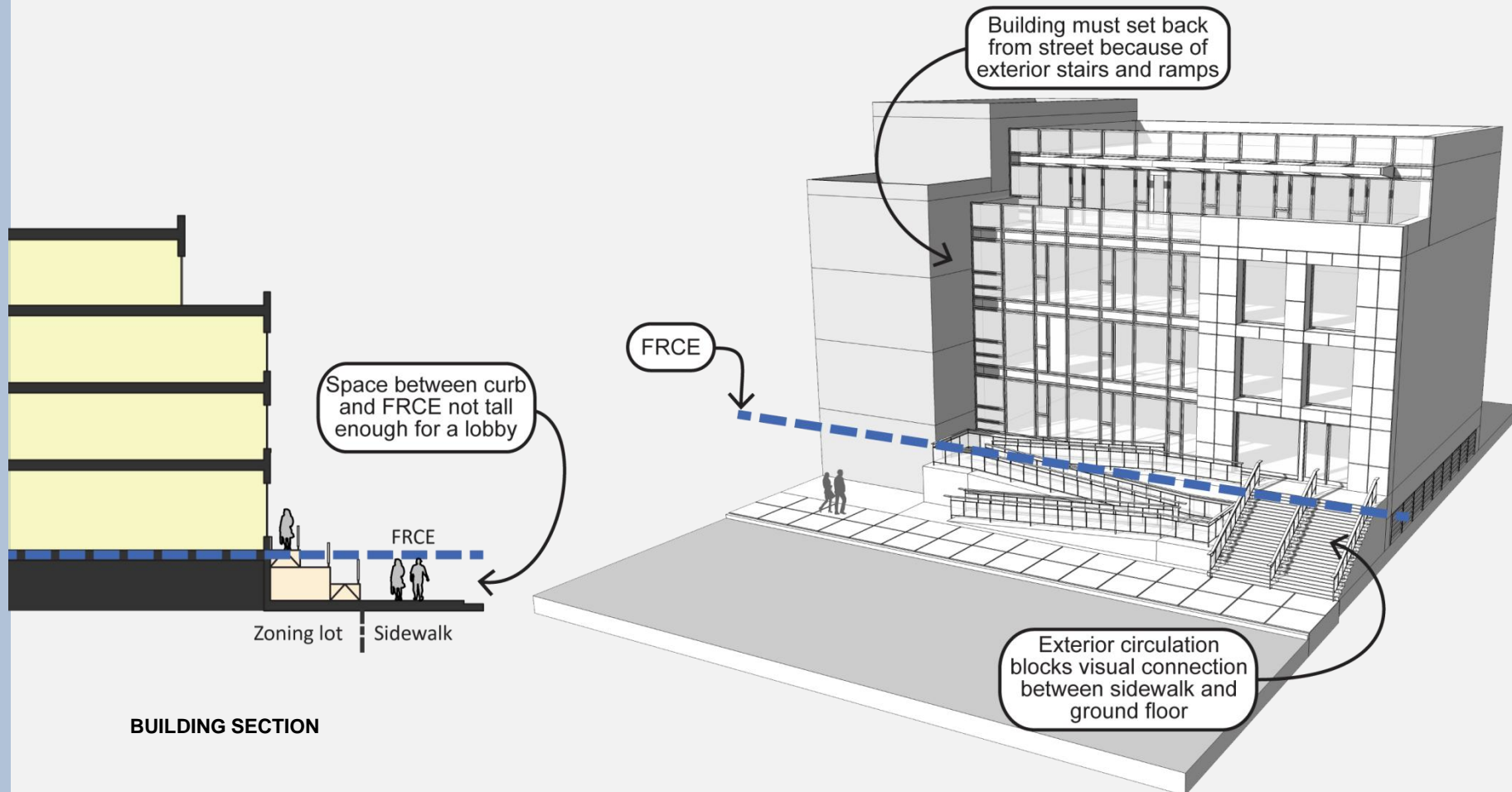
- Where the FRCE is between 6 and 9 feet, allow height to be measured from 9 feet above grade to accommodate parking and storage below the building.
- Where height is measured from 9 feet above grade, two items from the streetscape enhancement list must be provided.



# RESIDENCE DISTRICT INCENTIVES: MULTI-FAMILY AND COMMUNITY FACILITY BUILDINGS

## Issue

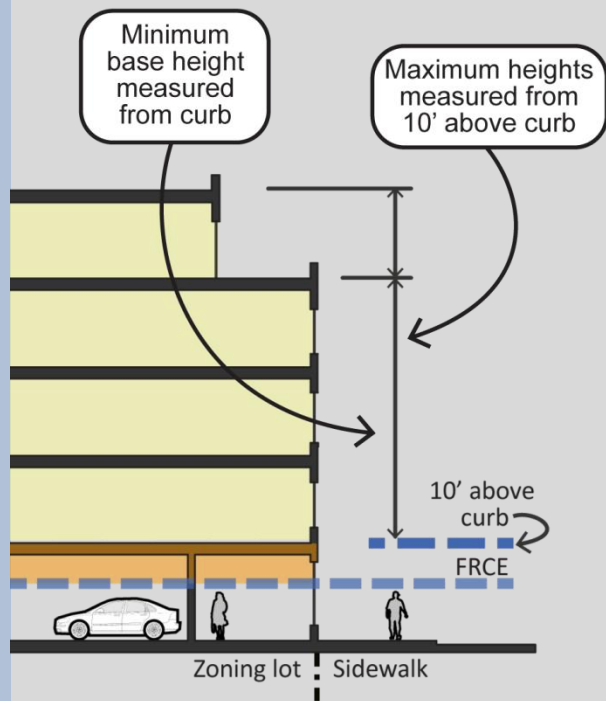
Where the FRCE is 5 feet or more above curb level, access to the buildings lowest occupiable floor becomes difficult and may result in an unattractive streetscape with long ramps and stairs disconnecting the building from the street.



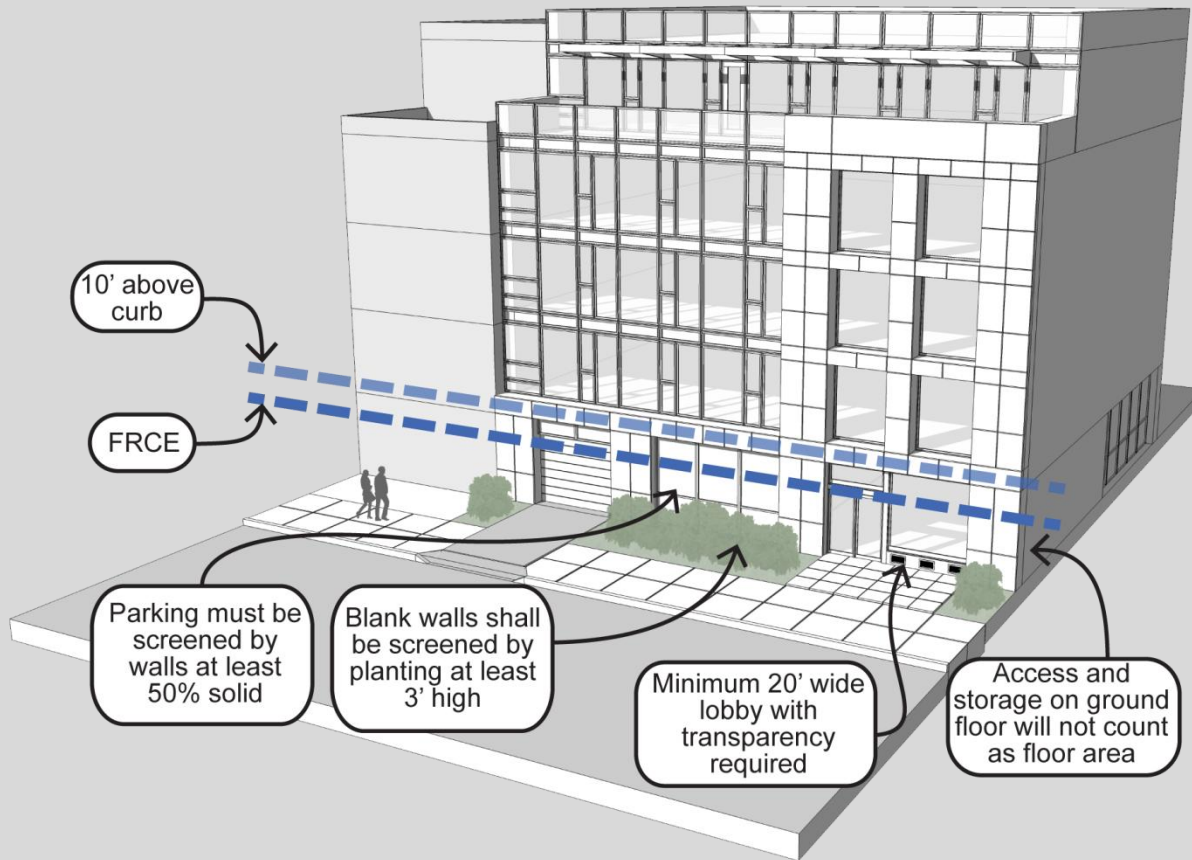
# RESIDENCE DISTRICT INCENTIVES: MULTI-FAMILY AND COMMUNITY FACILITY BUILDINGS

## Proposal

Where the FRCE is 5 feet or more above curb level, allow maximum building heights to be measured from 10' above curb level, to accommodate an entry level story, provided that streetscape standards are met.



BUILDING SECTION



# COMMERCIAL DISTRICT STREETSCAPE

## Issue

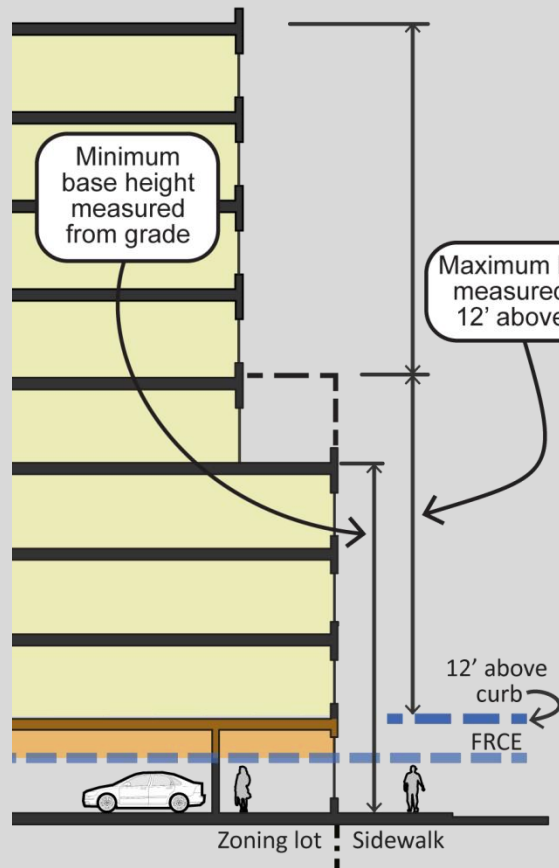
Most commercial areas in flood zones do not have transparency requirements

When the FRCE is located above 5 feet, blank walls are likely

## Proposal

Encourage transparency by allowing greater building height.

Where FRCE is 5 feet or more above curb level, allow maximum building heights to be measured from 12 feet above curb level, if the street wall is at least 50% transparent between 2 feet above curb and 12 feet above the finished floor level.



Raise the first level above the FRCE

**Option 1:**  
Wet-Flood Proof  
portion of  
commercial space  
exempted from floor  
area calculations

**Option 2:**  
Dry-Flood Proof  
the commercial  
space



# WATERFRONT ZONING

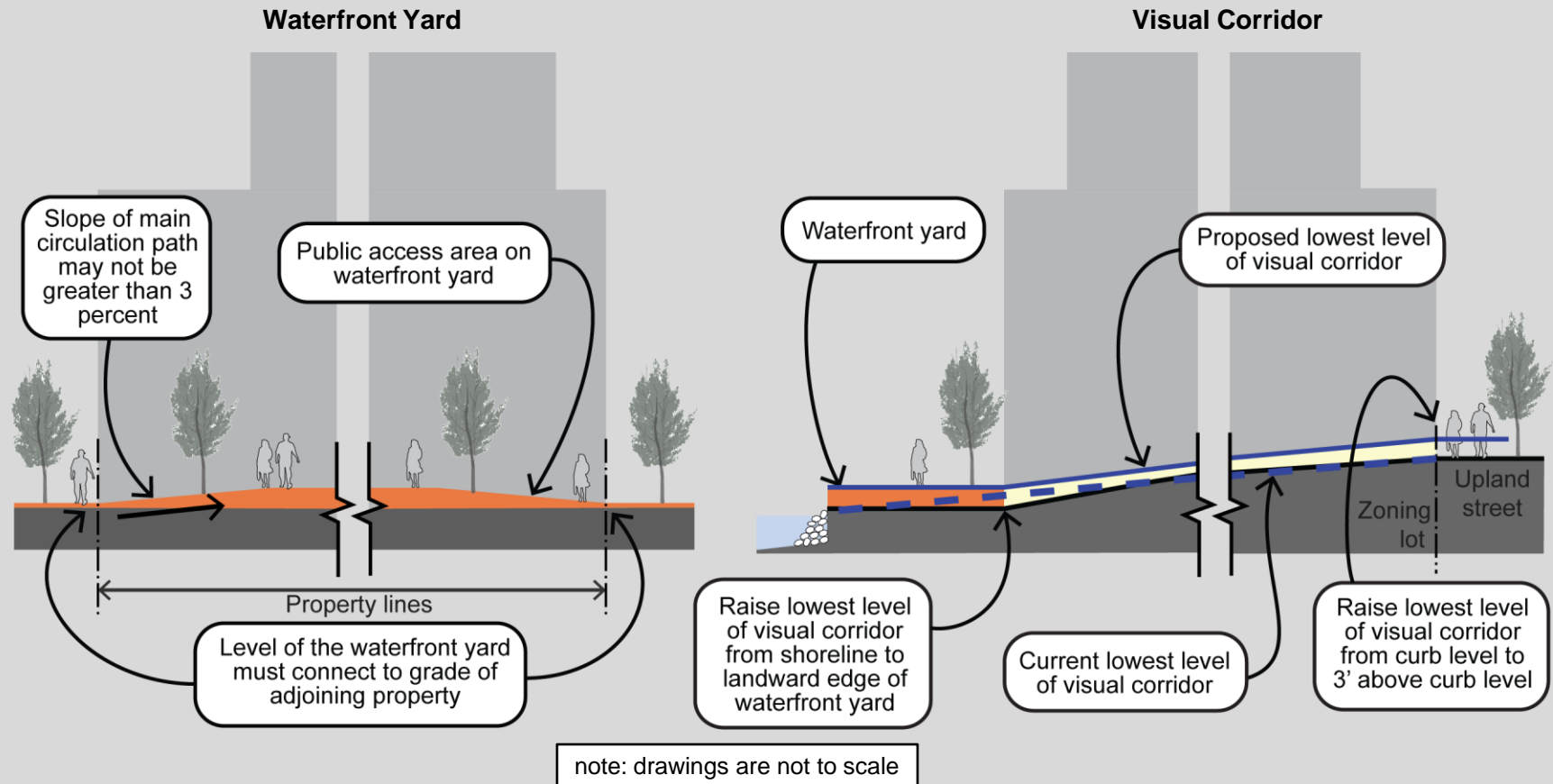
# WATERFRONT YARDS AND VISUAL CORRIDORS

## Issue

Waterfront zoning lots are required to provide a waterfront yard along the shoreline. The level of the yard, as well as any visual corridor, cannot be raised. This prevents the ability to grade a site for flood resiliency or to soften the effect of higher first floors.

## Proposal

Developments that provide public access may raise the waterfront yard as long as the slope of the main circulation path is not greater than 3 percent, and is connected with existing grade on adjacent properties. The lowest level of the visual corridor would be measured from a point 3 feet above curb level and extended to the waterfront yard.



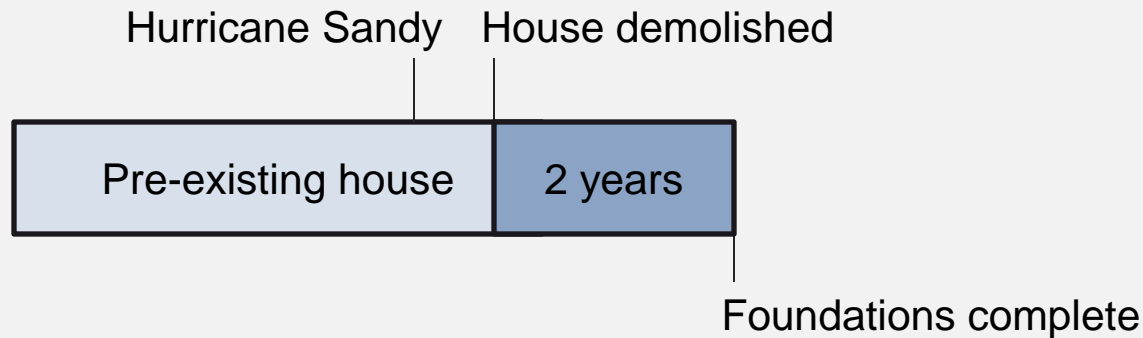
# GRANDFATHERING, CERTIFICATIONS AND BSA SPECIAL PERMIT



# TIME LIMIT TO REBUILD EXISTING 1 & 2 FAMILY HOUSES

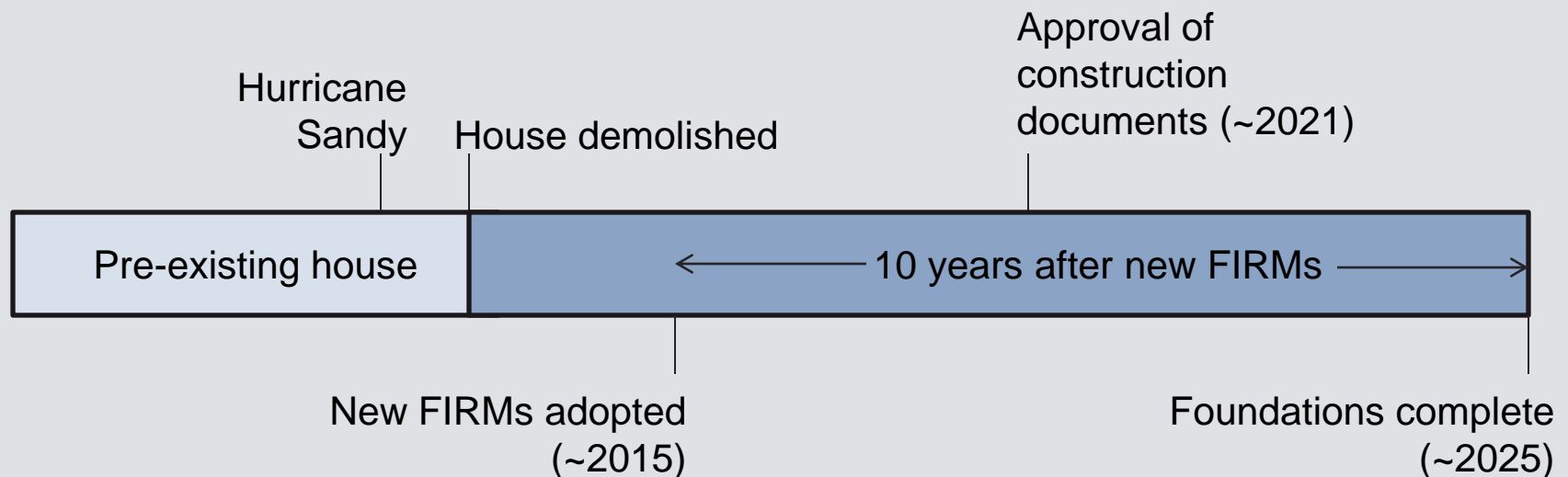
## Original Proposal

By interpretation, the Department of Buildings limits the opportunity to vest the replacement of a destroyed single- or two-family building with an equivalent house to two years.



## Revised Proposal

Within the flood zone, extend the time limit to vest a replacement of a destroyed or demolished single- or two-family building to ten years after the adoption of new FIRMs (ten years after 2015).



# NON-CONFORMING USES and NON-COMPLYING BUILDINGS

## Issue

Some non-conforming or non-complying buildings damaged or destroyed during the storm cannot be rebuilt because they exceed the threshold for reconstruction under zoning regulations, or because the Building Code's flood-resistant construction standards would create conflicts with zoning.

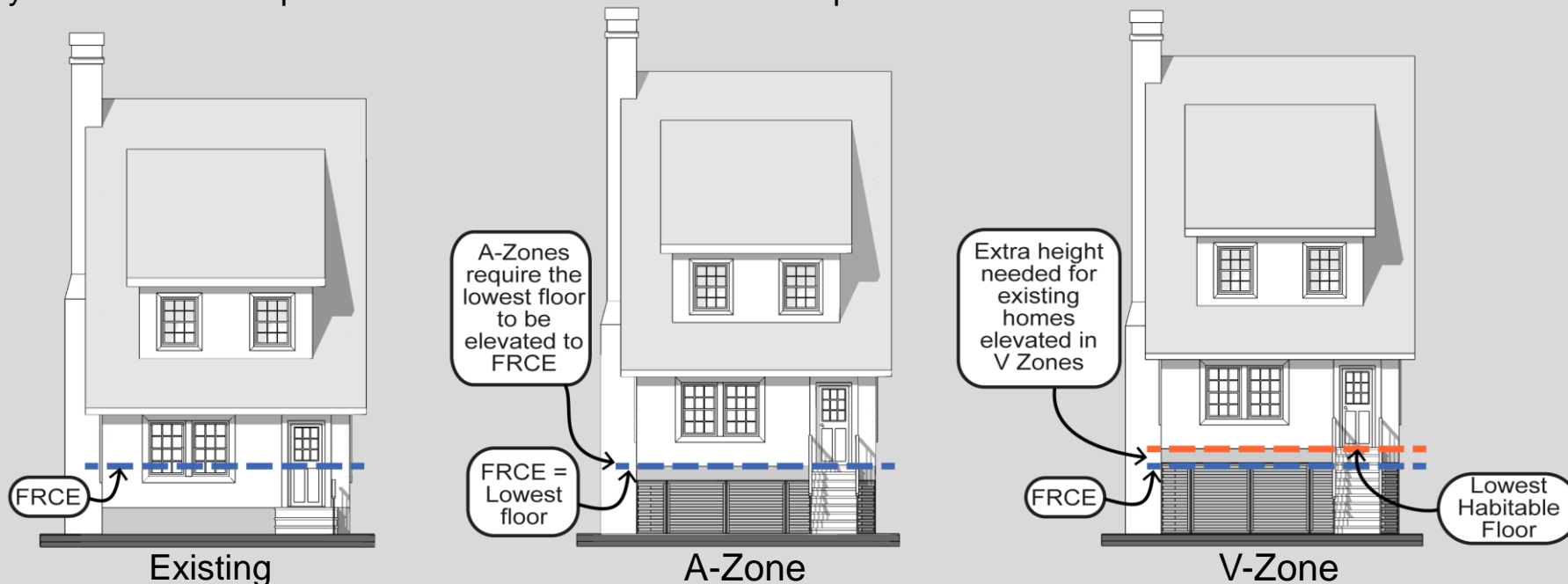
## Proposal

### 1 and 2 Family Homes

Allow existing 1 and 2 family homes to create new non-compliances to the extent necessary to elevate the first habitable floor of the home to the FRCE.

### All other Buildings

Allow the reactivation of non-conforming uses and the reconstruction of non-complying buildings severely damaged by Hurricane Sandy. Construction pursuant to such approval may continue up to six years after the adoption of new Flood Insurance Rate Maps.



# CERTIFICATIONS

## Issue

Zoning requirements could prevent some buildings damaged during the storm from being rebuilt.

## Proposal

### Waterfront Blocks

Eliminate certification, visual corridor and public access requirements for reconstructed buildings not larger than 20,000 sq ft severely damaged by Hurricane Sandy. Construction pursuant to such approval may continue up to six years after the adoption of new Flood Insurance Rate Maps.

### South Richmond

Eliminate the need for certifications for developments or site alterations on zoning lots with designated open space or where a waterfront esplanade is mapped provided there is no increase in the building footprint. Construction pursuant to such approval may continue up to six years after the adoption of new Flood Insurance Rate Maps.

# NEW BSA SPECIAL PERMIT

## **Issue**

In flood zones, special circumstances may arise that prevent flood-resistant construction that are not addressed by this text amendment.

## **Proposal**

Create a new special permit to be administered by the Board of Standards and Appeals to waive certain bulk regulations (not including floor area) to the minimum extent necessary to comply with the Building Code's flood-resistant standards.