



# **Standards to Reduce Flood Risk for Non-Residential Buildings**

MIAMIBEACH

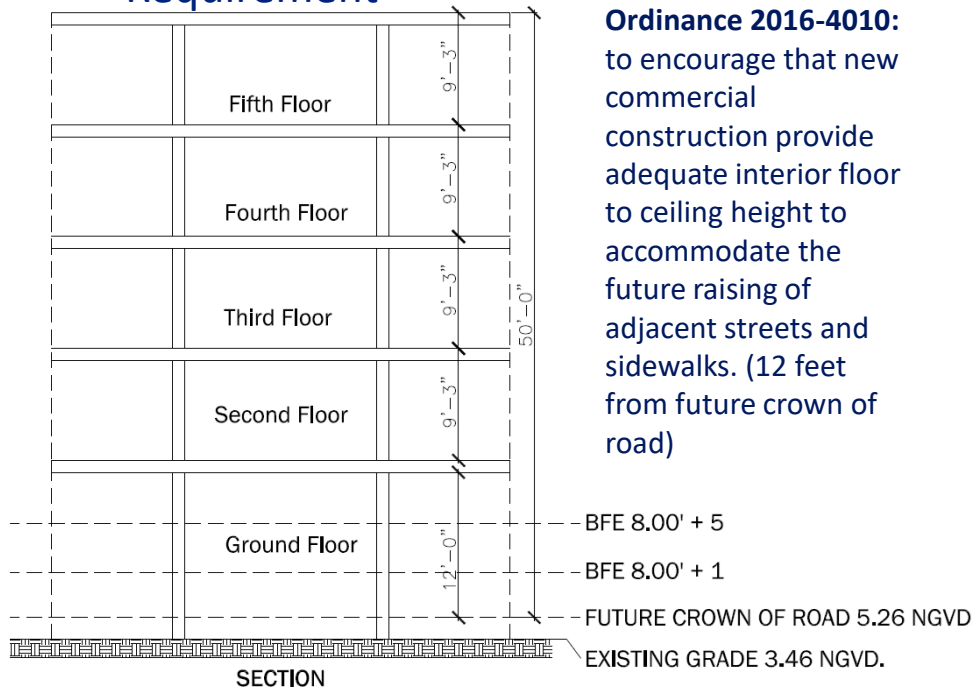
# Purpose

- Compliance with the Comprehensive Plan
- To Encourage commercial development to be more resilient by providing:
  - Greater interior floor to ceiling height.
  - Elevated finished floors.
  - Transition areas that can accommodate and facilitate the harmonization between the elevated ground floors or future elevated streets.
  - Raising sidewalks when there is sufficient room.
  - Larger landscape areas to absorb stormwater.

## Current Code:

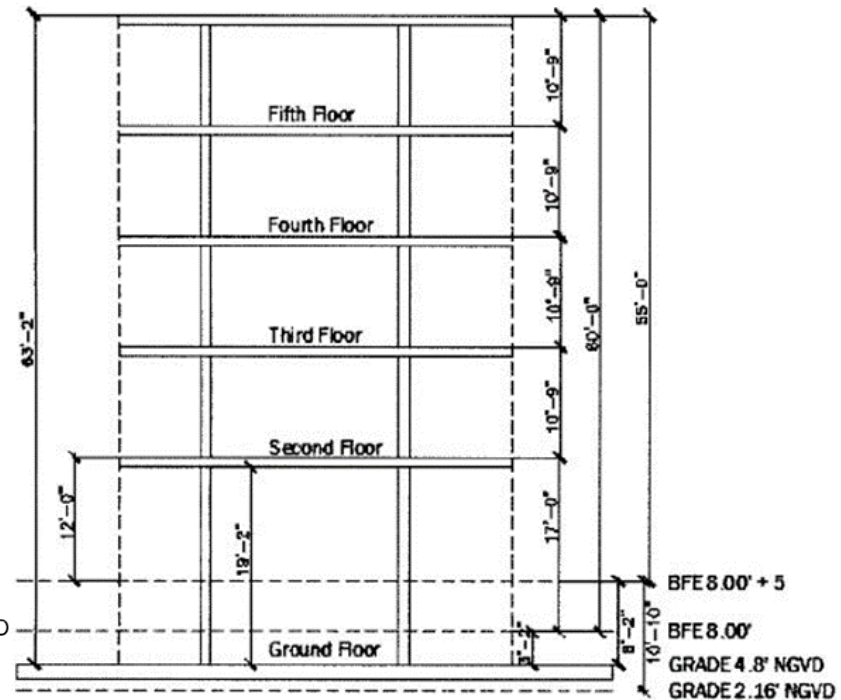
There is currently no minimum ground floor height requirement for commercial properties. There is an incentive to measure height from the City of Miami Beach Freeboard (1 to 5 feet above BFE). However, it only requires 12 feet clear from the Future Crown of Road. There is an additional incentive of 5 feet for the ground floor.

## Requirement



## Incentive

## Ordinance 2017-4124

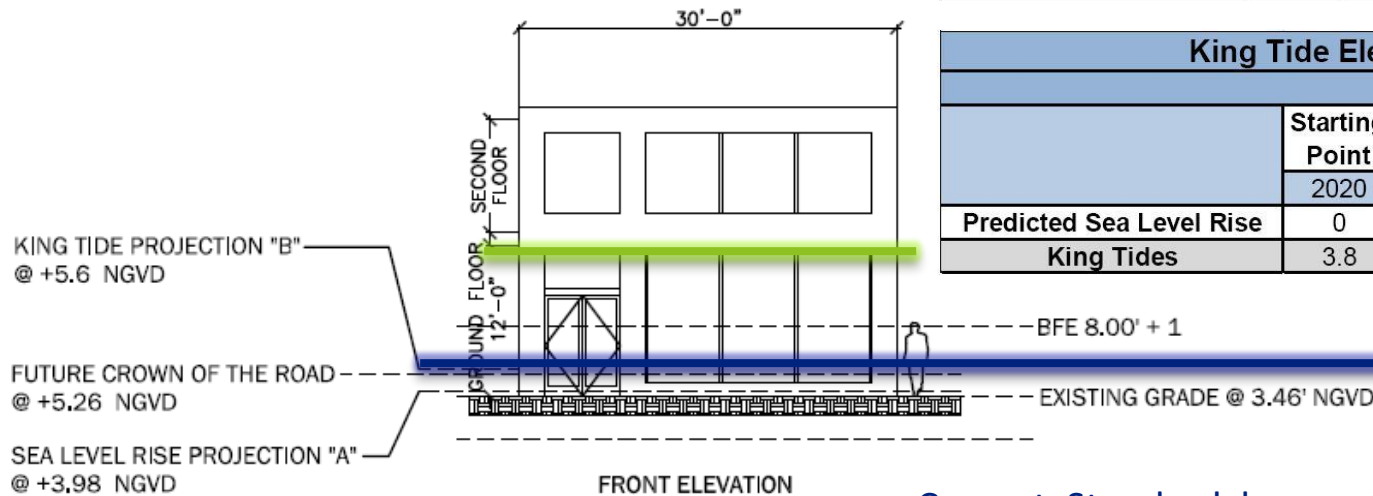


# Sea Level Rise Projections

For the purpose of this proposal we took in to account the 2060 sea level rise, king tide and storm surge projections

Sea Level Rise Projections (NGVD)				
	Low Prj.	High Prj.	Low Prj.	High Prj.
	Mean Sea Level		Mean High Water	
1992	0.60	0.60	1.81	1.81
2030	1.10	1.43	2.31	2.64
2060	1.77	2.77	2.98	3.98

Storm Surge Elevation (Feet NGVD)			
		USACE 2013 High Curve	
Storm Frequency	Starting Point	(+) 20 YEAR	(+) 40 YEAR
	2003	2040	2060
Predicted Sea Level Rise	0	(+) 1.1 ft	(+) 2.2 ft
10 YEAR	8.1	9.2	10.3
20 YEAR	9.5	10.6	11.7
50 YEAR	10.8	11.9	13.0
100 YEAR	13.6	14.7	15.8
500 YEAR	17.7	18.8	19.9



King Tide Elevation (Feet NGVD)			
		USACE 2013 High Curve	
	Starting Point	(+) 20 YEAR	(+) 40 YEAR
	2020	2040	2060
Predicted Sea Level Rise	0	(+) 0.8 ft	(+) 1.8 ft
King Tides	3.8	4.6	5.6

2060 King Tide Projection

Current Standard leaves 11.7' of headroom if floor is raised to match the 2060 King Tide Elevation

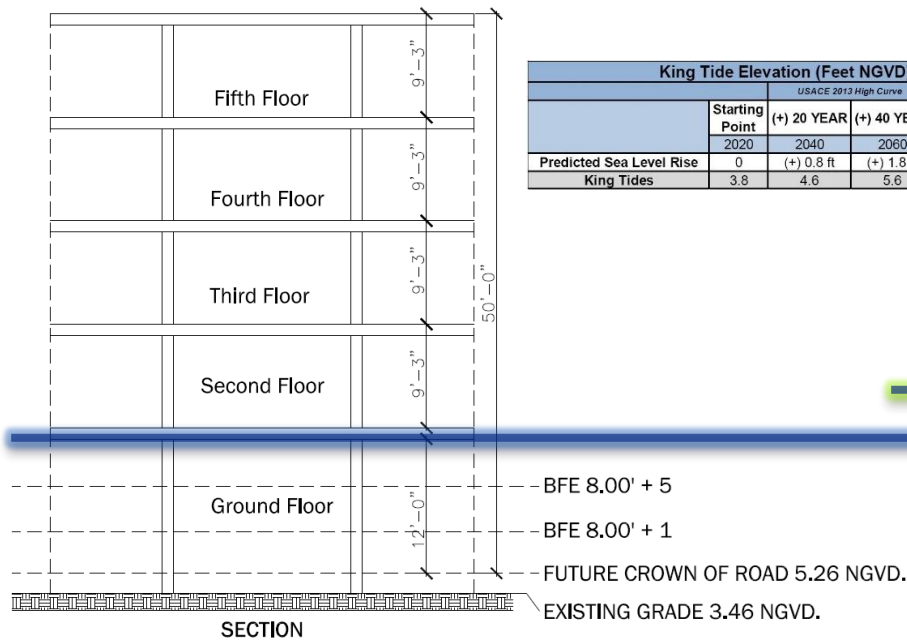
# Draft Ordinance Outline

- Modify definition of “Height”
  - Establish definition for “Design Flood Elevation” (DFE) – *Base Flood Elevation (BFE) plus the City of Miami Beach Freeboard*
  - Establish a “Minimum Height of Non-Residential Ground Floor”
- Buildings w/ Ground Floor Commercial Standards:
  - Existing Building Standards (Exceed 50% Rule)
  - New Building Short-Frontage Standards (Less than 150’)
  - New Building Long-Frontage Standards (Raised Sidewalks)

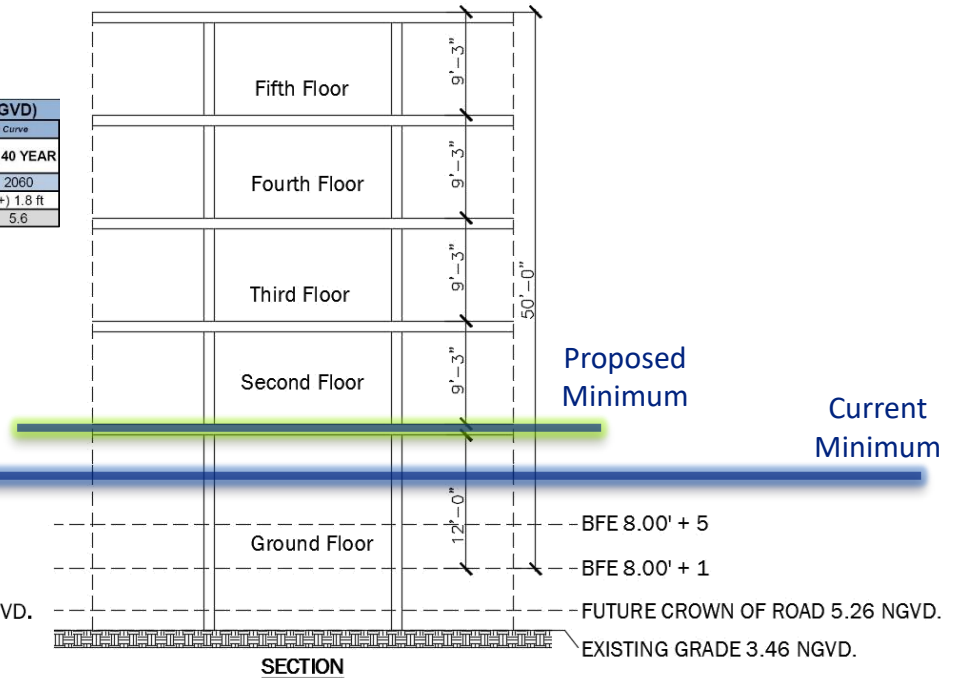
# Proposed Amendment:

- Define Base Flood Elevation plus City of Miami Beach Freeboard as the **“DESIGN FLOOD ELEVATION” (DFE)**.
- Require the **“Minimum Height of Non-Residential Ground Floor”** to be **12’** above the DFE

Current Minimum  
Incentive Standard



Currently permitted but not mandated  
Proposed Minimum Standard



Proposed standard leaves 15.4’ of headroom if floor is raised to match the 2060 King Tide Elevation. This is an extra **3.74’** from the current standard.

# Existing Building Standards

For buildings undergoing a substantial renovation (50% rule):

- **Raised Floor:** Where feasible, the ground floor shall be located at a minimum elevation of one foot (1') above the highest sidewalk elevation adjacent to the frontage.
  - Ramping and stairs from the sidewalk elevation to the ground floor elevation shall occur inside the property and not encroach into the public sidewalk or setback areas.
- **Knee Wall:** Except where there are doors, facades shall have a knee wall with a minimum height of two feet-six inches (2'-6") above the sidewalk elevation.
- **Flood Resistant:** Where feasible, ground floors shall utilize flood damage resistant materials for a minimum of 2' 6" above the floor elevation.
- **Convenient Flood Panels:** Flood panels for doorways shall be permanently located next to all doorways.
- **Waivers:** DRB and HPB can waive requirements, however, alternative flood control measures should be considered.

## 1- CASE STUDY - COMMERCIAL BUILDING

### EXISTING CODE

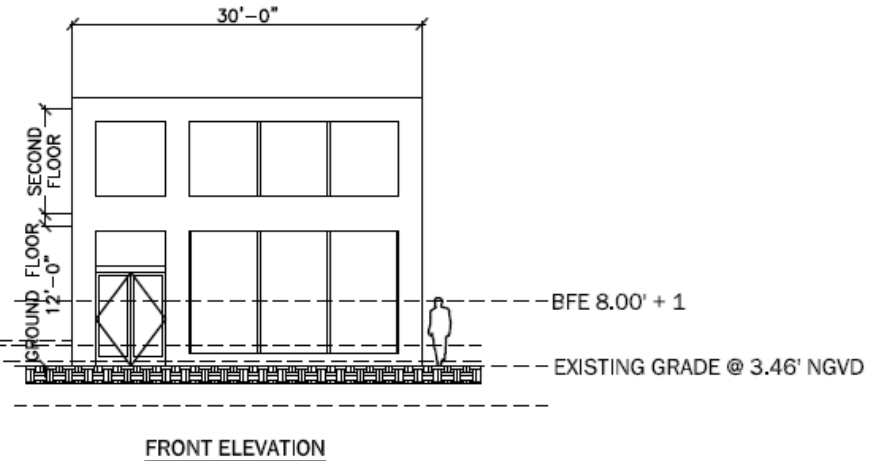
### 1428 ALTON ROAD - CD 2 ZONING DISTRICT

### EXISTING GRADE 3.46 NGVD

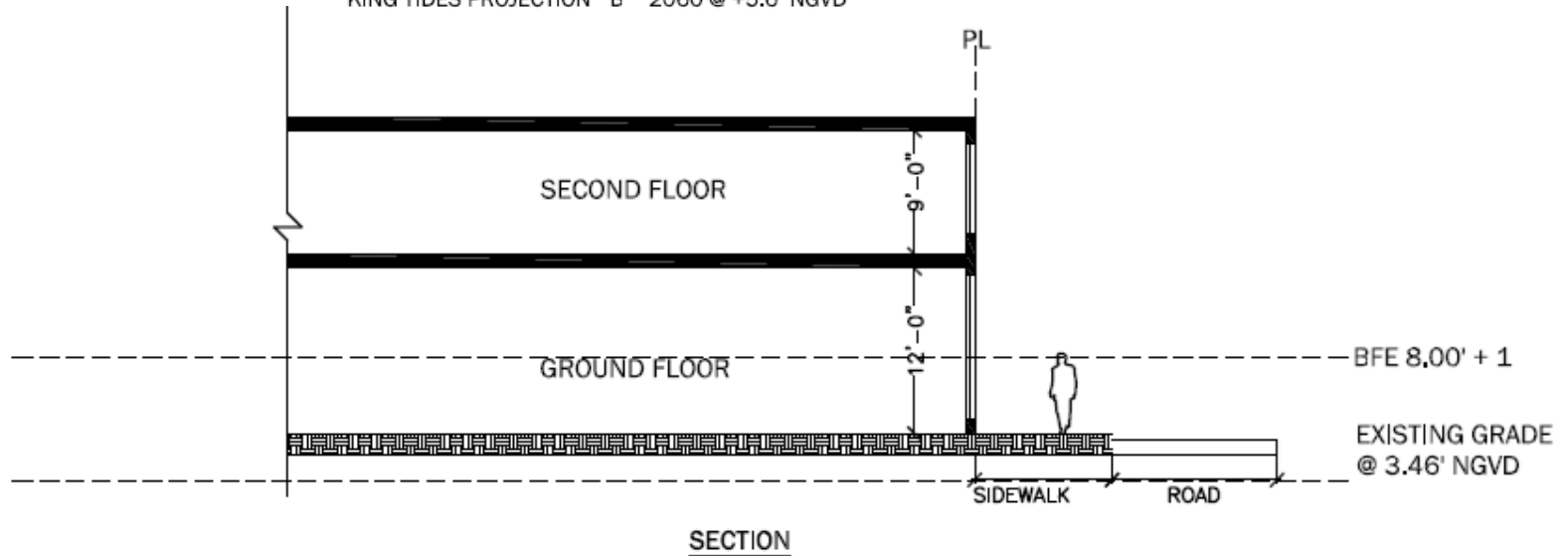
KING TIDE PROJECTION "B"  
@ +5.6 NGVD

FUTURE CROWN OF THE ROAD  
@ +5.26 NGVD

SEA LEVEL RISE PROJECTION "A"  
@ +3.98 NGVD



SEA LEVEL RISE PROJECTION "A" : 2060 HIGH PRJ. MEAN HIGH WATER @ +3.89 NGVD  
KING TIDES PROJECTION "B" 2060 @ +5.6 NGVD





# Short-Frontage Standards

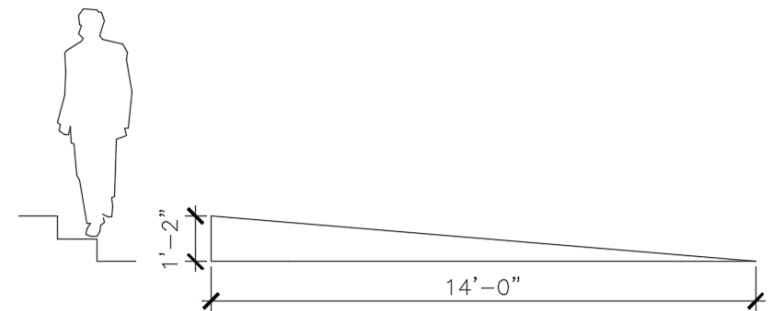
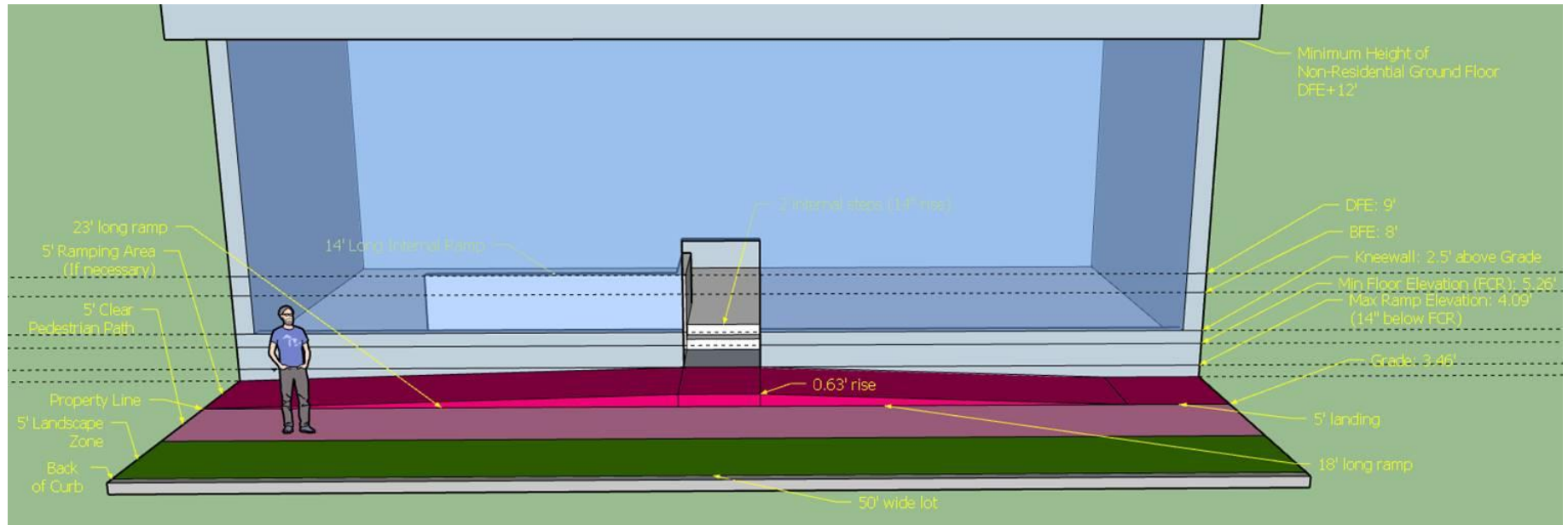
Frontages less than 150' wide

Incorporates Existing Building Standards + the following:

- **Ground Floor Setback:** Minimum ground floor setback of 15' from the back of the curb of the roadway, to provide:
  - 10' wide sidewalk Circulation Zone
    - 5' must be a "Clear Pedestrian Path"
  - 5' wide landscape area
- **Raised Floor:** The ground floor shall be located a minimum of the future crown of road (5.26 NGVD).
  - Ramping and stairs from the sidewalk elevation can occur in the 5 feet of the setback closest to the building.
    - Steps and ramping cannot interfere with the clear pedestrian path
    - Steps and ramping can only go to an elevation of 14" below the future crown of road.
    - Additional ramping to get to the elevation of the interior floor must occur behind the setback.
- For developments that have multiple frontages and one frontage is greater than 150', the development shall follow the more stringent standards for buildings with long frontages



(Harmonization purposes)



### 3- COMMERCIAL BUILDING - SHORT FRONTAGE STANDARDS

LESS THAN 150 FT OF FRONTAGE

EXISTING BUILDING - RENOVATION

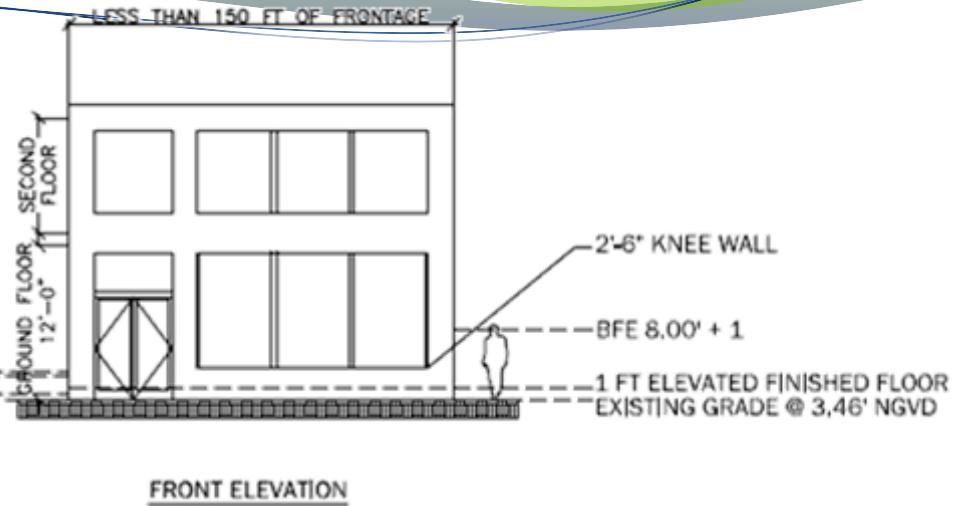
EXISTING GRADE 3.46 NGVD

GROUND FLOOR ELEVATED 14" FROM SIDEWALK ELEVATION AND  
A 2'-6" KNEE WALL

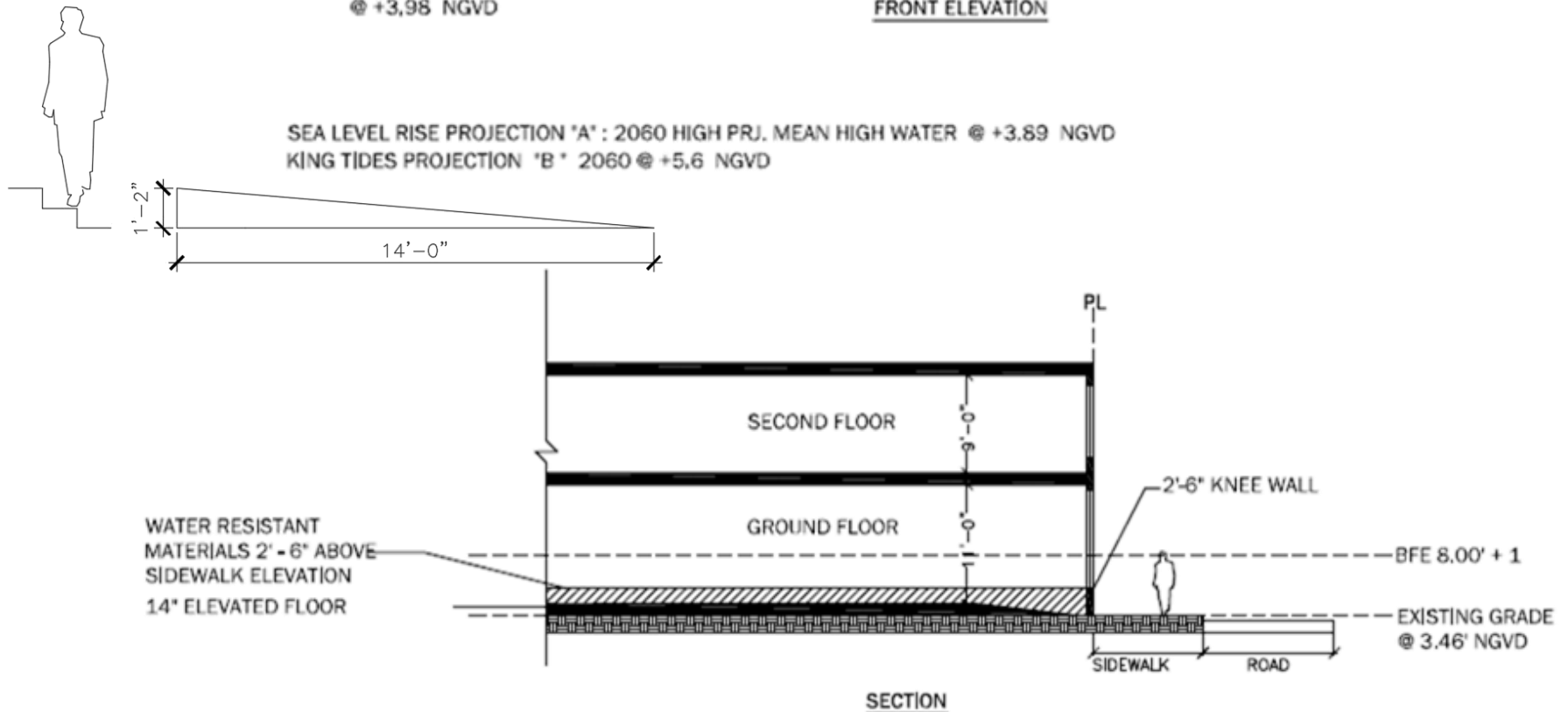
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SEA LEVEL RISE PROJECTION "A" : 2060 HIGH PRJ. MEAN HIGH WATER @ +3.89 NGVD  
KING TIDES PROJECTION "B" \* 2060 @ +5.6 NGVD





# Long-Frontage Standards

Long frontage standards: frontages with a width greater than 150 feet, where sidewalks are currently being raised.

Recent projects that have elevated ground floors and sidewalks:



709 Alton Road:  
Frontage: 300 feet



1614 Alton Road Phase I:  
Frontage: 250 feet



1824 Alton Road  
Frontage: 150 feet on Alton Rd



# Examples

- Projects that have ground floor and elevated sidewalks to the future crown of the road elevation – ~5.26' NGVD
  - (Not BFE+1).
- There are NO uniform standards
  - There are pros and cons to each example.



709 Alton Road - Baptist



1824 Alton Road – Michael's

# 1212 Lincoln Road





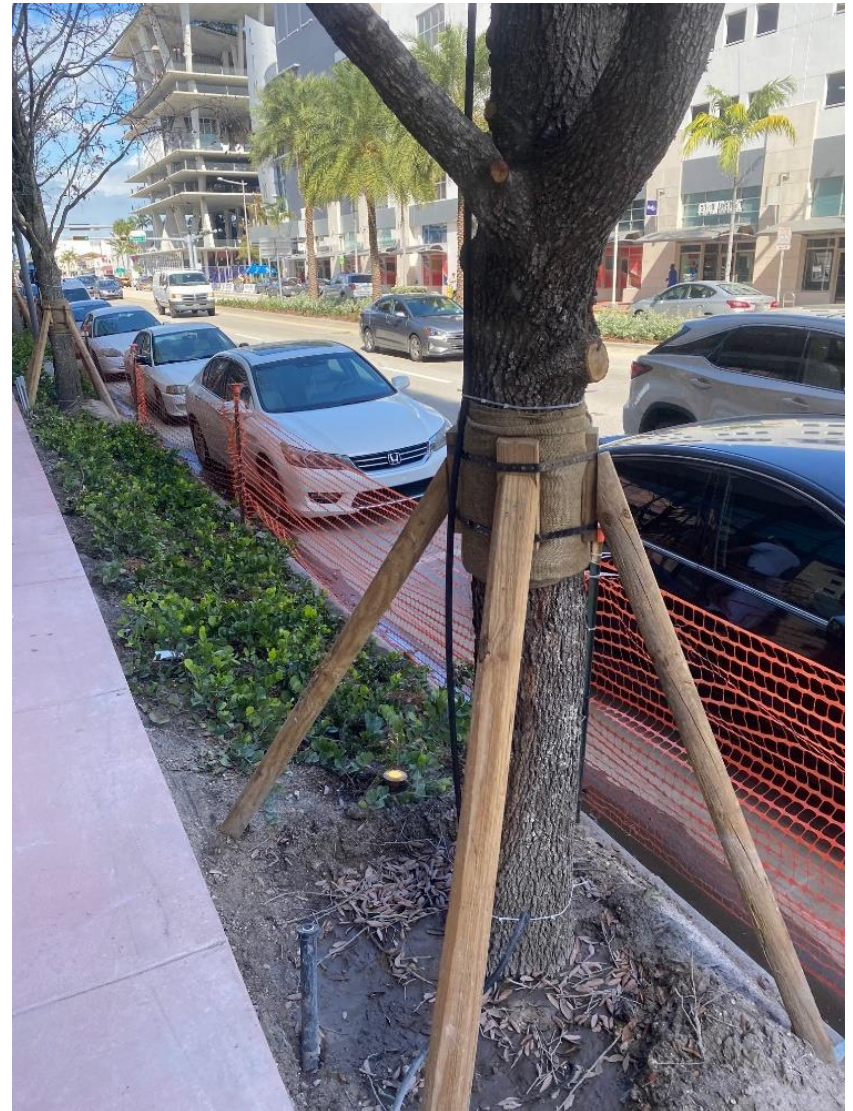
## 1212 Lincoln Road

### Positive:

- Ground floor level has an additional setback that provides a wider sidewalk.
- Some access to on-street parking.

### Negative:

- Insufficient and poorly located access to street parking
- Insufficient room for landscape to thrive and green infrastructure co-benefits.





# 709 Alton Road — Baptist Urgent Care







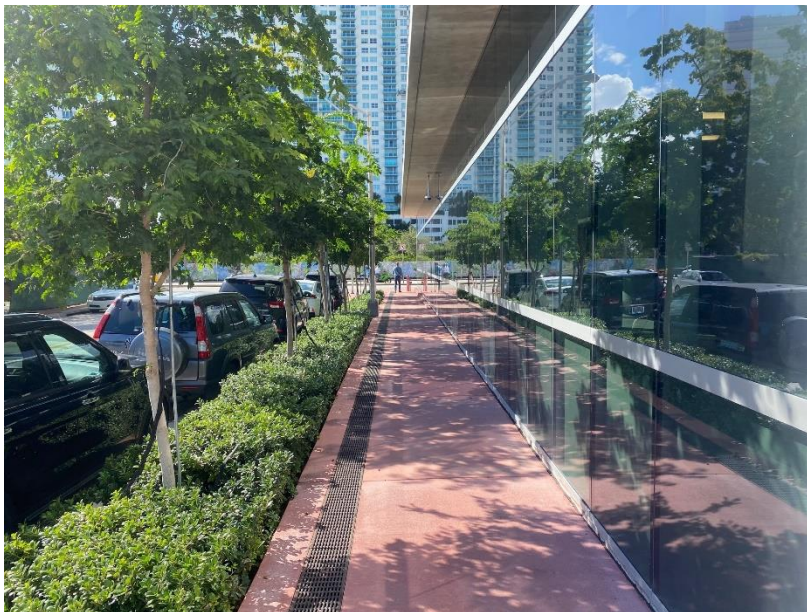
## Baptist Urgent Care

### Positive

- Wide sidewalks accommodate pedestrian activity
- Wide landscape area allows landscape to thrive
- Wide landscape area minimizes need for rails

### Negative:

- No access to sidewalk
- Landscape gets trampled
- Handrails in the public right of way





# 1045 5<sup>th</sup> Street – Target

Right of way harmonization issues between sidewalk elevation/size, landscape areas, driveways, street parking and the street.



## Positive:

- Trees are elevated

## Negative:

- Inadequate space for tree planter and pedestrian paths
- Railings necessary
- Landscape verge inadequate for co-benefits
- Landscape quality
- Quality of finish materials for planters



## 1045 5<sup>th</sup> Street - Target

### Negative:

- Unnecessary steps in public sidewalk due to unplanned building access points.
- Heavy use of unsightly handrails.





# What **NOT** to Do



Undesirable commercial spaces that create isolated pedestrian circulation areas with minimal landscaping



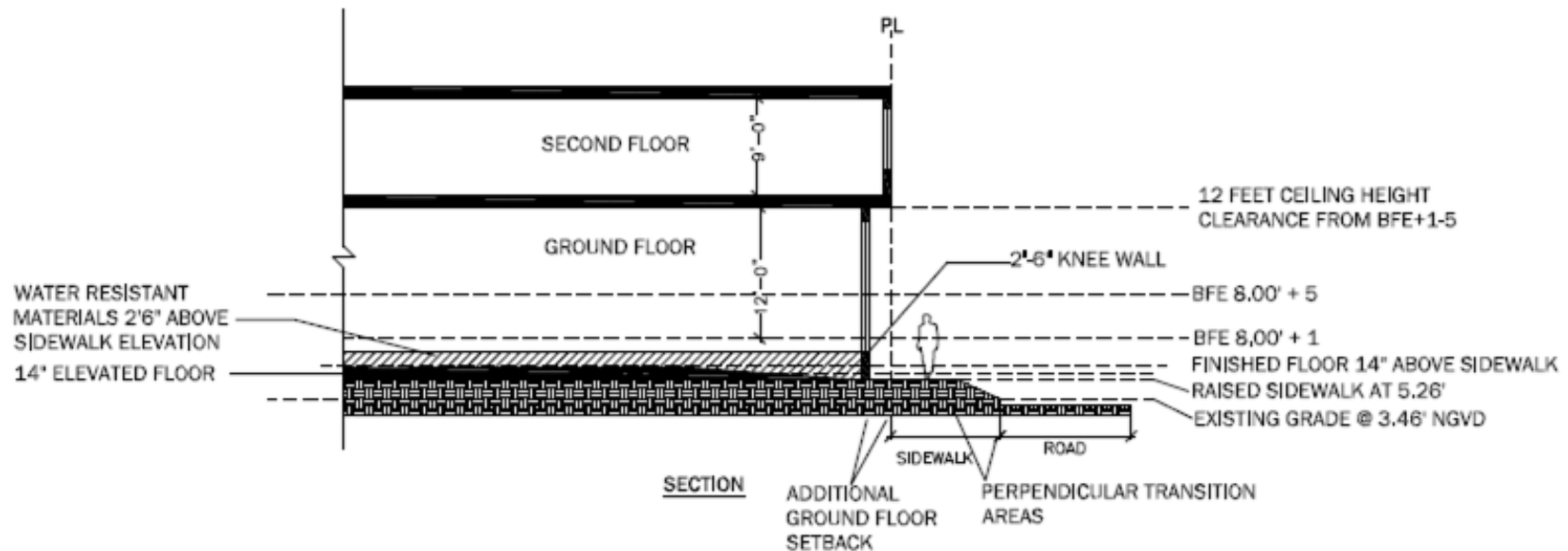
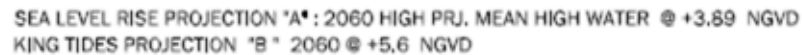
Knee walls that block eyes on the street and limit pedestrian interaction

# Long-Frontage Standards

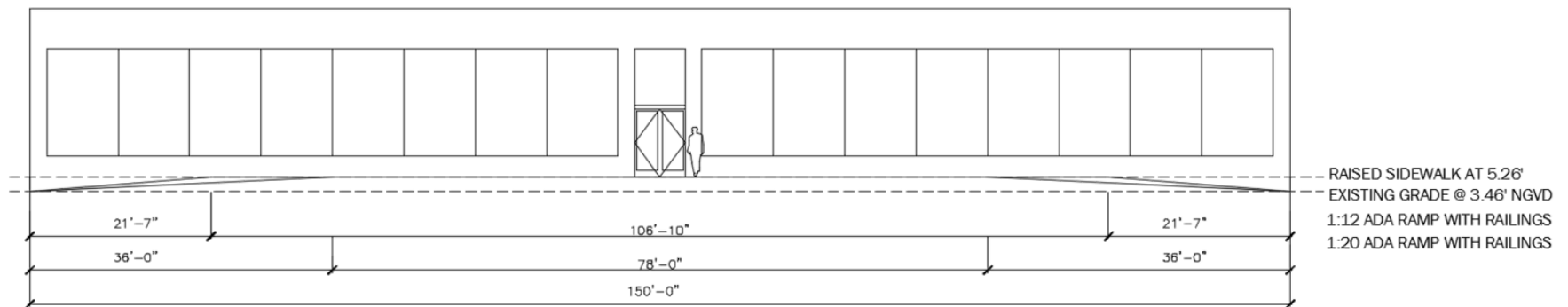
Incorporates Short-Frontage Standards + the following:

- **Raised Sidewalk:** With the exception of transition areas, the sidewalk must be raised at a minimum to the future crown of road elevation (5.26' NGVD).
- **Ground Floor Setback:** Minimum ground floor setback of 15' from the back of the curb of the roadway
  - 10' wide sidewalk circulation zone
    - 5' must be a "Clear Pedestrian Path"
  - 5' wide landscape transition area between the raised sidewalk and the lower vehicular roadway.
- **Raised Trees:** Trees be planted in raised planters or stabilized planting areas with a minimum elevation of the future crown of road.
- **Transition Standards:** The use of steps, ramp switchbacks, and handrails be prohibited in parallel transition areas.
- **Access to Parking:** Steps that are no wider than 36 inches should be placed between every two parking spaces where parallel parking exists.
- **Raised Floor:** The ground floor elevations be located a minimum of 14" (2 steps) above the raised sidewalk elevation.
- **Knee Wall:** Except where there are doors, facades shall have a knee wall with a minimum height of two feet-six inches (2'-6") above the raised sidewalk elevation.

ADDITIONAL GROUND FLOOR SET BACK MAY BE REQUIRED  
TO ACCOMMODATE TRANSITION AREAS

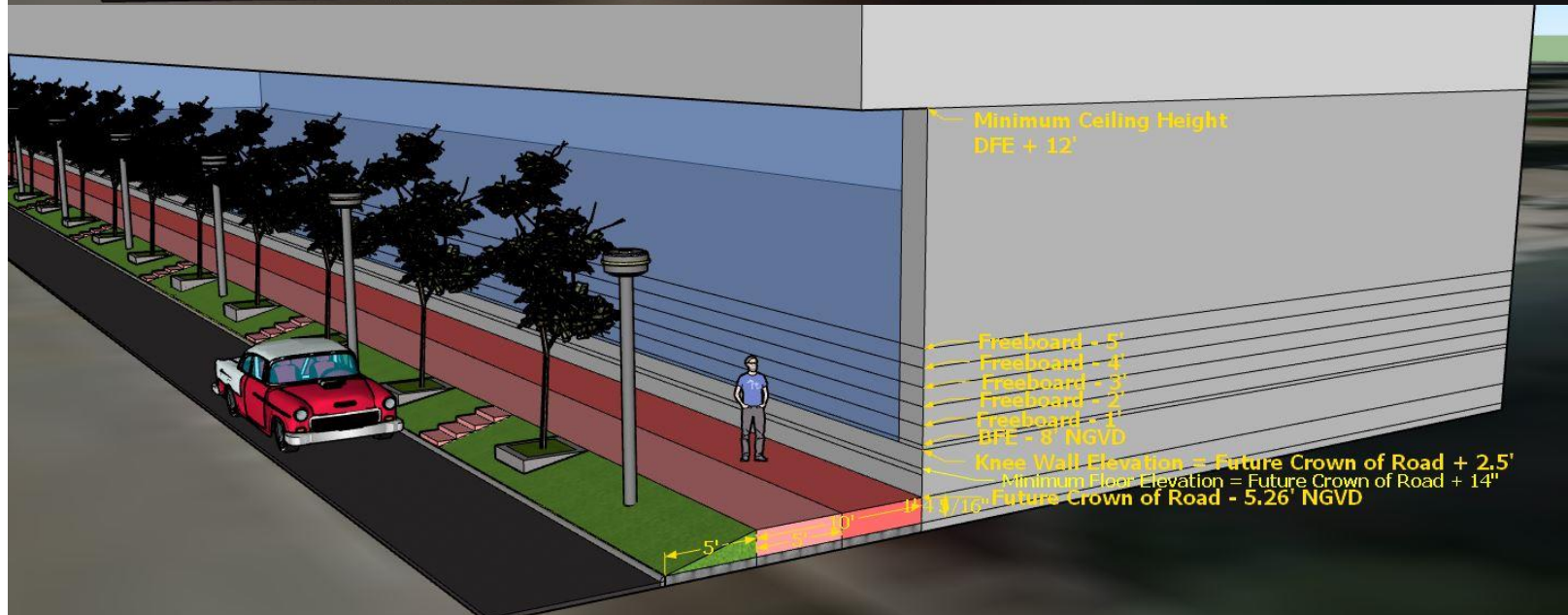
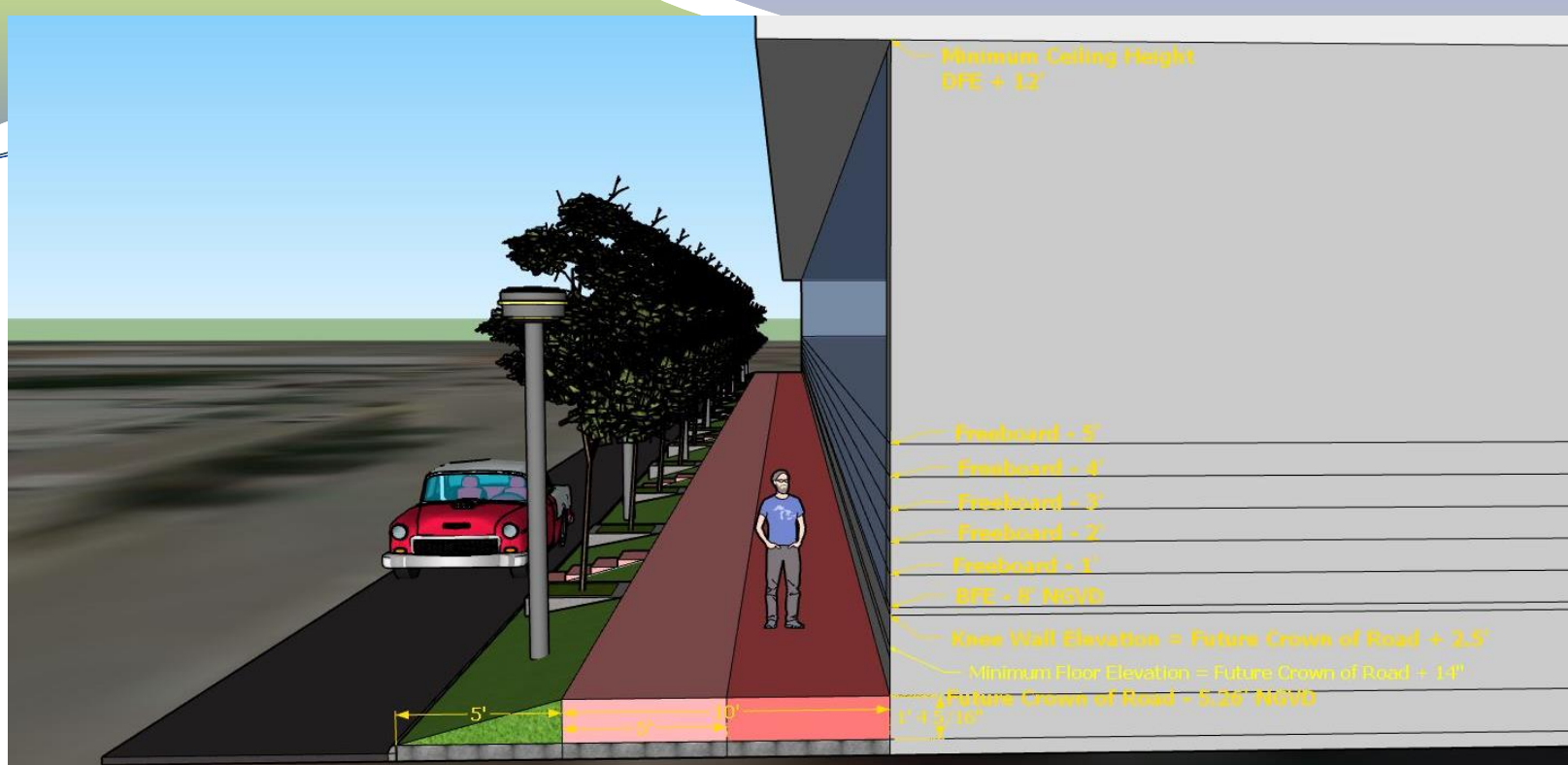


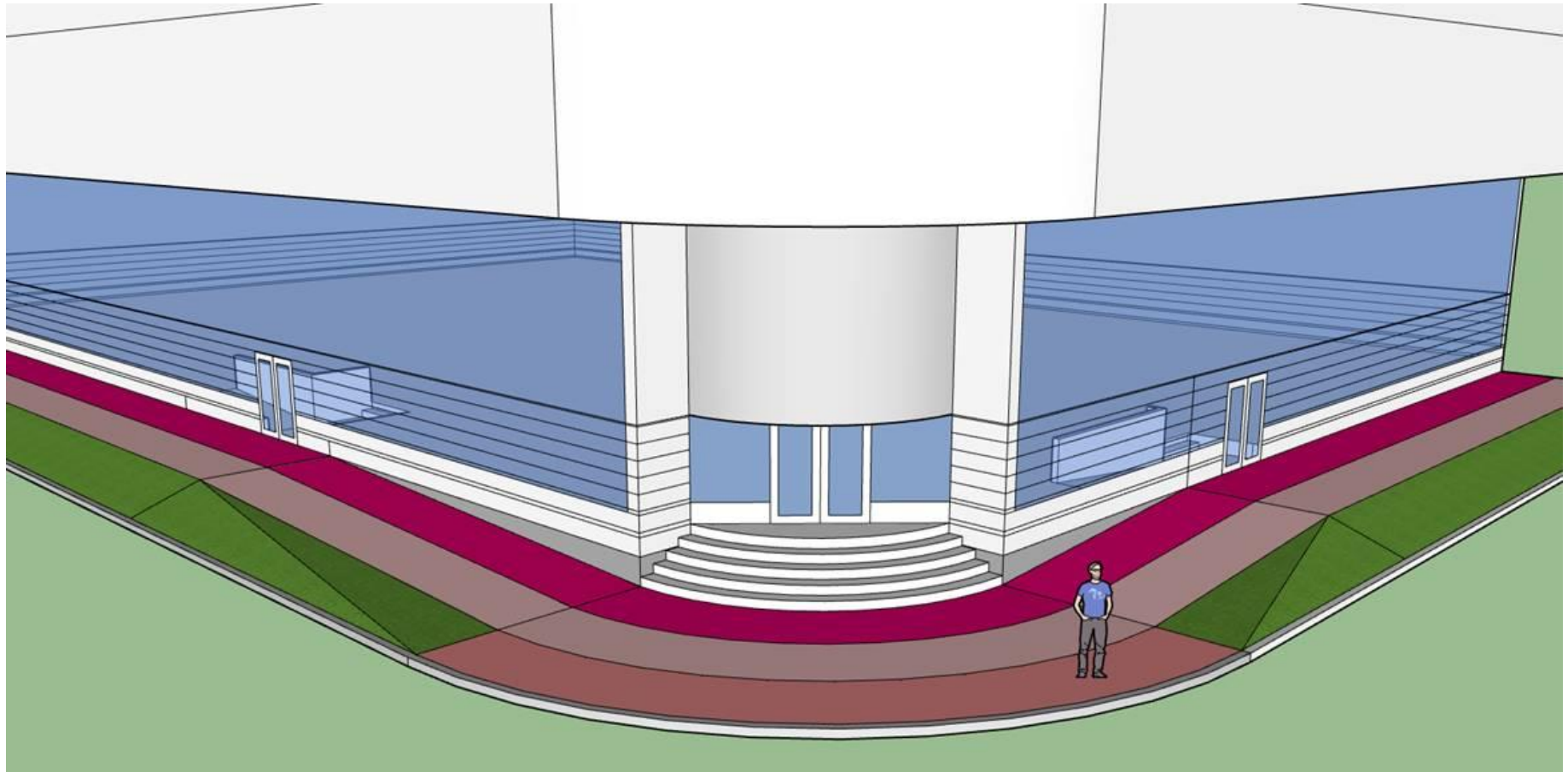
# EXTERIOR RAMP REQUIREMENTS



Requires architects to consider the placement of doorways in relation to raised sidewalks before the building is designed. *Currently this is an afterthought.*









**Any Questions?**



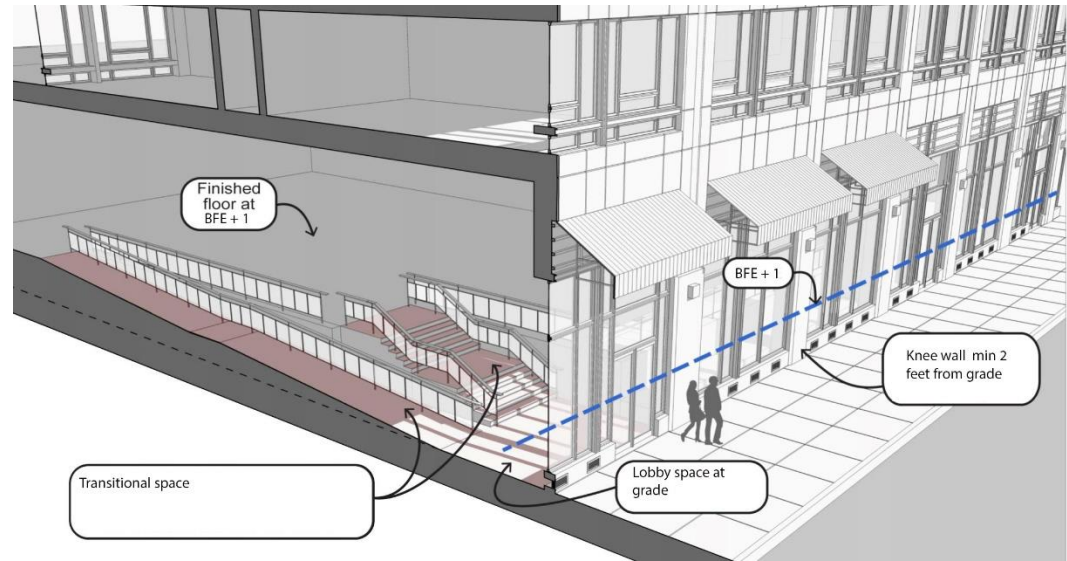
# Project with a ground floor at BFE+ 1 1234 Washington Ave



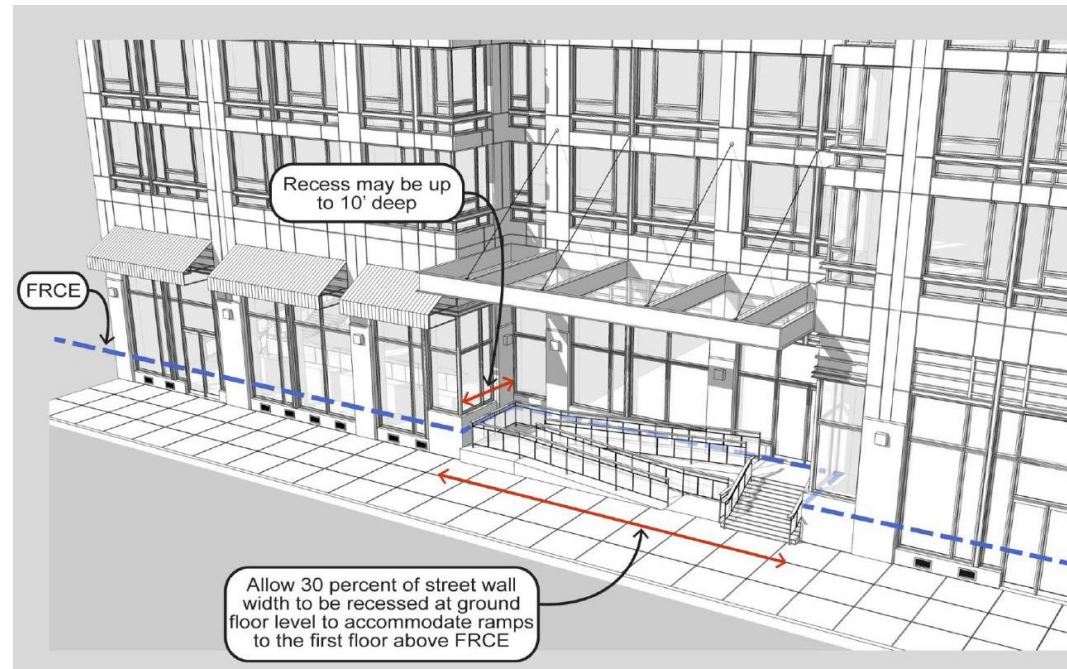
←→ Plaza

Greater setback to accommodate ramps and steps

Interior ramps  
consume a significant  
amount of floor area



Unsightly exterior  
ramps



# Why not raise floors higher today?

If commercial ground floors are required to be located at BFE + 1-5, there could be negative impacts, especially on small sites :

- Undesirable pedestrian experience.
- Undesirable commercial space since large areas are required for transition areas.
- Undesirable commercial space related to transparency and difference of heights between sidewalk and interior space.
- Potential unsafe spaces (lack of eyes on the street).
- Undesirable Architecture (tall knee walls).
- Elevated Construction Cost.
- Can be offset by large transition areas inside the structure or outside by providing greater setbacks; however, many sites do not have the depth, FAR, or historic character to accommodate this.
- Transitions between elevations are more complex.

The most important thing is for buildings to have sufficient height so that they can adapt as necessary. Windows and other façade elements are typically changed every 20 years, raising floors can be considered at those times.