

The following pages show the Powerpoint used by the Shulman + Associates team to start discussions related to Architecture, Preservation and Resiliency with Duval business/property owners, Key West officials and City Staff, and interested residents, in the Community Workshop held on April 4, 2024 at the E.H. Gato Building.

Participating from Shulman + Associates were Allan Shulman & Rebecca Stanier-Shulman, principals and Lucas Rosen, designer.





## Preservation and Resiliency:

Protecting your individual building and the historic commercial corridor, today and in the future

**Our role on this team is to look at the buildings in the study area and cross reference historical and current/future statistical data.**

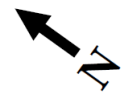
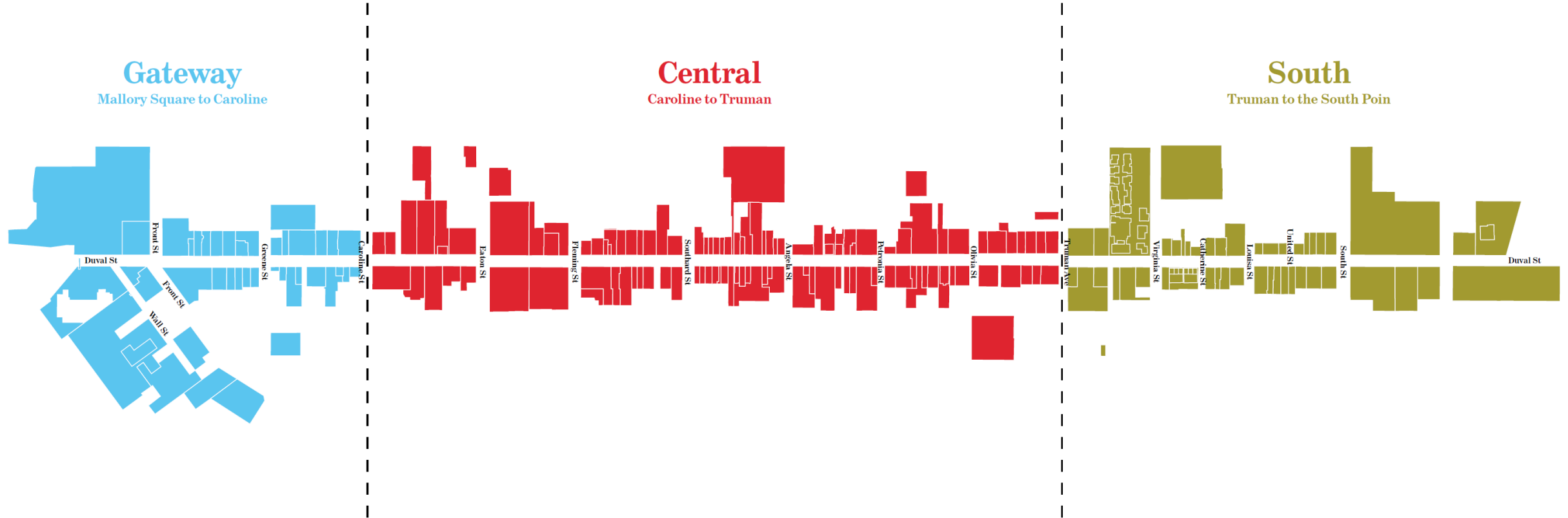
**We will then make preservation and adaptation recommendations for building and business owners, as well as offer suggestions for changes to the HARC Guidelines.**

**The goal is to protect and enhance the eclectic historic buildings of Duval Street.**



# Study Area: Parcels

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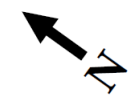
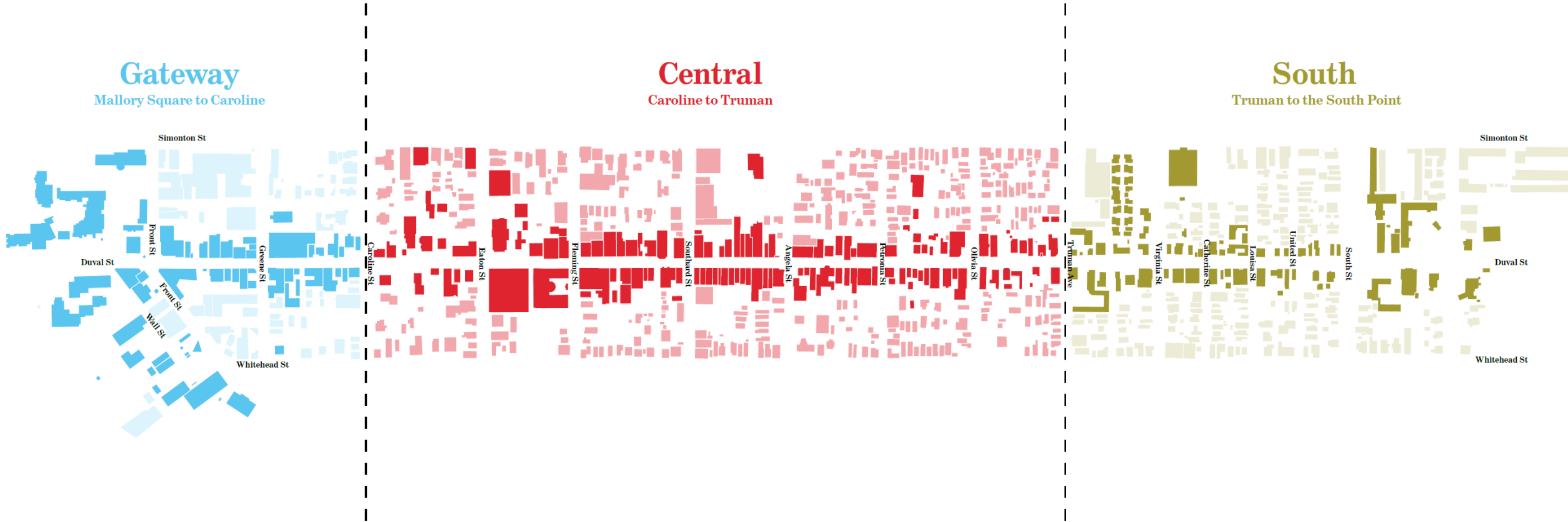


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Community Meeting, April 4, 2024

# Study Area: Building Footprints

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# Mapping: Year of Construction

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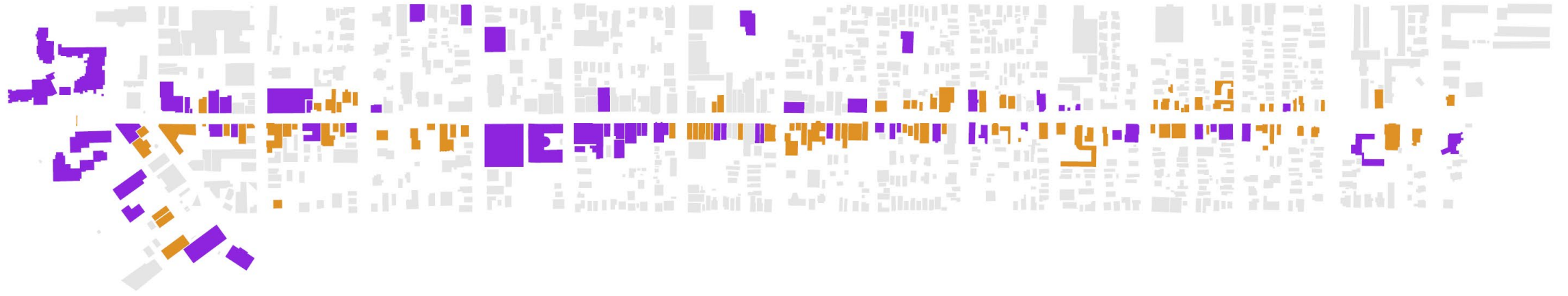
## Year of Construction Building Outlines

- 19th C - 1910s
- 1920s
- 1930s - 1940s
- 1950s - 1960s
- 1970s - 1990
- 1990 - present
- Unidentified

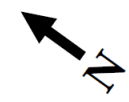


# Mapping: Construction Type

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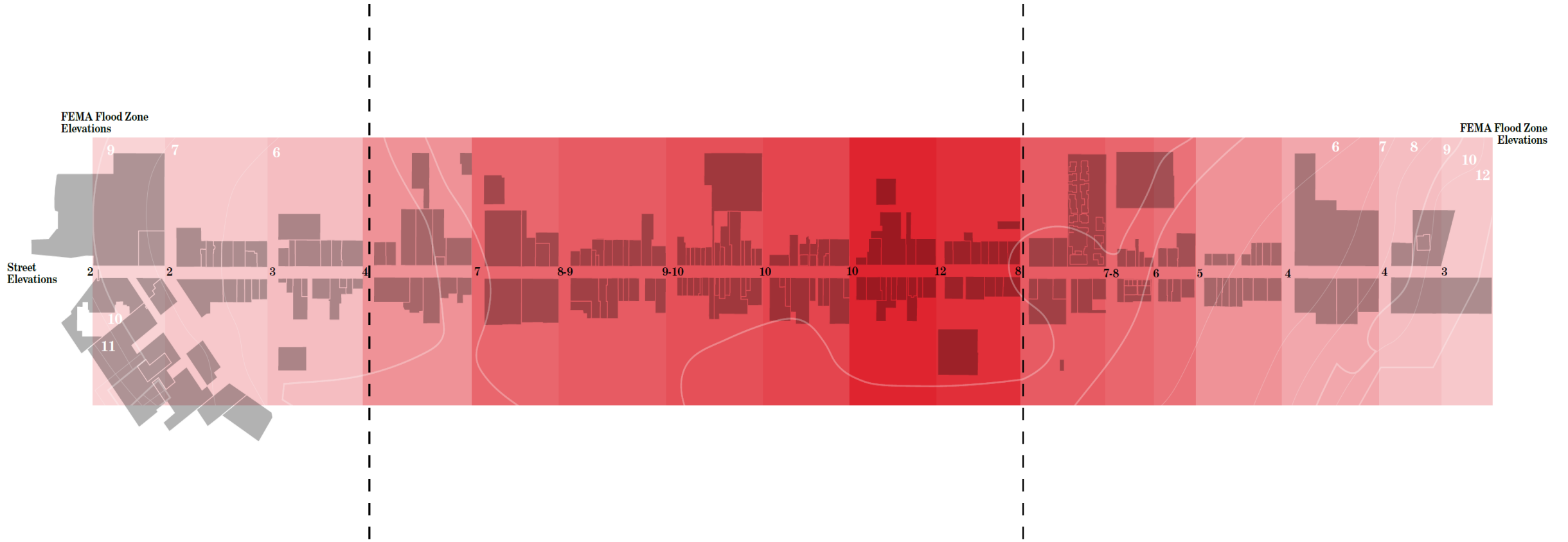


Construction Type  
■ Wood  
■ Masonry



# Mapping: Ground Elevation

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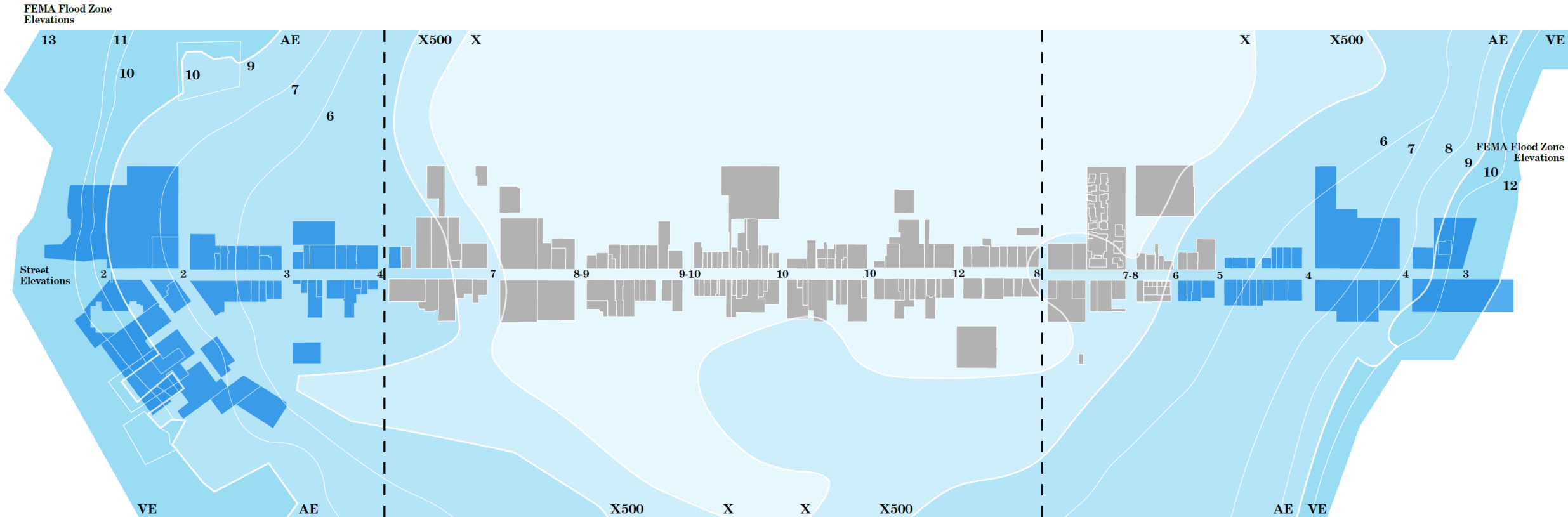
Duval Street Ground Elevations via City Floodplain Management Web Site





# Mapping: Flood Zones (Parcels)

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**Parcel Median Estimated Ground Floor**  
 ■ Height Above FEMA Flood Zone  
 ■ Height Below FEMA Flood Zone

**FEMA Flood Zones**  
 ■ VE  
 ■ AE  
 ■ X500 (0.2 pct annual chance flood hazard)  
 ■ X (area of minimal flood hazard)

# Mapping: Flood Zones (Buildings)

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## FEMA Flood Zones

- VE
- AE
- X500 (0.2 pct annual chance flood hazard)
- X (area of minimal flood hazard)



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# Mapping: 100 year storm

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100 Year Storm - 24 hr rainfall/flood event  
Existing Conditions  
■ Parcel Inundation



100 Year Storm - 24 hr rainfall/flood event  
2040 Projections  
■ Parcel Inundation



100 Year Storm - 24 hr rainfall/flood event  
2070 Projections  
■ Parcel Inundation



# Mapping: Cat 3 Storm

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# Mapping: Sea Level Rise 2070

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Sea Level Rise 2070  
(intermediate high scenarios)

■ Parcel Inundation

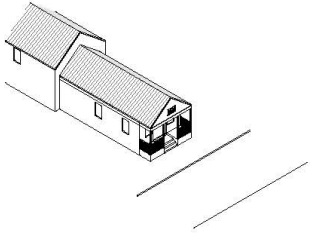


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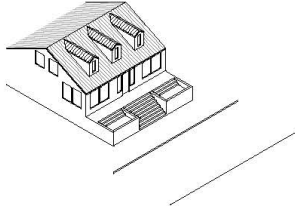


# Building Typologies/Duval

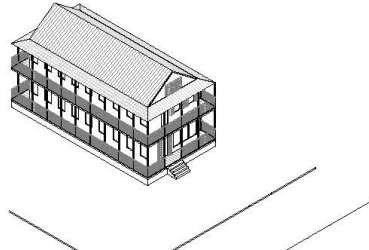
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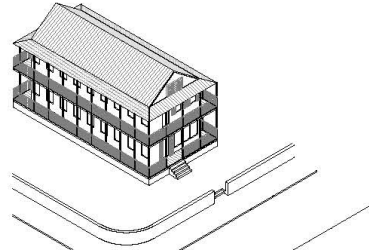
Single-story vernacular home raised



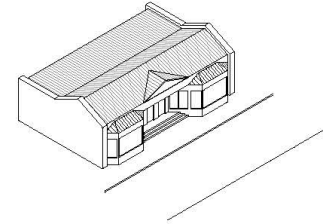
Single-story vernacular home door yard



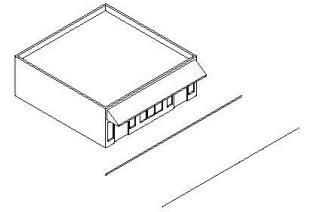
Multistory vernacular home raised



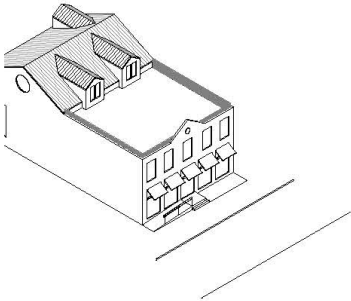
Multistory vernacular home door yard



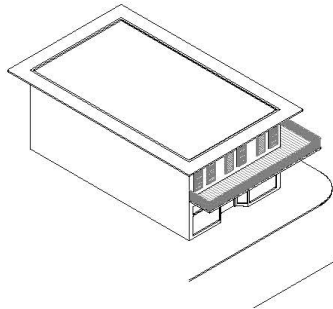
Single-story commercial raised



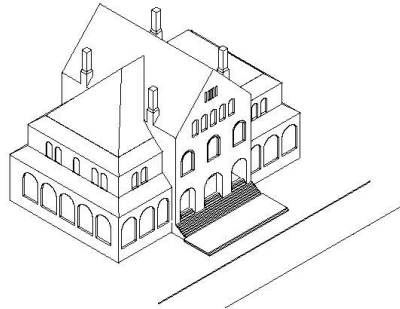
Single-story commercial not raised



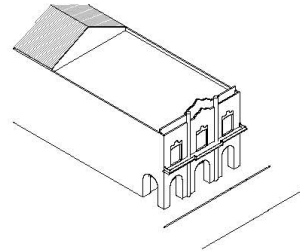
Multistory commercial raised



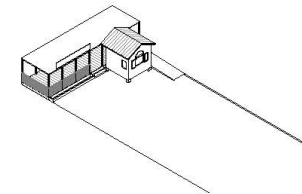
Multistory commercial not raised



Civic raised



Civic not raised



Kiosk

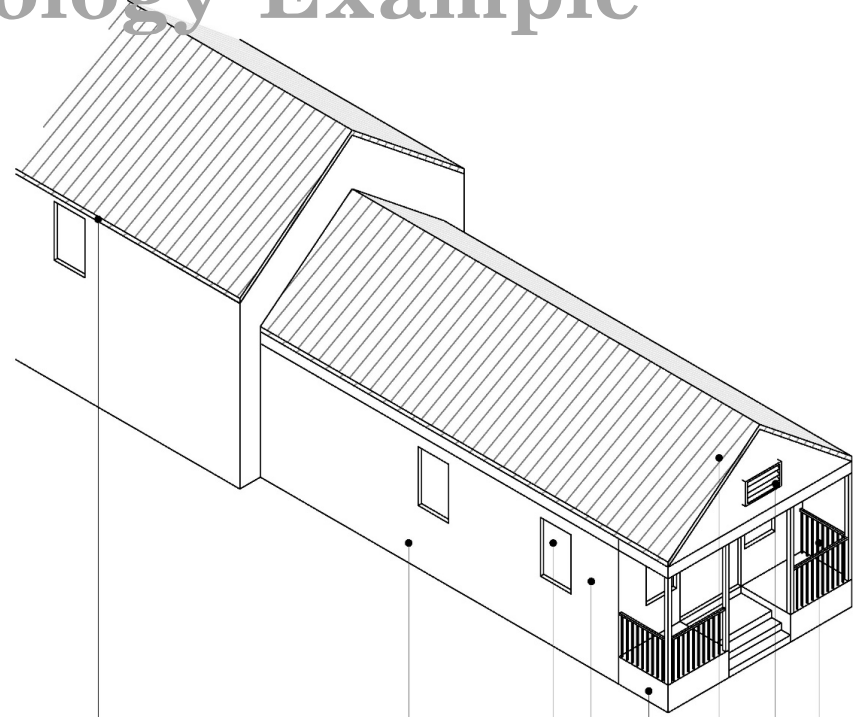


**Shulman + Associates**

Community Meeting, April 4, 2024

# Typology Example

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one and a half story

wood cladding

casement windows

square plan

raised on piers

front gable roof

square roof vent

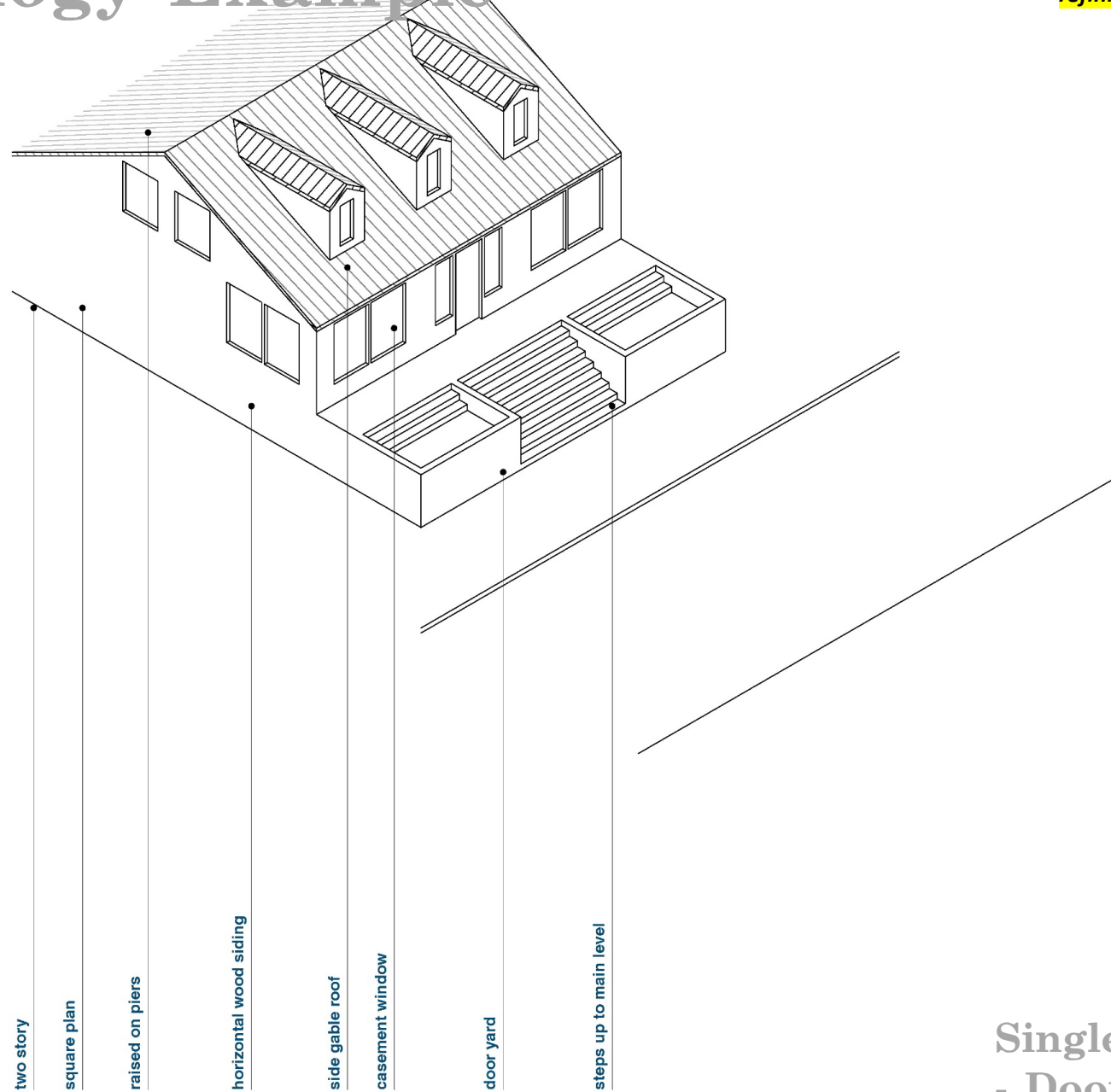
front porch



Single Story Frame Vernacular Raised

# Typology Example

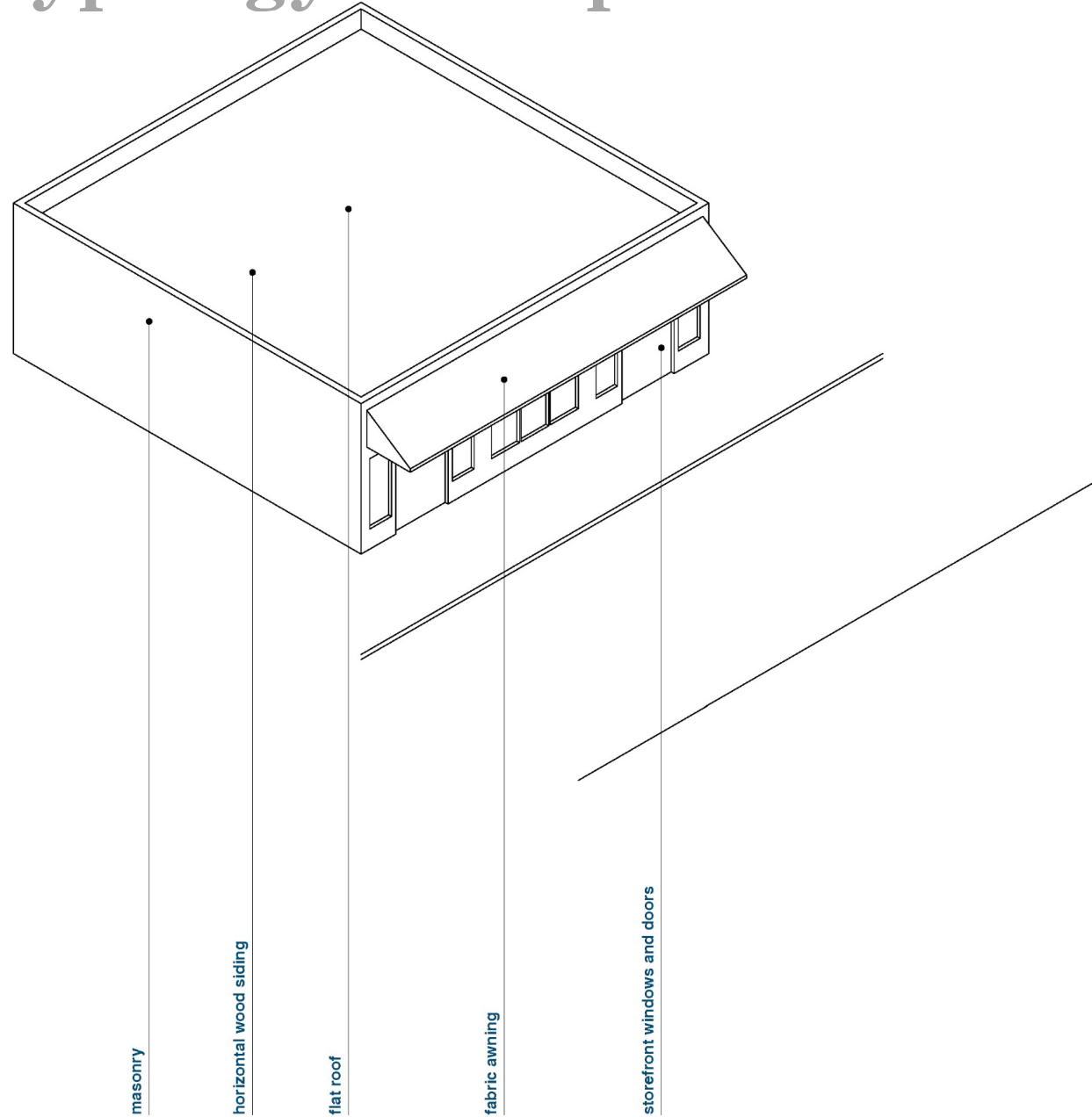
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Single Story Frame Vernacular Raised  
- Dooryard



# Typology Example



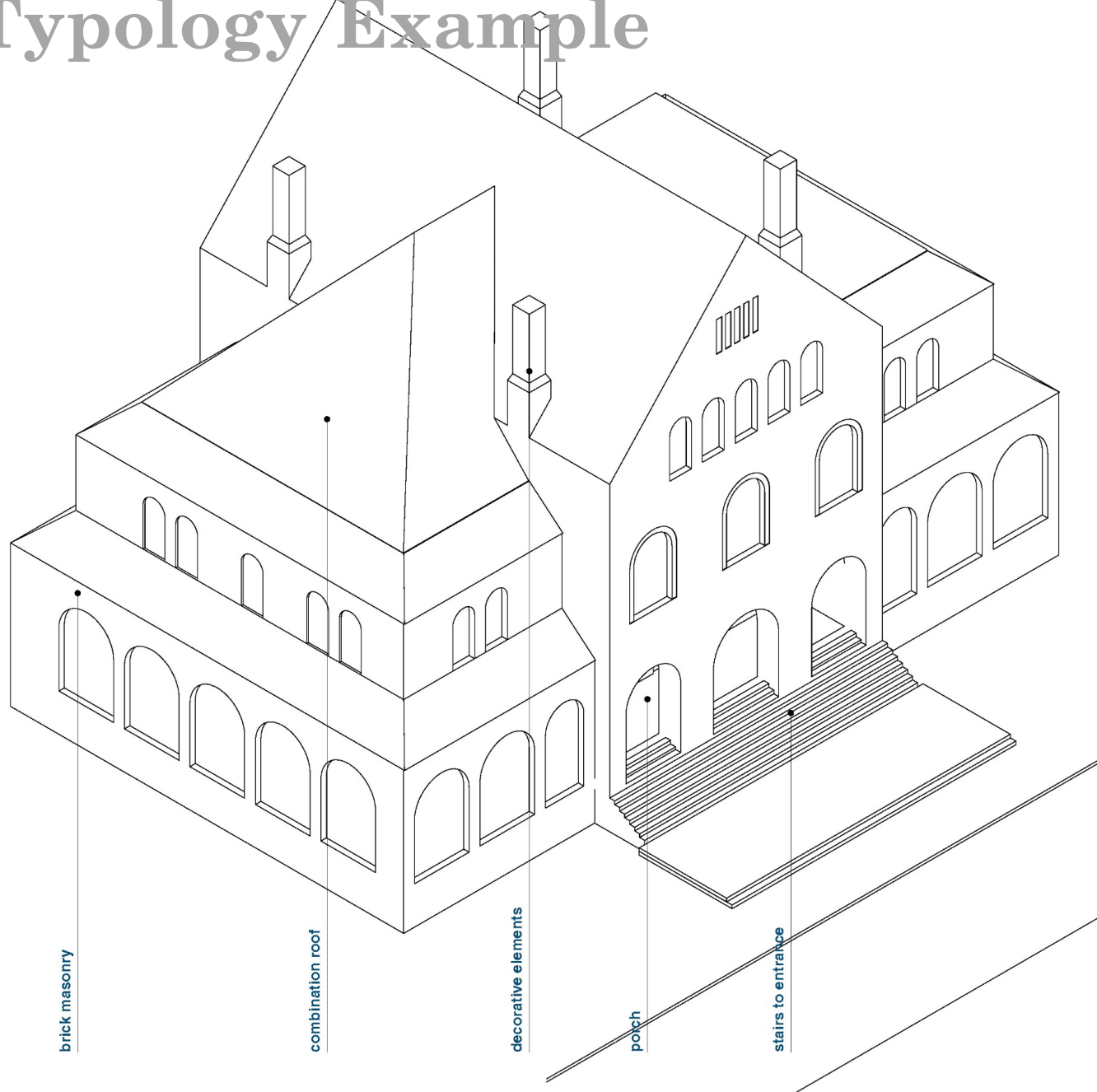
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Single Story Commercial Not Raised

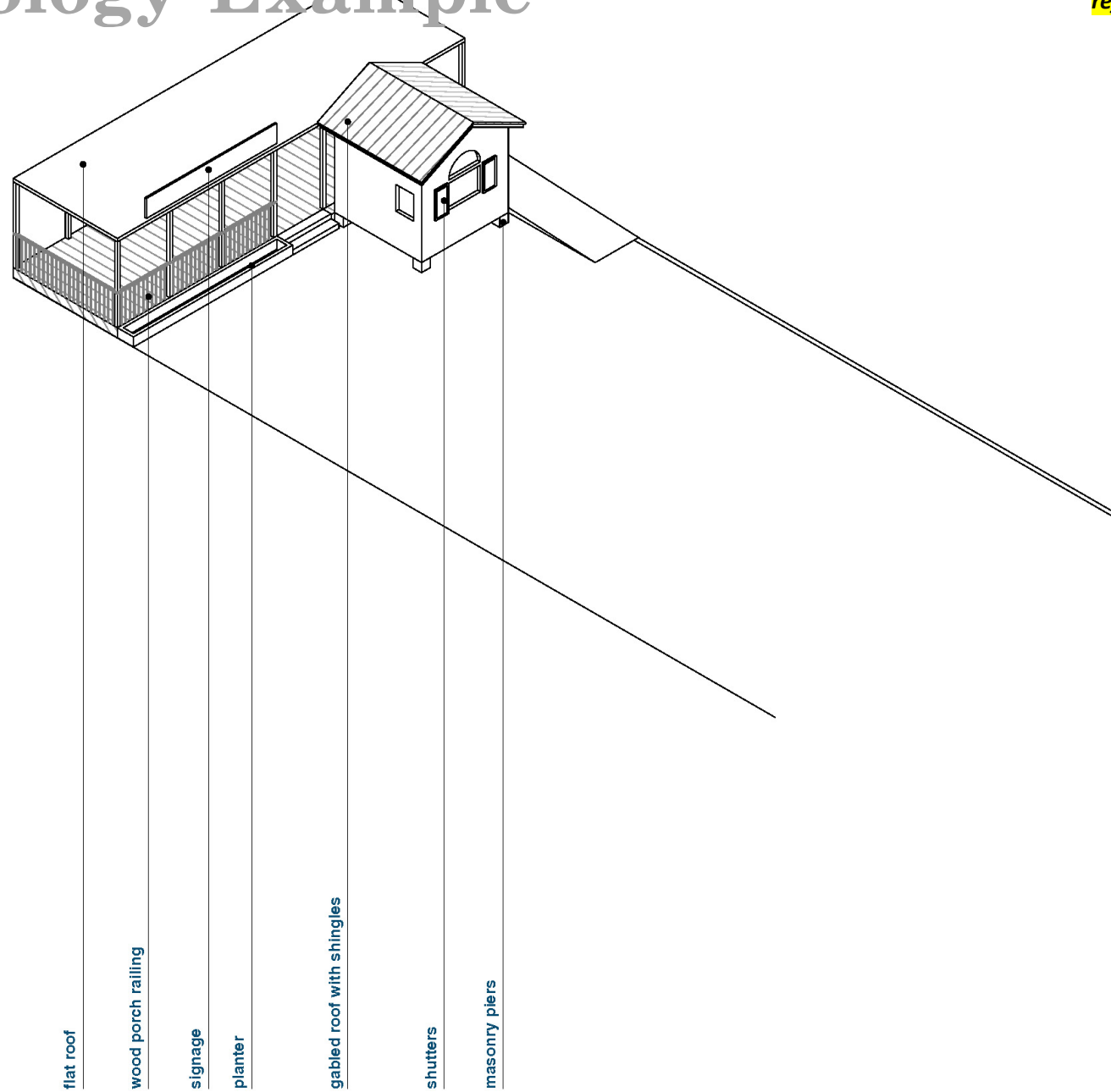
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# Typology Example

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# Strategies

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## BACKFLOW PREVENTION

Elevated water levels can cause waste in sanitary sewer lines to back up through drainpipes and flow into homes through toilets and other drains. One solution is to install backflow prevention valves on sewer lines in existing structures. Backflow prevention valves allow flow in only one direction. Waste or stormwater can flow out through the sewer pipe but is also prevented from flowing back into the structure.



## MECHANICAL SYSTEMS FLOOD PROTECTION

Mechanical equipment primarily includes heating, ventilation, and air conditioning (HVAC) systems. Small amounts of saltwater can quickly corrode mechanical systems, rendering them inoperable. The simplest and most effective ways to protect primary mechanical system components is to elevate them above design flood elevations. In Miami Beach, where buildings occupy most of their lot, mechanical units should be relocated to the roof of the building, where there is sufficient structural capacity.



## UTILITY & LIFE-SAFETY FLOOD PROTECTION

Unless an electrical system - electric panels, meters, switches, outlets, light fixtures, and the wiring that connects them all together - is specifically designed to be submerged underwater, floodwater can severely damage its various components. Similarly, gas and water meters, unless rated for submersion, can be damaged by flooding. Use flood-rated equipment or relocate above Design Flood Elevation.



## DRY FLOODPROOFING

Dry floodproofing involves taking measures to make a building watertight to prevent entry of water into interior spaces. Dry floodproofing measures must be paired to prevent failure. Reinforcing openings and walls to withstand floodwater pressures should be combined with reinforcing or anchoring the building slab to resist flotation from uplift pressures and other buoyancy forces.



## WIND MITIGATION

Wind mitigation is the implementation of certain building techniques in order to limit damage caused by intense wind. These building features include opening protection of the doors and windows, appropriate roof deck and roof to wall attachment, use of appropriate roof coverings and implementation secondary water resistance systems.



## SEEPAGE AND WATERPROOFING

While most building materials appear solid and impenetrable to the naked eye, when sustaining flood loads water may pass through these materials. Waterproofing techniques make a building envelope more impermeable and reduce the amount of water than can infiltrate. Waterproofing can be applied from either inside or outside a building wall, depending on the type of sealant used. Impermeable membranes can also be used to waterproof foundation walls belowgrade to resist groundwater seepage.



## FLOOD RESISTANT BUILDING MATERIALS

Everyday building materials may be susceptible to rot and mold when exposed to flooding. Using flood-resistant materials can reduce the damage and make cleanup easier following a flooding event. Building materials are considered flood-resistant if they can withstand direct contact with flood waters for at least 72 hours without being significantly damaged (damage requiring more than cosmetic or low-cost repairs).



## ADA ACCESSIBILITY FEATURES

The Americans with Disabilities Act (ADA) requires businesses that serve the public to remove barriers from older buildings and to design and build new facilities implementing features that provide access to customers with disabilities. These accessible features include parking, access to the building entrance, route into and through the establishment, access to the store's goods and services, restrooms, cashier stations, and egress from the building.



## WET FLOODPROOFING

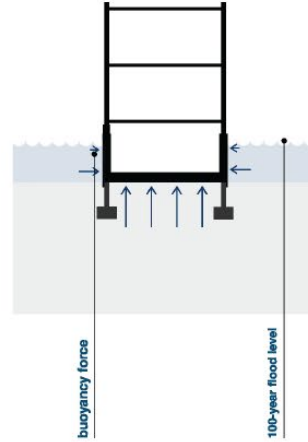
Wet floodproofing is a concept that accepts some level of flooding, rather than working to reinforce the structure against floodwater pressures. Strategically designed and placed openings allow floodwaters to automatically enter and exit the enclosed area.

# Strategies

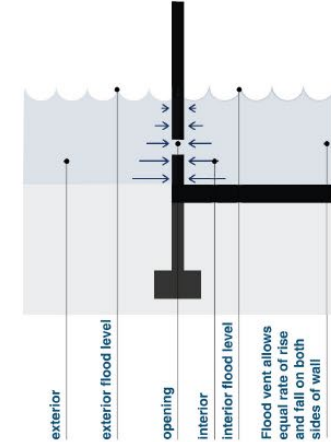
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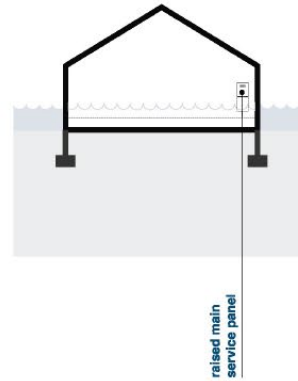
*sandbags*



*dry floodproofing*



*wet floodproofing*



*raise utilities*



*raise structure*

