

THE FLOOD HAZARD AREA

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New Jersey Department of Environmental Protection
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Individual Permits

Building Requirements

0% Net-fill Standards

JET SKIING DURING A FLOOD





Thereifixedit.com 

ESCAPING THE FLOOD

Kids make the best of a flooded road.



FHA Rules

- The State regulates work in flood hazard areas to protect the loss of life and property during flood events.
- Regulates work in the riparian zone to preserve the quality of surface waters and the wildlife/vegetation that exist within and depend upon such areas for sustenance and habitat.

FHA RULES

- Full compliance with the rules is the best mechanism available to control flooding and protect the environment.
- The State has adopted more stringent design standards for development within flood hazard areas

ARE YOU REGULATED?

- Determine if you are in a regulated area. For example, floodway, riparian zone, channel etc.
- Determine if you are conducting a regulated activity. For example, constructing a building, grading, stream cleaning.

Regulated Areas -Specific Standards

N.J.A.C. 7:13-10

- 10.1 – Channel
- 10.2 – Riparian zone
- 10.3 – Floodway
- 10.4 – Flood fringe
- 10.5 – Fishery resources
- 10.6 – T&E species
- 10.7 – Acid producing soils

Regulated Activities - Specific Standards

N.J.A.C. 7:13-11

- 11.1 – General standards
- 11.2 – Stormwater management
- 11.3 – Excavation, fill & grading
- 11.4 – Structures
- 11.5 – Buildings
- 11.6 – Railroads, roads & parking

Activities - Specific Standards

N.J.A.C. 7:13-11

- 11.7 – Bridges & culverts
- 11.8 – Footbridges
- 11.9 – Utility lines
- 11.10 – Stormwater outfalls
- 11.11 – Dams & low dams
- 11.12 – Flood control projects

Activities - Specific Standards

N.J.A.C. 7:13-11

- 11.13 – Retaining walls & bulkheads
- 11.14 – Bank stabilization
- 11.15 – Sediment removal
- 11.16 – Storing unsecured material
- 11.17 – Hazardous substances
- 11.18 – Solid waste
- 11.19 – Removing fill & structures

Individual Permits

N.J.A.C. 7:13-9, 10 and 11

- For all activities not covered by a permit-by-rule or general permit
- **Most** applications under the rules will be **individual permits** (unlike freshwater wetlands and coastal permit programs)

Individual Permits

N.J.A.C. 7:13-9, 10 and 11

- **Hardship Exceptions** at N.J.A.C. 7:13-9.8 – for projects where strict compliance with the rules would create an undue hardship on the applicant.
- Equivalent to Variation Request, which is a grant of relief from the building code regulation

Hardship Exception

- It is important to note that the Department's hardship exception criteria require protection of public safety, health and general welfare, and the environment.

Projects that qualify for a Hardship Exception

- Applications that will provide equal or better protection to public safety and health.
- Applications that fully demonstrate the need of a hardship exception to complete the activities.

Requirements for a building

N.J.A.C. 7:13-11.5

- Lowest habitable floor of buildings generally must be constructed at least **1 foot** above the **flood hazard area design flood elevation**



Requirements for a building

N.J.A.C. 7:13-11.5

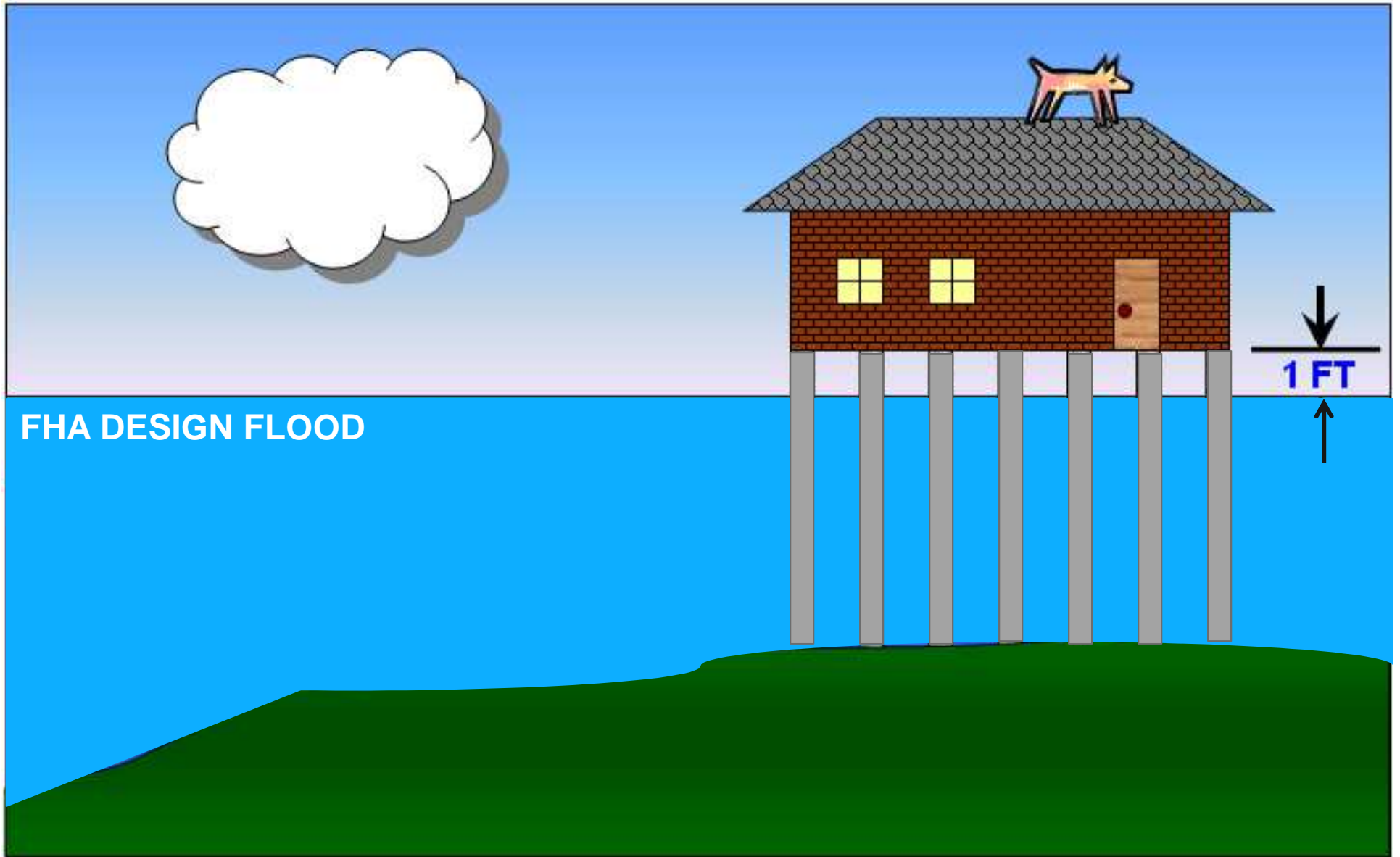
- Elevation requirements differ for:
 - **Public buildings** - such as hotels, shelters, police stations, schools, apartments
 - **Non-public buildings** - such as commercial & industrial buildings
 - **Private residences**
- **Public buildings & residences** must always be properly elevated, except in cases of extreme hardship

Private Residence

- Defined in the Flood Hazard Area Control Act Rules as a one or two family dwelling.

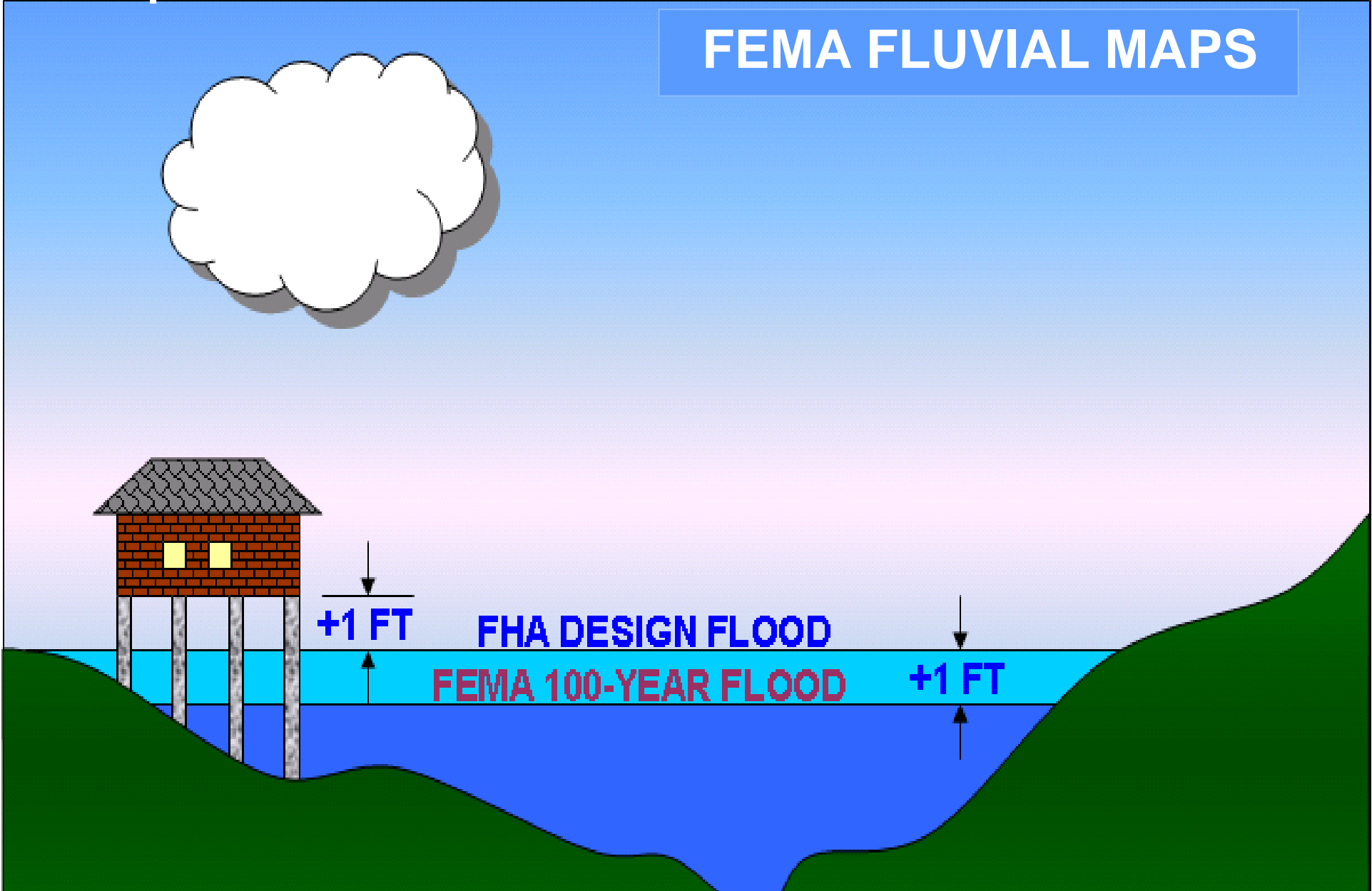
Requirements for a building

N.J.A.C. 7:13-11.5



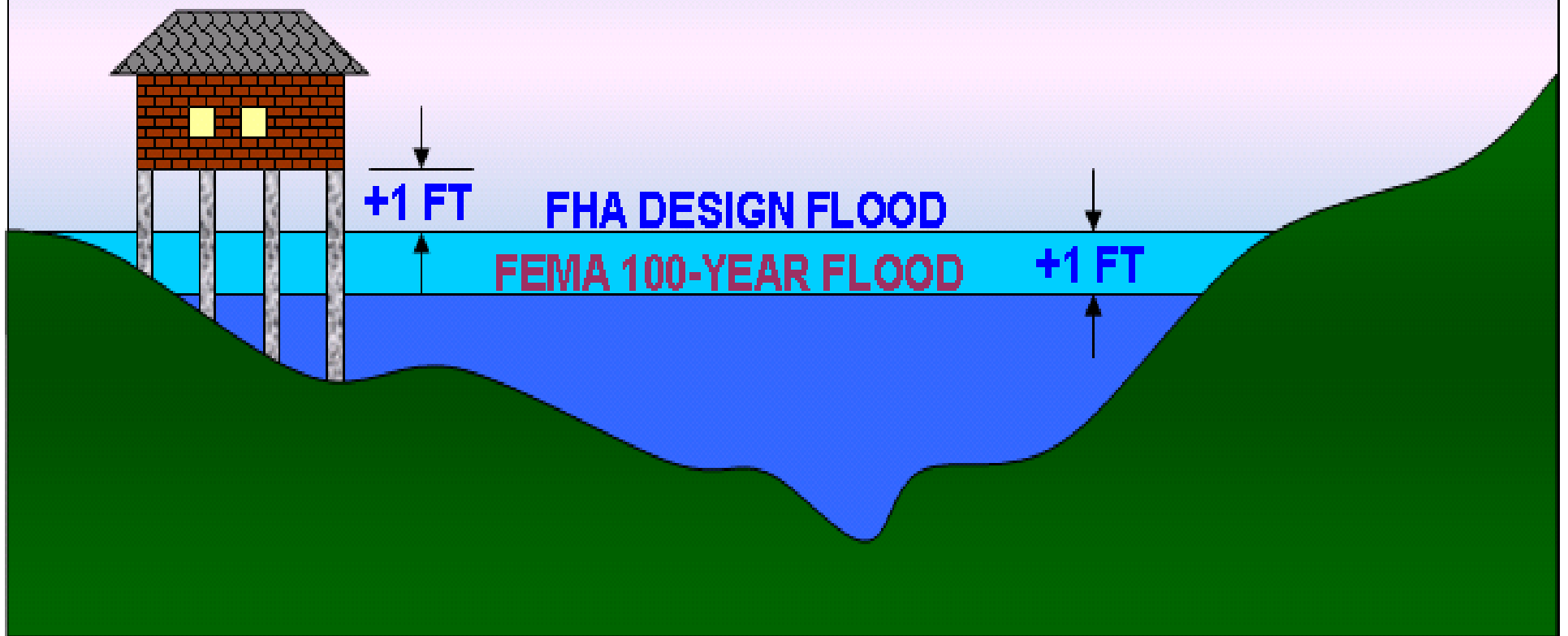
Determining lowest floor elevation using FEMA Fluvial Maps

FEMA FLUVIAL MAPS

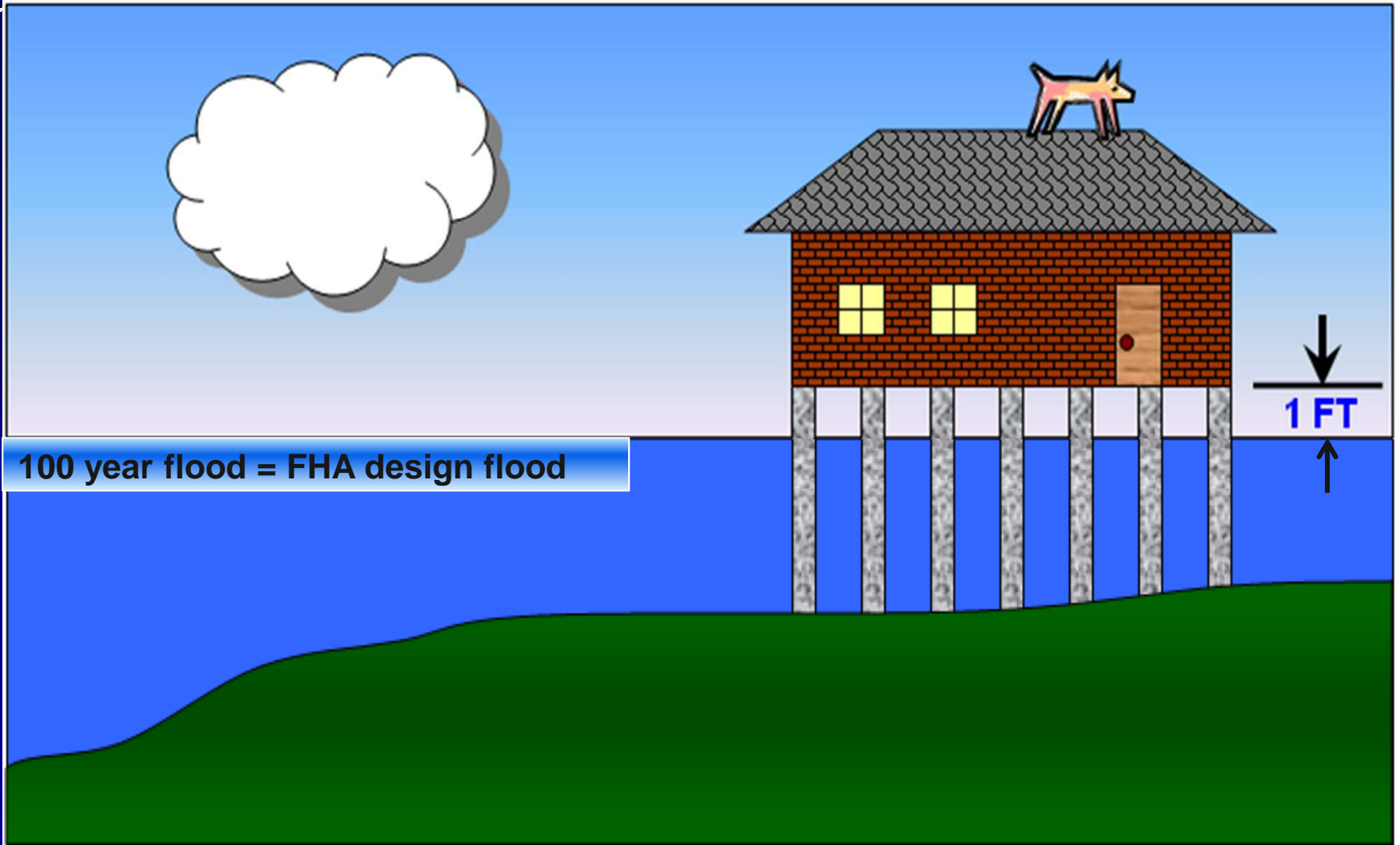


FEMA FLUVIAL MAPS

**NOTE: WHEN USING THIS METHOD
THE LOWEST FLOOR ELEVATION
WOULD EFFECTIVELY BE 2 FEET
ABOVE THE FEMA 100-YEAR FLOOD
ELEVATION**

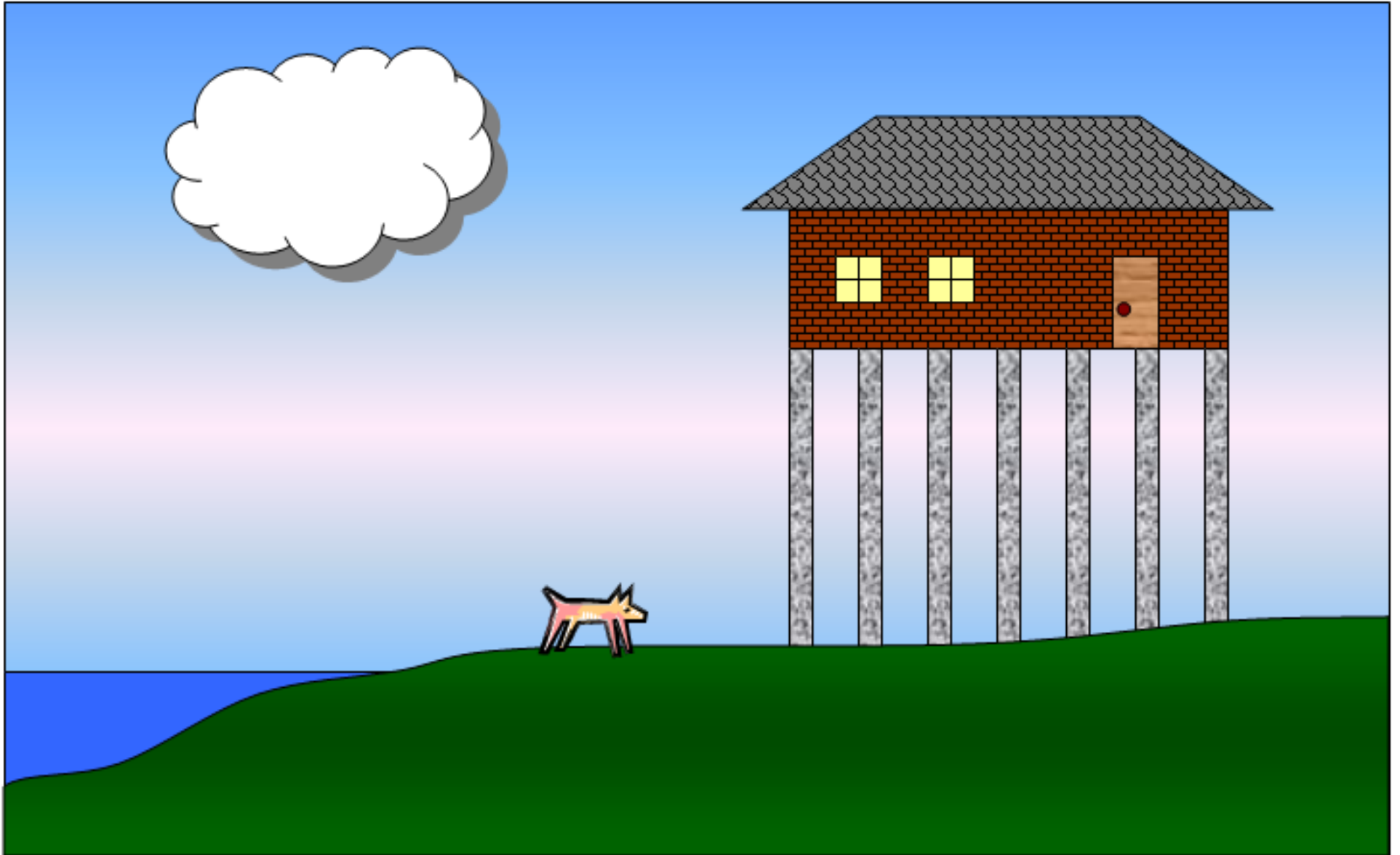


Determining lowest floor elevation using FEMA Tidal Maps



Requirements for a building

N.J.A.C. 7:13-11.5





Note HVAC unit

No Basements in the Flood Hazard Area

- Basements are prohibited in the flood hazard area.
- Basement – Any area of the building having a floor below ground level on all sides.

- For the reconstruction of an existing building that has a basement, the building must be brought into compliance with the FHACA Rules, which includes eliminating the below-grade area.

- To meet the requirements the applicant may either fill in the below grade area or convert the area to a compliant enclosure.

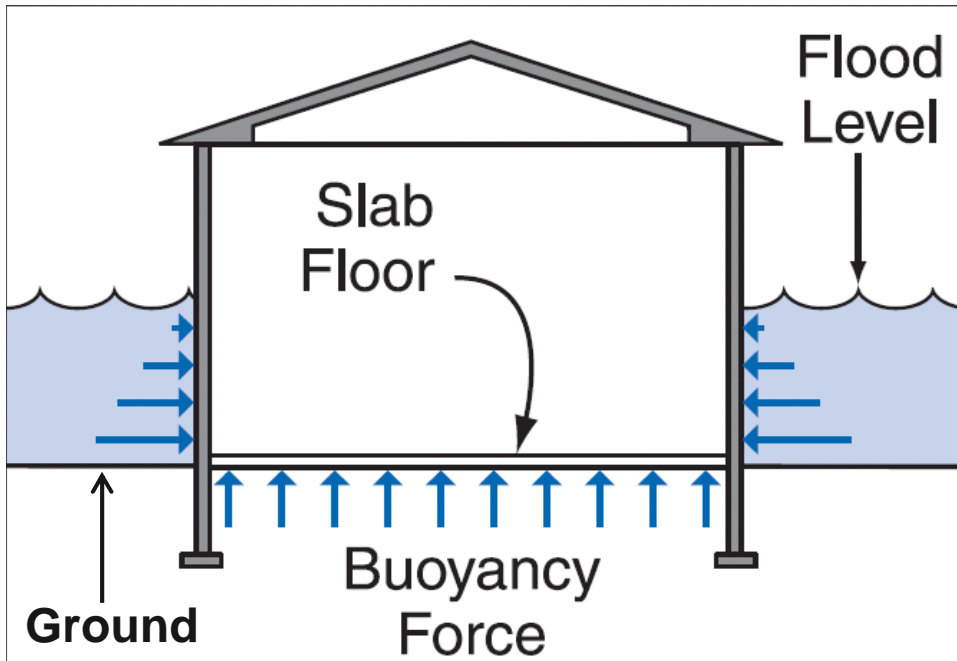
Requirements for a building

N.J.A.C. 7:13-11.5

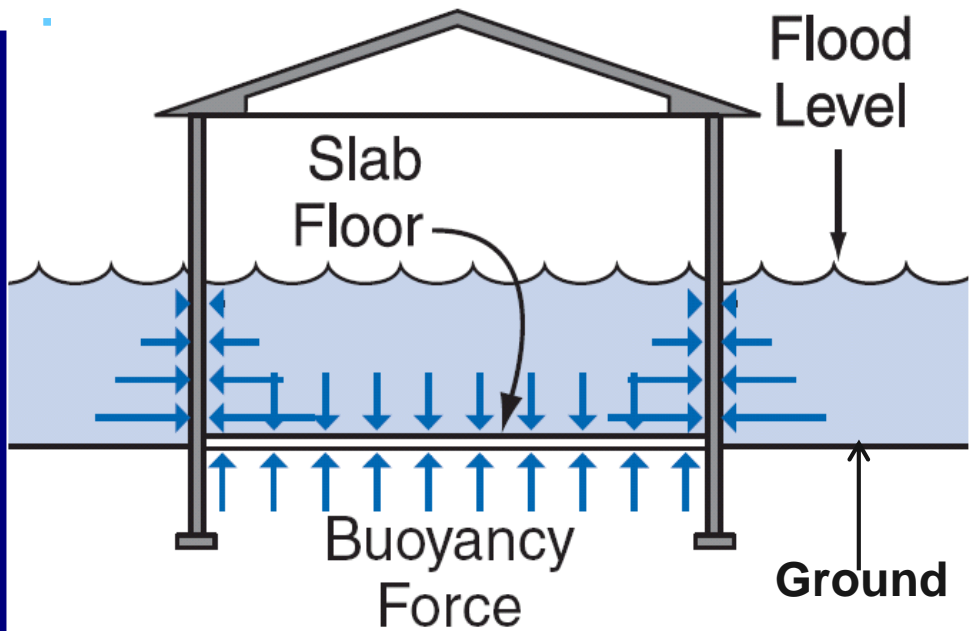
- Open area/Enclosed area beneath the lowest habitable floor must be:
 - A garage under 625 square feet in footprint
 - OR**
 - A crawl space that is not more than 6 feet in height measured from floor to floor
 - Venting of the enclosed area below the FHE by providing flood opening in the exterior walls

Wet Floodproofing

- To balance hydrostatic forces on the exterior walls during flood a sufficient number and size of flood openings must be provided
- A minimum of two openings having a total net area of not less than 1 sq. in. per 1 sq. ft. of enclosed area.



Flood vents/openings prevent structural damage by allowing the free flow of water through the structure, thereby equalizing hydrostatic pressure



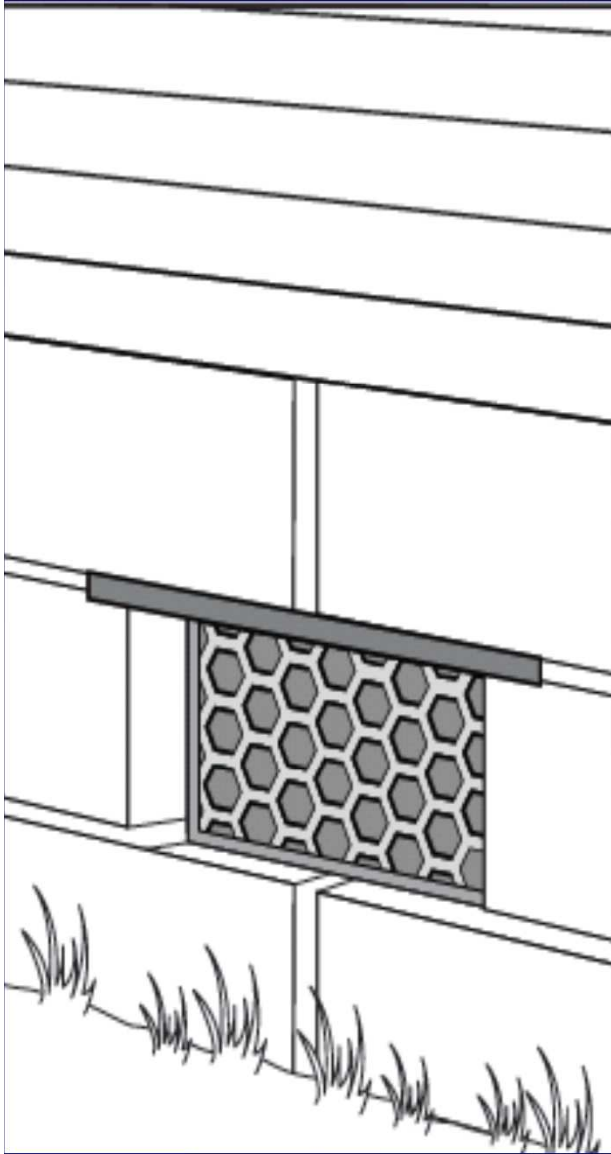
Openings in Foundation Walls/Wet Floodproofing



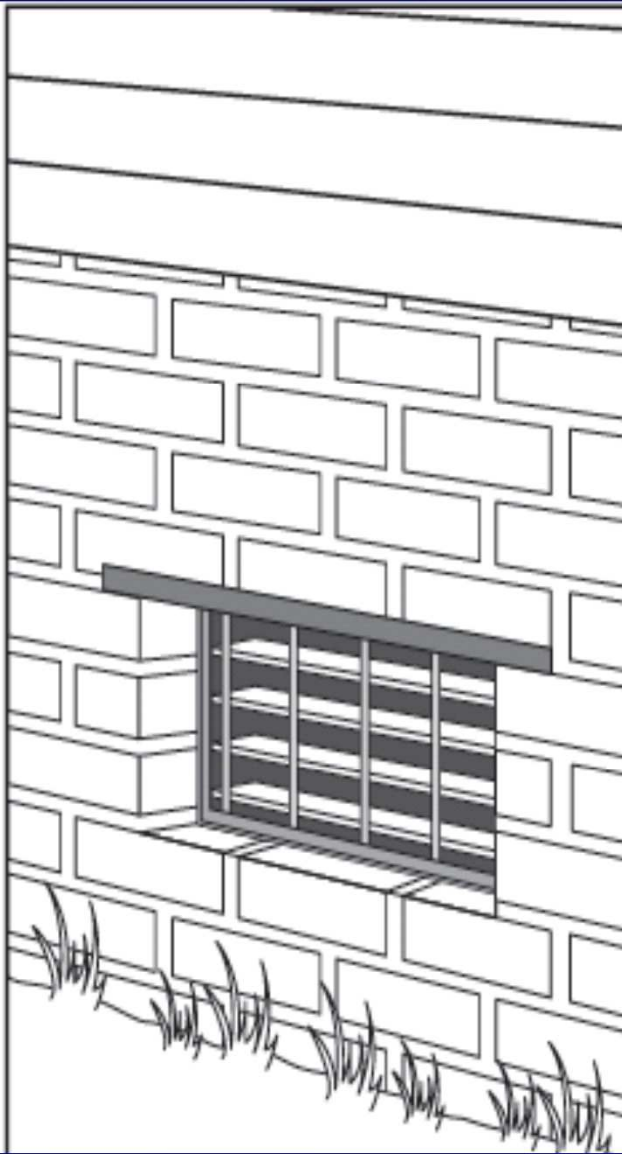


Foundation wall with omitted blocks as flood openings (insect screen not visible)

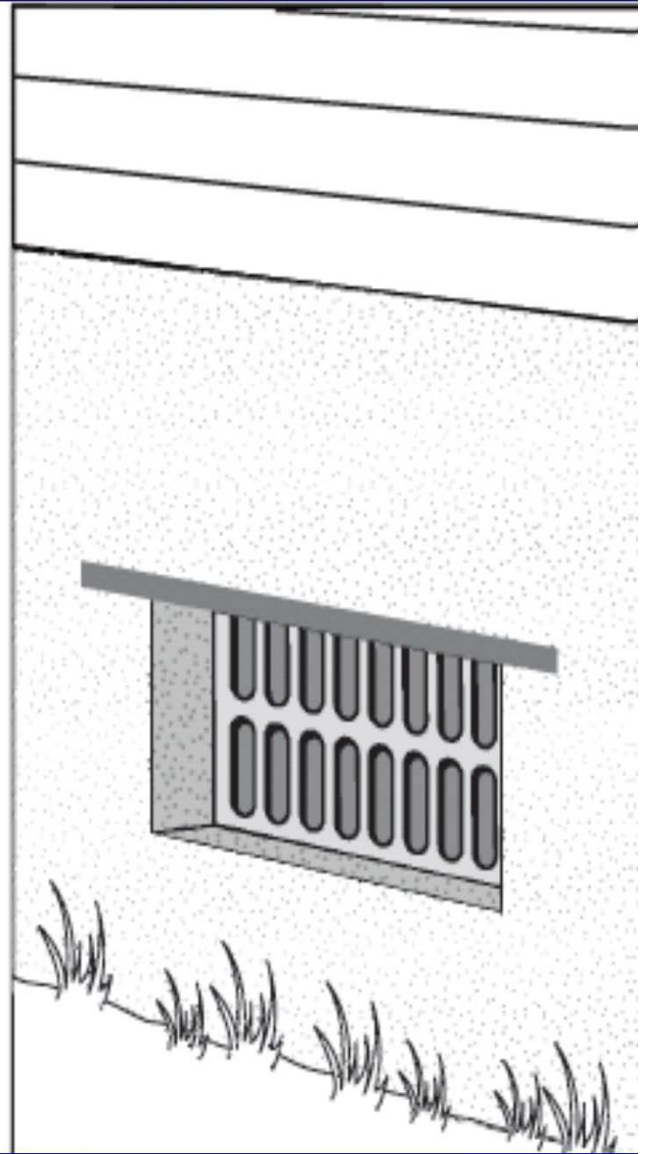
Non Engineered openings count the “net open area”



Grate



Louver



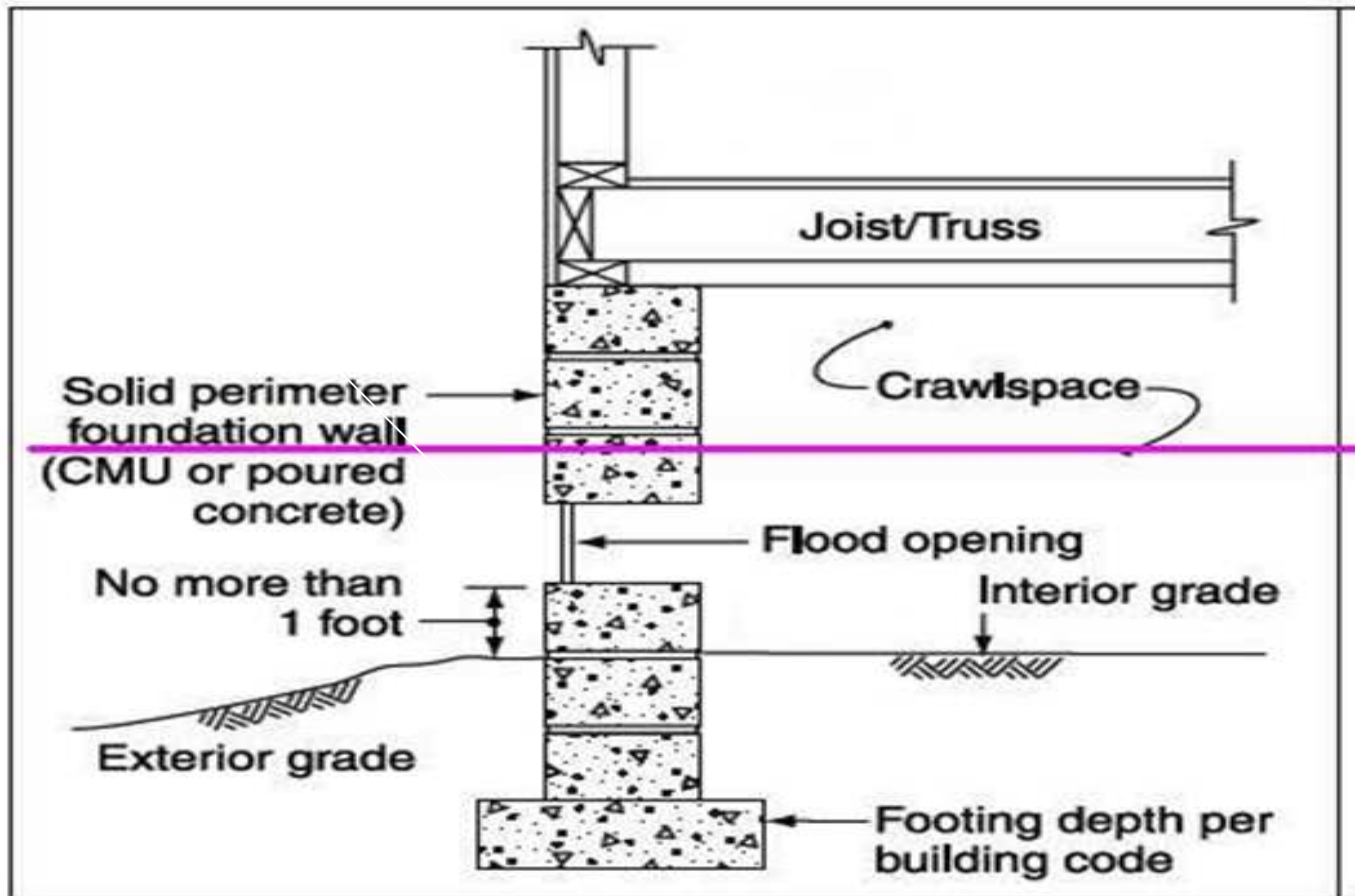
Grill

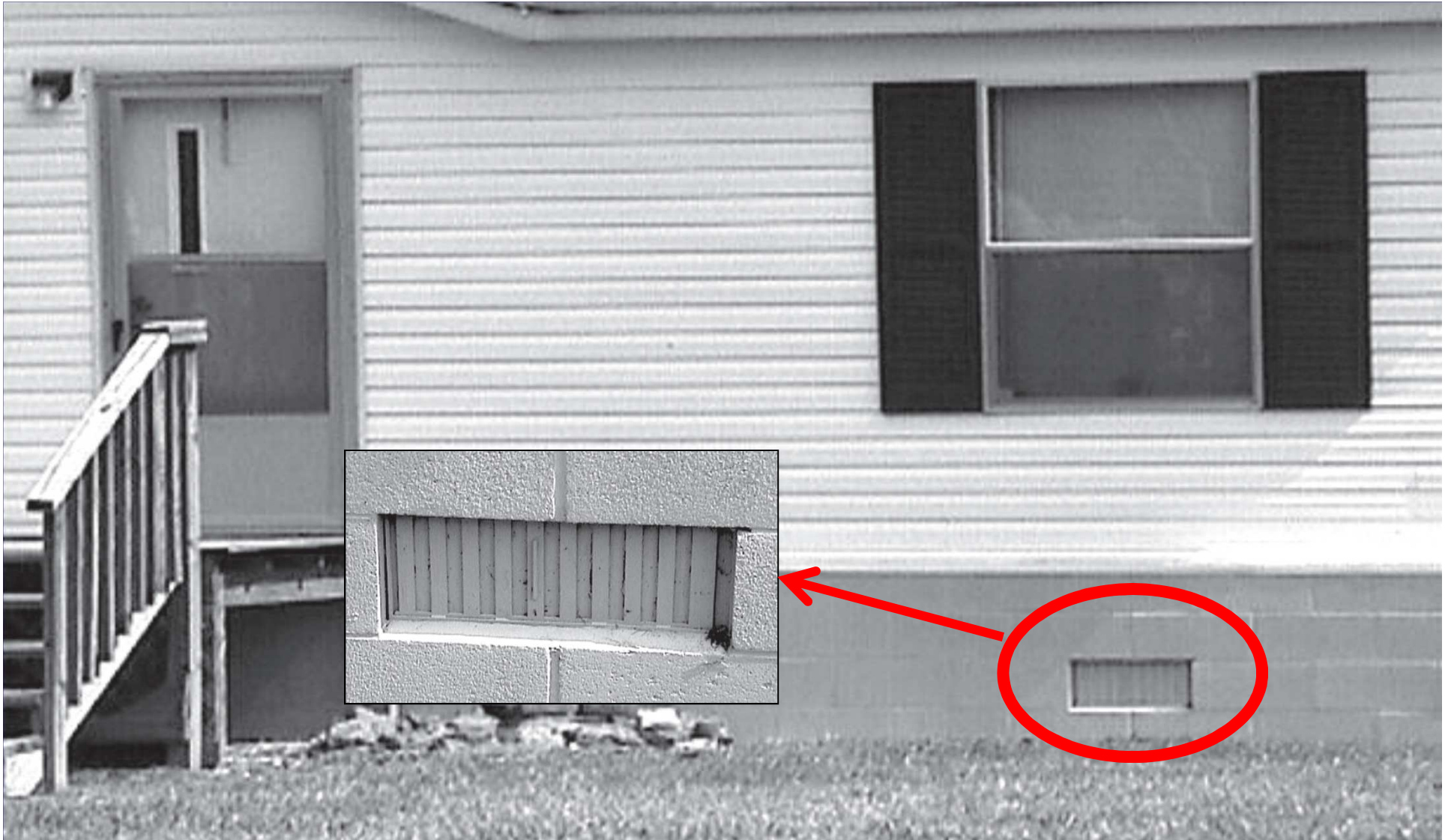
Certified Engineered Openings are used as alternatives to the prescriptive openings



Smart Vents

Typical Cross-Section





This air vent intended as flood openings is not acceptable because it is not disabled in the open position and does not allow automatic inflow and outflow of floodwaters



The pressure exceeds the strength of the walls, causing extensive structural damage

Substantial Improvement

- Substantial Improvement (SI) means any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the “start of construction” of the improvement. Includes substantially damaged structures.

Substantial Damage

- Substantial Damage (SD) means damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SI/SD Determination

- **Compare the cost of the proposed improvement or repairs to the market value of the building before improvement/repair**

MAKING SI/SD DETERMINATIONS

COST OF WORK

≥ 50%

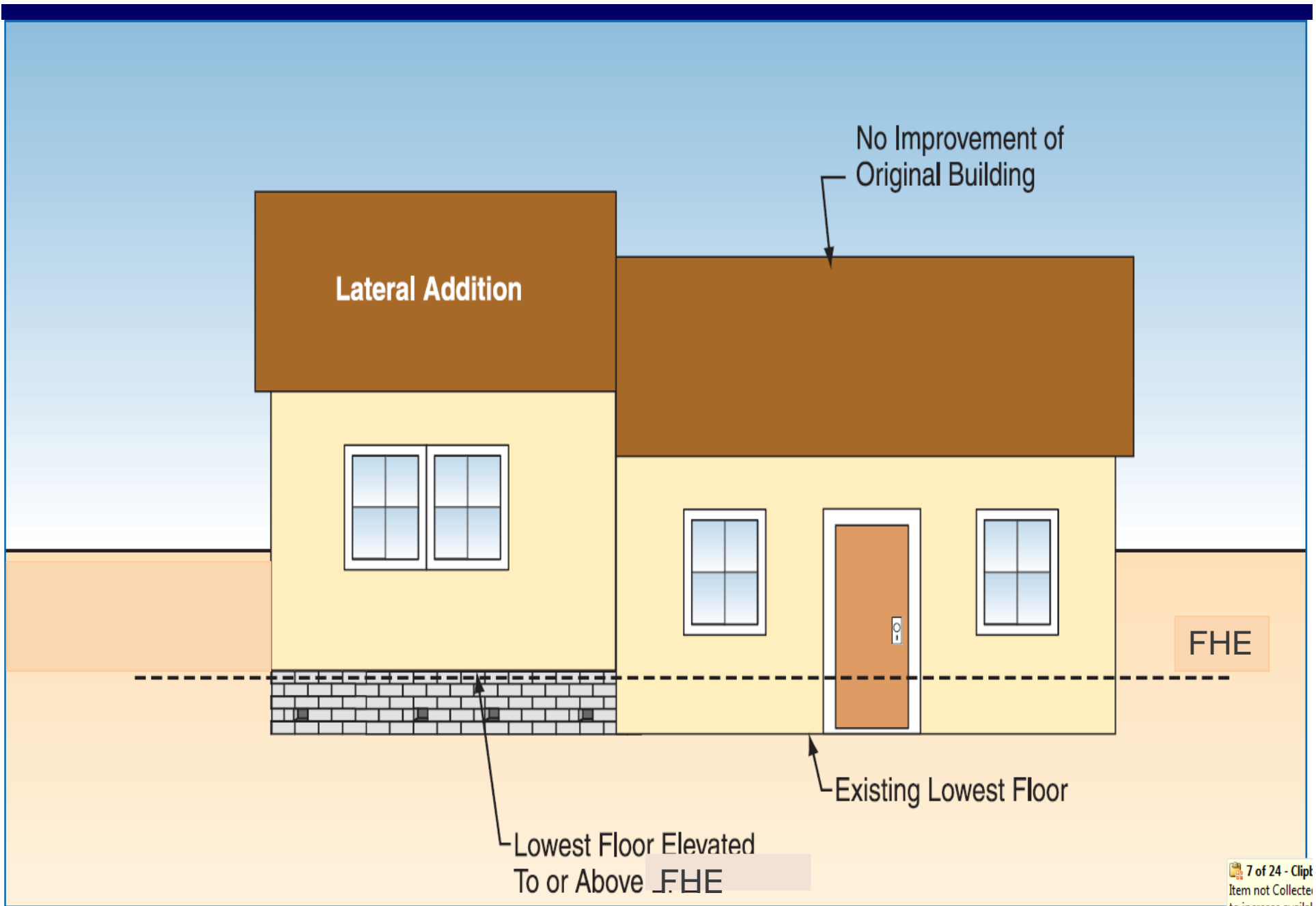
MARKET VALUE

- Local officials will determine the necessary level of detail for the costs of improvements and costs of repairs from permit applicants in order to make a SI/SD determination.
- Substantially improved homes or restoration of substantially damaged home must comply with the elevation requirement of the FHACA Rules.

- The costs of all work necessary to restore a damaged building to its pre-damage condition is the **"cost to repair"**
- If the structure is improved beyond the pre-damage conditions then the **"costs of improvements"** must be included along with the cost to repair.

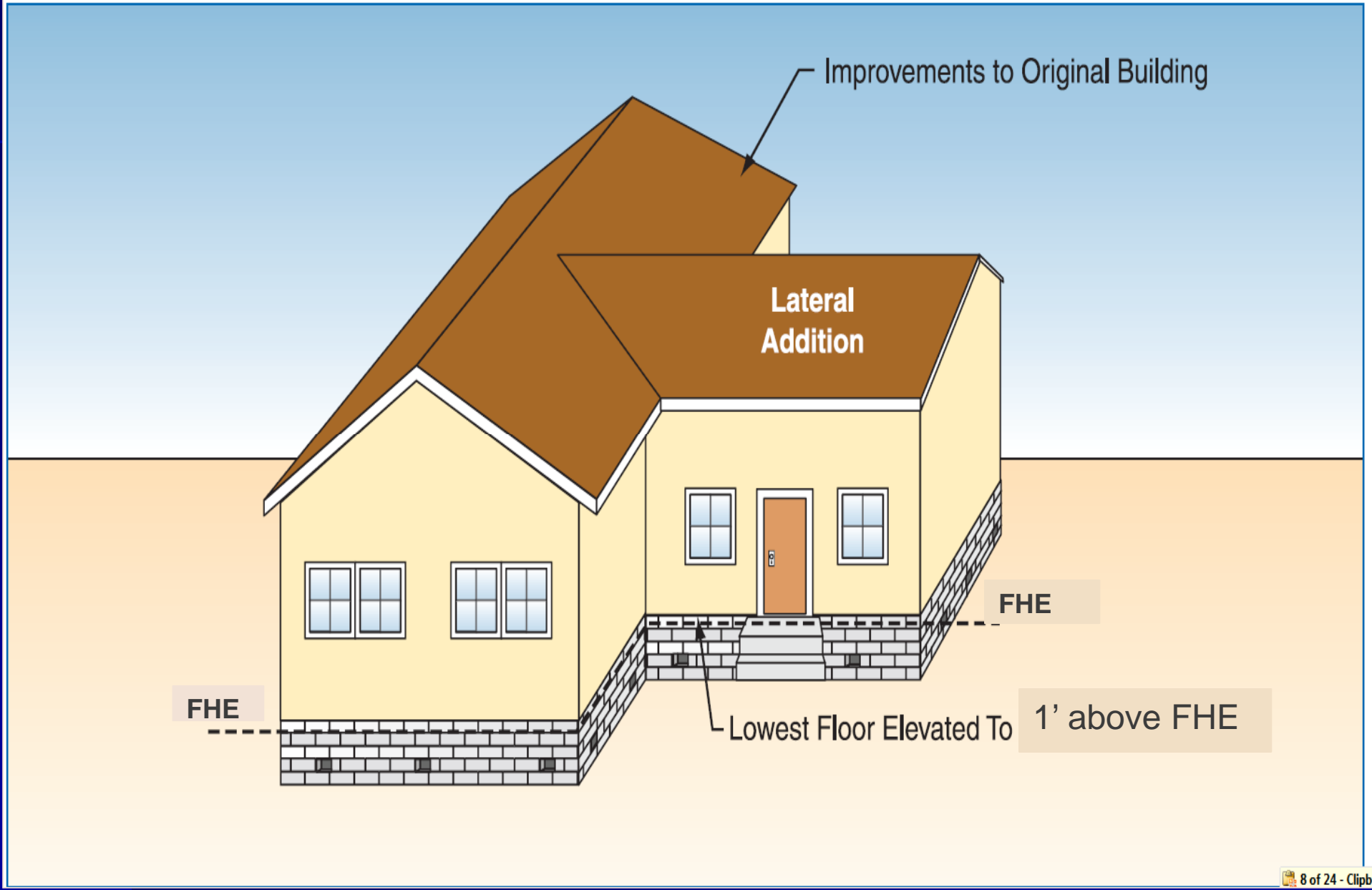
Examples of Improvements

- Lateral additions
- Vertical additions
- Repair, reinforce, or replace foundations
- Rehabilitation/Remodeling of an existing building.



An addition to an existing building with no work performed on the original building

Proposed addition and structural modification of the common wall and roof



SI/SD - R AISE ALL MECHANICAL/ELECTRICAL EQUIPMENT





UNDERGROUND TANK



ABOVEGROUND TANK



Above ground tank outside the floodway

- No more than 2,000 gallons
- Designed to remain watertight during a flood.
- Properly anchored.
- No vegetation is cleared, cut or removed in the riparian zone, except where previous development has occurred.
- No disturbance within 25 feet TOB.

NFIP- National Flood Insurance Program

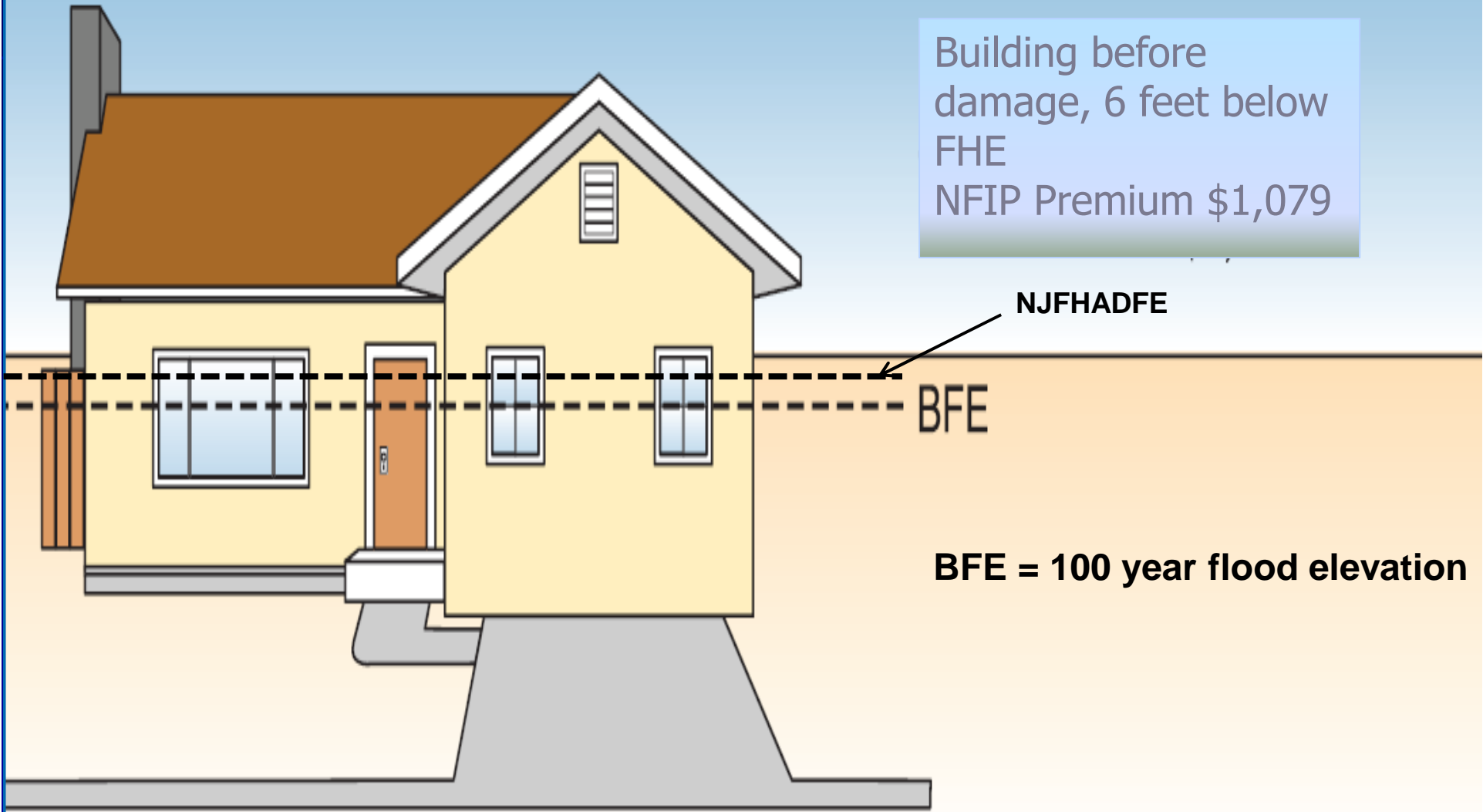
- FEMA administers the NFIP
- 100 year flood is the regulatory standard used by Federal agencies and is also used by NFIP as the basis for flood insurance requirements nationwide.

- NFIP enables property owners to purchase flood insurance protection against losses from flood
- One factor used to determine insurance rating is the difference between the lowest floor of the structure and the regulatory flood elevation

- Any home owner contemplating to reconstruct/repair a structure in the flood plain should investigate the potential savings on the cost of NFIP flood insurance if the building is elevated and complies with the building requirements of the FHACA rules.

- The diagram illustrates an example of how the cost of NFIP policy will vary depending on how a substantially damaged home is repaired.
- This illustration is for a \$150,000 in structure coverage with the rates as of October 2009.

NFIP



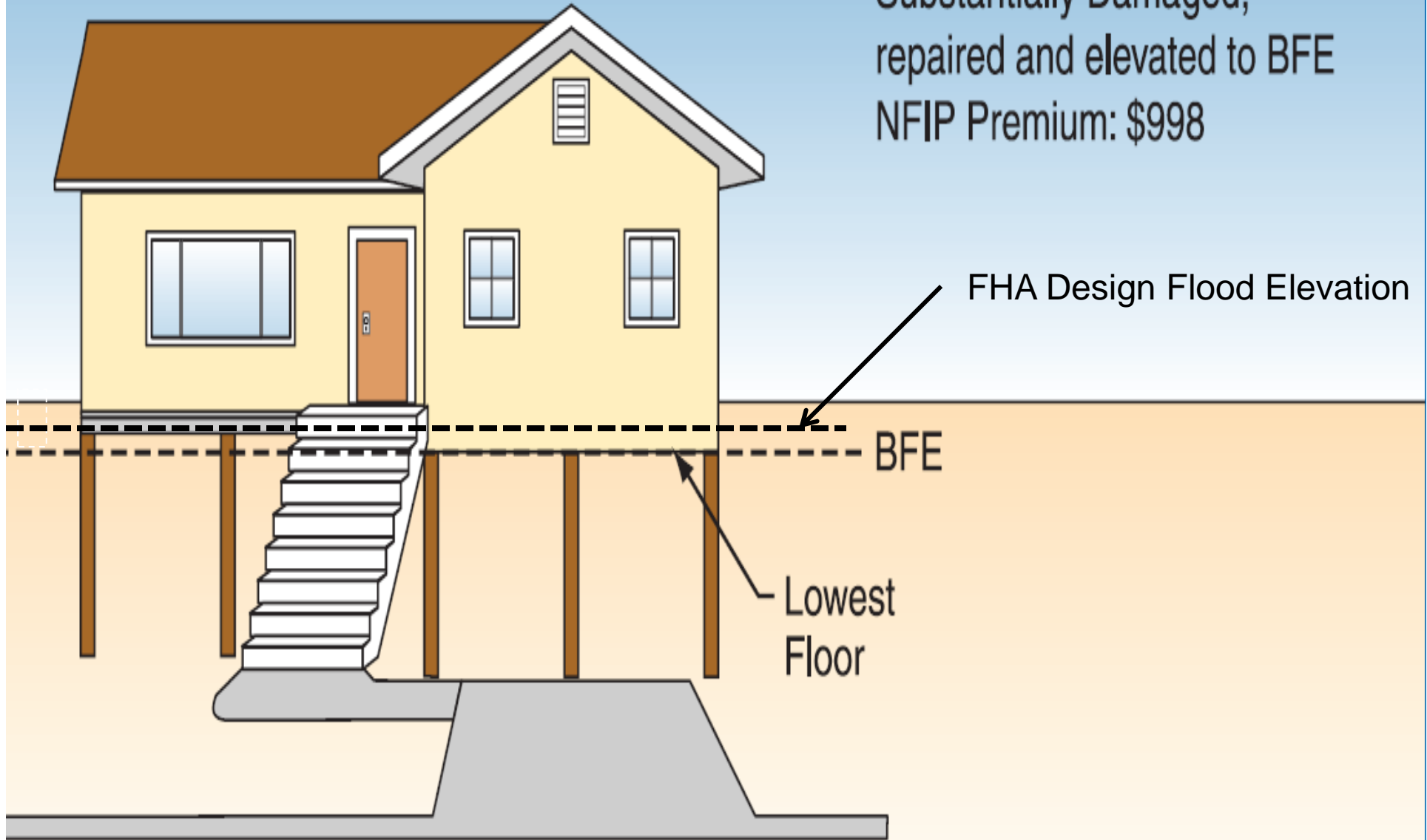
Building before
damage, 6 feet below
FHE
NFIP Premium \$1,079

NJFHADFE

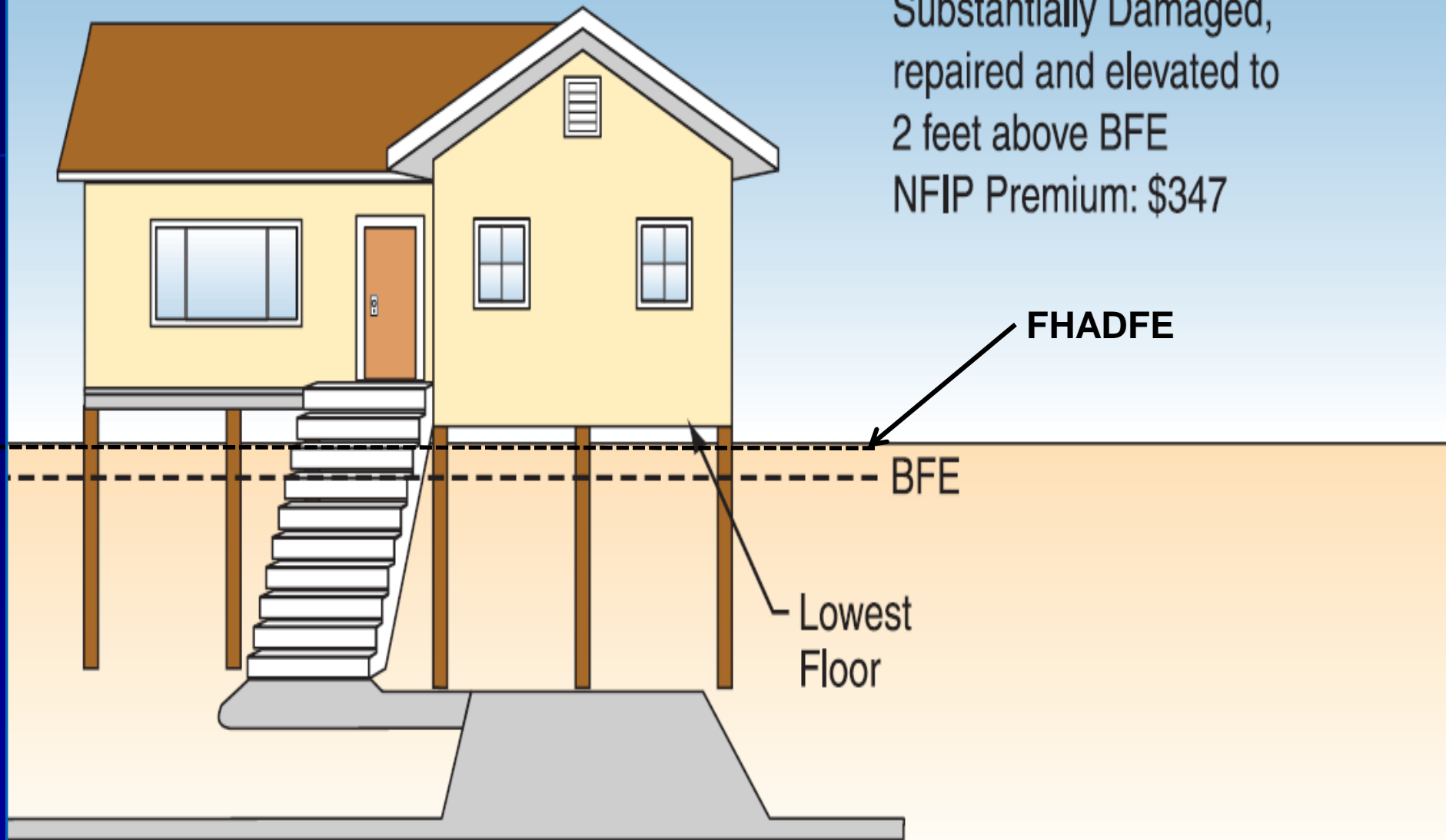
BFE

BFE = 100 year flood elevation

Substantially Damaged,
repaired and elevated to BFE
NFIP Premium: \$998



Substantially Damaged,
repaired and elevated to
2 feet above BFE
NFIP Premium: \$347



- The cost of elevating a building above the flood hazard area design flood elevation may be **offset** by the reduction in future damage and annual flood insurance premiums.

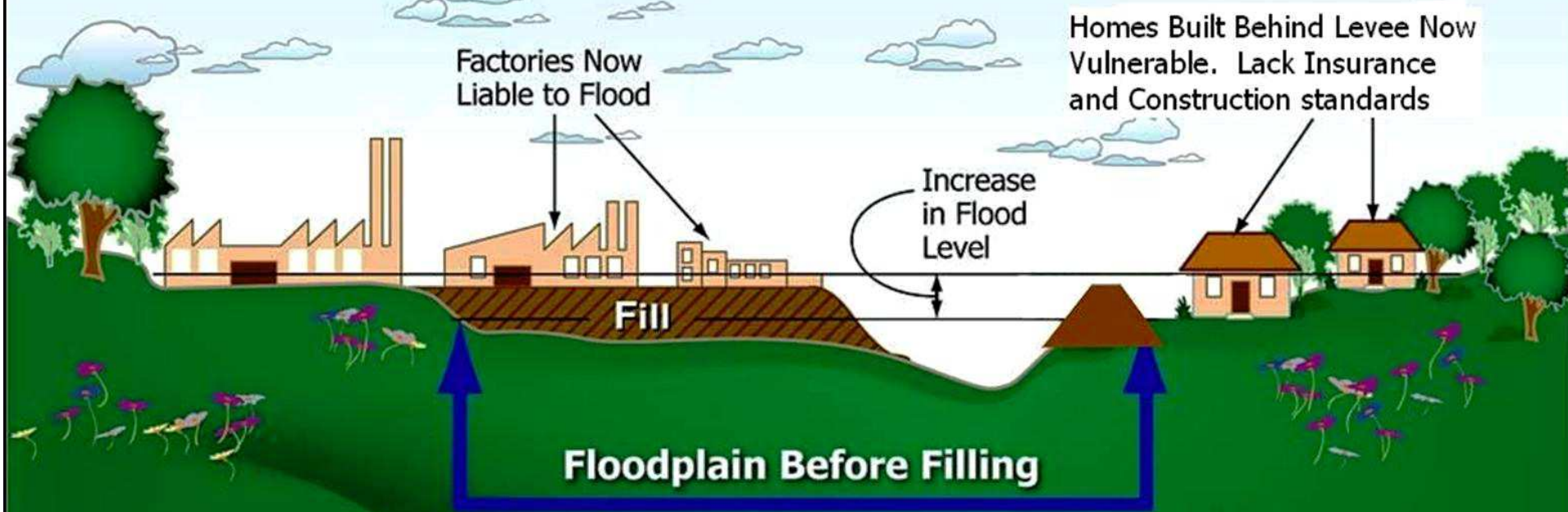
A HOME LOCATED WITHIN A FLOOD ZONE HAS A 26% CHANCE OF SUFFERING FLOOD DAMAGE DURING THE TERM OF A 30 YEAR MORTGAGE



Source: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

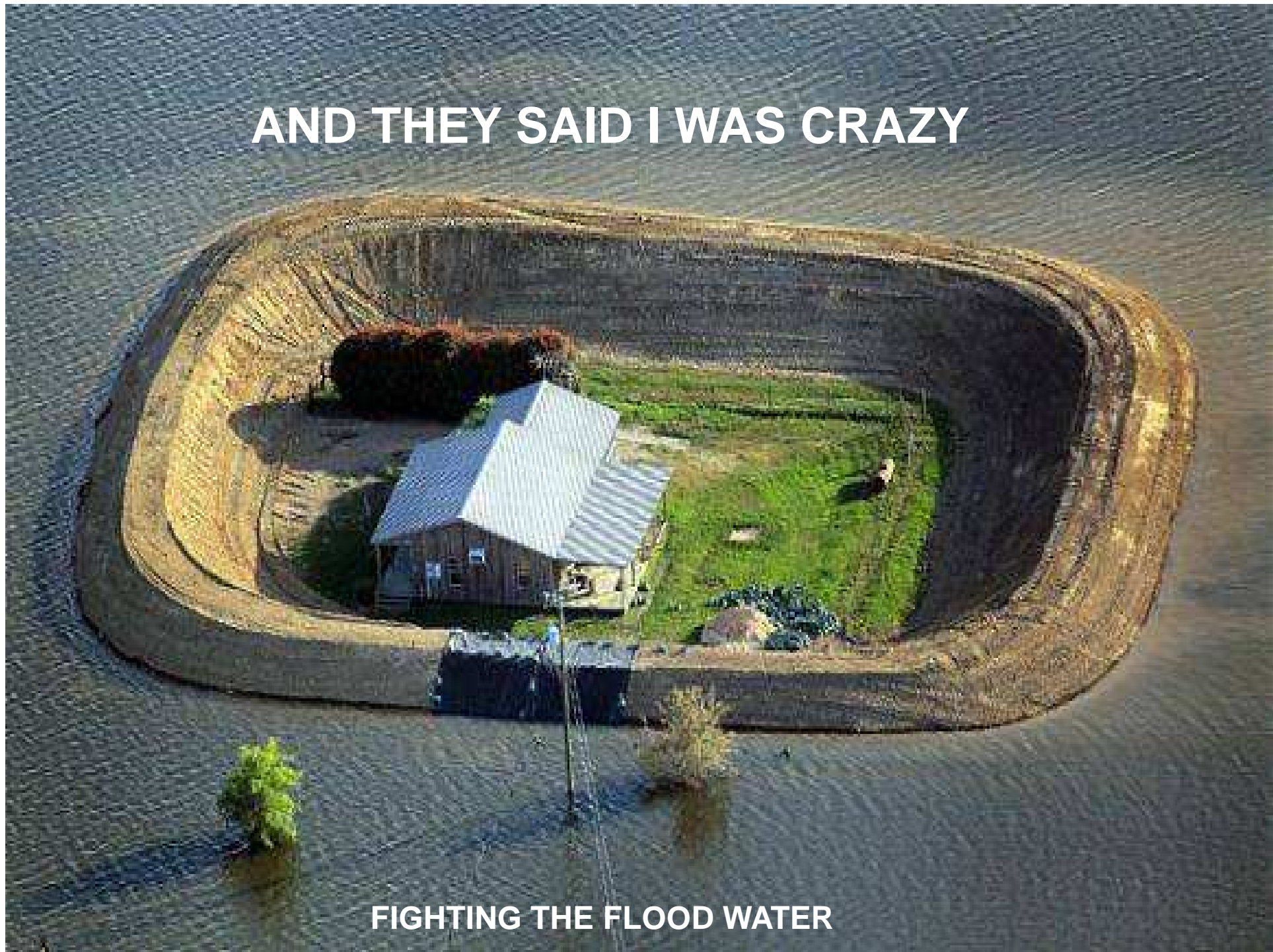
**ZERO FLOOD STORAGE
VOLUME DISPLACEMENT
0% NET-FILL**

Today's Floodplain Is Not Necessarily Tomorrow's Floodplain



If large areas of the floodplain are filled, then there will be an increase in the land area needed to store flood waters. This means your home or business may be impacted.

AND THEY SAID I WAS CRAZY



FIGHTING THE FLOOD WATER

- **Fill eliminates flood storage and raises the flood hazard area design flood elevation.**

FLOOD STORAGE DISPLACEMENT (A.K.A. NET-FILL) N.J.A.C. 7:13-10.4

- **Current rules:** 0% net-fill Statewide
Note: applies only in fluvial areas (**non-tidal areas**)
- **Development in fluvial areas affect upstream and/or downstream flood elevations.**

FLOOD STORAGE DISPLACEMENT (A.K.A. NET-FILL) N.J.A.C. 7:13-10.4

- **Option 1:** Balance fill by creating an equal volume of flood storage onsite
- **Option 2:** Displace up to 20% of the flood storage onsite, and balance all fill by creating an equal volume of flood storage offsite

ACTIVITIES EXEMPT FROM 0%

N.J.A.C. 7:13-10.4(d)

1. Any activity located in a **tidal flood** hazard area.
2. Any activity that displaces **no more than five cubic yards** of flood storage volume.
3. The reconstruction of **a lawfully existing railroad or public roadway**, including any improvement or enlargement, provided flood storage volume displacement is minimized.

ACTIVITIES EXEMPT FROM 0%

N.J.A.C. 7:13-10.4(d)

4. The construction or improvement of a **driveway** across a regulated water provided:
 - i. The driveway serves only one private residence, which is not being constructed as part of a larger residential subdivision;
 - ii. Any flood storage volume displacement resulting from the driveway is minimized.

ACTIVITIES EXEMPT FROM 0%

N.J.A.C. 7:13-10.4(d)

5. The construction of one private residence provided:

- i. The residence is not being constructed as part of a larger residential subdivision;
- ii. Any enclosed area beneath the flood hazard area design flood elevation must not be used for habitation and must remain open to floodwaters.
- iii. Except for the construction of a driveway across a regulated water the site is not graded to accommodate the construction of the residence in such a way that flood storage volume would be displaced.

Onsite Flood Storage

N.J.A.C. 7:13-10.4(m)

Can be made by:

1. Removing material that has been previously lawfully placed within the flood fringe, such as fill or structures, and properly disposing the material outside a flood hazard area **OR**
2. Excavating material from below the surface of the ground and properly disposing the material outside a flood hazard area

FSV Compensation Areas

N.J.A.C. 7:13-10.4(p)

- Flood storage volume compensation areas cannot be created in the floodway or environmental sensitive areas
- **IMPORTANT:** Never count the floodway in your flood storage calculations. Only use the volume of the flood fringe!

For information on obtaining the official version of the Flood Hazard Area Control Act Rules, you may visit the Department's website at www.nj.gov/dep/landuse/

Contact Information

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QUESTIONS?

ACRONYMS

BFE – Base Flood Elevation = 100 year flood elevation

FEMA – Federal Emergency Management Agency

FHA – Flood Hazard Area

FHACA Rules – Flood Hazard Area Control Act Rules

FHE – Flood Hazard Elevation

ACRONYMS

FSV – Flood Storage Volume

HVAC – Heating, Ventilating, and Air Conditioning Unit/System

NFIP – National Flood Insurance Program

NJFHADFE – New Jersey Flood Hazard Area Design Flood Elevation.

SD – Substantial Damage

ACRONYMS

- **SI** – Substantial Improvement