Impacts of Floodproofing Design on Flood Insurance Premiums

Agenda
- Types of flood mitigation
- Types of structures
- Flood insurance rate impacts
- Questions

Factors that Impact Rates Generally
- Pre-FIRM Construction
- Post-FIRM Construction
- Location of Structure in Special Flood Hazard Area (riverine or coastal)
Flood Mitigation Measures

- Dry Floodproofing
- Wet Floodproofing
- Elevation
- Relocation
- Floodwalls and Levees (site protection)

Types of Structures

- Residential – single family home or duplex
- Residential – condo/townhome/larger structure
- Non-residential – commercial
- Non-residential – campus of buildings

Flood Mitigation Options for Different Structure Types

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For a $200,000 single family home elevated on a crawlspace in an A zone that is designated pre-FIRM construction, the annual basic insurance premium for the building would be $1,880 ($200,000/100 times 0.94).

As elevation increases, rates decrease. Rates are much lower when the FFE is above the BFE.

As elevation decreases, rates increase. Rates are much higher when the FFE is below the BFE.

Equivalents of Dry Floodproofing to Elevation Rates

- For a dry floodproofed structure to have the same flood insurance rate as an elevated structure, the dry floodproofing must reach one foot above an equivalently elevated structure.

- If a building is elevated to the BFE + 2 feet, the same building would have to be dry floodproofed to the BFE + 3 feet to obtain the same flood insurance rate.
Elevating a Structure on Solid Foundation Walls

- Flood openings that allow for the automatic entry and exit of floodwaters are required when elevating a building on a solid foundation wall system.
- If flood openings are not installed, hydrostatic forces could cause damage to the structure and flood insurance rates are based on a first floor elevation that is lower (such as a garage or the crawlspace below the elevated structure), resulting in higher rates.

Wet Floodproofing

- Use of flood damage resistant materials is required below the BFE.
- Flood openings in garages that are wet floodproofed prevent the floor elevation of the garage from being counted as the FFE for insurance purposes.
- Wet floodproofed spaces can only be used for building access, storage, and parking.

Relocation

- Relocating a structure outside of the Special Flood Hazard Area will typically eliminate the requirement for flood insurance. If the owner does choose to have flood insurance coverage, rates will be much lower than if the house remained in the flood zone.
Summary

- Elevate to the BFE or higher (freeboard) to reduce insurance rates
- Flood openings
- Dry floodproof to the BFE plus 1 foot or more
  - Not allowed for new or substantially improved residential structures in the SFHA
- Wet floodproofing restricts use of the space

Questions?

REFERENCES
- FEMA P-348 Protecting Building Utility Systems from Flood Damage
- FEMA P-436 Floodproofing Non-Residential Buildings
- ASCE 24
- NFIP Flood Insurance Manual
- Title 44 Sections 10-64 of the Code of Federal Regulations

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