



## QUICK GUIDE for Handling Additions to Buildings in Special Flood Hazard Areas

This quick guide identifies floodplain management requirements when additions to buildings in special flood hazard areas are proposed to be constructed.

Several factors must be considered, including:

- What is the flood zone?
- Is the base building pre-FIRM or post-FIRM?
- Is the building residential or nonresidential?
- Is other work being done in the base building?
- Is the addition structurally connected or not structurally connected to the base building?



### Substantial Improvement/ Substantial Damage Desk Reference

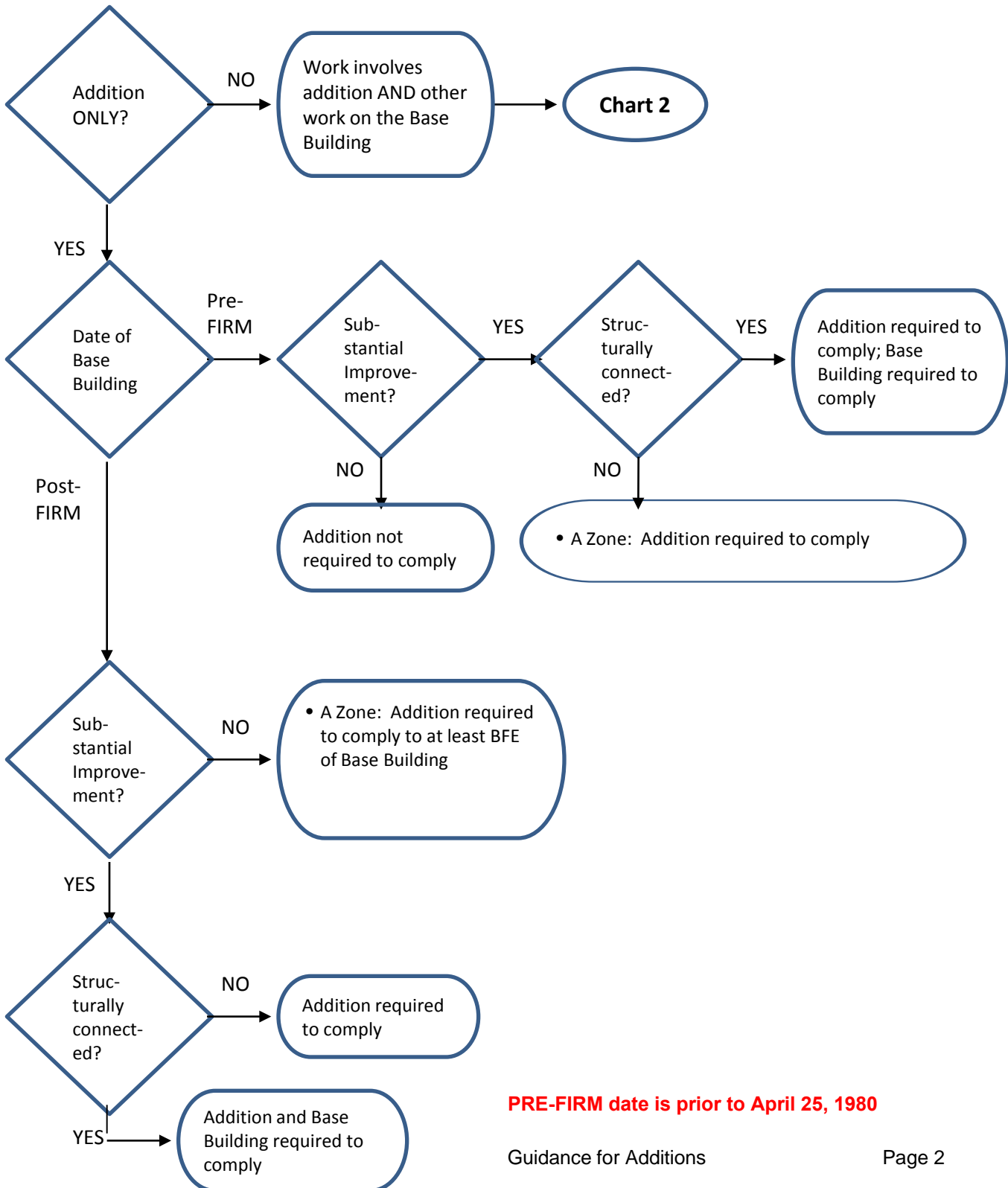
FEMA P-758 / May 2010



# Chart 1

## Buildings in all Flood Zones

Lateral **Addition ONLY** (see Chart 3 for vertical additions)



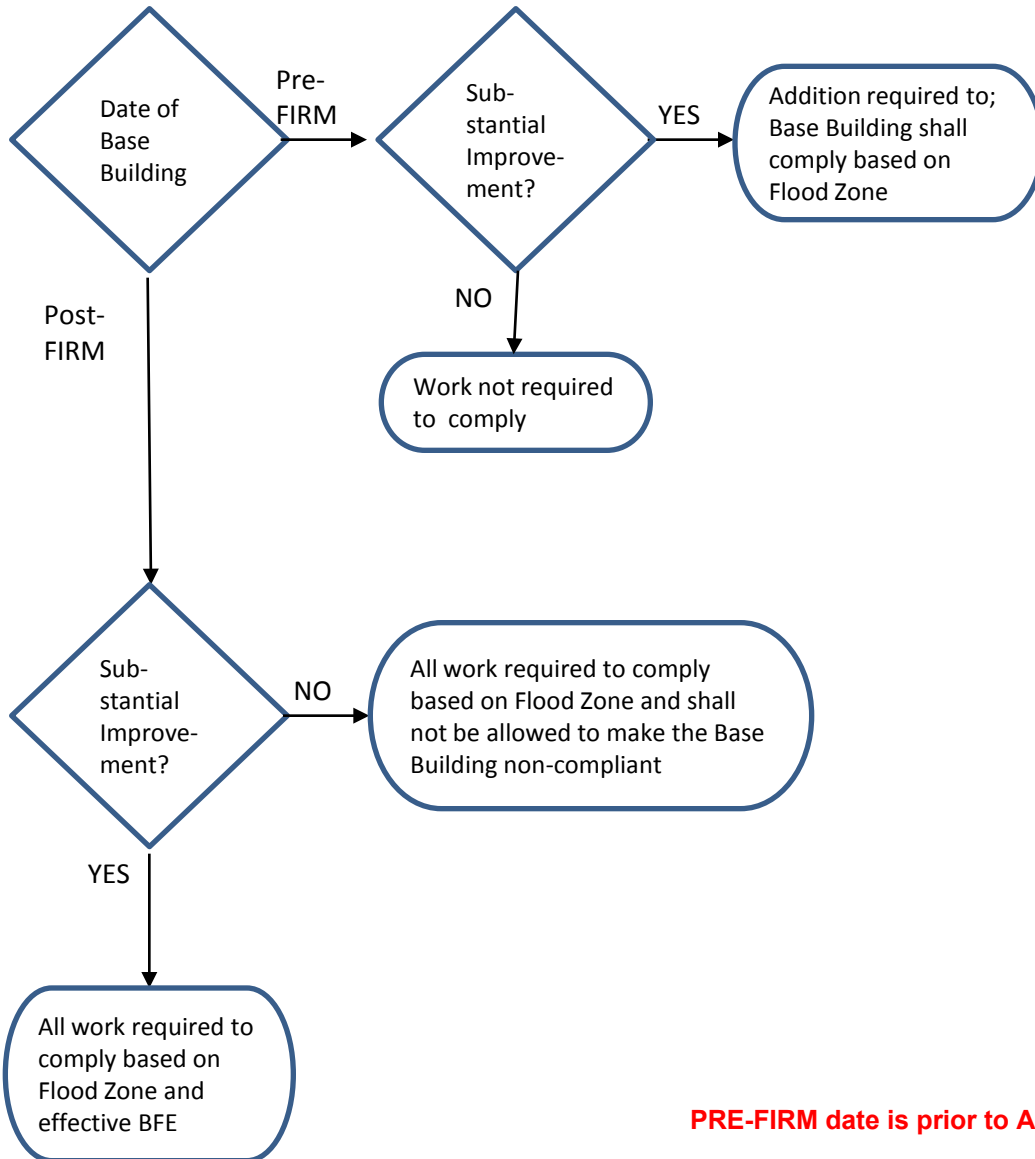
**PRE-FIRM date is prior to April 25, 1980**

# Chart 2

## Buildings in All Flood Zones

### Lateral Additions AND Other Improvement Work in Base Building (e.g., rehab, renovate, remodel)

NOTE:  
Use the definition of “Substantial Improvement” in the applicable code or regulations (may be cumulative, may be based on percentage lower than 50%).



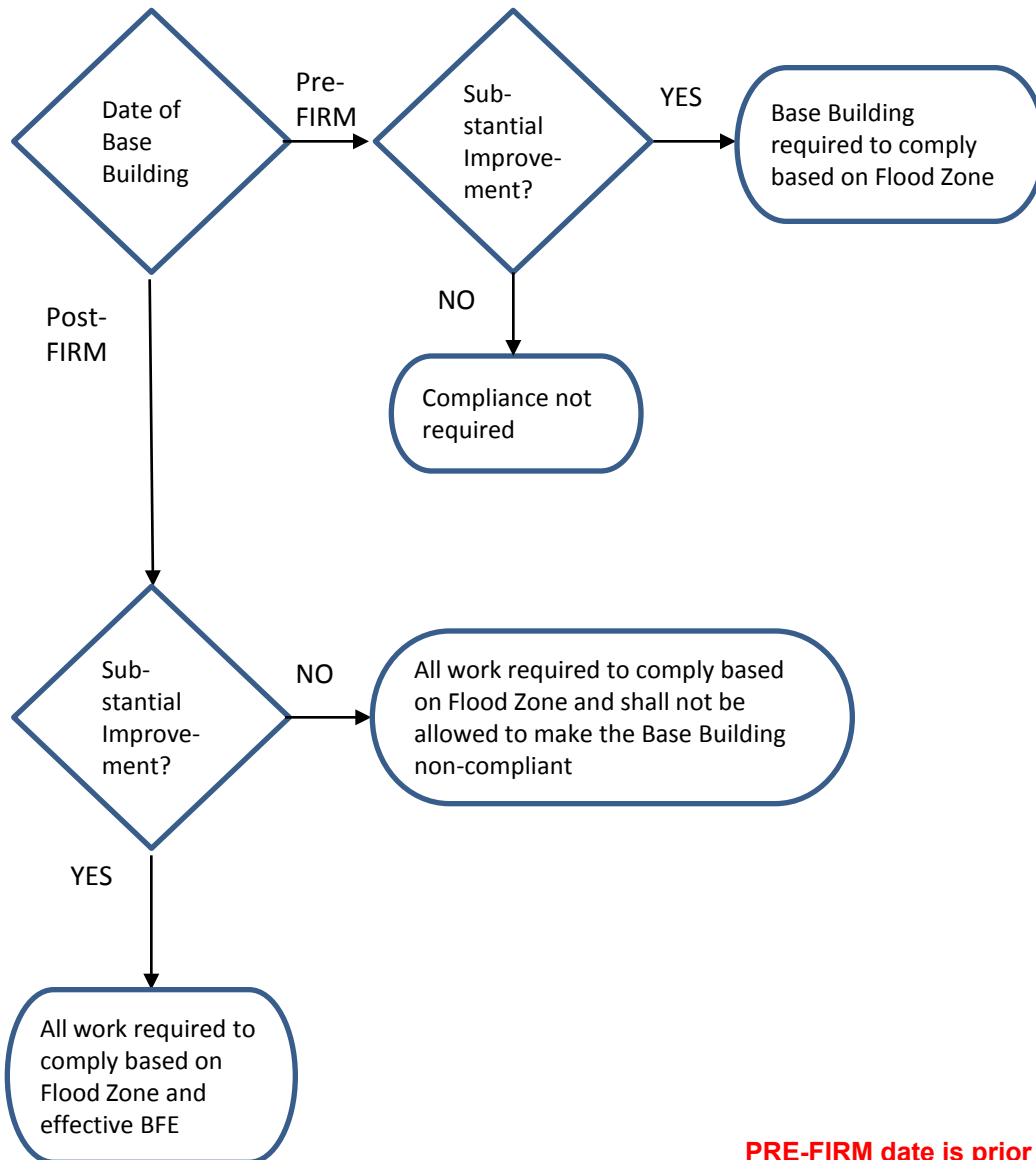
**PRE-FIRM date is prior to April 25, 1980**

# Chart 3

## Buildings in All Flood Zones

### Vertical Additions

NOTE:  
Use the definition of “Substantial Improvement” in the applicable code or regulations (may be cumulative, may be based on percentage lower than 50%).



**PRE-FIRM date is prior to April 25, 1980**

# Decision Charts for Handling Additions to Buildings in Flood Hazard Areas

Based on FEMA P-758, *Substantial Improvement / Substantial Damage Desk Reference*, see Chapter 6, especially Section 6.2 and Section 6.3. Selected figures are shown on pages 8 through 11.

## PERTINENT TERMS

### Additions

- **Addition.** An extension or increase in floor area or height of a building (from Building Codes).
- **Horizontal Additions.** An extension that increases the footprint of a building.
- **Vertical Additions.** An increase in floor area without increasing the footprint of a building.

### Date of Base Building

- **Pre-FIRM.** A building for which construction or substantial improvement occurred on or before April 25, 1980.
- **Post-FIRM.** A building for which construction or substantial improvement occurred after April 25, 1980.

### Residential or Nonresidential

- **Residential.** Compliance solutions are only elevation-in-place (LFE or lowest horizontal structural member, based on Flood Zone).
- **Nonresidential.** Compliance solutions are elevation-in-place based on Flood Zone or retrofit floodproofing (A Zones only).

### Structurally Connected or Not Structurally Connected

- **Not Structurally Connected.** A lateral addition is “non structurally connected” if it involves no alteration of the load-bearing structure of the building, is attached to the building with minimal connection, and has a doorway as the only modification to the common . An addition that is below the BFE and “not structurally connected” is expected to sustain damage, but should not transfer loads to the building. Long-standing FEMA guidance refers to “modification of the common wall by no more than a doorway,” which is one way to describe not structurally connected.
- **Structurally Connected.** A lateral addition is “structurally connected” if it has its load-bearing structure connected to the load-bearing structure of the base building, which typically involves significant alternation of the common wall. An addition that is below the BFE and “structurally connected” would transfer flood loads imposed on it to the existing building.

## PERTINENT TERMS (continued)

### Flood Insurance Rate Map Changes

- **Flood Zone Changed.** If the FIRM has been revised and the SFHA has widened to include more area, that area is now subject to the NFIP requirements. For example, areas that were previously designated X zone may now be shown as A zone. Improvements and repairs to buildings that were previously outside of the SFHA but are now in the revised SFHA must be evaluated to determine if proposed work is SI/SD.
- **Flood Zone Changed or BFE Changed.** If the FIRM has been revised and the flood zone or BFE changed, a determination that work is a substantial improvement requires that the building meet NFIP requirements for new construction based on the revised flood zone and revised BFE.
- **New Floodway or Floodway Boundary Changed.** If the FIRM has been revised and either the floodway boundaries are changed or a floodway is newly delineated, a determination that improvements or repairs to a building are SI/SD may require an encroachment analysis.

## FEMA’S COMPLIANCE MATRICES for A Zones *[Only rows pertinent to additions are shown.]*

Table 6-1a. Compliance Matrix (A Zones)

Types of Work	Building is Pre-FIRM	Building is Post-FIRM
Lateral addition and Rehabilitation, SI	Addition required to comply; building required to comply	Addition required to comply; building required to comply (see Note below table)
Lateral addition, <u>not SI</u>	Addition not required to comply	Addition required to be elevated to at least the elevation of the existing lowest floor
Lateral addition, SI, <u>not</u> structurally connected	Addition required to comply; building not required to comply	Addition required to comply
Lateral addition, SI, structurally connected	Addition required to comply; building required to comply	Addition required to comply; building required to comply (see Note below table)
Vertical addition above building, <u>not SI</u>	Compliance not required	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Vertical addition above building, SI	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance (see Note below table)

Note: If a map revision has resulted in a higher BFE, a post-FIRM building must comply based on the new BFE.

These figures are from FEMA P-758, *Substantial Improvement / Substantial Damage Desk Reference*.

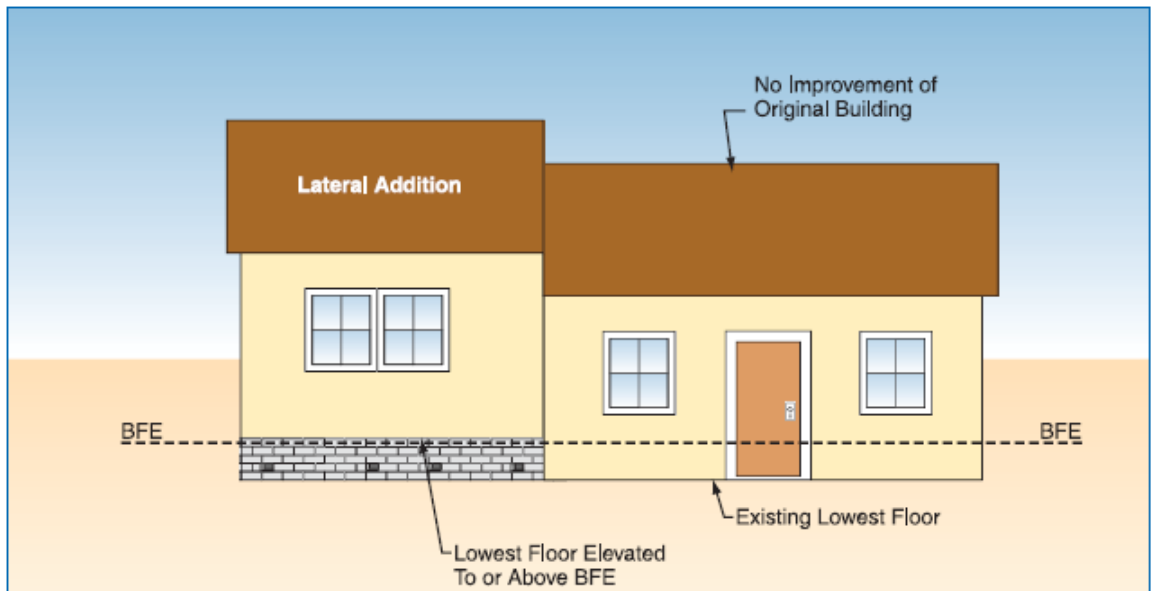


Figure 6-3. Lateral addition to a pre-FIRM building in an A zone – the proposed work is only the addition (no work was performed on the original building and no structural modification was made to the common wall or roof). The addition constitutes a substantial improvement and it complies with all NFIP requirements.

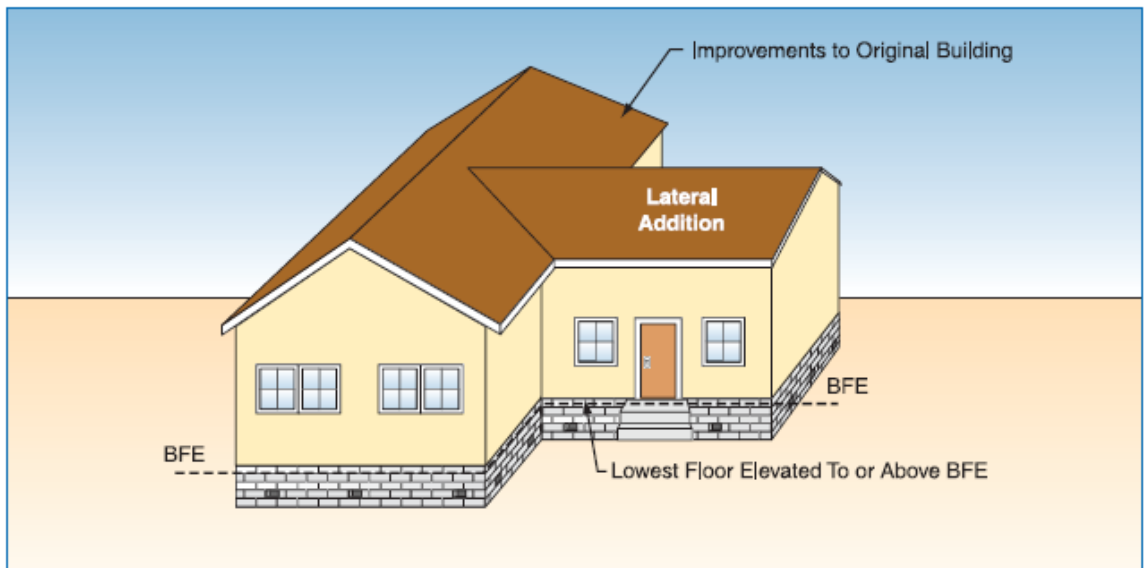


Figure 6-4. Lateral addition to a pre-FIRM building in an A zone – the proposed work includes an addition and work on the original building, including structural modification of the common wall or roof. The proposed work was determined to be a substantial improvement. The addition complies with all requirements and the building is brought into compliance by elevating it on a compliant foundation.

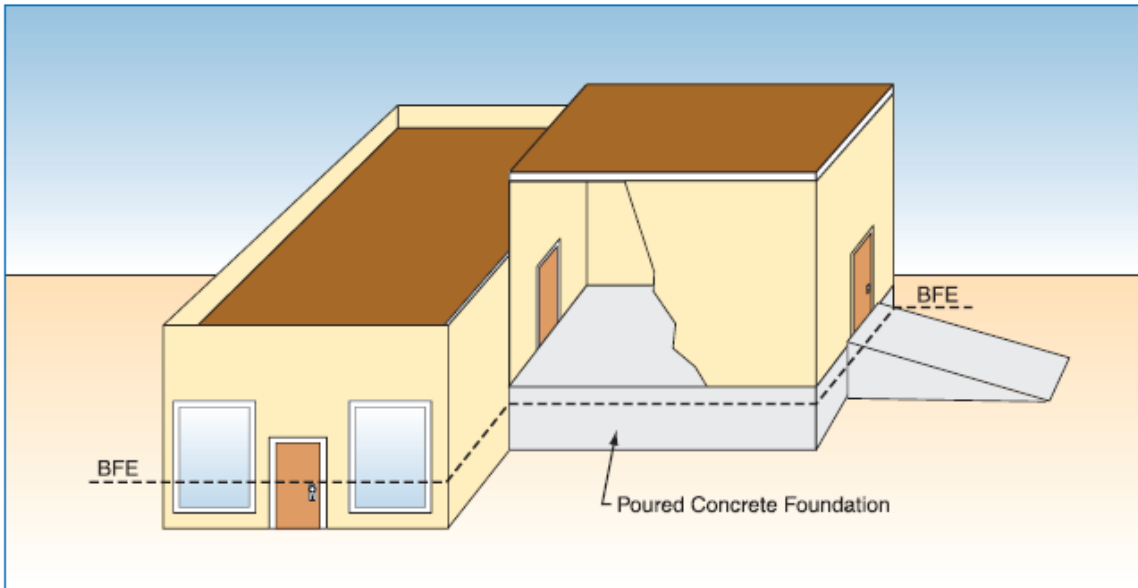


Figure 6-7. Lateral addition to a non-residential building in an A zone – the proposed work is only the addition (no work on the existing building and no structural modification of the common wall or roof). The work constitutes substantial improvement. The addition is elevated to or above the BFE (an alternative would be to dry floodproof only the addition, including the common wall).



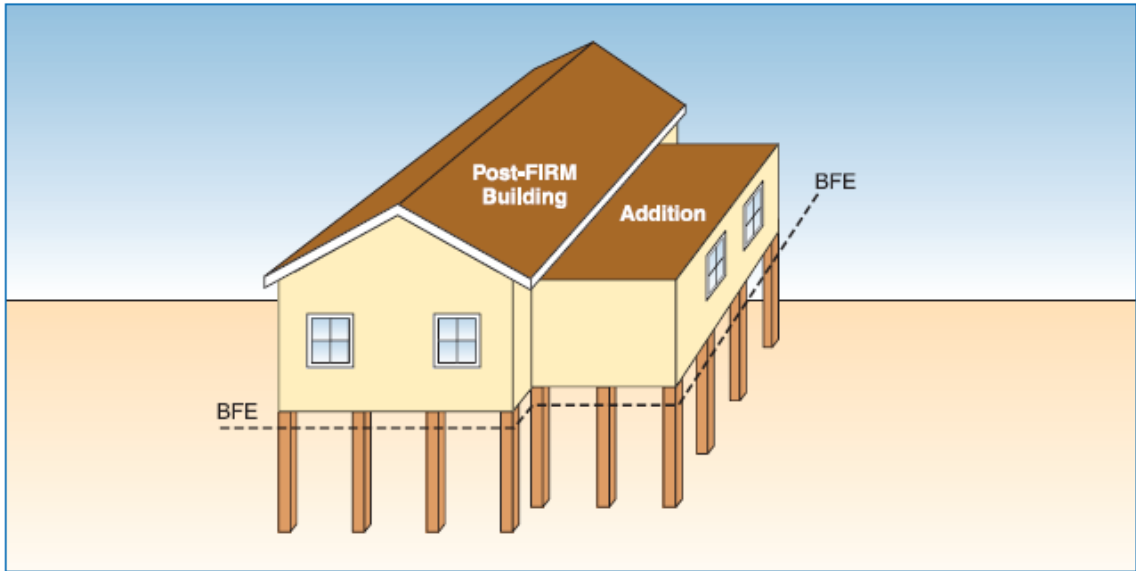


Figure 6-8. Lateral addition to a post-FIRM building in any flood zone (map revision has not changed the effective BFE). All improvements or repairs to a post-FIRM building must comply with the NFIP requirements regardless of the value of that work, and the work shall not compromise any of the NFIP requirements that the building was required to meet when it was initially built.

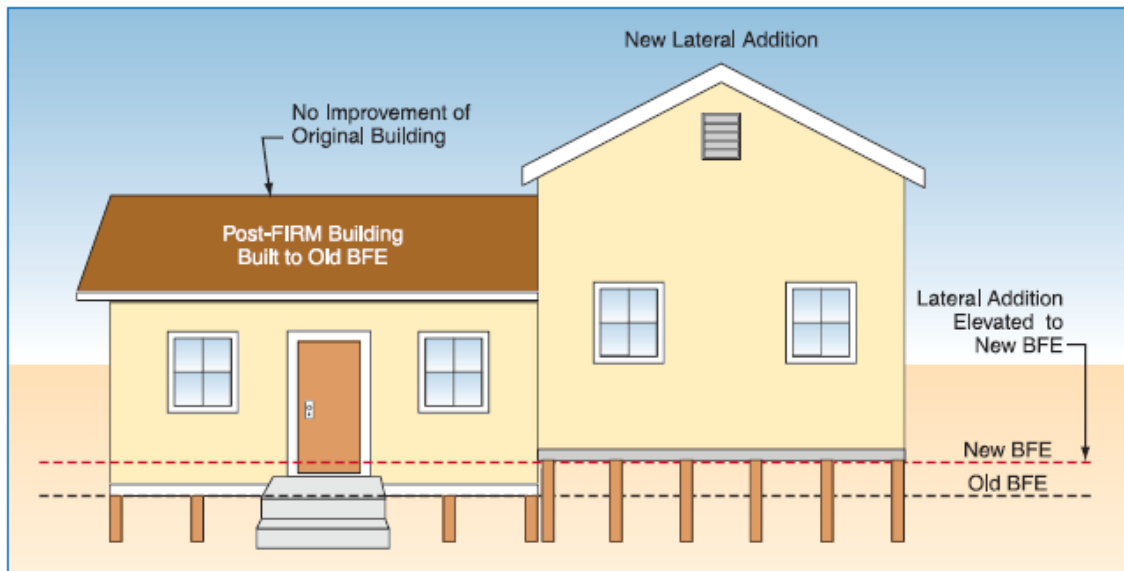


Figure 6-9. Lateral addition to a post-FIRM building in an A zone (a map revision has increased the BFE). The proposed work is a lateral addition with no work in the original building and no structural modification of the common wall or roof. The work constitutes a substantial improvement. Because there is no structural modification, only the addition must comply with the effective BFE which is higher than the BFE when the building was built. If instead the proposed work includes work in the original building or structural modification, the addition and the building must comply with the effective BFE.

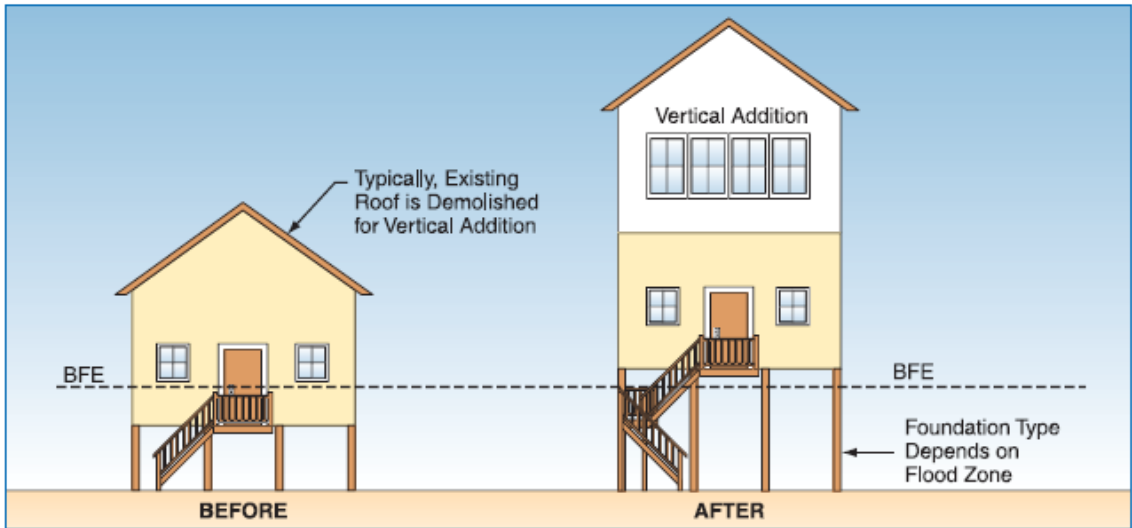


Figure 6-10. Vertical addition to a pre-FIRM residential building (in any zone) – the proposed work is a new upper story that involves structural modification. The work is a substantial improvement. The building is elevated to or above the BFE on a compliant foundation.

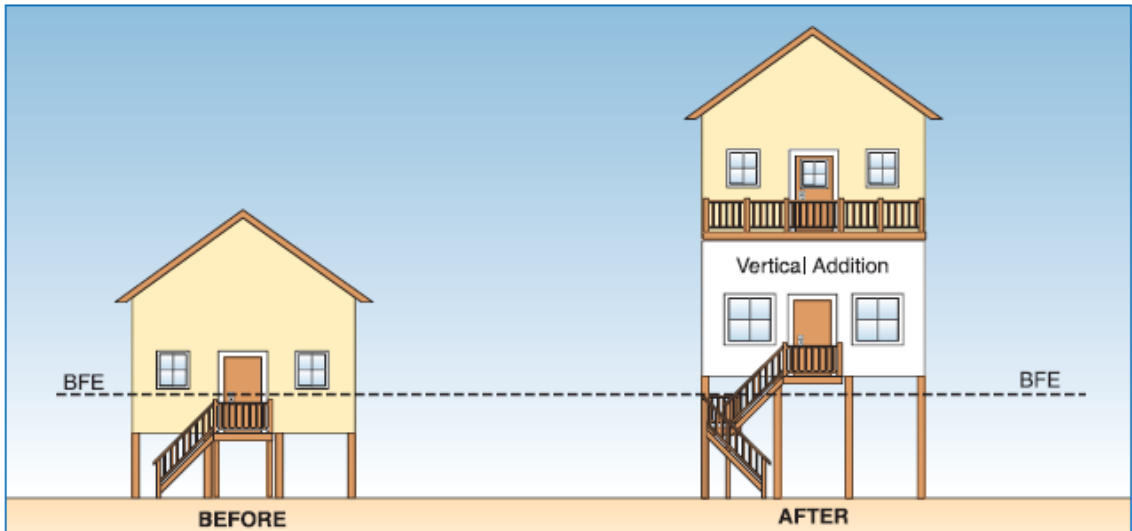


Figure 6-11. Vertical addition to a pre-FIRM residential building (in any zone) – the proposed work is a new lower story that involves structural modification. The work constitutes a substantial improvement. The building and the new lower story are elevated on a compliant foundation.

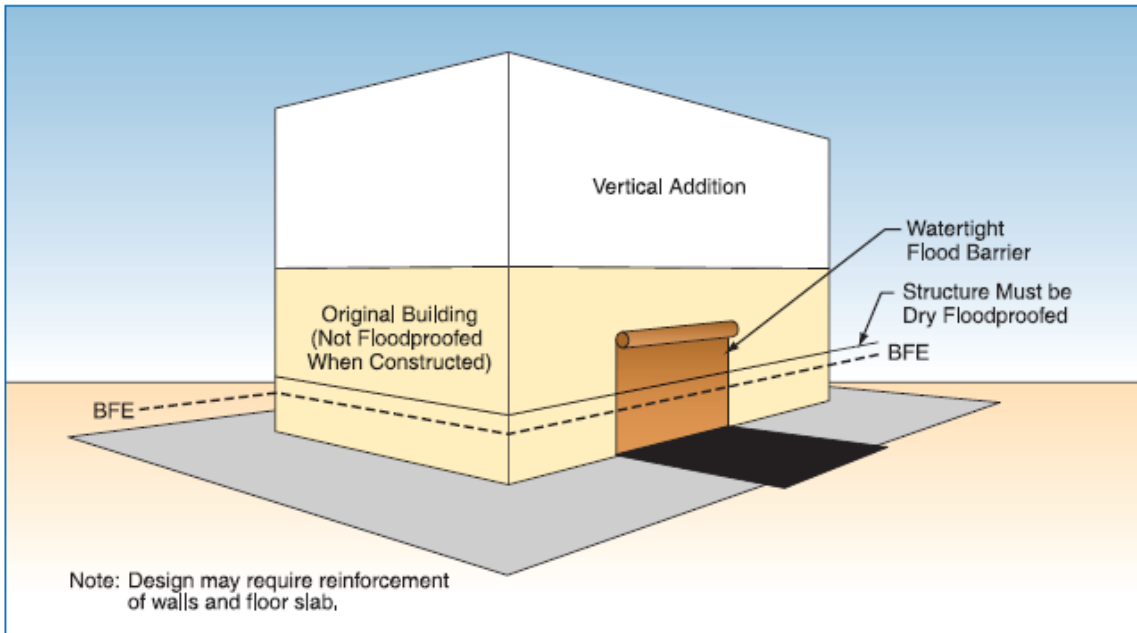


Figure 6-12. Vertical addition to a pre-FIRM, non-residential building in an A zone. The work constitutes a substantial improvement. The building is brought into compliance by retrofit dry-floodproofing measures (certification of design by registered design professional is required). Non-residential buildings can also be brought into compliance by elevation (not shown).