



MEMA



FEMA

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## **Supplemental Guidance:** *The Hazard Mitigation Grant Program (HMGP) and the Elevation of Historic Buildings & Structures*

Owners of historic properties<sup>1</sup> in a disaster-prone area have many things to consider when altering, improving, and/or repairing their properties. Southern Mississippi building practices include elevated/raised buildings and structures. While some buildings and structures were elevated during their original construction, others have been elevated after suffering from flood damage. Hazard Mitigation Grant Program (HMGP) elevation projects require review for compliance with Section 106 of the National Historic Preservation Act (NHPA). By using the Section 106 process, FEMA will take into account the effects of elevations on historic properties (including archaeological sites).

FEMA's manual, *Recommended Residential Construction for the Gulf Coast: Building on Strong and Safe Foundations* (FEMA 550) (<http://www.fema.gov/library/viewRecord.do?id=1853>), contains seven pre-engineered elevated foundation solutions for ready use by property owners.

### Deep Open Foundations (Cases A, B & C)

#### *Case A - Driven Braced Timber Pile*

- Good for V, Coastal A, or A Flood Zones
- Maximum height above ground level is 10 feet

#### *Case B - Steel Pipe Pile with Concrete Column and Grade Beam*

- Good for V, Coastal A, and A Flood Zones
- Suitable for elevations up to 15 feet above grade

#### *Case C - Driven Braced Timber Pile with Concrete Column and Grade Beam*

- Good for V, Coastal A, and A Flood Zones
- Suitable for elevations up to 15 feet above grade

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<sup>1</sup> *Historic properties are generally buildings, structures, objects, districts or archaeological sites that are at least 50 years of age and which are eligible for the National Register of Historic Places.*

### Shallow Open Foundations (Cases D & G)

#### *Case D - Concrete Column and Grade Beam/Waffle*

- Good for A Zones (and Coastal A Flood Zones with limited scour and erosion)
- Maximum height above ground level is 8 feet

#### *Case G - Concrete Column on Concrete Grade Beam with Reinforced Slab/Mat*

- Good for A Flood Zones
- Maximum height above ground level is 8 feet

### Shallow Closed Foundations (Cases E & F)

#### *Case E - Reinforced Masonry Crawl Space*

- Good for A Flood Zones only
- Maximum height above ground level is 8 feet

#### *Case F - Reinforced Masonry Stem Wall*

- Good for A Flood Zones only
- Maximum height above ground level is 4 feet

These foundations are flexible enough to accommodate homes identified in *the Pattern Book for Gulf Coast Neighborhoods* ([http://mississippirenewal.com/documents/Rep\\_PatternBook.pdf](http://mississippirenewal.com/documents/Rep_PatternBook.pdf)) published by the Mississippi Governor's Rebuilding Commission on Recovery, Rebuilding and Renewal. The Governor's Rebuilding Commission also prepared a *Summary Report on the Recommendations for Rebuilding the Gulf Coast* (<http://mississippirenewal.com/info/plansReports.html>) with technical guidance and sensible elevation solutions for southern Mississippi.

### **Questions Property Owners and Applicants Should Consider:**

- Will elevation significantly alter the historic characteristics (i.e., “what it looked like” in the past or “what it was built from”) of the building or structure?
- Will the alterations have a permanent effect on the historic fabric?
- Once the house is raised, will it still maintain its historic design, appearance, character (features or traits that make it historic), or “feel”?
- Will the building or structure match the historic character of the community (if the building or structure is in a historic district or neighborhood)?
- Have residents of a local historic district or neighborhood discussed how elevation plans might affect the neighborhood as a whole?
- Do the elevation plans include preservation of existing materials?
- Do the elevation plans include historically accurate rehabilitation?
- Will intact archaeological resources be affected by the elevation?

If responses indicate that the historic nature of a property will be greatly compromised, property owners and applicants may wish to consider the various options to safeguard the integrity of historic buildings, structures and surrounding archaeological sites.

## How High is Too High?

The Advisory Base Flood Elevations (ABFE)<sup>2</sup> have been determined by FEMA and can be found in FEMA's Katrina Recovery Maps. These maps and the ABFE determine the flood level of protection necessary, which in turn, approximate the measurements for elevation (typical elevations will occur within a range of 4 to 15 feet). While the ABFEs provided by FEMA are accurate, they are not property-specific. Therefore, it is important to consult a surveyor or engineer who can determine the exact ABFE for a specific property. The ABFE determination process is explained at <http://www.fema.gov/hazard/flood/recoverydata/katrina/index.shtm>.

***Strictly from a historic preservation perspective, it is recommended that a building or structure be raised no higher than what is required by ABFE.***

Property owners should plan on investigating the maximum and minimum height regulations for their properties while minimizing the potential effects to individual historic buildings, structures, and buildings in the surrounding area. This includes exercising consideration of neighboring buildings, structures and consulting local neighborhood or district design standards.

## How Should Applicants Proceed?

Elevation is the most common way to protect buildings and structures from a flood hazard. However, this process can be detrimental to a historic property if not executed properly. Hence, the following approaches to integrating historic preservation methods into elevation plans should be considered:

- Use in-kind materials (the original types of materials).
- Replicate or approximate the original scale (size of a building or structure) and/or setting (its place in its environment).
- Introduce landscape features, such as bushes and trees, to minimize visible changes when possible.
- Exercise special care and attention to the building or structure's immediate surroundings (other historic buildings, structures or landscape features).
- Consider the effects alterations might have on the general aesthetic of a neighborhood and/or streetscape.

And finally, it's important to ask the question: "Would the builder or historic inhabitant of this building or structure recognize it after the alterations?" If the answer is "No", alternate approaches to elevation may need to be considered in order to retain a building or structure's historic materials, design, or features.

## The Treatment of Historic Properties

The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (commonly referred to as the "Standards") (<http://www.nps.gov/history/hps/tps/standguide/>) define appropriate approaches to preserving, rehabilitating, and reconstructing historic properties. Because the goal of elevation projects is to reduce future damages and losses, applicants should

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<sup>2</sup> The ABFE is the height, relative to mean sea level, that has a 1-percent chance of being flooded in a given year.

make a concerted effort to incorporate elements of preservation, rehabilitation, and reconstruction when participating in hazard mitigation activities. The Standards use the following definitions and approaches to treatments of historic buildings:

**Preservation** is the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. In other words, preservation keeps what is there at the time the project begins; it does not seek to return a property to its original condition. ***HMGP applicants are highly encouraged to select this standard of treatment for their historic properties over other treatments.*** During preservation:

- The historic character of a property should be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property should be avoided.
  - *Example: The spaces between piers can be filled with historically appropriate screens to conceal spaces (e.g. infill panels or landscaping elements).*
- Each property should be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and new features should be physically and visually compatible and also identifiable upon close inspection.
  - *Example: The design of new piers and/or foundation walls should match the existing materials in-kind and treatment of the existing piers and/or foundation.*
- Changes to a property that were made after the original date of construction and have acquired historic significance in their own right should be retained and preserved.
  - *Example: An early nineteenth century house was built in the Classical style and in the mid-twentieth century a large, decorative front porch was added to the house. When elevating the house, the porch, even though not original, should be retained because it has become historically significant.*
- Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property should be preserved.
  - *Example: If a house is raised 3 feet from its original elevation its stairway will need 3 feet more of steps leading to its front door. In this case, the steps would need to be constructed in the same fashion and using the same materials as the original stairway.*
- The existing condition of historic features should be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material should match the old in composition, design, color, and texture.
  - *Example: If a house was skirted with a white wooden lattice that has deteriorated, it should be replaced with a lattice of the same design, material, and texture.*
- Chemical or physical treatments, if appropriate, should be undertaken using the gentlest means possible. Treatments that cause damage to historic materials should not be used.
  - *Key Point: If a historic house or business is being elevated, it is important to employ a company that is experienced with the appropriate treatment of historic properties.*
- Archaeological findings should be safeguarded and preserved in place.
  - **REMEMBER:** *If property owners and/or their contractors discover archaeological materials and/or human remains, work within the immediate vicinity of the finding should cease and notification should be made to the MEMA who will in turn coordinate with FEMA and the Mississippi Department of Archives and History*

*(MDAH). Discoveries of an archaeological nature require evaluation by FEMA archaeologists before work can proceed.*

**Rehabilitation** is the act or process of making a compatible use for a property possible through repair, alterations, and additions, while preserving those portions or features that convey its historical, cultural, or architectural values. ***Rehabilitation is the second most preferred treatment for historic properties.*** During rehabilitation:

- New additions, exterior alterations, or related new construction should not destroy historic materials, features, and spatial relationships that characterize the property. The new work should be differentiated from the old and be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
  - *Example: If a brick house is elevated using cinder blocks, the blocks should be covered in a brick veneer to maintain the aesthetics.*

**Reconstruction** is the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving building or structure for the purpose of replicating its appearance at a specific period of time and in its historic location. ***A reconstructed property recreates the appearance of a non-surviving historic property in materials, design, color, and texture.*** During reconstruction:

- Efforts should be based on the accurate duplication of historic features and elements substantiated by documentation or physical evidence rather than conjecture or the availability of different features from other historic properties.
- Reconstruction should include measures to preserve any remaining historic materials, features, and spatial relationships. Designs that were never executed historically should not be constructed.

***When elevating historic buildings and structures, the materials and design of reconstructed additions should be treated as an extension of what is already present. Deviation from historic materials and design is strongly discouraged.***

### **Additional FEMA Publications**

More information on *Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning* is available at <http://www.fema.gov/plan/mitplanning/howto6.shtm>.

FEMA has also prepared a *Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas* (<http://www.fema.gov/library/viewRecord.do?id=1671>). The manual provides a comprehensive approach to responsible development in coastal areas based on guidance from over 200 experts in building science, coastal hazard mitigation, and building codes and regulatory requirements.