ELIGIBLE HMGP ELEVATION PROGRAM EXPENSES

The following costs associated with the elevation projects are generally eligible for reimbursement by the HMGP Elevation Program:

- Engineering services for design, structural feasibility analysis, and cost estimate preparation;
- Surveying, soil sampling, completion of elevation certificate, title search, deed recordation fees, legal and/or permitting fees, project administration, and construction management;
- Disconnection of all utilities;
- Building of a foundation so that the lowest floor is at the BFE or higher if required by local ordinance or FEMA;
- Physical elevation of the structure and subsequent lowering and attachment of the structure onto a new foundation;
- Construction of a floor system that meets minimum building code requirements when the existing floor system cannot be elevated or is not appropriate for the new foundation;
- Reconnecting utilities and extending lines and pipes as necessary and elevating all utilities and service equipment;
- Debris disposal and erosion control;
- Costs for repair of lawns, landscaping, sidewalks, and driveways if damaged by elevation activities;
- Construction of a utility room above the BFE only if there is no existing space within the house for this purpose or there is no alternative cost-effective way to elevate the utilities;
- Elevation of existing decks, porches, or stairs;
- Construction of new stairs, landings, and railings to access the elevated living space per minimum code or local ordinance;
- Construction of ADA-compliant access facilities when an owner or a member of the owner’s family has a permanent physical handicap and a physician’s written certification. Only one ADA-compliant access is allowable for funding unless specified otherwise in applicable State or local codes (for more information on ADA, see http://www.ada.gov/). If ramps are not technically feasible, a mechanical chair lift may be installed;
- Documented reasonable living expenses (except food and personal transportation) that are incurred while the owner is displaced by the elevation construction;
- Abatement of asbestos and lead-based paint;
- Basement fill-ins are eligible expenses only if required to make a property structurally sound for physical elevation.

HMGP NON-REIMBURSABLE ELEVATION PROGRAM EXPENSES

The following structure elevation activities and their associated costs are not eligible for reimbursement by the HMGP Elevation Program:

- Elevating structures that were not in compliance with current NFIP standards at the time of construction;
- Costs related to building additions or auxiliary structures;
- Construction of new decks or porches;
• Any improvements for purely aesthetic reasons unless required by the EHP compliance review; Costs to replace or repair utility service components, which are undersized, inadequately designed, or unsafe unless required by code (except utility rooms noted as eligible costs);
• Exterior finish on the exposed foundation of the elevated building, unless required by EHP compliance review and or local code; and
• Additional landscaping for ornamentation beyond what existed on the site prior to construction of the project (e.g., trees, shrubs).
• Basement fill-ins without physical elevation of the structure; and
• Elevation of utilities without physical elevation of the structure.

**HMGP GUIDANCE FOR DETAILED ELEVATION COST ESTIMATE**

Per FEMA guidance, an acceptable elevation cost estimate from a contractor should itemize, to the extent possible, the following FEMA–eligible costs associated with the elevation project, if known.

**Pre-Construction Activities:**
- Engineering services for design, structural feasibility analysis, and cost estimate preparation
- Cost of surveying and soil sampling
- Utility and Construction Permits
- Site Preparation

**Elevation Construction Activities:**
- Physical elevation of the structure and subsequent lowering and attachment of the structure onto a new foundation
- Disconnection and raising of utilities or Demolition of existing foundation and footings
- Concrete and block foundation and footings

**Post-Construction Activities:**
- Utility Reconnection
- Post-Construction Elevation Certificate
- Legal and Recording Fees for Deed Restriction
- Debris disposal and erosion control

Per FEMA, the following elevation activities cannot be reimbursed by the HMGP Elevation Program:
- Contractor contingency fees as a single line item (contractor management fees can be built into the eligible line item for actual elevation construction quote)
- Itemized contractor profit or management fees
- Construction of new decks or porches
- Cost of constructing additions
LIST OF ELIGIBLE ACTIVITIES FOR ELEVATION COST ESTIMATE

Listed below are detailed costs associated with a complete elevation project. Please use this list as a guide when requesting or reviewing an itemized elevation quote from a contractor to ensure that you receive a comprehensive and complete estimate that includes all necessary elevation activities to avoid unanticipated costs.

Pre-Construction Activities:

Permitting/Recording/Legal Fees
- Building Permit(s)
- Construction Permit(s)
- Plumbing, Electrical, Mechanical Permits
- Hazardous materials abatement report/permit/fees

Engineering and Surveying Fees
- Engineering/Design for proposed elevation
- Surveying and site layout
- Required permits for elevation construction
- Elevation certificate(s)

Site Preparation
- If fencing or trees had to be removed in order to perform the elevation work, the replacement fencing or trees are eligible. Additional documentation may be required.
- If sidewalks or driveways were damaged during the elevation and had to be replaced, they are eligible. Additional documentation may be required.
- Debris removal and disposal
- Hazardous materials removal/disposal
- Excavation/fill for grading
- Soil Stabilization/restoration
- For landscape disturbed by the construction, requests will be considered on a case-by-case basis.

Homeowner must provide photographs or other documentation showing what landscaping was in place prior to the elevation. If no landscaping was in place prior to the elevation, costs for new landscaping are not eligible.

Elevation Construction Activities:
- Soil stabilization
- Concrete and block work
- Masonry work
- Drilling and Installation of Piers, Columns, or Piles.
  - Note: Termite treatment costs are eligible.
- Beams and columns
- Demolition of existing foundation and footings
- Embedment and sealant
• Foundation walls
• Structural steel work
• Bracing and anchoring
• Lifting/Jacking/Elevating
• Backfilling- for purposes of making structure sound to elevate
• Detachment and re-attachment (elements affixed to structure). This could include carports, sheds, or attached garages. If the attached structure had to be demolished in order to perform the elevation, the demolition and rebuilding of the structure is eligible.
• Sub-flooring
• Wall and roof framing and shell construction.
  o **Note:** (Eligible if damage occurred as a result of the elevation. Further documentation may be required.)
• Exterior doors and windows, insulation
• Hurricane clips/ties
• Seismic retrofits to building code
• Building code upgrades
• Porches and decks.
  o **Note:** HMGP will reimburse for standard size landings at each access door (standard size is defined by FEMA as 4 ft x 4 ft). Extensive decks or wrap-around porches that were not pre-existing are not eligible. If porches or decks were pre-existing and were damaged as a result of the elevation, they are potentially eligible items. Applicant must submit a site plan detailing dimensions of the addition.
• Stairs and railings leading to each entryway to the structure are eligible.
• Handicap access- Elevators: A doctor’s note indicating the elevator is necessary to access the home will be required in order to justify the expense. A quote for the elevator must be approved prior to initiation of work. If the person with the need for an elevator is not a homeowner, further documentation will be required to show that the person occupies the home as a primary residence.
• Plumbing disconnect for supply and drain, waste and vent.
  o **Note:** If the entire plumbing system was damaged as a result of the elevation (such as what typically occurs in a slab elevation), the replacement system is eligible. Further documentation of the damage may be required.
• Electrical disconnect
• Installation of ductwork for HVAC
• Water service elevation
• Sewer/septic system
• Elevate mechanical equipment
• Roof and foundation drainage systems
• Soil stabilization/retaining walls
• Final clean-up

**Post-Construction Activities:**
• Electrical reconnect and extension
• Plumbing disconnect, reconnect, and extension (for supply and drain, waste and vent).
Note: If the entire plumbing system was damaged as a result of the elevation (such as what typically occurs in a slab elevation), the replacement system is eligible. Further documentation of the damage may be required.

- Electrical service elevation and reconnection
- Water service elevation and reconnection
- Deed recording fees

DETERMINING THE OWNER’S FINANCIAL CONTRIBUTION

For most elevation projects, the cost share that is required to match federal funds is provided by the property owner. Elevation projects result in improved property that generally increases in value, which makes it reasonable for the owner to cover the non-federal share.

The owner’s financial contribution may include:

- The non-federal share of allowable costs. Any required cost share must come from acceptable sources, which may be a combination of ICC (NFIP flood insurance payment if building was substantially damaged), CDBG funds, homeowner loans, homeowner cash, contributions from charitable organizations, and others.
- The cost of requested upgrades that are not allowable costs and cannot be used to match the federal funds.
- Temporary living costs that are not approved for reimbursement.

PREPARE THE AGREEMENT WITH THE OWNER

The Agreement with the owner outlines the specific conditions of the project, including commitments the owner must make to fulfill conditions of the grant as. This may include the following:

- Commitment to provide complete information necessary for the DOB determination;
- Commitment to perform the work in accordance with the approved scope of work;
- Commitment to obtain and keep flood insurance;
- Restriction on modification and use of the area below the elevated building;
- Commitment to provide funds from approved sources as the non-federal match, in an estimated amount that is based on the cost estimate and estimate of other project costs (including specific work items that are not allowable under the grant);
- Acknowledgement that funds may be recaptured under certain circumstances of non-performance;
- Agreement to be fully responsible and indemnify the community and State from all liability;
- Permission for designated persons to enter onto the property to conduct inspections; and
- Commitment to vacate the home (if required by the contractor) in a timely manner to facilitate the start of work and for the duration of the actual work.

SURVEY AND INSPECTION CONSIDERATIONS

Structure elevation activities generally involve physically raising an existing structure to an elevation at the BFE or higher if required by FEMA or local ordinance. Buildings proposed for elevation must
be structurally sound and capable of being elevated safely. At a minimum, FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with the NFIP standards in 44 CFR Part 60. FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with ASCE 24-14, or latest edition, or its equivalent as minimum design criteria.

Elevation project implementation entails pre-construction activities, construction, inspection of the completed foundation and engineering certification, and obtaining a Certificate of Occupancy. Before construction of the foundation begins, it is very important to conduct an inspection of the condition of the structure, survey the site, and complete a soil inspection to make sure the proposed elevation project is feasible on the site.

Surveying and inspections are encouraged throughout the construction process. Certifications of the surveys ensure that the work has been performed in compliance with the structure-specific plans and specifications, applicable codes and standards, and minimum NFIP requirements. Figure 1 identifies important inspection and survey considerations.

It is strongly encouraged that the following inspections are conducted throughout the elevation project implementation cycle.

Pre-Construction:
- Inspection by a licensed structural engineer or qualified professional to examine the structural integrity of the home and determine if it can withstand the elevation process.
- A licensed surveyor or professional engineer performs a survey to locate the house on its lot and set the elevation reference.
- A qualified professional inspects the soil to make sure the proposed elevation project is feasible on the site.

During Construction:
- A qualified professional surveys piers or walls to confirm elevation constructed per the design prior to the house being lowered onto its new foundation.
- Local building official inspects connection of floor framing to foundation

Post-Construction:
- An engineer or qualified professional inspects to ensure:
  - The elevation is correct
  - The house is secured to resist flotation, collapse, and lateral movement
  - The house appears to be constructed in accordance with specifications and drawings
  - The engineer/surveyor notes any repairs that were necessary to lift or stabilize the house or foundation and completes certification per NFIP requirements.
- Local build official issues Certificate of Occupancy
Figure 1: Inspection and Survey Considerations

**Inspection**
Licensed structural engineer or qualified professional performs inspection.

**Survey**
Licensed surveyor or Professional Engineer performs survey. Locate house on lot and set elevation reference.

**Soil Inspection**
Qualified professional inspects soil before foundation pour on existing foundation before addition of new piers or walls.

**Elevation Check at Top of New Foundation**
Qualified professional surveys piers or walls to confirm elevation constructed per design before house is lowered onto new foundation.

**Inspect Completed Foundation**
Local building official inspects connection of floor framing to foundation.

**Engineering and Final Certification**
Engineer or qualified professional inspects to ensure the elevation is correct; the house is secured to resist flotation, collapse, and lateral movement; and the house appears to be constructed in accordance with specifications and drawings. The engineer/surveyor notes any repairs that were necessary to lift or stabilize the house or foundation and completes certification per NFIP requirement.

**Obtain Certificate of Occupancy**
Local building official issues Certificate of Occupancy, and property owner moves back into residence.
E. Structure Elevation

Part E of the Addendum supplements the information provided in Parts I through IX of the HMA Guidance. The project-specific guidance in this section does not provide all of the information necessary to apply for funding through an HMA program and must be read in conjunction with all other relevant sections of this guidance. See Part IX, C of the HMA Guidance for additional resources on structure elevation.

E.1 Overview

Structure elevation activities generally involve physically raising an existing structure to an elevation at the BFE or higher if required by FEMA or local ordinance. Structure elevation may be achieved through a variety of methods, including elevating on continuous foundation walls; elevating on open foundations, such as piles, piers, posts, or columns; and elevating on fill. Foundations must be designed to properly address all loads and be appropriately connected to the floor structure above, and utilities must also be properly elevated. Buildings proposed for elevation must be structurally sound and capable of being elevated safely.

E.2 Additional Project Eligibility Requirements

At a minimum, FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with the NFIP standards in 44 CFR Part 60. For additional information about the NFIP and structure elevation projects, see Part III, E.7 of the HMA Guidance.

FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with ASCE 24-14, or latest edition, or its equivalent as minimum design criteria.

E.2.1 Eligible Design Standards

Buildings proposed for structure elevation must be structurally sound and capable of being elevated safely. Important design considerations for structure elevations consistent with 44 CFR Part 60 are as follows:

♦ The lowest floor of the structure must be elevated to the BFE or to the elevation specified in the local ordinance if higher. Upon completion of the elevation work, an Elevation Certificate (FEMA Form 81-31) verifying “as built” elevations must be completed to ensure that the structure complies with the local floodplain ordinance and NFIP floodplain management and HMA requirements.

♦ Elevation projects must be designed and adequately anchored to prevent flotation, collapse, and lateral movement of the structure due to hydrodynamic and hydrostatic loads, including the effects of buoyancy. It is recommended that an engineer certify that the design elevation will withstand the depth and velocity of 100-year flood events (hydrostatic and hydrodynamic loads), any potential increase in wind load, or any other relevant load factors.
♦ For elevation projects in Zone V with open foundations (piles, piers, posts, or columns), the space below the lowest floor must be free of obstructions or constructed with non-supporting breakaway walls, open wood lattice-work, or screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. Guidance on free-of-obstruction and breakaway wall requirements is available in FEMA Technical Bulletin (TB) 5, Free-of-Obstruction Requirements (2008), and FEMA TB-9, Design and Construction Guidance for Breakaway Walls Below Elevated Coastal Buildings (2008).

♦ For elevation projects on continuous foundation walls with fully enclosed areas below the lowest floor, the area must be used solely for parking of vehicles, building access, or storage as identified in 44 CFR Section 60.3(c)(5).

♦ Elevation projects on continuous foundation walls must be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs to meet these criteria must be certified by a registered Professional Engineer or meet or exceed the criteria in 44 CFR Section 60.3(c)(5). Guidance on meeting this requirement can be found in FEMA TB-1, Openings in Foundation Walls and Walls of Enclosures (2008).

### E.3 Elevation Project Application Package

In addition to the items identified in Part IV, H of the HMA Guidance, the following data are required for each structure:

♦ Physical address and property owner’s name

♦ Estimated cost to elevate each structure

♦ Name and location of flooding source (e.g., creek, river, watershed, or location of stormwater ponding) and location on the applicable Flood Insurance Rate Map

♦ The proposed elevation of the lowest floor for each structure to be mitigated, the BFE, and the current elevation of the lowest finished floor

♦ Type of existing foundation (slab-on-grade, crawl space, basement, or open foundation) and the proposed elevation method and standard to be used

♦ A statement that the project will be designed in compliance with NFIP standards in 44 CFR Part 60
E.4 Implementation

Elevation project implementation entails pre-construction activities, construction, inspection of the completed foundation and engineering certification, and obtaining a Certificate of Occupancy. Before construction of the foundation begins, it is very important to conduct an inspection of the condition of the structure, survey the site, and complete a soil inspection to make sure the proposed elevation project is feasible on the site.

E.4.1 Elevation Methods

Standard structure elevation methods are identified in FEMA P-312, Homeowner’s Guide to Retrofitting – Third Edition (2014), and FEMA P-347, Above the Flood: Elevating Your Floodprone House (2000). In addition, FEMA has developed guidance for the design of appropriate foundations based on the requirements of the International Codes and other applicable standards. This guidance is provided in FEMA P-550, and is available for use with IMA structure elevation projects. Furthermore, FEMA requires Applicants and subapplicants to design all structure elevation projects in accordance with ASCE 24-14, or latest edition.

Available elevation methods, which are thoroughly described in FEMA P-312, Chapter 5, and FEMA P-347 include:

♦ Elevating the existing structure on piles, posts, or piers
♦ Filling in the basement and replacing it with an elevated floor
♦ Elevating by vertically extending the foundation walls of the home

Activities that result in the construction of new living space at or above the BFE are considered only when they are consistent with mitigation reconstruction requirements described in Addendum Part E.2.1. Activities include structure elevations that abandon a lower enclosed area and add a second story above the BFE to an existing structure.

The method that is selected for elevating a house depends on factors such as:

♦ Foundation type
♦ Condition of the house
♦ Applicable State and local building codes
♦ Soil type and bearing capacity
♦ Weight of the house and lateral forces on the house from water and other natural hazards, such as winds and earthquakes
♦ Height of proposed elevation above the grade level
♦ Number of additions to the original structure

The most common foundation types are:
♦ Crawl space on foundation walls
♦ Slab-on-grade
♦ Open type foundation – piles and posts or piers

Additional details to consider when constructing an elevation project can be found in the following publications:
♦ ASCE 24-14, *Flood Resistant Design and Construction* (2014), or latest edition

This list is not a comprehensive list of publications on retrofitting and elevations. More documents are available at [http://www.fema.gov/building-science-publications](http://www.fema.gov/building-science-publications).

### E.4.2 Eligible Structure Elevation Costs

Allowable costs are costs that are necessary and reasonable for the proper and efficient performance and administration of the Federal award. The following costs associated with structure elevation projects are generally allowable:

♦ Engineering services for design, structural feasibility analysis, and cost estimate preparation
♦ Surveying, soil sampling, completion of Elevation Certificate, title search, deed recordation fees, legal and/or permitting fees, project administration, and construction management
♦ Disconnection of all utilities
♦ Building of a foundation so that the lowest floor is at the BFE or higher if required by local ordinance or FEMA
♦ Physical elevation of the structure and subsequent lowering and attachment of the structure onto a new foundation
♦ Construction of a floor system that meets minimum building code requirements when the existing floor system cannot be elevated or is not appropriate for the new foundation
♦ Reconnecting utilities and extending lines and pipes as necessary and elevating all utilities and service equipment
♦ Debris disposal and erosion control
♦ Costs for repair of lawns, landscaping, sidewalks, and driveways if damaged by elevation activities
Construction of a utility room above the BFE only if there is no existing space within the house for this purpose or there is no alternative cost-effective way to elevate the utilities

- Elevation of existing decks, porches, or stairs

- Construction of new stairs, landings, and railings to access the elevated living space per minimum code or local ordinance

- Construction of ADA-compliant access facilities or ramps when an owner or a member of the owner’s family has a permanent disability and a physician’s written certification. An ADA-compliant access to ingress/egress is allowable for funding unless specified otherwise in applicable State or local codes (for more information on ADA, see [http://www.ada.gov](http://www.ada.gov)). If ramps are not technically feasible, a mechanical chair lift may be installed.

- Documented reasonable living expenses (except food and personal transportation) that are incurred while the owner is displaced by the elevation construction

- Abatement of asbestos and lead-based paint

- Filling basements with compacted clean fill

### E.4.3 Ineligible Structure Elevation Costs

Certain structure elevation activities and their associated costs are not eligible. Ineligible costs for structure elevation include, but are not limited to, the following:

- Elevating structures that were not in compliance with current NFIP standards at the time of construction

- Costs related to building additions or auxiliary structures

- Construction of new decks or porches

- Any improvements for purely aesthetic reasons, unless required by the EHP compliance review

- Costs to replace or repair utility service components that are undersized, inadequately designed, or unsafe, unless required by code (except utility rooms noted as eligible costs)

- Exterior finish on the exposed foundation of the elevated building, unless required by EHP compliance review and or local code

- Additional landscaping for ornamentation beyond what existed on the site prior to construction of the project (e.g., trees, shrubs)
E.4.4 Survey and Inspection Considerations

Surveying and inspections are encouraged throughout the construction process. Certifications of the surveys ensure that the work has been performed in compliance with the structure-specific plans and specifications, applicable codes and standards, and minimum NFIP requirements. Figure 1 identifies important inspection and survey considerations.

**Figure 1: Inspection and Survey Considerations**

- **Inspection**: Licensed structural engineer or qualified professional performs inspection.
- **Survey**: Licensed surveyor or Professional Engineer performs survey. Locate house on lot and set elevation reference.
- **Soil Inspection**: Qualified professional inspects soil before foundation pour on existing foundation before addition of new piers or walls.
- **Elevation Check at Top of New Foundation**: Qualified professional surveys piers or walls to confirm elevation constructed per design before house is lowered onto new foundation.
- **Inspect Completed Foundation**: Local building official inspects connection of floor framing to foundation.
- **Engineering and Final Certification**: Engineer or qualified professional inspects to ensure the elevation is correct; the house is secured to resist flotation, collapse, and lateral movement; and the house appears to be constructed in accordance with specifications and drawings. The engineer/surveyor notes any repairs that were necessary to lift or stabilize the house or foundation and completes certification per NFIP requirement.
- **Obtain Certificate of Occupancy**: Local building official issues Certificate of Occupancy, and property owner moves back into residence.

E.5 Elevation Closeout

In addition to the typical HMA closeout procedures, closeout of structural elevation projects generally includes:

- Update of the property site information in the respective HMA system (i.e., eGrants or NEMIS) database for each structure
- A Certificate of Occupancy for each structure in the project to certify that the structure is code-compliant
♦ A Final Elevation Certificate (FEMA Form 81-31) for each structure to ensure the structure has been elevated to the proper elevation

♦ A copy of the recorded deed amendment for each property as required by Part III, E.7.1 of the HMA Guidance

♦ Certification by an engineer, floodplain manager, or senior local official that the completed structure elevation is in compliance with local ordinances and NFIP regulations, including all applicable NFIP Technical Bulletins

♦ A front, rear, and side photograph of the final elevated structure

♦ Verification of flood insurance for each structure