



FEMA

MITIGATION POLICY

FEMA Policy-203-074-1

I. TITLE:

Minimum Design Standards for Hazard Mitigation Assistance Projects in Flood Hazard Areas

II. DATE OF ISSUANCE: April 21, 2014

III. POLICY STATEMENT:

FEMA will use the American Society of Civil Engineers (ASCE) Standard 24-05 *Flood Resistant Design and Construction* or its equivalent as the minimum design criteria for all Hazard Mitigation Assistance (HMA) funded structure elevation, dry floodproofing, and mitigation reconstruction projects in flood hazard areas. ASCE 24-05 establishes minimum requirements for flood-resistant design and construction of structures that are subject to building code requirements and that are located, in whole or in part, in flood hazard areas. The use of the ASCE Standard or its equivalent will allow applicants to better demonstrate the technical feasibility and effectiveness of HMA projects in flood hazard areas and facilitate consistency in implementing HMA funded projects in flood hazard areas. Newer versions of the *ASCE Flood Resistant Design and Construction* published after 2005 will also be accepted.

IV. PURPOSE:

The purpose of this policy is to ensure national consistency in minimum design criteria for all HMA structure elevation, dry floodproofing, and mitigation reconstruction projects in flood hazard areas.

Communities that participate in the National Flood Insurance Program (NFIP) adopt regulations and codes that govern development in the Special Flood Hazard Area (SFHA), and enforce those requirements through the issuance of permits. The International Residential Code (IRC) and International Building Code (IBC) (I-Code Series), by reference to ASCE 24-05, include requirements that govern the design and construction of buildings and structures in flood hazard areas. FEMA has



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determined that the flood provisions of the I-Code Series are consistent with the requirements of the NFIP. NFIP requirements afford the minimum protection to structures within the SFHA. The ASCE 24-05 Standard strengthens and complements the NFIP requirements by specifying many prescriptive design and construction requirements that are consistent with the NFIP performance requirements. ASCE 24-05 also exceeds NFIP minimum requirements in some instances. By using the recognized ASCE 24-05 design standards and involving licensed design professionals, the technical feasibility and effectiveness of HMA projects in flood hazard areas will be more easily demonstrated; and longevity of the public investment toward reducing risk through HMA will be better ensured.

V. SCOPE AND EXTERNAL AUDIENCE:

This policy applies to HMA funded structure elevation, dry floodproofing, and mitigation reconstruction projects in flood hazard areas for which the application period opens on or after the date of this policy, or HMA funded structure elevation, dry floodproofing, and mitigation reconstruction projects in flood hazard areas for which funding is made available pursuant to a major disaster declared on or after the date of this policy.

VI. AUTHORITY:

FEMA is authorized to provide funding to eligible applicants for eligible, feasible, and cost-effective activities that have the purpose of reducing or eliminating risks to life and property from flood hazards and their effects in accordance with Section 203, Predisaster Hazard Mitigation (Pre-Disaster Mitigation (PDM) program), and Section 404, Hazard Mitigation (Hazard Mitigation Grant Program (HMGP)), of the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), 42 U.S.C. §5133 and §5170c, respectively, and Section 1366, Flood Mitigation Assistance (FMA), of the National Flood Insurance Act of 1968 (NFIA) as amended, 42 U.S.C. §4104c.

Together, the FMA, PDM, and HMGP programs comprise FEMA's unified HMA program. Section 323 of the Stafford Act, Standards for Public and Private



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Structures, 42 U.S.C. §5165a, authorizes FEMA to ensure that disaster loans or grants provided to recipients for any repair or construction are used in conformance with applicable codes, specifications, and standards related to safety, decency, and sanitation. While Section 323 of the Stafford Act expressly provides FEMA the authority to require safe land use and construction practices for PDM and HMGP projects, it is a tenet of Federal discretionary grants that, in the absence of defined standards, by implementing legislation the administering agency may establish minimum standards for grant eligibility. The authority to establish minimum eligibility criteria is applicable to all HMA grant programs.

VII. OBJECTIVES:

The objective of this policy is to utilize recognized minimum design standards and the involvement of licensed design professionals in implementing technically feasible and effective HMA projects in flood hazard areas.

VIII. DEFINITIONS, ABBREVIATIONS, AND FORMATTING:

Definitions

ASCE 24-05: A Standard for *Flood Resistant Design and Construction* developed by ASCE through the consensus process (ASCE 24-05 or the Standard).

Coastal A Zone: The area within a *special flood hazard area* lying landward of a *V Zone* or landward of an open coast without mapped *V Zones*, where potential for breaking wave heights is greater than or equal to 1.5 feet and less than 3 feet.

Coastal High Hazard Area: An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources (44 CFR Part 59.1).

Critical Action: An activity for which even a slight chance of flooding would be too great. The minimum floodplain of concern for critical actions is the 500-year floodplain, i.e., critical action floodplain. Critical actions include, but are not limited



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to, those which create or extend the useful life of structures or facilities...such as those which produce, use or store highly volatile, flammable, explosive, toxic or water-reactive materials... hospitals and nursing homes, and housing for the elderly...emergency operation centers...generating plants and principal points of utility lines (44 CFR Part 9.4).

Deemed-to-Comply: Considered to meet the provisions of ASCE 24-05 to the extent practicable.

Design Flood: The greater of the following two flood events: 1) the base flood, affecting those areas identified as special flood hazard areas on the community's FIRM; or 2) the flood corresponding to the area designated as a flood hazard area on a community's flood hazard map or otherwise legally designated (ASCE 24-05 Section 1.2).

Flood Hazard Area: Area subject to flooding during the design flood (ASCE 24-05 Section 1.2).

High-Risk Flood Hazard Area: Flood hazard area where one or more of the following hazards are known to occur: alluvial fan flooding, flash floods, mudslides, ice jams, high velocity flows, high velocity wave action, breaking wave heights greater than or equal to 1.5 feet (*Limit of Moderate Wave Action*) in a Coastal High Hazard Area or in a Coastal A Zone, or erosion (ASCE 24-05 Section 1.2).

Limit of Moderate Wave Action (LiMWA): The line on flood insurance rate maps representing 1.5-foot wave height that defines the landward limit of the *Coastal A Zone*.

New Construction: Structures for which the *start of construction* commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures (44 CFR Part 59.1).



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Practicable: An action that is capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of all pertinent factors, such as environment, cost, and technology (44 CFR Part 9.4).

Special Flood Hazard Area: The land in the floodplain within a community subject to a 1-percent or greater chance of flooding in any given year. An area having special flood, mudflow, or flood-related erosion hazards, and shown on the Flood Hazard Boundary Map or Flood Insurance Rate Map as Zone A, AO, A1-A30, AE, AH, AR, AR/A, AR/AE, AR/AH, AR/AO, AR/A1-A30, V1-V30, VE, or V (44 CFR Part 59.1 and HMA Unified Guidance).

Substantial Damage: Damage of any origin sustained by a building whereby the cost of restoring the structure to pre-damaged condition would equal or exceed 50 percent of the market value of the building before the damage occurred (44 CFR Part 59.1).

Substantial Improvement: 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. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed (44 CFR Part 59.1). Please see 44 CFR Part 59.1 for details on exclusions.

All terms not listed above are consistent with the term definitions used in 44 CFR unless otherwise specified.

Abbreviations

ASCE	American Society of Civil Engineers
BFE	Base Flood Elevation
CFR	Code of Federal Regulations
DFE	Design Flood Elevation
EHP	Environmental and Historic Preservation
FEMA	Federal Emergency Management Agency
FIMA	Flood Insurance and Mitigation Administration



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FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance program
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
I-Code Series	IBC and IRC codes
IBC	International Building Code
IRC	International Residential Code
NFIA	National Flood Insurance Act
NFIP	National Flood Insurance Program
PDM	Pre-Disaster Mitigation program
SFHA	Special Flood Hazard Area
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
Standard	ASCE 24-05 Flood Resistant Design and Construction

IX. POLICY DETAILS:

The following HMA activities are subject to the minimum design standards outlined in this policy: structure elevation, dry floodproofing, and mitigation reconstruction. FEMA will use this Standard in addition to the NFIP requirements, 44 CFR Part 9 Floodplain Management and Protection of Wetlands minimization standards, and applicable local and State standards, codes, and/or ordinances for HMA projects in flood hazard areas. Both residential and non-residential structures are subject to the minimum design standards outlined in this policy. For HMA projects that are not subject to this policy, FEMA encourages the use of ASCE 24-05 to the extent practicable.

A. ASCE 24-05 Technical Standards

FEMA will use the ASCE 24-05 Standard, or its equivalent, as the minimum design criteria for HMA structure elevation, dry floodproofing, and mitigation reconstruction projects in flood hazard areas. In the application development, review, and approval phases (pre-award stage), HMA applicants and subapplicants will provide an affirmative certification statement (in narrative



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form) demonstrating their planned use of ASCE 24-05 in implementing the HMA project post-award. Because ASCE 24-05 is designed to guide **new** construction as opposed to alterations to the building to achieve a higher level of flood protection, FEMA will consider a commitment by HMA applicants and subapplicants to utilizing ASCE 24-05, to the maximum extent practicable on alterations or alteration portions of projects, as being consistent with and “deemed-to-comply” with ASCE 24-05. “Deemed to comply” provisions shall not apply to any new construction on structures or systems during alterations where ASCE 24 provisions can be implemented.

In the subsequent grant lifecycle phases (post-award and close-out stages), HMA grantees shall submit verification and design documentation to demonstrate the project’s conformance with accepted engineering practices, established codes, standards, ordinances, modeling techniques, or best practices, including the utilization of ASCE 24-05 minimum design and construction requirements or its equivalent.

Consistent with the HMA Unified Guidance, all HMA flood projects must comply with all applicable HMA program eligibility criteria, including, but not limited to:

- Conforming with the local mitigation plan;
- Demonstrating cost-effectiveness;
- Complying with 44 CFR Part 9 Floodplain Management and Protection of Wetlands and 44 CFR Part 10 Environmental Considerations, and all applicable Environmental and Historic Preservation (EHP) laws, implementing regulations, and Executive Orders;
- Complying with 44 CFR Part 60 Criteria for Land Management and Use;
- Adhering to all other applicable statutes, regulations, and requirements as identified in the applicable HMA Unified Guidance and as required by Federal, State, and local governments; and
- Conforming to applicable building codes and/or other local and state requirements for any portion of the structure not included in the FEMA-approved scope of work.



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If applicable, FEMA may require additional documentation in order to determine conformance with any of the eligibility criteria listed above.

ASCE 24-05 establishes minimum design and construction standards based on structure classification and flood hazard zone. To adequately meet the ASCE 24-05 standard, HMA applicants will determine the structure classification for the respective HMA flood project. The four structure classifications are linked to the nature of occupancy and according to the importance and potential hazard to human life.

1. Category I (includes structures with a low hazard to human life in case of failure, such as agriculture/storage facilities);
2. Category II (includes single- and multi-family residences and all buildings and other structures except those listed in Categories I, III, and IV);
3. Category III (includes structures that represent substantial hazard to human life in case of failure, such as schools, colleges, healthcare facilities, etc.); and
4. Category IV (includes essential facilities and critical infrastructure, such as fire stations, hospitals, power generators, etc.).

HMA applicants will follow the specific technical standards found in ASCE 24-05, or its equivalent, based on the identified flood hazard zone and the structure classification, with the exception of HMA actions determined by FEMA to be critical actions. In accordance with 44 CFR Part 9, for critical actions the grantee shall ensure the structure is elevated to the 500-year flood elevation or the standards of ASCE 24-05 or its equivalent, whichever is most stringent.

General technical requirements, including those related to elevation, foundation, use of fill, anchorage and connections, as well as load considerations and identification of flood prone structures are located in Section 1 of the Standard. Basic requirements, including those related to elevation, use of fill, slabs-on-grade, footing and enclosures below the design flood elevation, for flood hazard areas other than Coastal High Hazard or Coastal A zones are located in Section 2. Requirements, including elevation, foundation, enclosures below the design flood



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elevation (DFE) and erosion control structures for Coastal High Hazard and Coastal A zones are found in Section 4 of the Standard.

Additional technical requirements applicable to all HMA flood projects covered by this policy are found in subsequent sections of the Standard: Materials (Section 5), Dry and Wet Floodproofing (Section 6), Utilities (Section 7), Building Access (Section 8) and Miscellaneous Construction (Section 9).

Applicants will also adhere to the siting requirements for High Risk Flood Areas provided in Section 3 of the Standard. Section 3 precludes new construction and substantial improvement in alluvial fan areas, flash flood areas, mudslide areas, erosion-prone areas and high velocity flow areas unless protective works have been determined to provide protection during the design flood event, adhere to the requirements of Section 1 of the Standard, and where a maintenance and operations plan for the protective works has been provided. Construction of protective works in these cases will not be generally eligible for funding under HMA.

For HMA flood projects in unmapped areas, areas without a Flood Insurance Rate Map (FIRM), or unstudied areas in communities with FIRMs, the HMA applicant will use and document the best available data in the public domain to determine the flood zone, such as the "flood of record" or other similar flood data available from the authority having jurisdiction. The other data sources used should be generally acceptable to determine the risk. FEMA may accept other applicable and valid sources of data as an alternative for unmapped areas (see FEMA Publication 265 *Managing Floodplain Development in Approximate A Zones*).

B. Eligible Costs

The costs necessary to design and construct HMA flood projects in accordance with ASCE 24-05 are eligible costs. These costs may include:

1. Professional services necessary to the design and implementation of the project;



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2. Data analyses/investigations directly related to the mitigation project (including geotechnical investigations, engineering reports, and hydraulic analyses);
3. Structure evaluation and inspection including documentation such as an elevation certificate;
4. Cost to obtain a copy of the ASCE 24-05 *Flood Resistant Design and Construction* publication or a publication for an equivalent flood resistant design and construction standard;
5. Project planning and design activities, including construction verification;
6. Site preparation and building foundation materials and construction;
7. Structural systems capable of resisting the flood loads (including anchorage and connections, structural fill, slabs-on-grade and footings, grade beams, pile caps, piers, posts, columns, share walls, or piles);
8. Other flood resistant components that meet FEMA-approved performance criteria based on NFIP requirements;
9. Measures to avoid or treat adverse effects to historic properties; and
10. Costs related to complying with local utility requirements.

C. Ineligible Costs.

There are costs associated with an HMA project that are ineligible, including, but not limited to:

1. Project components not directly related to the hazard mitigation purpose of the project as described in this policy, such as, but not limited to:
 - General geotechnical or hydraulic studies not specifically related to the project site of the proposed mitigation activity.
2. Project components not consistent with FEMA-approved performance criteria.
3. The cost of any functionality or outfitting not directly required for meeting FEMA-approved performance criteria, such as interior or exterior decorative elements and fixtures and floor treatments.



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D. Project Close-out Requirements

Upon completion of an HMA flood project, the authority having jurisdiction over the project must submit to the grantee a final verification ensuring that the HMA flood project was constructed as designed, and in accordance with the Scope of Work. This documentation will be included as project close-out documentation, and will confirm that the HMA flood project provides the intended level of protection. In addition, the grantee will verify that the work was completed in accordance with the approved scope of work and all close-out procedures. If the HMA flood project is located in an SFHA, the grantee must provide to FEMA documentation of flood insurance for the structure and a copy of the recorded deed amendment. All other close-out requirements must also be addressed.

E. Other General Requirements

Mitigation activities must adhere to all other statutes, regulations, and requirements including: Sections 203 and 404 of the Stafford Act; HMGP regulations (44 CFR Part 206 Subpart N); Section 1366 of the NFIA, as amended, 42 U.S.C. §4104c (FMA program); Mitigation Planning (44 CFR Part 201); Floodplain Management and Protection of Wetlands (44 CFR Part 9); Environmental Considerations (44 CFR Part 10), Uniform Administrative Requirements (44 CFR Part 13); Criteria for Land Management and Use (44 CFR Part 60); Section 504 of the Rehabilitation Act of 1973, as amended (Nondiscrimination under Federal grants and programs, all other applicable federal environmental and grants management requirements; as well as applicable program guidance.

This policy represents FEMA's interpretations of a statutory or regulatory requirement and/or sets forth standard operating procedures. The policy itself does not impose legally enforceable rights and obligations, but sets forth a standard operating procedure or Agency practice that FEMA employees follow to be consistent, fair, and equitable in the implementation of the Agency's authorities.



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X. ROLES & RESPONSIBILITIES:

Roles and responsibilities for all Federal, State, Tribal and local parties are consistent with those outlined in the Uniform Administrative Requirements (44 CFR Part 13), Hazard Mitigation Grant Program (44 CFR Part 206 Subpart N), Flood Mitigation Grants (44 CFR Part 79), and the HMA Unified Guidance.

XI. MONITORING AND EVALUATION:

The grantee must submit financial and performance reports to FEMA in accordance with the reporting requirements outlined in the Uniform Administrative Requirements (44 CFR Part 13), Hazard Mitigation Grant Program (44 CFR Part 206 Subpart N), Flood Mitigation Grants (44 CFR Part 79), and the HMA Unified Guidance. Grantees must comply with the administrative and audit requirements of the Uniform Administrative Requirements (44 CFR Part 13), and the Hazard Mitigation Grant Program (44 CFR Part 206 Subpart N), as well as the terms and conditions of the grant award agreement.

XII. RESPONSIBLE OFFICE:

The FIMA Risk Reduction Division Grants Policy Branch is the originating office for this policy document, with the overall responsibility for policy updates and enforcement.

XIII. SUPERSESSION:

There are no previous mitigation policies or guidance related to this subject.



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XIV. REVIEW DATE:

FEMA will review this policy document no later than three (3) years from date of publication or when new versions of ASCE 24 are published, whichever occurs first.

A handwritten signature in blue ink, appearing to read "Roy E. Wright", written over a horizontal line.

Roy E. Wright

Deputy Associate Administrator for Mitigation
Federal Insurance and Mitigation Administration